

# Chapter 2

## Alternatives



## EVERGLADES NATIONAL PARK

### DRAFT

FLAMINGO COMMERCIAL SERVICES PLAN/ENVIRONMENTAL ASSESSMENT



THIS PAGE INTENTIONALLY LEFT BLANK.

# ALTERNATIVES

## INTRODUCTION

NEPA requires that federal agencies explore a range of reasonable alternatives. The alternatives under consideration must include a “no action” alternative as prescribed by 40 CFR 1502.14. Project alternatives may originate from the proponent agency, local government officials, or members of the public, at public meetings, or during the early stages of project development. Alternatives may also be developed in response to comments from coordinating or cooperating agencies. The alternatives analyzed in this document, in accordance with NEPA, are the result of internal scoping and public scoping.

Alternatives selected for full analysis in this EA must meet the management objectives of the park, to a large degree, while also meeting the purpose of and need for the action. As stated on the NPS Concessions webpage (<http://concessions.nps.gov/policy.cfm>), the NPS Concessions Program manages private businesses that provide a wide variety of visitor services, and also supply parks with necessary goods and services:

To insure this complementary role for private enterprise, Congress defined concession activity and enacted National Parks Omnibus Management Act of 1998, Title IV- National Park Service Concessions Management Improvement Act of 1998, under which the National Park Service authorizes park concession operations. It requires that development “...*be limited to those that are necessary and appropriate for public use and enjoyment...*” of the national park area in which they are located “... *and that are consistent to the highest practicable degree with the preservation and conservation of the areas...*”

The Organic Act, the statements of park purpose and significance, and the park’s GMP form the basis for the determination of “necessary and appropriate” criteria. All commercial services operating within the Flamingo area and the park as a whole must meet these criteria. During internal scoping, the park identified those services currently provided at the park that are considered necessary. Potential definitions for what could constitute a necessary use at Flamingo include those services that:

- contribute to a visitor’s understanding and appreciation of the park’s purpose and significance,
- enhance a visitor’s experience consistent with park area philosophies,
- assist the park in managing visitor use and educating park visitors, and
- provide an essential service or facility that is not available within a reasonable distance of the park.

Necessary services at Flamingo include a variety of accommodations and activities that meet the criteria listed above. These services, listed in Table 2-1, may be provided by the park or a concessioner under the new plan.

*Table 2-1 – Necessary Services at Flamingo*

Service	To be provided under the new CSP by:	
	NPS	Concessioner and CUAs
Overnight accommodations, including potential research support	--	●
Restrooms	●	●
Fuel service	--	●
Emergency services	●	--
Marina store	--	●
Boat tours	● (canoe only)	●
Administrative offices, including potential research support	●	●
Employee housing	●	●
Maintenance facilities	●	●
Food service	--	●
Visitor center	●	●
Wilderness permitting/backcountry camping facilities	●	--
Parking	●	--
Outdoor meeting area	●	●
Picnic areas	●	●
Livery service	--	●
RV camping/tent camping	--	●
Showers	--	●
Boat launch (fee collected at main gate)	●	--
Dockage	--	●
Boating assistance (not rescue/non life-threatening – NPS provides emergency services)	●	●
Fish cleaning	●	●
Walking paths/trails	●	--
Wildlife viewing	●	●
Canoe/kayak staging (Whitewater Bay and Florida Bay)	●	●
Interpretive services	●	●
Infrastructure (wastewater treatment, roads, etc.)	●	
Pneumatic trailer (boat transfer between Whitewater Bay and Florida Bay)	--	●
Outfitting services (camping items, etc.)	--	●
Tram service (Flamingo “circulator”) and Snake Bight tram	--	●
Hurricane resistant buildings	●	●

Appropriate services at Flamingo are those that were determined to be:

- Consistent with the park purpose, significance, and enabling legislation.
- Consistent with federal laws and regulations.
- Not harmful to park resources, leaving them unimpaired for future generations.
- Not harmful to public health and safety.

- Profitable for a concessioner to operate.
- Sustainable.
- Consistent with other park activities and programs.

Table 2-2 lists those services that the team considered and which ones were deemed appropriate, given the above criteria.

*Table 2-2 – Appropriate Services at Flamingo*

Service	Appropriate?
Open air screened facility for visitors	Yes
Observatory	No
Night sky viewing	Yes
Information center	Yes
Lounge (part of food service)	Yes
Gathering areas (part of outdoor meeting area)	Yes
Recreation area – dependent on type of area	Yes
Fishing lodge (type of overnight accommodations)	Yes
Hardened year round lodge (type of overnight accommodations)	Yes
Swimming pool	Yes
Picnic area with interactive water feature	No
Retail for souvenirs and apparel	Yes
Postal facility	Yes
Volleyball (see recreation area)	No
House boats (include as part of boat rentals)	Yes
Boat washdown rack	No
Floating fishing camp (floating lodge)	Yes
Outfitting	Yes

In general, the concessioner would be responsible for providing, managing, and overseeing all overnight accommodations and associated shower/restroom services with the exception of backcountry camping sites. Backcountry camping sites would be built and maintained by the park and managed by through the park's wilderness permitting system. The marina operations would also be the purview of the concessioner, including the store, fuel service, motorized boat tours, livery service, kayak and boat rentals, and dockage. The concessioner would be responsible for all food service, including the restaurant and lounge. If included in the selected alternative, a tram service that circulates around the Flamingo area and the Snake Bight tram would be run by the concessioner, while the NPS would be responsible for providing for all parking.

Based on the analysis of what services were necessary and appropriate, and the public input related to facilities and services that should be provided, the NPS developed and discussed a range of alternatives. Three alternatives were carried forward for analysis:

- **Alternative A – No Action Alternative.** This alternative is required to provide a baseline to measure the impacts of the action alternatives on park resources and visitor experience. Concessions at Flamingo would function according to current uses, which primarily focus on day users. Only the campground and limited marina slips would be available for overnight use. Projects that have been approved for emergency hurricane funding (two replacement backcountry campsites, replacement employee housing, replacement maintenance facility, replacement

amphitheater) or are necessary to provide current levels of basic services are also included in alternative A. The locations to rebuild some of the replacement facilities have changed to better meet resource protection, visitor experience and operational efficiency objectives. The new housing at Flamingo would be rebuilt as elevated structures and comply with the Architectural Barriers Act Accessibility Standards (ABAAS) and 2004 Florida Building Code for the High Velocity Hurricane Zone.

- **Alternative B – “Flamingo Rebuilt”.** This alternative would create “Old Flamingo” by replacing the concessions and services that existed prior to the 2005 storms at Flamingo and in prior years before staff and budget impacts (e.g., lodge, cottages, restaurant, pool, amphitheater, Snake Bight Tram) but using more modern conveniences and implementing sustainable building practices. Rebuilding Flamingo would re-establish the area as the primary day-use and overnight destination in the park. The facility layout within the Flamingo area would generally remain the same, and the buildings and services offered would reproduce the “Old Florida” ambiance of the area. The lodge, pool, restaurant, and cottages would be rebuilt and co-located west of the visitor center to reduce the developed footprint. Certain facilities damaged by hurricanes would be rebuilt (amphitheater, NPS employee housing, maintenance facilities, concessioner housing, backcountry chickees). All new housing or accommodations would be elevated structures and would comply with the Architectural Barriers Act Accessibility Standards (ABAAS) and 2004 Florida Building Code for the High Velocity Hurricane Zone.
- **Alternative C – “Flamingo Redesigned”.** This alternative would provide a “New Flamingo” with a greater variety of structures and services and would establish the area as an eco-tourism destination. A creative set of sustainable principles suited to Flamingo’s particular environment would be used, including site design, energy management, water supply, waste prevention and “green” architecture. The site would be redesigned to consolidate related uses, minimize the need for utility extensions, and facilitate pedestrian and bicycle circulation. Certain facilities damaged by hurricanes would be rebuilt (amphitheater, NPS employee housing, maintenance facilities, concessioner housing, backcountry chickees). All new housing or accommodations would be elevated structures and would comply with ABAAS and 2004 Florida Building Code for the High Velocity Hurricane Zone.

These alternatives are described in more detail on the following pages, including the discussion of the elements that are common to all alternatives that begins in the next paragraph. At the end of this chapter, table 2-5 provides a summary matrix of the alternatives. Table 2-6 compares how each of the alternatives described in this chapter would meet the objectives outlined in Chapter 1: Purpose of and Need for Action. Chapter 2: Affected Environment and Environmental Consequences, describes the resource areas assessed and the effects on each impact topic under each alternative. These impacts are summarized in table 2-7 (Summary of Environmental Consequences).

## ELEMENTS COMMON TO ALL ALTERNATIVES

Several of the elements proposed in this plan would be common to all the alternatives considered, including the no action alternative. This is due to the pending implementation of several reconstruction and restoration projects that are currently funded to replace or restore storm-damaged structures and/or areas within Flamingo, as well as the desire to incorporate sustainable design concepts in any new construction. These elements are described below.

- Demolition of lodge and cottages

All lodge buildings were severely damaged during the 2005 hurricane season and would be demolished. As currently designed, it would be infeasible for these buildings to be reconstructed to meet the current building code requirements for facilities located in a coastal high-hazard flood

zone. In addition, all 12 duplex cottages (24 one-bedroom units) were damaged beyond repair by the 2005 hurricanes. The lodge and cottages would be removed (the cottages have already been demolished), and portions of the sites restored.

- Restoration of unused areas

Any sites no longer needed for replacement of facilities would be restored. This would include portions of the areas where the old lodge and duplex cottages stood (under all alternatives), as well as areas that would no longer be used due to consolidation and reconfiguring of the overall Flamingo area (e.g., some campground loops and other areas under alternatives B and C). The exact type of restoration would depend on the size and location of the area, but would generally include removal of building materials and fill, followed by grading to the historic contour. As old structures and buildings are removed, all non-native vegetation would be removed. Restored areas would be allowed to revegetate naturally, or native species that would blend into the surrounding landscaping would be planted. NPS would monitor the area to assess the progress of revegetation and/or any plantings and the presence of any non-native species.

- Maintenance of gas station, marina and marina store

The marina, marina store and gas station would continue to operate in their current locations and configurations, offering the same services as currently provided. However, the fueling facility for Whitewater Bay would be phased out when the underground fuel tanks are replaced. All boats would have to be fueled at the gas station.

- Preservation of historically significant Mission 66 visitor center and service station

These Mission 66 structures would continue to be protected and preserved.

Under alternatives B and C, the Visitor Center would be relocated to the former restaurant facility across the breezeway from the Visitor Center. The Visitor Center would have enough space for museum displays, a reservation area for boat tours and other services, and bookstore/retail space. The current Visitor Center area would continue to be used by the park to support law enforcement and resource protection activities.

- Reconstruction of amphitheater

The amphitheater would be rebuilt under all alternatives although under alternatives B and C it may eventually be relocated to the most advantageous location within the redeveloped area of Flamingo. The amphitheater was destroyed by the 2005 storms (see Figure 2-1). A new amphitheater would provide visitors a venue for a wide range of interpretive programs, including natural and cultural history, and night sky viewing and astronomy programs. The reconstruction would consist of removing the remains of the former amphitheater and replacing it. Demolition is expected to be completed by hand, removing any existing conduit stub-ups, above ground switchbox, and former projection booth timber footings.



**Figure 2-1. Flamingo Amphitheater**

The new amphitheater would seat 120 people and occupy approximately 6,000 square feet of space. Included in the construction of the new facility would be a wood frame screen, benches, and audio/visual structure. These items would be constructed to replace the components of the previous structure. The new facility would include outdoor lighting and associated underground conduit to replace existing lighting and would be elevated approximately 1.5 feet above the current elevation to reduce flooding potential. Fill material would be added as needed to the previous fill in this area and compacted to provide a durable, pervious surface. An accessible route would be established by placing a new walkway to the facility. Accessibility would be improved by using a soil stabilizing product.

- **Replacement of hurricane-damaged facilities**

The park would replace the trailer housing at the Flamingo employee housing area, the Flamingo maintenance office/shop and boat repair shop, and two Florida Bay backcountry campsites (Carl Ross Key, Shark Point, see figure 1-10) with two in-water chickees. The hurricane-driven emergency replacements for these facilities are included as part of this plan, since they are all integral to the full and efficient operation of Flamingo by the park and the concessioner. Specific information about each follows:

Replacement NPS Employee Housing

Trailer housing for park staff was condemned after the 2005 hurricanes. These housing units are needed for park law enforcement, maintenance, and interpretive staff that work to keep the entire operation at Flamingo—both park and concessioner—running effectively. The proposed replacement housing would be located at the far eastern end of the employee housing area, in a cul-de-sac that is already cleared and graded. This location would require no tree removal and the housing would easily tie into existing utilities. The proposed structure would consist of a 4,140 square foot pre-manufactured concrete unit on poles, with three 2-bedroom units (Kirk Associates 2007), elevated 11 feet above sea level. At least one of the units will be handicapped accessible via a ramp.

Replacement Concessioner Housing

Several buildings formerly used to house concessioner employees were destroyed during the hurricanes of 2005, including some rooms in the former lodge that functioned as small apartments. New housing is needed to accommodate peak period concessioner staff, which may number from 126 to 160 under various alternatives considered in this plan. Some of these employees (up to about 50) can be accommodated in existing permanent housing structures, and another 20% would likely bring mobile homes that can be parked on pads in the employee



housing area, leaving about 45 to 80 employees in need of housing during peak periods. Therefore, proposed replacement housing would be provided in the employee housing area in the general area of the former structures that were demolished. The exact type of housing and number of structures would be determined at the time the concession contract is written; the structures would likely be elevated hurricane-proof structures similar to the proposed employee housing, detailed above. None of the structures would require vegetation removal or clearing and all would tie into existing utilities. A small number of units would be required to accommodate concession management staff living in Flamingo year round.

