

Pallazo I and II Condominium Complex
Habitat Conservation Plan (HCP)

Parcel # 06-4S-32-2900-000-000; 16571 Perdido Key Drive
Parcel # 06-4S-32-2001-000-001; 16567 Perdido Key Drive
USFWS Log # 4-p-04-421; 4-p-05-088

Prepared for:

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And

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And

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1. INTRODUCTION

This habitat conservation plan (HCP) addresses potential impacts to habitat for state and federally listed species which may occur due to development of projects (**Palazzo I & II**) located on Perdido Key in Escambia County, Florida (**Appendix A**).

A single species has prompted the need for an Incidental Take Permit (ITP), although other listed species may occur in the habitats addressed by this plan. The “trigger” species is the Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*) and this HCP is limited to areas designated as suitable habitat. **Other listed species that may occur in the project area include piping plovers (*Charadrius melodus*), Atlantic loggerhead turtles (*Caretta caretta*), Atlantic green turtles (*Chelonia mydas*), leatherback turtles (*Dermochelys coriacea*) and Kemp’s ridley sea turtles (*Lepidochelys kempii*). With incorporation of this HCP and associated conservation measures for the Perdido Key beach mouse, we do not anticipate take of the piping plover or sea turtles.**

No portions of the proposed project area include currently designated critical habitat, **though portions of the site are within proposed redesignation of critical habitat for the Perdido Key beach mouse (PKBM)**. This HCP focuses on suitable habitat designations as associated with the **PKBM** ~~Perdido Key beach mouse~~.

It is the responsibility of the United States Fish and Wildlife Service (USFWS) to determine whether issuance of an ITP will jeopardize the continued existence of a species whereas, the Florida Fish and Wildlife Conservation Commission (FWC) is to ensure that such a permit is issued only when the permitted activity will clearly enhance the survival potential of the species. The intent of this HCP is to provide the information necessary for the agencies to make such a determination.

Acropolis Development LLC is seeking an incidental take permit (ITP) from the USFWS pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973 (Act), as amended. The FWC regulates “take” under the Florida Administrative Code 68A-27.003. The permit would authorize the take of the federal and state listed **PKBM** ~~Perdido Key beach mouse~~ within the project areas in Escambia County, Florida.

The proposed taking would be incidental to the development of two mid-rise condominium units each maintaining 15 beach club units to be sited within 25,197 sq/ft (0.58 acre) of designated suitable habitat for the beach mouse (**Exhibit 2**).

1.1 Impacts to Listed Species

The habitat impacted by the Palazzo I & II project areas includes ~~tertiary~~ **secondary** dunes and limited areas of coastal scrub. Animal and plant species likely to inhabit the coastal ~~beach and~~ dunes and scrub habitat of the ~~of the~~ project areas, and designated as endangered or threatened by the USFWS or the ~~Florida Fish and Wildlife Conservation Commission~~ (FWC), and are referred to hereafter as listed species.

The HCP addresses these and other species, which occur or are likely to occur in the project areas. Some species are limited to the north Florida Gulf coast in contrast with wide ranging distributions of many other species. Further, species not endemic to the habitats addressed in the HCP will benefit due to the proposed conservation measures to be implemented as a result of the project.

1.2 HCP Development

This HCP is prepared in accordance with the requirements of the USFWS in Section 10(a)(1)(B) of the Endangered Species Act (ESA). The *Habitat Conservation Planning Handbook* (Handbook), published by the USFWS and the **National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA-Fisheries)** NMFS, November 1996 was used to guide the preparation of the plan as was the *Choctawhatchee Beach Mouse, Perdido Key Beach Mouse, and Alabama Beach Mouse Recovery Plan*, USFWS (August 1987).

This HCP addresses the four mandatory elements as required by the ESA and Code of Federal Regulations [50CFR 17.22(b)(1), 17.32 (b)(1), and 222.22]. An HCP submitted in support of an incidental take permit application must detail the following information (corresponding section numbers in this HCP are noted in parentheses).

I. Impacts likely to result from the proposed taking of the species for which permit coverage is requested (sections 1.2, 1.4, 2.1, 2.2,).