#### Replacement Maintenance Facilities

The 2005 storms severely damaged the existing maintenance office/shop and the boat repair shop, located in the maintenance area just north and west of the employee housing area. Under all alternatives, these damaged structures would be removed and replaced at the site of the old maintenance office/shop with a single, effectively designed building that would serve both functions. Additional fill will be used to elevate this structure five to nine feet above sea level.

#### Replacement Backcountry Campsites

Due to hurricane impacts and other concerns at two backcountry campsites in Florida Bay, the park proposes to replace these two site with two new in-water chickees. The proposed areas for the two new chickees are about six miles from Flamingo in general proximity to Rankin Key, east of Flamingo, and Johnson Key, south of Flamingo (See Figure 1-10). These areas were chosen based on criteria that included: accessibility by paddlers from Flamingo, potential to minimize resource impacts (avoidance of sensitive species and cultural resources, and other critical areas such as rookeries, nesting sites, and closed areas), accessibility for the maintenance barge to access the sites, siting opportunities away from heavily traveled motorboat corridors, and wind exposure (which helps for a pleasant stay and in minimizing mosquito impacts).

Each chickee would be 500 square feet and consist of a piling-supported two-slip dock with two covered tent platforms. Each replacement chickee would have two camping platforms, a connecting walkway where the chemical toilet will be located, and a floating dock. Construction would be performed from a 25-foot maintenance barge. A small hydraulic pile driver would be used to drive 4-inch square Trex (plastic) pilings into bottom sediments to support the structure. Additional work would include installing decking, hand rails, a roof, and a floating dock. Workers would use hand operated power tools. In-water construction would consist of driving 32 Trex pilings, which would take about one hour each to install. Silt curtains would be used during the installation of the pilings to reduce the potential for sedimentation. The only area directly affected would be from driving the piles into the bottom sediments, which consist of a mud and sand substrate (see Figure 2-2).



**Figure 2-2. Kingston Key Chickee**

Carl Ross Key had capacity for three groups or a nine-person maximum and, during peak season, one or more people/groups were often turned away due to capacity limits. The construction of

two new chickees at Rankin and Johnson Keys would accommodate additional visitation. Each site would have a capacity of two groups of 6 people each or a 12-person maximum.

At Shark Point, the capacity was two groups and a maximum of eight people. This site has been essentially closed for several years due to it being often wet and inundated with water, making for an unpleasant camping experience.

- Incorporation of 2004 Florida Building Code requirements and design to accommodate effects of potential sea level rise/global warming

All structures built under any alternative would meet the Monroe County building code requirements, which state that all permit applications received after October 1, 2005 must comply with the 2004 Florida Building Code. Structures constructed at Flamingo would be constructed to withstand hurricanes and gale force winds, and would be elevated (increased landfill, pilings, etc.) to prevent hurricane damage that could occur more frequently as a result of warming ocean temperatures and flooding from sea level rise (see the discussion under the “Socioeconomics” issue in Chapter 1: Purpose of and Need for Action for more details).

- Incorporation of ABAAS design requirements

ABAAS provides accessibility requirements for federal buildings and programs, comparable to how the Americans with Disabilities Act Accessibility Guidelines serves the private sector. For construction or alteration of federally-owned facilities, compliance with ABAAS is required if the construction or alteration commences after May 8, 2006. These requirements would be met for all newly constructed facilities.

- Use of integrated pest management (IPM) and sustainable maintenance practices

Construction and building materials for each of the alternatives would be chosen with Integrated Pest Management (IPM) and sustainable maintenance in mind. This includes materials that are termite resistant and prevent/minimize rodent impacts. Building plans for new structures would include plans for the use, installation of materials, and design that supports IPM and sustainable practices.

- Incorporation of sustainable design principles

Sustainable design concepts would be incorporated in all of the alternatives (particularly in the construction of any new structures), but to varying degrees in each alternative. The NPS sustainable design guidelines and concepts attempt to balance human needs (rather than human wants) with the carrying capacity of the surrounding natural and cultural environments. These concepts are designed to minimize environmental impacts and minimize importation of goods and energy, as well as the generation of waste. Part of this sustainable design initiative would be the use of Sustainable/LEED Certified Design Elements for new structures, site layout, site operations, and maintenance.

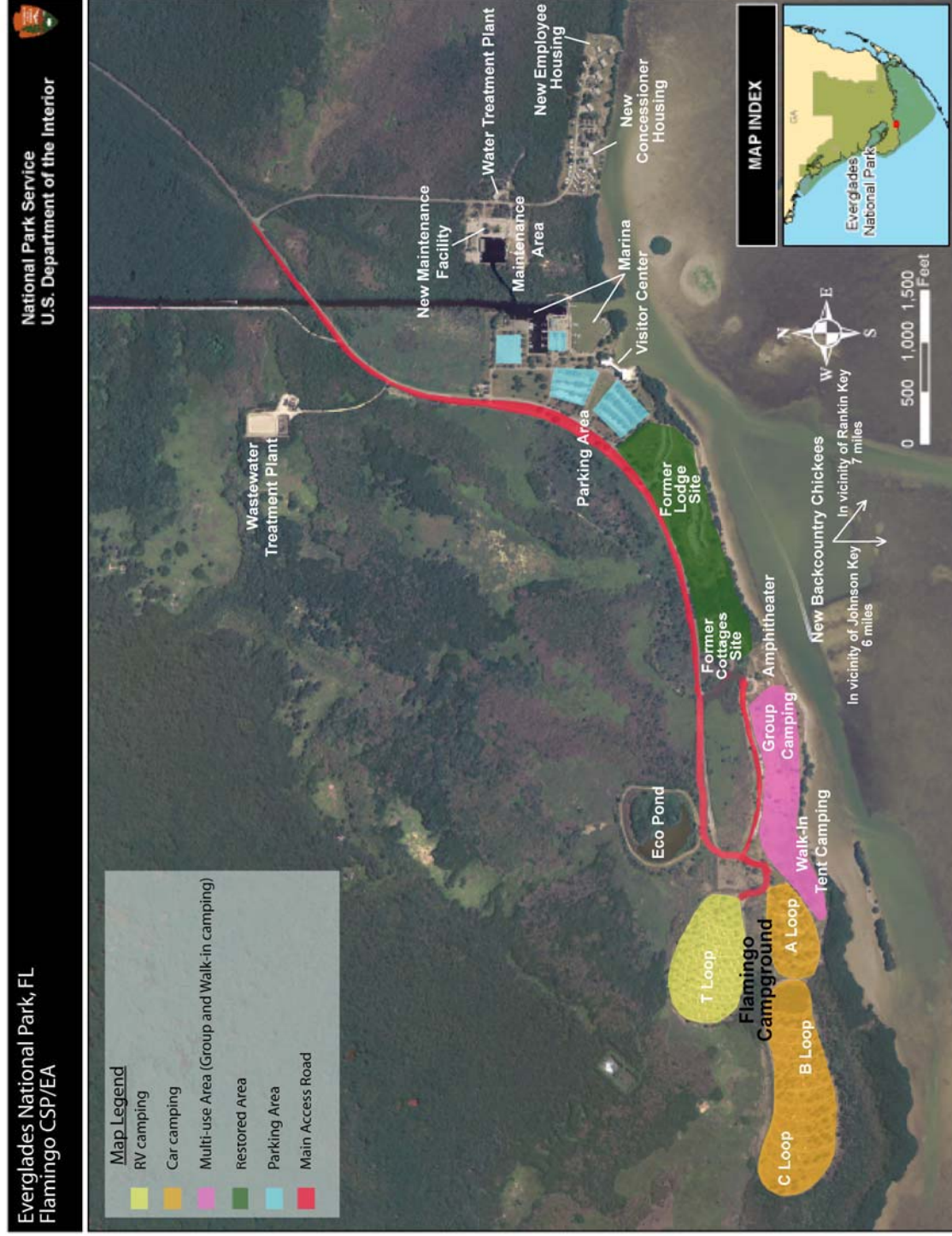
Under any alternative, new structures would include the use of environmentally preferable (“green”) building materials, energy and water saving devices. If site layout is changed or redesigned, the new design would incorporate sustainability by consolidating the uses to maximize pedestrian access, minimize the use of vehicles, and make use of bay breezes for cooling. Maintenance would also follow sustainable practices by using green products for cleaning and following the principles of integrated pest management. The narrative for each alternative discusses the sustainable design strategies that would be incorporated.

- Operational evaluations

Periodic and annual operational evaluations would be conducted in order to determine if a concessioner is: operating their facilities in a satisfactory manner, offering park visitors high quality services, providing facilities that are safe and sanitary, and meet NPS environmental, health, safety and operational standards.

### **ALTERNATIVE A (NO ACTION ALTERNATIVE)**

The no action alternative “sets a baseline of existing impact continued into the future against which to compare impacts of action alternatives” (NPS Director’s Order 12, Section 2.7). Under the no action alternative, commercial services provided at Flamingo would continue as currently managed, with some improvements to tour boat offerings and provision of additional canoes, kayaks, bicycles, and skiffs, with a new concessioner expected at Flamingo by April 2008. The areas occupied by the lodge and cottages would be restored to natural conditions (approximately 27 acres). The damaged buildings and fill would be removed and the sites graded to historic elevations. It is expected that these sites would revegetate naturally within about a year. In some areas closer to the shoreline, mangroves may be planted to enhance the cover and speed reclamation. In addition, as described above, some hurricane damaged structures would be reconstructed or replaced (including the amphitheater, employee housing, certain maintenance facilities, and two backcountry Florida Bay campsites). The amphitheater would be replaced in the same area it previously occupied, with groups and walk-in camping to the west. The following provides more detail about what would occur under alternative A. Figure 2-3 depicts the no action alternative, and details are also summarized in table 2-5.



**Figure 2-3. Alternative A, No Action Alternative**  
(Photo courtesy of USGS, 2004 (Pre-Hurricane) – provided by Everglades National Park in January 2007)

## **ACCOMMODATIONS**

Accommodations would include only camping and RV sites, as listed below:

- RV Sites – 66 without electrical hook ups
- Tent Camping – 237 sites, including 169 drive-in sites (55 A Loop, 58 B Loop, and 56 C Loop), 65 walk-in sites, and 3 group sites.

Public restrooms would be provided at the marina, fish cleaning station, West Lake day use area, campgrounds, and visitor center. Hot showers would be offered at the marina (for a fee) and the existing cold showers would remain at the campground.

## **FOOD SERVICE**

The marina store would continue to operate, but the restaurant and café would remain closed. Food service options would continue to be limited to snacks and beverages available at the marina store. Although hamburgers and pizza could be warmed in the marina store's microwave, there would continue to be no real opportunities for hot meals at Flamingo.

## **OTHER FACILITIES AND AMENITIES**

The following facilities would be maintained under the no action alternative:

- Two separate ramp facilities providing access to Whitewater Bay (estuarine) and Florida Bay (saltwater);
- Docks for rental skiffs and tour boats on the Florida Bay and Whitewater Bay sides; and
- Fuel service for vehicles and boats next to the marina store and a pump accessible by boats.

As detailed previously, the amphitheater would be reconstructed and the employee/concessioner housing, maintenance facilities, and backcountry camping chickees would be replaced. The Eco Pond area would be improved by removing unsafe features (i.e., fencing, debris, etc.). Since Eco Pond is no longer connected to the Flamingo wastewater treatment system (as the tertiary treatment pond), the area would revert to natural conditions over time, with the pond gradually filling and becoming more saline. Beyond maintaining the trail around the pond no active management of Eco Pond would occur under alternative A.

## **ACCESS**

Access into and around Flamingo would continue by the main access road that loops by the campground entrance and ends at the amphitheater.

Free parking would continue to be available in various locations, including around the marina (separate lots for Florida Bay access and Whitewater Bay access), by Eco Pond, by the campground and RV sites, by the walk-in and group camping sites, and near the Visitor Center. Employee and concessioner parking would be located at the housing, maintenance, and Visitor Center areas. The existing parking inventory totals 730 automobile spaces (including all campsite parking) and 140 boat trailer parking spaces (HNTB 2007). Appendix D contains a draft transportation planning analysis for Flamingo detailing the existing parking inventory and the parking demand anticipated under alternative A, which is 365 spaces for both daytime and overnight visitors on an “average” day. However, under a “peak day in the peak month” and full occupancy “worst-case” scenario, 792 spaces would be needed, which may require contingency planning for such an event. The exact number of parking spaces needed and the layout and design for parking would be determined at the time that the overall site design is completed.

Shuttles or bike lanes from the park entrance to Flamingo would be addressed as part of the general management plan. Alternative A would not include any circulator shuttles or trams to serve the Flamingo area.

#### **VISITOR ACTIVITIES – TRAILS, BACKCOUNTRY ACCESS, BOATING AND FISHING, INTERPRETATION**

Boat tours into Florida and Whitewater Bays, park-guided canoe tours, and boat and canoe rentals would continue. The Flamingo visitor center and existing interpretive programs would continue to be operated by the NPS. Limited wayside exhibits located in the Flamingo area would remain.

##### **Trails**

The existing trail network of water and land trails would be maintained. As funding becomes available, closed trails within the existing network needing rehabilitation would be repaired to provide improved walking and bicycle connections. Existing canoe launches (Florida Bay and Whitewater Bay) would be maintained.

##### **Guides and Livery Services**

Limited outfitting and backcountry supplies would be available at the marina store. Private fishing charters would continue to operate from Flamingo under commercial use authorizations (CUAs). CUAs would continue to be issued to transport visitors and their gear into the park.

##### **Tours**

Existing boat tours offering interpretive services would be provided, and one or more tour boats would be added to the fleet to restore the Florida Bay tours that had been discontinued. Guided land based tours and canoe and kayak tours would continue to be conducted under CUAs.

##### **Boating**

The boat lift on the Buttonwood Canal would not be replaced. Canoe, kayak, and skiff rentals would continue, with dock rental space available. Existing boat ramps would be maintained (Florida and Whitewater Bays). Although not currently in place, a dedicated canoe launch has been funded for construction.

##### **Fishing**

Bait and tackle/supplies would continue to be available at the marina store. The fish cleaning station would remain, and fishing licenses would continue to be sold.

#### **SUSTAINABLE DESIGN**

Alternative A includes new construction for housing, the maintenance shop, and the two Florida Bay chickees, as well as ongoing maintenance. The following sustainable design strategies would be incorporated in alternative A:

New construction and surrounding site:

BMPs could include:

- **Porous paving (Grid pavers (see figure 2-4))**

Porous paving could be used to reduce the runoff generated by any parking areas provided for the facilities. Porous paving allows stormwater to infiltrate into the ground instead of running off into the surrounding waters. By minimizing the runoff, the potential for erosion and/or the transport of surface pollutants into adjacent water bodies would be greatly decreased.

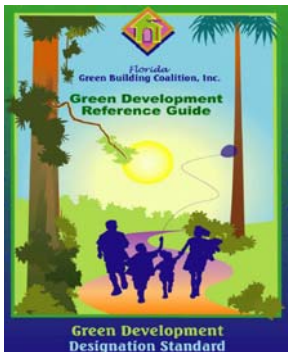




**Figure 2-4. Best Management Practices, Porous Pavement**



**Figure 2-5. Example of Applying "Design with Climate" Principles, Mexico**



**Figure 2-6. Sustainable Design Certifications**

#### ▪ Use of local material

Whenever possible, construction would use materials that require the shortest transportation to the site

#### Energy:

Because of Flamingo's tropical climate, NPS would incorporate "Design with Climate" principles into each individual building design to off-set overall energy consumption (see figures 2-5 and 2-6). Such design principles could include:

- Using overhangs to shade walls and openings
- Using site features and vegetation to provide shading to walls with eastern and western exposure
- Using shading devices such as louvers, covered porches, and trellises with natural vines to block sun without blocking out breezes and natural light
- Orienting broad building surfaces away from the hot late-day western sun (only northern and southern exposures are easily shaded)
- Using lighter-colored wall and roofing material to reflect solar radiation (be sensitive to resulting glare and impact on natural/cultural setting)
- Using shutters and screens, avoiding glass and exposures to direct solar gain
- Providing shading on east, south, and west facades
- Providing covered walkways and balconies
- Maximizing insulation, particularly in the roof
- Including cross ventilation, if possible, in rooms
- Using high performance glass that maximizes view and light but minimizes heat gain
- Using automatic set back thermostats tied to room occupancy
- Using compact fluorescent lighting
- Using on-demand hot water heaters

#### Water Consumption:

Overall water consumption would be reduced with the use of water saving devices and supplementing water use.

- Installing low flow plumbing in all new facilities with running water

#### Materials:

Use locally produced, "hurricane resistant" materials

#### Construction:

All construction within Flamingo would be in compliance with the Florida Building Code. The code has incorporated the provisions from the South Florida Building Code into the state-wide code with the section on High Velocity Hurricane Zone provisions. The code identifies zones with varying requirements dependent on wind speed

and exposure, for example. The Flamingo visitor area is located in the highest wind speed zone and exposure zone for hurricane/storm exposure. Construction techniques that would likely be used to protect Flamingo's facilities would include elevating buildings for flood protection and use of hurricane-resistant pre-cast concrete.

**General Operations:**

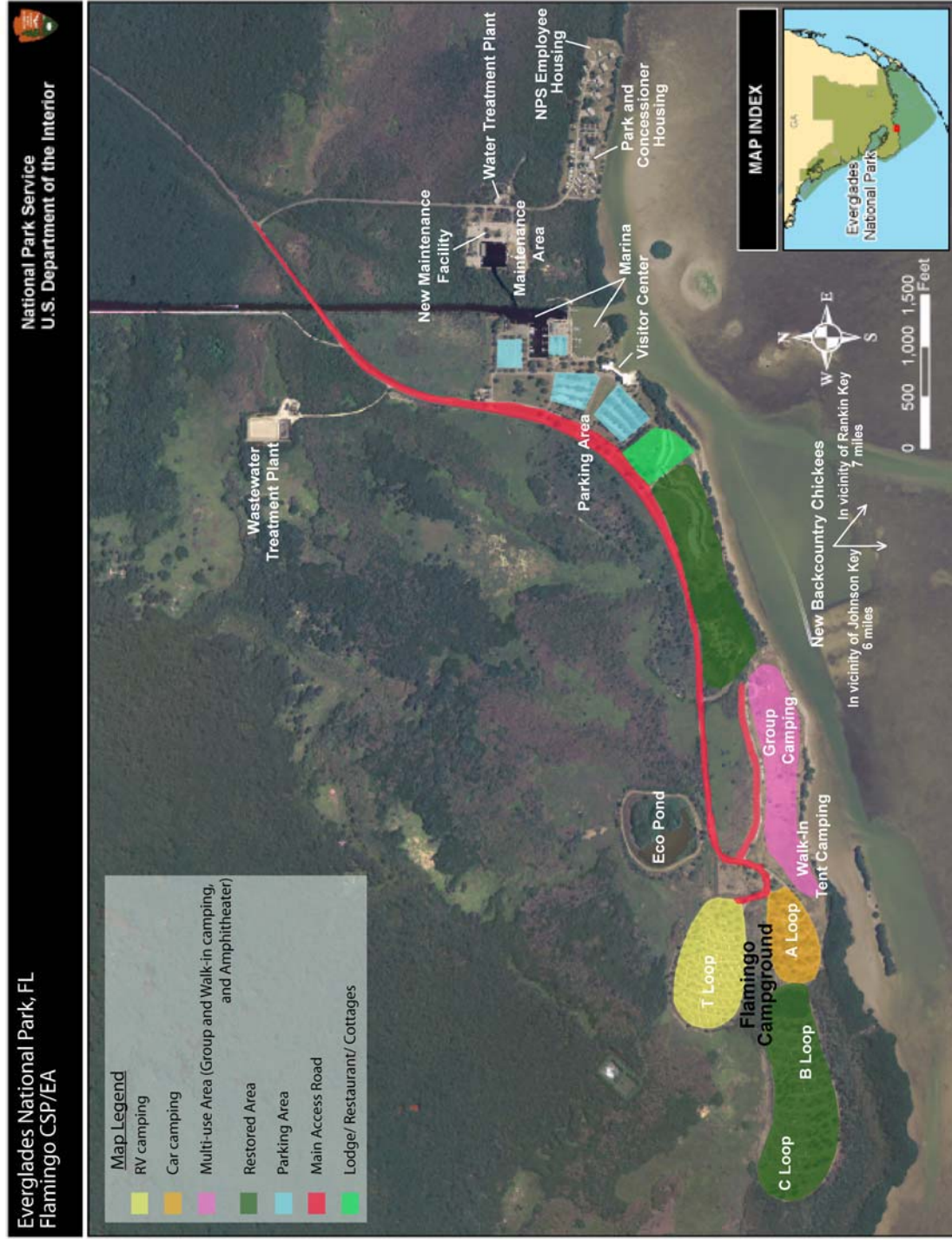
NPS would institute environmentally friendly and sustainable maintenance programs aimed at:

- Reducing the total amount of waste generated on site;
- Increasing Flamingo's recycling programs;
- Increasing the use of biodegradable, non-toxic cleaning products;
- Choosing merchandise based on the amount of recycled content, biodegradability, and minimum packaging; and
- Using native vegetation for landscaping.

**ALTERNATIVE B – “FLAMINGO REBUILT”**

Alternative B would rebuild what was lost as a result of the substantial damage caused by the 2005 hurricanes. High-quality commercial services would be provided at a level that would be financially viable, but would emulate the level of services offered during the peak period of Flamingo's commercial services. Rebuilt structures (lodge with full-service restaurant and lounge, cottages) would be sized for profitability and would offer modern amenities. Approximately 50 acres would be restored: about 22 acres of the old lodge and cottage sites, and 28 acres of the B and C Loops. In addition, as previously discussed, hurricane damaged structures would be reconstructed or replaced, including the amphitheater, employee housing, certain maintenance facilities, and two backcountry Florida Bay chickees. The walk-in camping, group camping, and new amphitheater would be located in a “multi-use area”, with exact locations to be determined based on desired final site design. Figure 2- depicts the conceptual site layout and services proposed under alternative B; table 2-5 at the end of this chapter lists the main features of alternative B summarized on the following pages. Lodging would be simple, sustainable, well-designed, and affordable.





**Figure 2-7. Alternative B, Flamingo Rebuild**

(Photo courtesy of USGS, 2004 (Pre-Hurricane) – provided by Everglades National Park in January 2007)

## ACCOMMODATIONS

Modernized overnight accommodations would be provided. The proposed number of rooms is based on the results of the economic analysis demand models developed for this plan (see appendix A).

- Lodge – 1 permanent structure (estimated 50-year life); 40 units;
- Cottages – 18 permanent duplex structures (estimated 50-year life); 28 1-bedroom units (600 square feet each) and 8 2-bedroom units (750 square feet each);
- Houseboat Rental – 6 boats, 24 beds, with deck/outdoor space;
- RV Sites – 22 with electric hookups, 43 without; and
- Tent Camping – 103 sites, including 55 drive-in sites at A Loop, 45 walk-in and 3 group sites in the multi-use area (see Figure 2-); B and C Loops (28 acres) would be restored to natural conditions.

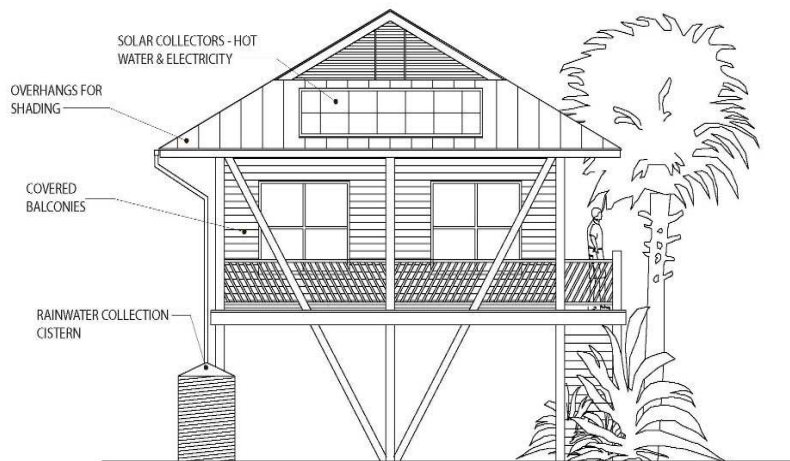
The lodge and cottages would be located near each other in a compact, efficient layout occupying the old lodge site, just west of the visitor center. The location close to the marina and visitor center would:

- Provide easy, walkable access to the visitor center, marina, tours, boats, etc. for overnight lodging guests;
- Provide a pool and gathering area (located near the lodge) readily accessible to all overnight guests, including those in cottages;
- Provide a restaurant located within the lodge that would be easily accessed by day visitors at the marina and visitor center; and
- Restore a large area of land since the new lodge would be much smaller than the existing structures allowing for all overnight accommodations in one area. The area could be set aside for additional future consolidation of services at the Flamingo area (e.g., bring some camping closer to the developed areas of Flamingo).

To accommodate some RV hookups, electric utilities would be extended to the T Loop.

Although the lodge and cottages have yet to be designed, their appearance would incorporate the “Old Flamingo” theme as well as sustainable design elements. A sketch of a possible cottage design is provided as Figure 2-; Figure 2- shows a conceptual lodge design. Sustainable design elements could include solar panels for heating water and some electricity and/or a rainwater collection cistern for non-potable uses such as toilet flushing or even showers, dependent on the system used.

Public restrooms and showers would be the same as under alternative A, plus the additional restrooms and hot showers that would be provided in the lodge and cottages.



**Figure 2-8. Alternative B, Conceptual Cottage Design under Alternative B, Flamingo Rebuilt**





**Figure 2-9. Example Lodge Design\***

*(Courtesy Royal Concrete Concepts)  
(\*no first floor living space at Flamingo)*

## **FOOD SERVICE**

A full-service restaurant that provides sit down meals throughout the day for overnight guests and day visitors would be located in the lodge. A lounge would be proposed in the lodge to provide light fare and refreshments, as well as a social gathering area. The marina store would provide the same type of food service as alternative A, although a wider variety of food would be offered to accommodate the increased number of visitors expected. The restaurant kitchen would support the marina store by providing limited fare.

## **OTHER FACILITIES AND AMENITIES**

Screened gathering areas would be located near the visitor center and lodge, and covered picnic areas with variable screens (i.e., pavilion areas) would be located in strategic locations throughout the Flamingo area. A screened swimming pool and board game room would be co-located with the gathering area adjacent to the lodge and cottages. Limited postal service (stamps, postcards) would be provided to area users. The Mission 66 gas station would be used for wilderness permitting and/or staging area for backcountry trips, and the former restaurant would be used as the new Visitor Center for NPS services, booking concession tours and for retail/bookstore.

Eco Pond would remain an important visitor use area at Flamingo, with guided tours and programs offered. With Eco Pond no longer connected to the Flamingo wastewater treatment system, it would

become a microcosm of the wet/dry season pattern of the Everglades; the presence/absence of water in Eco Pond would be rainfall-driven (not reliant on the 80,000 gallons/day that used to be pumped into the pond when it functioned as the tertiary treatment pond). With this change there would likely be changes in the wildlife species found at Eco Pond and the times of the year they are present. Damaged and/or unsafe amenities would be replaced and maintained (trail around the pond, fencing, boardwalk overlooks, interpretive signs) and views/vistas for wildlife viewing and photography would be maintained.

## **ACCESS**

Access into and around Flamingo would continue by the main access road that loops by the campground entrance and ends at the amphitheater. Parking would be provided near the lodge and facilities at the visitor center/gift shop, the marina, and near the restaurant/food service areas. Based on the transportation study completed for this plan (Appendix D; HNTB 2007), parking demand under alternative B would be 265 for the “average day” (both overnight and daytime visitors), and 597 for the “peak day in the peak month” and full occupancy “worst-case” scenario, which may require contingency planning for such an event. The exact number of parking spaces needed and the layout and design for parking would be determined during the planning site and design process.