There are four steps to determine the likely effects of a project or activity on federally listed or candidate species. These are:

- A. delineation of the HCP boundaries or plan area
- B. collection and synthesis of biological data for species to be covered by the HCP
- C. identification of activities proposed in the plan area that are likely to result in incidental take
- D. quantification of anticipated take levels

II. Measures the applicant will take to monitor, minimize, and mitigate such impacts, including the funding that will be made available to undertake such measures, and the procedures to deal with unforeseen circumstances (sections 2.3 and 2.4)

III. Alternative actions the applicant considered that would not result in take, and the reasons why such alternatives are not being utilized (section 2.1)

IV. Additional measures required USFWS /FWC (to be addressed in subsequent meetings with USFWS and FWC).

1.3 Project Location and Delineation of Habitat Boundaries

The project location and HCP boundaries are presented in Exhibit 1. The HCP is associated with two adjacent 1.29 acre gulf front lots which previously maintained single family piling supported houses that have been **severely damaged by** ~~demolished associated with the landfall of~~ hurricane Ivan. The proposed project consists of the construction of two mid-rise condominium and associated amenities. Approximately 0.58 acre of this project is proposed within the designated suitable habitat of the beach mouse. The proposed development is ~~to occur~~ **planned**

within separate lots and were proposed as separate projects at the inception. It was suggested by officials of the USFWS and FWC that the HCP encompass both projects collectively. The projects will maintain separate associations **as** they are owned by separate joint ventures and are essentially stand alone projects.

Because of biological needs of the beach mouse and other listed species addressed herein, the primary focus of the HCP will be ~~the beach and~~ primary, secondary, and scrub dune habitats within the project areas, which provide habitat for the beach mouse. The Applicant will focus conservation and mitigation activities on the suitable and restorable habitat of the project area.

1.3.1 Critical Habitat

The Federal Register (~~50CFR Ch. 1 (10-1-98 Edition)~~ **50 FR 23872**) identifies Perdido Key beach mouse habitat generally located south of SR 292 and consistent with the Gulf State **Park – Florida Point** parcels (**GSP**) and the Johnson’s Beach section of the Gulf Islands National Seashore (**GINS**). In September 2000, the Service announced that revision of the current critical habitat for the ~~Perdido Key beach mouse~~ **PKBM** was warranted (65 FR 57800) as additional secondary and scrub dunes ~~may~~ **were found to** be essential to the survival and recovery of the subspecies. ~~Revision of the current designation was expected, beginning in 2001, based on funding allocation and other potentially higher priority listing and critical habitat designations. No designated critical habitat is associated with this project.~~ **On December 15, 2005, proposed redesignation of critical habitat for the PKBM was published in the Federal Register (70 FR 74426). This project is within Unit 2 of the proposed critical habitat, with the currently unimpacted land within the parcels (1.72 acres) identified as critical habitat.**

1.3.2 The Palazzo I & II

The Palazzo at Perdido Key is proposed within two adjacent 1.29-acre gulf front parcels located in southwest Escambia County, Florida. The project includes 200 linear feet of low dunes and open beach on the Gulf of Mexico. Landforms and vegetative communities on this tract include open beach and primary and secondary sand dunes.

The primary dune system is vegetated by sea oats (*Uniola paniculata*), with moderate to sparse cover of beach grasses (*Panicum amarum*) and gulf blue stem (*Schizachyrium scoparium*). Elevations between the primary dune (vegetated areas) and SR 292 range from 9-11 feet throughout much of the project site. Photographs of habitat associated with the Palazzo project are presented in **Appendix B**.

The Perdido Key beach mice were reintroduced into the Perdido Key State Park in the year 2000 and periodic monitoring indicates that the species continues to ~~thrive~~ **persist** in the areas surveyed (personal communication, USFWS, January 2006). Recent monitoring and observations continue to indicate the presence of mice within the State and ~~Federal~~ **National** Park as well as within the secondary and tertiary dune system into interior areas of the island located north of SR 292.

During March of 2004, the USFWS designated much of the Gulf front and a majority of the undeveloped lands located north of SR 292 as suitable habitat.