All new parking areas would use pervious or semi-pervious materials with incorporation of sustainable stormwater management elements applicable to an environment such as Flamingo’s, as previously discussed).

Similar to alternative A, visitor shuttles or bike lanes into Flamingo would be addressed under the GMP, and this alternative would not include any circulator shuttles or trams for the Flamingo area.

## **VISITOR ACTIVITIES – TRAILS, BACKCOUNTRY ACCESS, BOATING AND FISHING, INTERPRETATION**

### **Trails**

New walking/bicycle paths would be provided within the developed area to provide connectivity between the various use areas, using pervious or semi-pervious materials. Bicycle restrictions would be maintained in accordance with wilderness regulations, and trails would be upgraded to maximize safety. Boardwalks would be installed where needed to reduce impacts to the ground surface. Non-motorized boat trails for canoes and kayaks) would continue to be maintained and would include trips to the new backcountry chickees.

### **Guides and Livery Services**

In addition to those services described under alternative A, more outfitting/ camping/backcountry supplies would be available for purchase; outfitting and livery services for backcountry access would be provided, including education, outdoor skills, recreation activities, and environmental awareness (e.g., Leave No Trace, Outward Bound, etc). Livery services to trailheads at Coot Bay Pond, Hells Bay Canoe Trail, Noble Hammock, Nine-mile Pond and West Lake would be available. Private fishing charters would continue to operate from Flamingo under commercial use authorizations (CUAs). CUAs would continue to be issued to transport visitors and their gear into the park.

### **Tours**

Tours would operate similar to those under alternative A, but a re-instituting tram tours on Snake Bight Trail would operate seasonally. Seasonal paddling tours to Cape Sable would be proposed, and boat tours would operate for educational and recreation purposes (e.g., a Backcountry Boat Cruise and Florida Bay Cruise). A schooner tour of Florida Bay as offered in the past would be provided. Guided land based tours and canoe and kayak tours would continue to be conducted under CUAs.

### Boating

Boating services would be the same as alternative A, with the addition of: boat transfer service between Whitewater Bay and Florida Bay (replacement service for the removed boat hoist) and the dedicated canoe/kayak launch and staging areas.

### Fishing

The same services and opportunities would be provided as detailed under alternative A, except the screened fish cleaning station would be enlarged and the disposal process would function in a more environmentally-sound manner by connecting it to the sewer system.

### SUSTAINABLE DESIGN

Alternative B would incorporate the same sustainable design strategies as discussed under alternative A, with the following additions/modifications:

#### Lodge, cottages, and parking areas:

##### Site:

Incorporate structural BMPs into the final site design to control stormwater runoff within Flamingo. BMPs could include:

**Porous paving, use of local materials (see alternative A)** - more porous pavement possible in new parking areas

##### Recycled plastic lumber

Recycled plastic lumber would be used en lieu of wood for the construction of boardwalks that maybe built under this alternative. Recycled plastic lumber is clean, nontoxic, and nonporous, and lasts longer than wood. It is virtually maintenance free, has lower long-term maintenance costs, diverts plastic waste from landfills, and reduces overall wood use (see figure 2-10).

**Energy, materials, water consumption, construction, and general operations:** Same as alternative A, with the addition of rain barrels to reduce water consumption. In addition, the final design layout for Flamingo would include landscaping to reduce the amount of manicured lawns and promote growth of native vegetation. This would:

- Limit the time and energy consumption required to maintain Flamingo's lawns;
- Promote the growth of native vegetation, which would provide beneficial impacts to local wildlife; and
- Provide additional interpretive opportunities by educating the public on the value of native landscape restoration.



**Figure 2-10. Recycled Plastic Lumber**

*(Top photo courtesy NPS)*

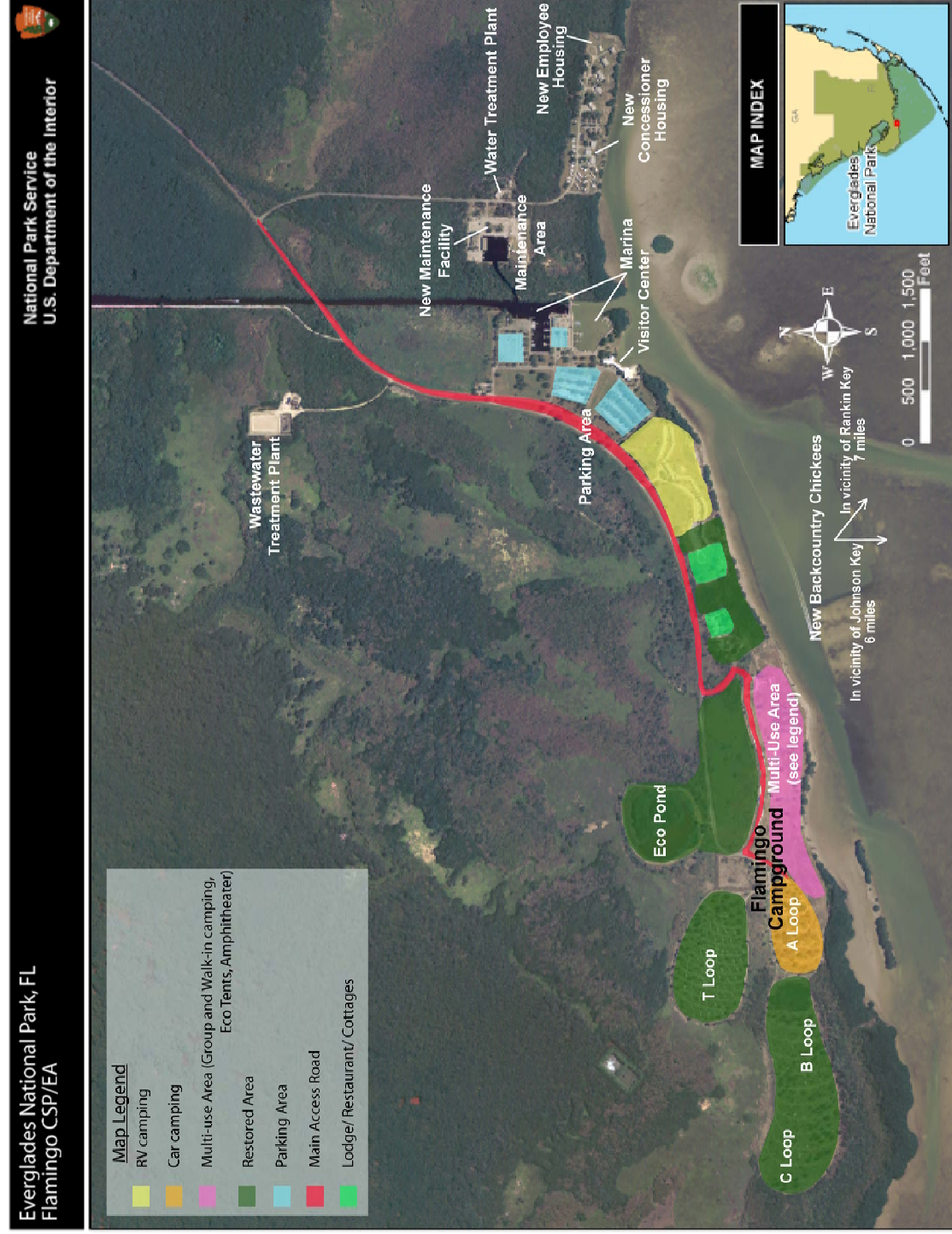


## ALTERNATIVE C – “FLAMINGO REDESIGNED”

Alternative C would provide a mix of commercial services to accommodate a wide range of user preferences and needs, with an emphasis on eco-friendly concepts and more “rustic” services. No pool would be constructed. All structures would include non-traditional features and “eco-resort” influences. The mix and size of accommodations would reflect the market demand for a more eco-friendly destination, and the numbers and sizes of these facilities would reflect what is needed for profitability. Ecotents and a floating fishing camp would be offered in addition to the more traditional lodge and cottages. The layout of the Flamingo area would be designed to make the area more efficient, facilitating pedestrian and bicycle access and circulation, and minimizing the need for utility extensions. In addition, as described previously, hurricane damaged structures would be reconstructed or replaced, including the amphitheater, employee housing, certain maintenance facilities, and backcountry Florida Bay chickees. The walk-in camping, group camping and new amphitheater would be located in a “multi-use area”, with exact locations for these to be determined based on desired final site design. As a result of this reconfiguration, approximately 87 acres would be restored, which includes 45 acres at the former B, C, and T Loops. The wetland area located south of Eco Pond would be hydrologically reconnected to wetland areas north of the entrance road, which would expand the total area of restored land on the western end of Flamingo, where the more rustic and primitive visitor uses would be sited (see Figure 2-). Figure 2- depicts the site development and services proposed under alternative C; table 2-5 at the end of this chapter lists the main features of alternative C summarized below.



**Figure 2-11. Conceptual Imaging—Eco Pond and Adjacent Wetland Restoration**  
(Top Photos Existing Condition, Bottom Photos Potential Hydrologic Restoration)



**Figure 2-12. Alternative C, “Flamingo Redesigned”**  
(Photo courtesy of USGS, 2004 (Pre-Hurricane) – provided by Everglades National Park in January 2007)

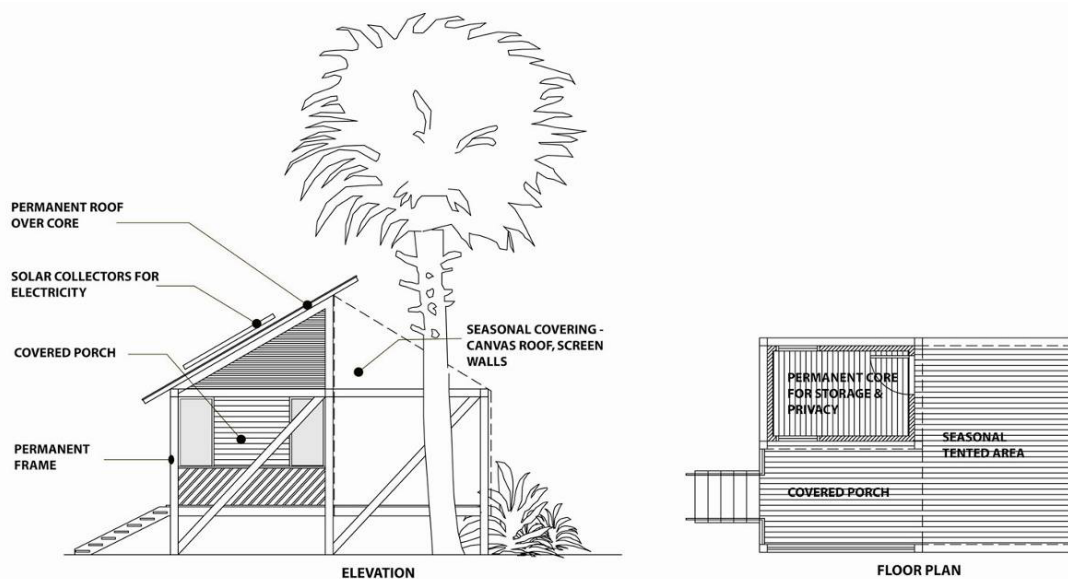
## ACCOMMODATIONS

Alternative C would offer a variety of accommodations, as listed below. The proposed number of rooms is based on the results of the economic analysis demand models developed for this plan.

- Lodge – 1 permanent structure (estimated 50-year life); 30 units;
- Cottages – 12 permanent duplex structures (estimated 50-year life); 24 1-bedroom units (500 square feet each);
- Houseboats – 6 boats, 24 beds, with deck/outdoor space
- RV Sites – 40 with electric hookups (solar-based power, if possible); sites would be moved from the T Loop closer to the marina and the T Loop (about 17 acres) would be restored to natural conditions;
- Tent Camping – 130 sites, including 55 drive-in at A Loop, 72 walk-in and 3 group sites located with the proposed ecotents along the bay shoreline in a “multi-use area”; B and C Loops would be restored to natural conditions;
- Ecotents – 40 semi-permanent structures with limited solar-based power (lights and fan only); and
- Floating Fish Camp – 20 units on one floating camp.

The lodge and cottages would be similar to those proposed in alternative B. Figure 2- and Figure 2- provide a conceptual sketch and example photograph of how ecotents may appear.

Restrooms and baths would be the same as alternative B, but hot showers would be solar-heated at all facilities. Centralized bath houses may be used for the ecotents, if the final design does not have a self-contained sanitary unit.



**Figure 2-13. Conceptual Ecotent Design under Alternative C, “Flamingo Redesigned”**



## FOOD SERVICE

There would be a providing a combination of an informal sit-down service and other types of food service. The food service offered could be modified to accommodate variable demand throughout the year. A snack bar/small lounge would be provided in the marina area to supply food service and a social gathering area for day users and anglers. Food service at the marina store would be the same as alternative B.



**Figure 2-14. Example Ecotent**

## OTHER FACILITIES AND AMENITIES

Gathering areas would be the same as alternative B, plus screened gathering areas at the ecotents and for campground users. An indoor meeting space would be provided to accommodate groups (e.g., seminars, field trips). A board game and recreation room would be located in the main gathering area near the lodge and cottages.

The Eco Pond area would be restored to coastal prairie habitat by filling Eco Pond and returning disturbed areas, such as berms, to natural elevations. To offset the loss of Eco Pond as a destination, visitors would be encouraged to visit natural areas and participate in tours and programs along Florida Bay, and on nearby trails such as Coastal Prairie, Christian Point, and Snake Bight.

Under alternative C, there would be some facilities to specifically support short- and long-term research efforts and projects that groups and volunteers conduct in support of the park's mission. These may include computerized workstations with internet access. Eventually, through the GMP process additional needs such as: climate controlled equipment storage, and facilities for sample preparation, specimen collection/preservation, and data analysis, may be considered.

Additional postal services, beyond what is proposed in alternative B, would be provided (i.e., seasonal postal contract station). The Mission 66 gas station would be used for wilderness permitting and/or staging area for backcountry trips, and the former restaurant would be used as the new Visitor Center for NPS services, booking concession tours and for retail/bookstore.

## ACCESS

Access around Flamingo would be changed under this alternative. The main road would run along the west side of the cottage area to the current amphitheater location, and then continue west along the north side of the ecotents and camping, ending at the A Loop (see Figure 2-). The road, which looped near Eco Pond, would be abandoned or made into a trail, and natural hydrology would be restored to the wetland area located between Eco Pond and the walk-in camping.

Parking would be similar to that provided in alternative B. Parking would be provided near the lodging facilities, at the visitor center/gift shop, at the marina, and near the restaurant/food service areas. Based on the transportation study completed for this plan (Appendix D; HNTB 2007), parking demand under alternative C would be 267 for the "average day" (both overnight and daytime visitors), and 643 for the "peak day in the peak month" and full occupancy "worst-case" scenario, which may require contingency planning for such an event. The exact number of parking spaces needed and the layout and design for parking would be determined during the planning site and design process.

In addition to the visitor shuttles and bike lanes into Flamingo to be addressed under the GMP, a seasonal shuttle within Flamingo and incentives for using alternative transit within the Flamingo area would be provided by the concessioner. Bicycling would be encouraged by the provision of a “Yellow Bike” service that would offer coaster-type bikes to all overnight guests at no charge. These bikes could be used for transit throughout the Flamingo area. Rental bikes (touring type) would be offered to all visitors for longer trips or use outside the immediate Flamingo area. In addition, the Snake Bight tram would operate, similar to alternative B.

## **VISITOR ACTIVITIES – TRAILS, BACKCOUNTRY ACCESS, BOATING AND FISHING, INTERPRETATION**

### **Trails/Backcountry Access**

Trails would be the same as alternative B and, in addition, walking paths/trails to access wildlife and/or night sky viewing areas would be provided. Bicycle restrictions would be maintained in accordance with wilderness regulations, but bicycle paths/facilities could be provided in developed areas.

### **Guides and Livery Services**

In addition to those services provided in alternative B, outfitting and backcountry supplies would be available for rent or purchase, and a wider range of outfitting and livery services for backcountry access would be provided, including backcountry escort, transportation, and Florida Bay fishing charters.

### **Tours**

Tours would be the same as alternative B, but with an emphasis on more interpretive opportunities for learning more about the park and the ecosystem. This would include:

- Longer, multi-day, backcountry trips (hiking, canoeing, etc.) from Flamingo;
- Interpretive and educational hikes for various interpretive themes (history, night sky viewing, wildlife and vegetation viewing, etc.), offered by the park staff; and
- Guided tours utilizing both Florida Bay and Whitewater Bay.

### **Boating**

Boating services would be the same as alternative B, with the addition of a canoe/kayak launch area located in the immediate vicinity of the ecotents so that overnight guests in the tents could keep their rental or personal kayaks or canoes near their units and launch away from the marina.

### **Fishing**

The fish cleaning area would be similar to alternative B, but fish cleaning services would also be offered by the concessioner.

## **SUSTAINABLE DESIGN**

Alternative C would incorporate the same sustainable design strategies as discussed under alternative B, with these differences:

- Ecotents would provide a type of housing that exemplifies sustainability, providing options for seasonal use only and the ability to readily dismantle the structures seasonally.
- Solar power would be used wherever possible (solar photo-voltaics to provide some of the power at RV electric hook-ups; solar heated water for rooms, laundry, and food service; solar power for ecotents, and water at common restrooms and showers.
- All construction within Flamingo would be in compliance with the Florida Building Code, and in the same manner as described under alternative B. In addition, the permanent part of the 40

ecotents proposed under this alternative would be constructed using green, eco-friendly materials such as fly-ash concrete, Forest Stewardship Council (FSC) certified lumber and recycled plastic lumber.

- More opportunities would exist to incorporate reduction of lawn area and increase native landscaping.

## MITIGATION

Mitigation measures would be used to prevent or minimize potential adverse impacts associated with the selected alternative, and these measures have been included in the evaluation of impacts of all action alternatives. Mitigation measures that could be undertaken during project implementation include, but are not limited to, those listed below.

### WILDLIFE AND WILDLIFE HABITAT

- The use of previously undisturbed areas would be minimized to the extent possible by selectively choosing staging areas, parking all vehicles on existing roads and parking lots, and clearly defining and marking construction zones and perimeters.
- Steps would be taken to minimize the introduction of non-native species and could include washing equipment before entering the park; minimizing disturbances; initiating revegetation of disturbed areas immediately after construction; salvaging topsoil and native vegetation from the area; and limiting the amount of topsoil imported.
- Revegetation efforts would include using seeds from native species during revegetation; monitoring reclamation; and implementing exotic species control as necessary.
- Pre- and post-construction erosion control BMPs would be implemented, including the installation and inspection of silt fences, straw bale barriers, sediment traps, or other equivalent measures, and revegetation of area.
- Pre- and post-survey construction surveys for selected species (e.g. crocodiles, Eastern indigo snakes) would be implemented.
- Spill prevention, control, and countermeasure procedures, as well as stormwater pollution prevention measures, would be implemented to reduce the potential for petroleum products from leaking equipment or vehicles to reach surface waters.
- Environmental awareness and interpretive programs (e.g., guided boat tours, guided tours at Eco Pond, step-on guides for buses) would be implemented to help educate visitors with the intent of reducing impacts on wildlife and wildlife habitat.
- As per *NPS 2006 Management Policies*, artificial lighting would not be used in locations where its presence could disrupt wildlife dependent on the dark; minimal-impact lighting techniques used (e.g., consideration of yellow versus white lights, use of timers); artificial lighting would be shielded and directed, where necessary, with regard for natural night sky conditions.
- Native vegetation would be used in all manicured or landscaped areas, and any landscaping done during site development and consolidation of facilities would emphasize reduction of grass fields.

### THREATENED, ENDANGERED, OR SPECIAL STATUS SPECIES

- Construction activities occurring near sensitive habitats would be timed to avoid periods of breeding, nesting, and rearing of young.

- Pre-construction surveys would be conducted to identify any federal- and state-listed species occurring in the area. Should individuals or nest sites be identified, additional measures would be taken to avoid impacts (e.g., fencing nest sites, providing information to contractors about the species).
- Construction of the new chickees would include standard manatee and sea turtle protection measures, including no wake zones and monitoring during construction.
- Measures listed under “Protection of Wildlife and Wildlife Habitat” and other resource protection mitigation would also serve to reduce impacts on special status species.

#### **WATER RESOURCES**

- Measures listed under “Protection of Wildlife and Wildlife Habitat” related to use of pre- and post-construction erosion control BMPs, spill prevention, control, and countermeasure procedures, and stormwater pollution prevention would also protect water quality.
- Construction would be limited to previously disturbed areas, avoiding wetland habitats.
- A spill prevention, control, and countermeasures plan would be completed and implemented for any fuel storage tanks, which would meet all applicable standards for construction and leak detection. Areas used for refueling would be limited to areas where these activities currently occur.
- Equipment containing fuels would be checked frequently for leaks.
- Environmental awareness and interpretive programs (e.g., guided boat tours, guided tours at Eco Pond, step-on guides for buses) would include information about water quality, wetlands, and floodplains to help educate visitors with the intent of reducing impacts on these resources.
- The overall developed footprint in the 100-year floodplain would be reduced where possible, given the limits of each alternative. In accordance with EO 11988, flood protection would be provided by elevating all structures, which would be built to the 2004 Florida Building Code standards for a High Hazard Hurricane Zone. The NPS would operate the area using the Everglades National Park Hurricane Plan, which is coordinated with the Monroe County Emergency Management Department.
- Construction of the chickees at Rankin and Johnson Keys would include the use of silt curtains to contain disturbed sediments and reduce water quality impacts.

#### **SOILS AND GEOLOGY**

- Measures listed under “Protection of Wildlife and Wildlife Habitat” related to use of pre- and post-construction erosion control BMPs, spill prevention, control, and countermeasure procedures, and stormwater pollution prevention would be followed to protect soils from erosion and contamination.
- Any construction would be limited to previously disturbed areas, limiting impacts to soils, and only those areas absolutely necessary for construction would be cleared and grubbed.
- Construction/demolition activities would be limited to times when the areas are not too wet and able to support the weight of the vehicles and other construction equipment.
- Erosion and sediment control BMPs would be inspected and maintained on a regular basis and after each measurable rainfall to ensure they are functioning properly.

## **AIR QUALITY**

- Low sulfur diesel fuel would be used in off-road construction equipment.
- Where practicable, diesel engine retrofit technology would be used in off-road equipment to further reduce emissions. Such technology could include Diesel Oxidation Catalyst/Diesel Particulate Filters, engine upgrades, engine replacements, or combinations of these strategies.
- Unnecessary idling times on diesel-powered engines would be limited to 3 to 5 minutes.
- Water or appropriate liquids would be used for dust control during demolition, land clearing, grading, on materials stockpiled on the ground surfaces, and other activities.
- Open-body trucks for transporting materials would be covered.
- Dust related to the construction site would be controlled through a soil erosion sediment control procedure that includes:
  - Spraying of a suppressing agent on dust pile (non-hazardous, biodegradable);
  - Containment of fugitive dust; and
  - Adjustment for meteorological conditions as appropriate.
- “Clean Fuel” technology would be considered and used, if possible, for the proposed tram and internal shuttle.

## **WILDERNESS**

- Measures listed above under “Protection of Wildlife and Wildlife Habitat”, “Protection of Water Quality”, etc. would serve to protect wilderness values and quality as well.
- Wilderness permitting for use of backcountry areas would include provision of educational materials about wilderness values and protection measures.
- Construction of the new chickees near Rankin and Johnson Keys (in submerged wilderness) would follow the minimum tool analysis for construction and would include provisions to minimize impacts to natural resources that contribute to wilderness values, including use of silt curtains during construction.

## **CULTURAL RESOURCES**

- A Cultural Resource Survey would be performed to identify resources in area of potential effects (APE) for the preferred alternative.
- Monitoring will be done if any excavation exceeds the depth of existing ground disturbance. In the event that cultural resources are encountered during any necessary excavation work, project work would be halted and the discovery process would be initiated.
- Historic or important structures (e.g., Mission 66 era) would be fully documented by a qualified architectural historian before demolition, if necessary.
- Any architectural development in the Flamingo area would be compatible with the historic structures or any historic district that is proposed, as appropriate.
- On-going tribal consultation would be conducted for all proposed undertakings.

## **VISITOR USE AND EXPERIENCE, INCLUDING NIGHT SKY AND SOUNDSCAPES**

- Construction information and general information about the redevelopment of Flamingo would be posted at the park, distributed to visitors, and made available on the park’s web site. Signage and

notices would be used to inform visitors about the purpose of the project and to protect visitor and staff safety during construction activities.

- When possible, construction activities would be timed to avoid high visitor use periods.
- Artificial lighting, including minimum illumination levels, light-emitting diodes (LED), limited color spectrum (e.g., yellow) lights, and timers and sensors would be used, where applicable.
- The use of artificial lighting would be restricted to areas where security, basic human safety, and specific cultural resource requirements must be met.
- Artificial lighting would be shielded, where necessary, to prevent the disruption of the night sky, physiological processes of living organisms, and similar natural processes.
- The NPS would take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape.
- The reconstructed or newly constructed facilities (walks, ramps, curb ramps, entrances, elevators, and rest rooms) would conform to the Architectural Barriers Act Accessibility Standards (ABAAS).
- BMPs, such as appropriate mufflers for heavy equipment, appropriate generator sizes for RVs, and noise-muffling construction materials would be used during construction. Construction equipment would be required to have working mufflers.

#### **SOCIOECONOMICS**

- Facilities would be designed and constructed to withstand hurricanes, storms, and flooding to reduce the possible adverse socioeconomic effects of structural damage. This would include the use of elevated structures, temporary structures that could be removed during storms (ecotents), ensuring sufficient fill for surface development, and meeting or exceeding hurricane building standards.

#### **PRELIMINARY FINANCIAL ANALYSIS OF THE ALTERNATIVES**

A preliminary financial analysis of the no action and two action alternatives was conducted to estimate the financial feasibility of the proposed commercial services plan under each of the scenarios. Appendix A contains the full report, which discusses estimated visitation and the concessioner financial performance and profitability for each alternative.

The financial feasibility of each alternative was assessed by calculating the warranted investment, a measure that estimates what level of capital investment will yield an acceptable return based on net operating income. The results of the analysis are provided in appendix A and on table 2-3, below.

**Table 2-3 – Estimated Warranted Investment, Flamingo Concessions Area**

		Net Operating Income		
		Alternative A		
Capitalization Rate		Low (80%)	Medium (100%)	High (120%)
	Low (8%)	\$1,997,347	\$2,496,684	\$2,996,021
	Medium (9%)	\$1,775,420	\$2,219,275	\$2,663,129
	High (10%)	\$1,597,878	\$1,997,347	\$2,396,817
	Alternative B			
		Low (80%)	Medium (100%)	High (120%)
	Low (8%)	\$15,620,997	\$19,526,246	\$23,431,495
	Medium (9%)	\$13,885,330	\$17,356,663	\$20,827,995
	High (10%)	\$12,496,797	\$15,620,997	\$18,745,196
	Alternative C			
		Low (80%)	Medium (100%)	High (120%)
	Low (8%)	\$19,431,196	\$24,288,995	\$29,146,794
	Medium (9%)	\$17,272,174	\$21,590,218	\$25,908,261
	High (10%)	\$15,544,957	\$19,431,196	\$23,317,435

Rough “Class C” capital costs were estimated for each of the alternatives (see Table 2-4). Class C estimates are cost estimates that occur at the conceptual level of planning. All estimates for construction of new accommodations include government factors to account for the remote location, federal wage rate factor, design contingency, government general conditions, prime fees, contracting method adjustment, and escalation. All of these estimates were based on single-unit costs, and costs were not adjusted to account for possible volume discounts or similar cost savings; therefore, these figures are very conservative, and are represented in 2007 dollars.

As CSP implementation moves forward Class B (Budgetary Estimates) would be developed at the schematic design phase, and Class A (Actual Estimates) would be developed for the associated construction documents.)

The Class C cost estimates were compared to the estimated warranted investments to assess financial viability. If the capital cost estimate exceeds the warranted investment, then the alternative would not be considered financially viable, unless other sources of funding are available. These estimates indicate that all of the alternatives would be financially viable. However, as noted in the financial analysis (Appendix A), although each alternative is financially feasible from a warranted investment standpoint, other factors play a role in an investor’s decision to bid on a commercial services contract. Alternative A is less appealing than both alternatives B and C, as revenue potential remains limited over the long term. Also, the high capital investment for any of the alternatives may be prohibitive to some operators, such that alternative financing solutions may be needed. Overall, alternative C presents the most financially advantageous alternative for concession operations since it has the potential for capturing a larger visitor audience and also includes operating efficiencies created by the use of alternative energy sources and adaptations to the seasonality of the expected visitation (ecotents). In any case, the proposed commercial services plan may need to be completed in phases if financing for all proposed services and facilities is not immediately available.

Table 2-4 – Class C Cost Estimates (All estimates are in 2007 dollars)

Item	Alternative A – No Action		Alternative B – Flamingo Rebuilt		Alternative C – Flamingo Redesigned	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
Canoes	12	\$14,000	15	\$18,000	20	\$24,000
Kayaks	40	\$26,000	50	\$33,000	60	\$39,000
Bicycles	15	\$3,000	25	\$5,000	50	\$10,000
Skiffs	5	\$70,000	5	\$70,000	5	\$70,000
Lodge w/ restaurant			40 rooms, 2 story (19,000 gsf)	\$7,364,000	30 rooms, 2 story (14,250 gsf)	\$5,735,000
Cottages/Cabins 9 different sizes to accommodate 1 and 2 BR units and different styles)			18 buildings (36 units) 4 bldgs. @ 1,500 sq ft (750 sq ft/unit); 14 bldgs. @ 1,200 sq ft (600 sq ft/unit)	\$4,309,000	12 buildings (24 units) Each bldg. 1,000 sq ft (500 sq ft unit)	\$2,373,000
Ecotents					40	\$1,789,000
Bath houses (for ecotents)					2	\$250,000
Houseboats			6	\$1,500,000	6	\$1,500,000
Floating fish camp					1	\$1,500,000
Snack bar/Mini lounge (Marina)					1	\$330,000
Swimming pool			1	\$211,000		
Elec hook-ups			22	\$48,000	40 (solar)	\$160,000
RV campsite					40	\$765,000
Gift shop			1	\$345,000	1	\$685,000
Concessioner housing		\$375,000 to \$625,000		\$2,925,000 to \$4,875,000		\$4,425,000 to \$7,075,000
Tour boats	2	\$350,000	2	\$350,000	2	\$350,000
Restroom w/ hot showers(Campground)			2	\$250,000	2	\$250,000
Internal circulator shuttle					1	\$50,000
Snake Bight tram			1	\$70,000	1	\$70,000
<b>TOTAL</b>		<b>\$838,000 to \$1,088,000</b>		<b>\$17,768,000 to \$19,718,000</b>		<b>\$20,375,000 to \$23,025,000</b>

\*Costs for lodging are in "ready to use" condition and include all furnishings.

\*\*These are the best estimates available in October 2007 but are subject to change and will be refined as the CSP moves towards completion and a preferred alternative is selected.



## HOW ALTERNATIVES MEET OBJECTIVES

As stated in the “Purpose and Need” chapter, all action alternatives selected for analysis must meet all objectives to a large degree to be considered reasonable. The action alternatives must also address the stated purpose of the plan and resolve the need for action. Alternatives were assessed as to how well they would meet the plan objectives. Table 2-6 summarizes the results of this assessment. As can be seen, both action alternatives would meet the objectives either fully or to a large degree, although alternative C meets more of the components of the objectives that focus on expansion of visitor services, sustainable design, and efficiency.

## ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

### ECO-RESORT

An alternative with no lodge or traditional rooms and very rustic accommodations was discussed by the park’s interdisciplinary team as a potential action alternative. However, many of the eco-friendly features envisioned in this alternative were incorporated into alternative C. Additionally, there were concerns as to whether that type of development, with no traditional housing, would be economically viable for a concessioner. Concerns that this alternative might not adequately serve all members of the public who wish to visit Flamingo also existed. Therefore, this alternative was not carried forward for separate analysis.

### ALL-INCLUSIVE RESORT

Constructing and operating an all-inclusive, large resort at Flamingo was dismissed because it did not meet the criteria listed under the necessary and appropriate uses, and it would not meet the mission and purpose of the park. Therefore, this alternative was not carried forward for separate analysis.

## THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with DO-12 (NPS 2001), the NPS is required to identify the “environmentally preferred alternative” in all environmental documents, including EAs. According to Council on Environmental Quality (CEQ) guidelines, the environmentally preferred alternative is the alternative that will promote the national environmental policy, as expressed in Section 101 of NEPA, to:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all generations safe, healthful, productive, and esthetically 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.

The following paragraphs discuss how each alternative meets the policy criteria.

Based on the above criteria, alternative C was identified as the NPS environmentally preferred alternative. All of the alternatives would fulfill responsibilities for succeeding generations, but alternative C would include more sustainable design elements that would continue to conserve energy and water and minimize waste for generations to come. Alternatives A (no action) and B involve less land disturbance and initial construction, which minimizes potential impacts to the Flamingo cultural landscape and other cultural and natural resources that can be adversely affected by noise and ground disturbance, but alternative C would allow for the greatest amount of site consolidation and restoration, which would assure more pleasing surroundings for future generations. Alternative C also best meets the criterion of attaining the widest range of beneficial uses of the environment without degradation or other undesirable consequences, with its emphasis on sustainability, energy conservation, and eco-friendly accommodation and services. Alternative B, with its less intense development, may better preserve the important cultural aspects of Flamingo, but it does not provide as much diversity and variety of individual choice as does alternative C. All alternatives would achieve a balance between resource use and population that would permit high standards of living, but alternatives B and C would allow for a wider sharing of amenities with their provision of overnight accommodations and expanded services. Alternative C incorporates more features and operational elements to enhance the quality of renewable resources and approach the maximum recycling of depletable resources, especially with regard to its site consolidation and provision of trails and emphasis on alternative transportation. Overall, alternative C best meets the majority of the criteria listed in Section 101 of NEPA.

*Table 2-5: Alternatives Summary Matrix*

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
		<b>Accommodations</b>	
Overnight	<p>No lodge/structural accommodations</p> <p>Tent camping—237 total sites 55 drive-in sites—Loop A 58 drive-in sites—Loop B 56 drive-in sites—Loop C 65 walk-in sites 3 group sites</p> <p>RV sites—66 sites, T Loop (no electric hook-ups)</p> <p>Two backcountry chickees in Florida Bay</p>	<p>Modernized overnight accommodations, located in more compact, efficient site plan layout within developed areas, including:</p> <p>Lodge—40 rooms (permanent, year-round)</p> <p>Cottage units—18 structures/36 units, co-located with lodge on eastern end of old lodge site</p> <p>Tent camping—103 total sites 55 drive-in sites—Loop A 45 walk-in sites 3 group sites</p> <p>RV sites—65 sites, T Loop 22 with electric hook-ups 43 without electric hook-ups</p> <p>Houseboats—6 boats/24 units</p> <p>Two backcountry chickees in Florida Bay</p>	<p>Modernized overnight accommodations, located in more compact, efficient site plan layout within developed areas, including:</p> <p>Lodge—30 rooms (permanent, year-round)</p> <p>Ecocottage units—12 structures/24 units, located on site of old cottages and near new lodge</p> <p>Ecotents—40, located along shoreline, east of camping areas</p> <p>Tent camping—130 total sites 55 drive-in sites—Loop A 72 walk-in sites 3 group sites</p> <p>RV sites—40 sites, located near visitor center( all with electric hook-ups)</p> <p>Houseboats—6 boats/24 units</p> <p>Floating Fish Camp—1 (20 units)</p> <p>Two backcountry chickees in Florida Bay</p>

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Restrooms and Baths	Public restrooms at marina, fish cleaning station, West Lake day use area, campground, and visitor center. Hot (pay) shower at marina. Cold showers at campground.	Same accommodations as alternative A, plus: <ul style="list-style-type: none"> <li>Restrooms and hot showers in the lodge, cabins</li> <li>Stand-alone restrooms and hot showers at campground</li> </ul>	Same accommodations as alternative B, plus: <ul style="list-style-type: none"> <li>Solar heated showers</li> <li>Bath houses for ecotents</li> </ul>
<b>Sustainable Design</b>			
Sustainable Design	Would incorporate sustainable design in new construction (housing, maintenance facility, parking areas, trails, chickees) and as possible in daily maintenance.	Would incorporate sustainable design in all new construction (same as alternative A) and include more use of porous pavement for parking, use of recycled material for construction of boardwalks, and re-landscaping to eliminate lawn areas.	Would be the same as alternative B, but with more consolidation of the site and increased native landscaping, use of solar power wherever possible, and addition of ecotents.
<b>Restoration</b>			
Restored areas	Approximately 27 acres—demolition of lodge and cottages.	Approximately 50 acres: <ul style="list-style-type: none"> <li>28 acres—B Loop and C Loop</li> <li>22 acres—former lodge and cottages areas</li> </ul>	Approximately 87 acres: <ul style="list-style-type: none"> <li>28 acres—B Loop and C Loop</li> <li>17 acres—T Loop</li> <li>42 acres—Eco Pond, wetland near road, and former lodge and cottages areas</li> </ul>
<b>Food Service</b>			
Food Service	None.	Restaurant in lodge large enough to provide sit down, full service meals for overnight guests and day use visitors (seasonally operated).	Restaurant in lodge large enough to provide a combination of sit down service (less than alternative B) with other types of food service to accommodate variable demand throughout the year.
Lounge (evening/overnight use)	None.	Lounge within restaurant would be provided to include light fare, refreshments, and gathering area.	Same as alternative B, plus mini-lounge in marina store (see below).

ALTERNATIVES

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Marina Store	Limited snacks, beverages, minor groceries, sandwiches.	Same as alternative A but with a larger selection.	Same as alternative B with a snack bar and mini-lounge.
<b>Other Facilities and Amenities</b>			
Gathering Areas/Associated Recreation (pool, game room)	Open area underneath visitor center. Amphitheater (funded for replacement at current location).	Same as alternative A, plus: <ul style="list-style-type: none"> <li>▪ Screened gathering area near visitor center.</li> <li>▪ Screened gathering area near lodge.</li> <li>▪ Covered picnic areas (variable screens); i.e. several pavilion areas throughout Flamingo area.</li> <li>▪ Screened swimming pool.</li> <li>▪ Board and game room (tie-in with gathering area at lodge).</li> </ul>	Same as alternative B, but no swimming pool, plus: <ul style="list-style-type: none"> <li>▪ Additional screened gathering areas for ecotents and campground users.</li> <li>▪ No swimming pool.</li> <li>▪ Meeting space(s) in lodge.</li> </ul>
Environmental/ Eco-friendly Recreation Services	Eco Pond – allow the area to revert to natural conditions gradually; remove unsafe features and maintain trail around the pond; no other active management.  Other : Trails—canoe and walking Designated wildlife viewing areas (scopes) Breezeway – viewing scopes and waysides Bicycle rentals	Eco Pond – Provide programs and guided tours at Eco Pond; allow it to mirror the wet/dry seasons and rely on rainfall for water regime; replace damaged or unsafe features and maintain the trail around the pond, fencing, boardwalk, overlooks, interpretive signs and vistas for wildlife viewing and photography. Provide night sky viewing opportunities at the amphitheater and other locations away from lighted gathering/lodging areas. Other: same as alternative A	Eco Pond – restore to natural coastal prairie habitat by filling and restoring disturbed areas to natural elevations. To offset the loss of Eco Pond as a destination, visitors would be encouraged to visit natural areas and participate in tours and programs along Florida Bay and in nearby areas including Snake Bight and Christian Point.  Other: same as alternative B
Marina Store	Marina store operate at current level	Same as alternative A, plus: <ul style="list-style-type: none"> <li>▪ Offer more products and services.</li> <li>▪ Comply with State of Florida's "Clean Marina" program or equivalent environmental standards.</li> </ul>	Same as alternative B.

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Postal Services	None.	Minimal postal services (basic “stamps and postcards”) catering to visitor needs.	Additional postal services would be provided (i.e., seasonal postal contact station) with USPS cooperation.
Fuel Service	Boat and vehicle service provided at existing facility next to marina store.	Same as alternative A.	Same as alternative A.
<b>Access</b>			
Parking	Free parking at: <ul style="list-style-type: none"> <li>▪ Visitor center</li> <li>▪ Marina store</li> <li>▪ Lot for Florida Bay access</li> <li>▪ Lot for Whitewater Bay access</li> <li>▪ Eco Pond</li> <li>▪ Campground</li> </ul>	Same as alternative A, but with parking reconfigured to accommodate predicted demand and to accommodate day-use and overnight guests.	Same as alternative B, but without parking at Eco Pond.
Internal Visitor Circulation	None.	None.	Seasonal circulator shuttle throughout Flamingo area and “Yellow Bike” system for internal circulation.
Snake Bight Tram	None.	Tram operated by concessioner.	Tram operated by concessioner.
Shuttle and/or bicycle lane into Flamingo entrance (to be further addressed in GMP)	None.	Addressed under GMP which may propose shuttle and dedicated bicycle/pedestrian path between main park entrance and Flamingo.	Same as alternative B.
Visitor center (to be further addressed in GMP)	No space available in the visitor center for concessioner-provided services.	Space available in the visitor center (relocated to former restaurant location) for concessioner-provided services.	Same as alternative B.
<b>Visitor Activities</b>			
Amphitheater	Amphitheater would be rebuilt in same location as previously.	Same as alternative A, but amphitheater may eventually be relocated based on more detailed site analysis for implementing the CSP.	Same as alternative A.

ALTERNATIVES

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Wilderness permitting	Continue issuing wilderness permits from Visitor Center.	Issue wilderness permits at Flamingo – based out of former gas station and use area adjacent to the station as a staging area for guided paddling trips.	Same as alternative B.
Trails	Maintain existing trail (water and pedestrian) network. As funding becomes available, repair closed trails within the existing network that require rehabilitation to provide improved walking and bicycle connections. Maintain existing canoe launches (Florida Bay and Whitewater Bay).	Provide new walking/bicycle paths within developed area and visitor use area using pervious or semi-pervious materials to provide more connections. Maintain bicycle restrictions in accordance with Wilderness regulations. Upgrade trails to increase accessibility (meet ADA requirements) and safety. Provide non-motorized boat trails (canoes/kayaks).	Same as alternative B, plus: <ul style="list-style-type: none"> <li>Provide additional walking and bicycle paths/trails to access wildlife and/or night sky viewing areas.</li> </ul>
Guide and Livery Services	Limited outfitting and backcountry supplies available for purchase from marina store. Limited fishing charters based in Flamingo. Licensed guides continue to launch including those arranged through concessioner. CUAs for transportation of visitors and equipment into the park.	Outfitting/camping/backcountry supplies available for purchase. Outfitting and livery services for backcountry access, including education, outdoor skills, recreation activities, and environmental awareness (e.g., Leave No Trace, Outward Bound, etc.). Livery services to Cootbay Pond, Hellsbay, Noble Hammock, and Westlake.	Same as alternative B, plus: <ul style="list-style-type: none"> <li>Outfitting and backcountry supplies available for rent or purchase.</li> <li>Wider range of outfitting and livery services for backcountry access including backcountry escort, schools for outdoor recreation activities, transportation, additional Florida Bay fishing charters, etc.</li> </ul>
Boating	Boat lift would not be replaced. Canoe and skiffs rentals available. Dock rental space available on Florida Bay side and Whitewater Bay side. Boat fueling available. Boat ramps provided (Florida and Whitewater Bays). Canoe launch provided.	Same as alternative A, plus: <ul style="list-style-type: none"> <li>Provide boat transfer service between Whitewater Bay and Florida Bay as a replacement service for the obsolete boat hoist.</li> <li>Provide houseboat rentals.</li> </ul>	Same as alternative B, plus: <ul style="list-style-type: none"> <li>Provide dedicated canoe/kayak staging areas.</li> <li>Provide launch area near Ecotent area.</li> </ul>

Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Fishing	Bait and tackle/supplies available at marina store. Fish cleaning station provided. Fishing licenses available.	Same as alternative A, plus: <ul style="list-style-type: none"> <li>Enlarge do-it-yourself screened area for fish cleaning station.</li> </ul>	Same as alternative B, plus: <ul style="list-style-type: none"> <li>Fish cleaning services available in screened facility.</li> </ul>
Tours	Existing boat tours supplemented by at least one additional tour boat (tours would eventually go to Whitewater Bay and Florida Bay destinations). CUAs: guided tours on land as well as by canoe or kayak.	Same as alternative A, plus: <ul style="list-style-type: none"> <li>Provide paddling tours to Cape Sable seasonally and other locations.</li> <li>Operate additional boat tours for recreation (Backcountry Boat Cruise and Florida Bay Cruise).</li> <li>Provide schooner tour of Florida Bay.</li> </ul>	Same as alternative B, with an emphasis on interpretive opportunities about the park and the ecosystem: <ul style="list-style-type: none"> <li>Multi-day, backcountry trips (hiking, canoeing, etc.) (guided).</li> <li>Interpretive and educational information available on boat tours [same as A].</li> <li>Interpretive and educational hikes provided for various interpretive themes (history, night sky viewing, wildlife &amp; vegetation viewing, etc.).</li> <li>Longer duration and wider variety of interpretive themes provided.</li> </ul>



Element	Alternative A – No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Research			
Science and Research Support	No accommodations provided exclusively for science and research personnel.	Overnight accommodations would be used to accommodate science and research personnel.	Same as alternative B. plus: <ul style="list-style-type: none"><li>▪ Provide support facilities for short- and long-term research efforts such as computerized work stations.</li><li>▪ Climate controlled equipment storage (could be NPS provided – GMP issue).</li><li>▪ Provide facilities for sample preparation, specimen collection/preservation and data analysis (could be NPS provided – GMP issue).</li></ul>

Table 2-6: Comparison of the Extent to Which Each Alternative Meets the Project Objectives

Objective	Alternative A - No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Planning Guidance Objectives			
Ensure that any future commercial services facilities at Flamingo give strong consideration to the unique location and environmental conditions that affect development. This includes emphasis on NPS policies regarding sustainable design principles, “green” environmental practices, and safety and accessibility requirements; building code requirements for high-hazard flood zones; and recognition of intense seasonal weather conditions.	Does not fully meet objective. The area would not be rebuilt or redesigned to incorporate these principles except for the on-going maintenance at the existing facilities and the proposed replacement facilities, which would meet this objective.	Meets the objective to a large degree. Rebuilding the lodge and cottages and other facilities would incorporate green and sustainable design and operating principles, as well as meet high hazard hurricane zone building codes. Overall site layout would not provide for as much sustainable energy conservation due to the continued need for automobile use.	Fully meets the objective. The focus of this alternative is sustainable and green design and operation, as well as building to meet high hazard zone building codes. Internal shuttle and bike system would add to meeting this objective.
Provide concessioner(s) with a reasonable opportunity to earn a profit at Flamingo.	Meets objective. This alternative is financially viable but has limited long-term revenue potential, since there is very limited opportunity to capture a greater visitor audience.	Fully meets objective. This alternative is financially viable, although there is a somewhat reduced opportunity to capture a greater visitor audience beyond lodge and cottage guests.	Fully meets objective. This alternative is financially viable, and there is enhanced opportunity to capture a greater visitor audience.
Work with a broad range of stakeholders in order to increase the likelihood of successfully implementing the Flamingo CSP.	Fully meets the objective. For all alternatives, a wide range of stakeholders were consulted to develop the range of services offered.	Same as alternative A.	Same as alternative A.
Visitor Use and Experience Objectives			
Allow for a wide range of appropriate visitor uses that may restore and expand the types of services, visitor capacity, and/or season of services available to the public in the Flamingo area.	Does not meet objective. The no action alternative does not provide for a large expansion of services and would not restore visitor capacity.	Meets the objective to a large degree. The wider range of services and overnight accommodations provided would restore the types of services offered before the hurricane damage, but would be limited in offering new visitor experiences.	Fully meets the objective. The additional visitor services and accommodations provide for the widest range of visitor uses of all the alternatives.

ALTERNATIVES

Objective	Alternative A - No Action	Alternative B – Flamingo Rebuilt	Alternative C – Flamingo Redesigned
Ensure that the Flamingo CSP identifies the types and levels of visitor activities and services, consistent with protecting park resources and providing quality visitor experiences.	Fully meets the objective. All alternatives have a basis in the types and levels of visitor services that can be provided consistent with protection of park resources.	Same as alternative A.	Same as alternative A.
Enhance visitor understanding, enjoyment, and appreciation of park resources through commercial services provided at the Flamingo area.	Partially meets the objective. The continuation of existing services would help enhance visitor appreciation of park resources, but opportunities to reach more visitors and to provide more interpretive and educational services would be limited.	Fully meets the objective. The additional accommodations and services planned would allow for more interpretive and educational services to reach a wider range of visitors.	Fully meets the objective. The additional accommodations and services planned would allow for more interpretive and educational services to reach a wider range of visitors, even more than under alternative B.
<b>Park Resources Objectives</b>			
Develop a CSP for Flamingo that minimizes impacts to the natural and cultural resources of the park.	Fully meets the objective. The plan under any of the alternatives would minimize impacts to park resources.	Fully meets the objective. The plan under any of the alternatives would minimize impacts to park resources. This alternative adds some opportunities to decrease impacts related to energy consumption and water use.	Same as alternative B.
<b>Park Operations Objectives</b>			
Develop a CSP for Flamingo that maximizes operational efficiencies for both the NPS and the concessioner(s).	Partially meets objective. The no action alternative does not provide the opportunity to maximize operational efficiencies related to circulation within the Flamingo area, power consumption, or staffing.	Meets objective to a large degree. Provides efficiencies in relation to the overnight accommodation, location and operations, and use of staff to serve a large number of visitors, but overall site efficiencies could be improved upon.	Fully meets objective. Provides efficiencies in relation to the overnight accommodation locations and operations, site consolidation and alternative transportation that support efficient circulation, with most efficient use of staff to serve a large number of visitors.

*Table 2-7: Summary of Environmental Consequences*

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Geologic Resources/ Soils</b>	Continuing operations at Flamingo would result in long-term negligible adverse impacts to the geologic and topographic conditions of the site. Both long- and short-term minor adverse impacts to soils would occur as a result of activities associated with the demolition of several of the park's structures, construction of new facilities in already disturbed areas, continued recreational activities, and continued shoreline erosion. Long-term minor beneficial impacts to soils would occur by the reduction in the developed footprint, allowing those areas where structures were removed to revegetate naturally and return to more natural conditions.  There would be no impairment of geologic resources or soils.	Implementation of alternative B would result in long-term negligible adverse impacts to the geologic and topographic conditions of the site. Both long- and short-term minor adverse impacts to soils would occur as a result of activities associated with the demolition and construction activities, the continuation of recreational activities, and the continued shoreline erosion. Long-term minor beneficial impacts to soils would occur by the reduction in the developed footprint, allowing those previously disturbed areas to revegetate naturally and return to a more natural condition.  There would be no impairment of geologic resources or soils.	Implementation of alternative C would result in long-term negligible adverse impacts to the geologic and the topographic conditions of the site. Both long- and short-term minor adverse impacts to soils would occur as a result of activities associated with the demolition and construction activities, the continuation of recreational activities, and the continued shoreline erosion. Long-term moderate beneficial impacts to soils would occur by reducing the developed footprint and restoring a relatively large area to a more natural condition.  There would be no impairment of geologic resources or soils.
<b>Air Quality</b>	Continuing operations at Flamingo would result in localized, long- to short-term, negligible to minor, adverse impacts on air quality within the analysis area. Air quality would remain within state and federal standards.  There would be no impairment of air quality.	Under alternative B, additional operations at Flamingo would result in localized, mostly intermittent or short-term, negligible to minor, adverse impacts on air quality within the analysis area. Air quality would remain within state and federal standards.  There would be no impairment of air quality.	Under alternative C, Flamingo would increase the range of services available to visitors. Additional operations at Flamingo would result in localized, mostly intermittent or short-term, negligible to minor, adverse impacts on air quality within the analysis area, and the use of an internal shuttle and "Yellow Bike" system would serve to reduce levels of emissions from motor vehicles. Air quality would remain within state and federal standards.  There would be no impairment of air quality.

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Soundscapes</b>	Alternative A would have primarily long-term negligible to minor adverse impacts on soundscapes in the area of analysis, with short-term minor impacts during construction and demolition of facilities, plus grading and fill removal of unused or restored areas.  There would be no impairment of soundscapes.	Alternative B would have primarily long-term but seasonal minor adverse impacts on soundscapes in the area of analysis, with short-term minor impacts during construction and demolition of facilities, plus grading and fill removal of unused or restored areas. There would be long-term minor beneficial impacts from the restoration of the campground areas.  There would be no impairment of soundscapes.	Alternative C would have primarily long-term but seasonal minor adverse impacts on soundscapes in the area of analysis, with short-term minor impacts during construction and demolition of facilities, plus grading and fill removal of unused or restored areas. There would be long-term minor to moderate beneficial impacts from the restoration of the campground areas and Eco Pond area.  There would be no impairment of soundscapes.
<b>Water Resources</b>			
<b>Water Quality</b>	Construction and demolition activities under the no action alternative would have short-term, localized, minor adverse impacts on water quality. Long-term, negligible to minor adverse impacts would result from on-going visitor use, including the use of outboard engines on boats in and around the waterways of Flamingo. There would also be long-term, minor, beneficial effects from the restoration of the shoreline area along Florida Bay.  There would be no impairment of water quality.	Construction and demolition activities under alternative B would have short-term, localized, minor adverse impacts on water quality. Increases in visitation are expected as a result of the new facilities and services provided, which would have long-term, minor adverse impacts throughout the Flamingo area. There would also be long-term, minor to moderate, beneficial effects from the reduction in the footprint and restoration of previously disturbed areas.  There would be no impairment of water quality.	Construction and demolition activities under alternative C would have short-term, localized, minor adverse impacts on water quality. Increases in visitation are expected as a result of the new facilities and services provided, which could have long-term, minor adverse impacts throughout the Flamingo area. There would also be long-term, moderate, beneficial effects from the reduction in the footprint and restoration of previously disturbed areas.  There would be no impairment of water quality.

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Wetlands</b>	<p>Construction and demolition activities in previously disturbed areas would have no direct impacts on wetlands. There would be long-term, negligible to minor adverse impacts resulting from on-going visitor use in and around the Flamingo area and surrounding waters, since all lands surrounding Flamingo are wetlands, and much recreation is water dependent. The restoration of unused lands would result in the creation of 22 acres of wetland, a minor beneficial effect, and overall the no action alternative would have mostly beneficial impacts on wetlands.</p> <p>There would be no impairment of wetlands.</p>	<p>Construction and demolition activities in previously disturbed areas would have no direct impacts on wetlands. There would be short-to-long-term, negligible to minor adverse impacts resulting from on-going visitor use in and around the developed areas, since all areas surrounding Flamingo are wetlands. The restoration of unused lands would result in the creation of 50 acres of wetland, a moderate beneficial effect, and overall alternative B would have mostly beneficial impacts on wetlands.</p> <p>There would be no impairment of wetlands.</p>	<p>Construction and demolition activities in previously disturbed areas would have no direct impacts on wetlands. There would be short- to long-term, minor adverse impacts resulting from on-going visitor use in and around the developed areas, since all areas surrounding Flamingo are wetlands. The restoration of unused lands would result in the creation of 50 acres of wetland and restore natural hydrology to 16 acres of existing wetland, a moderate beneficial effect, and overall alternative C would have mostly beneficial impacts on wetlands.</p> <p>There would be no impairment of wetlands.</p>
<b>Floodplains</b>	<p>The continuation and replacement of the uses and structures in the Flamingo area within a floodplain would result in long-term localized minor to moderate adverse impacts on floodplains, with the removal of the lodge and cottages and restoration of that area to natural elevations and conditions.</p> <p>There would be no impairment of floodplains.</p>	<p>The continuation and rebuilding of the uses and structures in the Flamingo area would result in long-term, localized minor to moderate adverse impacts on floodplains, but there would be long-term, moderate beneficial effects from the removal of the lodge and cottages, consolidation and elevation of structures, and restoration of a relatively large area of floodplain natural elevations and conditions.</p> <p>There would be no impairment of floodplains.</p>	<p>The continuation and rebuilding of the uses and structures in the Flamingo area would result in long-term, localized moderate adverse impacts on floodplains, but there would be moderate beneficial effects from the removal of the lodge and cottages, consolidation and elevation of structures, use of flood resistant design, and restoration of a large area of floodplain natural elevations and conditions. Therefore, alternative C would have long-term, minor to moderate beneficial effects on area floodplains.</p> <p>There would be no impairment of floodplains.</p>

ALTERNATIVES

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Wilderness Area</b>	<p>Because the Flamingo developed area and the land immediately surrounding it is not designated wilderness, demolition, grading, and construction-related activities under alternative A would have short-term, negligible indirect effects on terrestrial and submerged wilderness. Long-term, localized minor to moderate adverse impacts on the wilderness character of the bay bottom would occur from the occasional grounding of boats; however, there would be limited visitor use impacts to terrestrial wilderness. There would also be short- and long-term minor adverse impacts from the two proposed chickees in Florida Bay, as well as long-term benefits to wilderness experience. Long-term, minor indirect beneficial effects on submerged wilderness of Florida Bay would result from the improved quality of surface runoff associated with restoration of previously disturbed areas to native conditions.</p> <p>There would be no impairment of wilderness.</p>	<p>Because the Flamingo developed area and the land immediately surrounding it is not designated wilderness, demolition, grading, and construction-related activities under alternative B would have short-term, negligible indirect effects on terrestrial and submerged wilderness in that area. Long-term, localized minor to moderate adverse impacts on the wilderness character of the bay bottom would occur from the occasional grounding of boats, and increased visitor use/boating extending into the surrounding waters, keys, and backcountry areas could result in minor adverse effects. There would also be short and long term minor adverse impacts from the construction and use of the two proposed chickees in Florida Bay, as well as long-term benefits to wilderness experience. Long-term, minor indirect beneficial effects on submerged wilderness of Florida Bay would result from the improved quality of surface runoff associated with restoration of previously disturbed areas to native conditions.</p> <p>There would be no impairment of wilderness.</p>	Same as alternative B

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Wildlife and Wildlife Habitat</b>	Construction activities under the no action alternative would have short-term, localized, negligible to minor adverse impacts on wildlife, wildlife habitat, and vegetation. Long-term impacts from visitor use would occur from off-trail use, disturbance to birds (flushing) and other wildlife from the presence of visitors, and the effects of outboard engines on seagrass and other submerged vegetation, having negligible to minor adverse impacts throughout the Flamingo area. There would also be long-term, minor, beneficial effects from the restoration of the current lodge and cottage areas. There would be no impairment of wildlife or wildlife habitat.	Construction activities under alternative B would have short-term, localized, negligible to minor adverse impacts on wildlife, wildlife habitat, and vegetation. Increases in visitation are expected as a result of the new facilities and services provided, which could have long-term, minor to moderate adverse impacts throughout the Flamingo area. There would also be long-term, minor to moderate, beneficial effects from the reduction in the footprint and restoration of previously disturbed areas. There would be no impairment of wildlife or wildlife habitat.	Construction activities under alternative C would have short-term, localized, negligible to moderate adverse impacts on wildlife, wildlife habitat, and vegetation. Increases in visitation are expected as a result of the new facilities and services provided, which could have long-term, minor to moderate adverse impacts throughout the Flamingo area. There would also be long-term, moderate, beneficial effects from the reduction in the footprint and restoration of previously disturbed areas. There would be no impairment of wildlife or wildlife habitat.
<b>Threatened and Endangered Species and Species of Special Concern</b>	Construction, demolition, and grading activities under the no action alternative would have short-term, localized, negligible to minor adverse impacts on federal and state-listed species, as well as species of special concern. Long-term impacts from visitor use would occur from possible off-trail use and noise, and the effects of outboard engines on seagrass and other submerged vegetation, as well as propeller strikes, having negligible to minor adverse impacts throughout the Flamingo area. There would also be long-term, minor, beneficial effects from the restoration of the current lodge and cottage areas. There would be no impairment of threatened and endangered species and species of special concern.	Construction activities under alternative B would have short-term, localized, minor adverse impacts on federal and state-listed species, as well as species of special concern. Long-term impacts from visitor use would occur from off-trail use, noise, and the effects of outboard engines on seagrass and other submerged vegetation, as well as propeller strikes, having minor adverse impacts throughout the Flamingo area. There would also be long-term, minor to moderate, beneficial effects from the restoration of previously disturbed areas. There would be no impairment of threatened and endangered species and species of special concern.	Same as alternative B



ALTERNATIVES

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Cultural Resources</b>	<p>Because there would be no excavation in previously undisturbed areas, there is little potential for this alternative to expose unknown archeological sites. There are artifacts and features associated with a late 19<sup>th</sup>/early 20<sup>th</sup> century occupation of the community, including a significant historic road and associated canals. However, there are no known intact prehistoric archeological resources in the project area. The removal of the lodge and cottages would have long-term moderate adverse impacts to historic structures and a potential historic district, as well as the cultural landscape. Overall, implementation of alternative A would have minor adverse impacts on cultural resources.</p> <p>There would be no impairment of cultural resources.</p>	<p>Because there would be some excavation even in previously disturbed areas, there is potential for this alternative to expose unknown archeological sites. There are artifacts and features associated with a late 19<sup>th</sup>/early 20<sup>th</sup> century occupation of the community, including a significant historic road and associated canals. However, there are no known intact prehistoric archeological resources in the project area. With mitigation, there would be long-term minor adverse impacts to cultural resources as a result of implementation of alternative B.</p> <p>There would be no impairment of cultural resources.</p>	<p>Because there would be excavation in previously undisturbed areas, there is potential for this alternative to expose unknown archeological sites. There are artifacts and features associated with a late 19<sup>th</sup>/early 20<sup>th</sup> century occupation of the community, including a significant historic road and associated canals. However, there are no known intact prehistoric archeological resources in the project area. With mitigation, there would be long-term minor adverse impacts to cultural resources as a result of implementation of alternative C.</p> <p>There would be no impairment of cultural resources.</p>
<b>Visitor Use and Experience</b>	<p>Visitors at Flamingo would continue to experience a noticeable reduction in available visitor experiences when compared to historic levels, resulting in long-term, moderate adverse impacts to visitor use and experience. Cumulative impacts would be long-term minor adverse.</p>	<p>Visitors at Flamingo would experience a noticeable increase in available visitor experiences in the immediate Flamingo area, as well as opportunities to access surrounding areas, resulting in long-term, moderate beneficial impacts to visitor use and experience. Cumulative impacts would be long-term moderate beneficial.</p>	<p>Visitors at Flamingo would experience a noticeable increase and diversity in available visitor experiences in the immediate Flamingo area, as well as provision of access to the surrounding bays and islands, resulting in long-term, moderate beneficial impacts to visitor use and experience. Cumulative impacts would be long-term moderate beneficial.</p>

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Night Sky</b>	<p>Alternative A would not produce major adverse impacts on night sky whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's master plan or other National Park Service planning documents.</p> <p>There would be no impairment of night sky.</p>	<p>Under alternative B, there would be long-term minor adverse impacts on night sky at Flamingo, with long-term minor beneficial effects due to the consolidation of uses with night lighting and the restoration of several large areas to natural conditions without artificial lighting.</p> <p>There would be no impairment of night sky.</p>	<p>Under alternative C, there would be long-term minor to moderate adverse impacts on night sky at Flamingo, with long-term minor beneficial effects due to the consolidation of uses with night lighting and the restoration of several large areas to natural conditions without artificial lighting, especially in the more undeveloped western portion of the area.</p> <p>There would be no impairment of night sky.</p>

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Socioeconomics</b>	<p>Implementing alternative A would result in continued opportunities for visitors to access the resources of Flamingo for their use, resulting in short-term and long-term minor beneficial impacts because of the continued opportunity for contributing to the local economy and for the continued opportunity for social interaction among park visitors and between visitors and park personnel. However, the continued lack of services under alternative A would have long-term adverse impacts on the local businesses in nearby communities, whose sales are especially sensitive to fluctuating visitation levels at the park.</p>	<p>Alternative B would result in both short- and long-term minor beneficial impacts. Returning Flamingo to a level of accommodations and services in place before the 2005 storms with new modern facilities and services would serve to underscore Flamingo's return as a key destination within the park to both local and regional residents and business operators, as well as to visitors who travel to Flamingo from areas outside of the region. The effects on the economic development in the region of influence (ROI) from construction spending and revenue generation from operations would be negligible, but would result in an increase in employment, spending, and tax revenues. Increases in visitation would result in increased economic activity by these visitors, and this would also result in increased park resources being provided to support the increased activity. These increases would result in higher revenues for local businesses that cater to park visitors and personnel. These increased revenues themselves would prompt beneficial secondary impacts throughout the local economy.</p>	<p>Alternative C would result in both short and long-term minor beneficial impacts to the ROI. Redesigning Flamingo in a manner that provides for greater levels of visitation and a wider variety of visitor preferences could lead to the "branding" of Flamingo as a key ecotourist destination within the park and in the southeastern U.S. to both local and regional residents and business operators, as well as to visitors who travel to Flamingo from areas outside of the region. The effects on the economic development in the ROI from construction spending and revenue generation from operations would be negligible, but would result in an increase in employment, spending, and tax revenues. The minor, beneficial impacts related to visitation would be greater in magnitude than those in alternative B, because it is anticipated that visitation levels would be greater under alternative C. Greater increases in visitation would result in increased economic activity by these visitors, and this would also result in increased park resources being provided to support the increased activity. These increases would result in higher revenues for local businesses that cater to park visitors and personnel. These increased revenues themselves would prompt beneficial secondary impacts throughout the local economy.</p>

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Energy Resources</b>	Alternative A would not result in more than minor changes to current energy consumption patterns at Flamingo and would have a long-term, minor adverse impact to energy consumption within Flamingo.	Due to the construction that would occur, Flamingo would experience short-term minor adverse impacts to energy consumption. Expanded operations under alternative B would consume energy and create long-term, minor adverse impacts on energy consumption within Flamingo, while incorporation of sustainable development technologies in new structures would have long-term minor beneficial effects on the potential to conserve energy.	Short-term, minor, adverse impacts to energy consumption at Flamingo would continue due to construction of facilities and reclamation activities. Continued power and fuel consumption would have long-term minor adverse effects. However, incorporation of sustainable development technologies and LEED standards in new structures, as well as an internal circulator shuttle and bike service, would have long-term, minor to moderate beneficial impacts on energy consumption and potential energy conservation. Depending on how and where the redesigned amenities receive their energy, Flamingo may have an opportunity to produce most of its own energy. This would effectively lower the cost of purchasing power from Florida Power and Light Company, and also create a niche for energy efficient ecotourism.

Impact Topic	Alternative A - No Action	Alternative B - Flamingo Rebuilt	Alternative C - Flamingo Redesigned
<b>Park Management and Operations</b>	Impacts to park operation and maintenance would be long-term negligible impacts for the interpretive and maintenance divisions. The replacement of employee housing and the maintenance facility would have a long-term moderate beneficial impact on the park staff. The reduced infrastructure at the site would result in long-term minor beneficial impacts to the maintenance division, with long-term minor adverse impacts to staff living on-site due to lack of amenities.	Implementation of alternative B would require approximately \$419,000/year (in 2007 dollars) in additional funding to accommodate needed staff increases and \$250,000/year (assuming \$100,000/year is reimbursed by the concessioner for water and wastewater expenses) in support services such as vehicles, operation of the water and wastewater treatment plants, interpretive supplies, etc. There would be short-term moderate adverse impacts to the maintenance division as some deferred maintenance would occur while waiting for funding increases. For all divisions, the impacts under alternative B would be long-term minor adverse, assuming an increase in base funding occurs with long-term moderate beneficial impacts occurring for the employees living at Flamingo. If no increase in base funding occurs, impacts to all divisions would be long-term moderate adverse as services would need to be reduced in other areas of the park to accommodate Flamingo.	Implementation of alternative C would require approximately \$511,000/year (in 2007 dollars) in additional funding to accommodate needed staff increases and \$254,000/year (assuming \$100,000/year is reimbursed by the concessioner for water and wastewater expenses) in support services such as vehicles, operation of the water and wastewater treatment plants, interpretive supplies, etc. Short-term moderate adverse impacts would occur to the maintenance division as some deferred maintenance would occur while waiting for funding increases. For all divisions, the impacts under alternative C would be long-term minor adverse, assuming an increase in base funding occurs with long-term moderate beneficial impacts occurring for the employees living at Flamingo. If no increase in base funding occurs, impacts to all divisions would be long-term, moderate and adverse as services would need to be reduced in other areas of the park to accommodate Flamingo.