1.4 Biological Overview of Species Addressed by this Plan

Several species are addressed in this HCP due to their listed status or their reliance upon suitable habitat within the project area. The listed species addressed in the HCP includes:

- Perdido Key beach mouse
- ~~Snowy plover~~
- Atlantic loggerhead, green turtle, leatherback, and Kemp's ridley sea turtles
- Piping plover, ~~Arctic peregrine falcon, Louisiana heron, snowy egret, little blue heron, least tern, black skimmer, and American oystercatcher~~
- ~~Cruise's golden aster, large leaved jointweed, and Gulfeast lupine~~

Biological overviews for these species are provided in the following sections. Certain additional species **listed by the state of Florida** are also protected by this HCP due to similarity of habitat with the species listed above. **These species may include snowy plover (*Charadrius alexandrius*), peregrine falcon (*Falco peregrinus*), tricolored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), least tern (*Sterna antillarum*), black skimmer (*Rynchops niger*), American oystercatcher (*Haematopus palliatus*), Cruise's golden aster (*Chrysopsis cruiseana*), large-leaved jointweed (*Polygonella macrophylla*), and coastal lupine (*Lupinus westianus*).** Potential habitat impacts, conservation mitigation intents, and habitat management programs are addressed in Section 2.

1.4.1 Perdido Key beach mouse

The Perdido Key beach mouse (**PKBM**) is a subspecies of the ~~common~~ old-field mouse (*Peromyscus polionotus*) and is endemic to Florida (Humphrey 1992). The **PKBM** is one of several subspecies of beach mouse that inhabit the coastal areas and barrier islands of Alabama and Florida. These subspecies differ from the old-field mouse in color, markings, and size. The Perdido Key beach mouse is pale and smaller than the other subspecies and lack the stripe on the tail. The mouse generally ranges from 70 to 85 millimeters (2.7 to 3.3 inches) in length.

The historic range of PKBM **is restricted to Perdido Key, Florida and Alabama, and** includes coastal dunes extending from ~~Alabama~~ **Gulf State Park - Florida Point in Baldwin County, Alabama** to the eastern terminus of **Gulf Islands National Seashore - Johnson's Beach** in Escambia County. The USFWS (1987) ~~has~~ identified three areas of critical habitat for the mouse, including:

- Gulf State Park West, Florida Point in Alabama (**GSP**) ~~currently unoccupied~~ (**status unknown**)
- Perdido Key State Park (**PKSP**) ~~in Florida~~, and adjacent privately owned lands (~~currently occupied~~)

- ~~Portion of Johnson Beach section of the Gulf Islands National Seashore (GINS)~~
(occupied)

~~Small, isolated Populations of Perdido Key beach mice PKBM may also occur on privately owned, developed and undeveloped areas within the historic range. In addition, Critical habitat areas designated in the *Federal Register* at the time of listing do not include all habitats suitable for the Perdido Key beach mouse PKBM. Because of this Consequently, areas which may provide important habitat for the Perdido Key beach mouse that are not presently federally designated critical habitat are also addressed in this HCP where they exist within the project area. The proposed redesignation of critical habitat for the subspecies provides more information on areas of importance on Perdido Key (70 FR 74426). Typical beach mouse habitat includes dunes and scrub of the coastal communities along the Atlantic and Gulf coasts.~~

~~Populations of the Perdido Key beach mouse have historically occurred throughout the coastal regions of Perdido Key, Florida.~~

1.4.1.1 Habitat

~~Optimal Habitat for the Perdido Key beach mouse consists of the coastal dune communities of the Perdido Key barrier island, rolling, stabilized, inland and high frontal fronsand dunes which is characterized by support vegetation communities such as sea oats, grasses, herbs, and small shrubs, and dwarfed trees. Vegetation is relatively open, and there is little, if any, leaf litter. Frontal dune areas provide an abundance of food resources and potential burrow sites. While the food resources in this habitat fluctuate, the seasonal supply of seeds coincides with peak reproductive activity in the mice. Interior, scrub dune habitat is also essential for beach mice, as these areas provide stable food and burrow resources and high elevation refuge during and after tropical storm events. Optimal Suitable beach mouse habitat, as defined in the Biological Opinion for the Alabama beach mouse (1999) added primary, secondary, scrub dunes, and interdunal areas to optimal habitat previously described by the USFWS Recovery Plan (1987). Data has indicated the presence of beach mice in interior areas beyond the traditional areas (primary, secondary, scrub dunes approximately 700-1000 feet inland). Optimal Habitat may also include connecting corridors between other habitats. Optimal Suitable beach mouse habitat, based on trapping data through 1999, is characterized by:~~

- ~~primary, secondary, and scrub dunes, and interdunal areas~~
- ~~high maximum elevation of the coastal sand dunes~~
- ~~relatively great difference between maximum dune height and minimum interdunal elevation~~
- ~~close proximity of forest~~
- ~~sparse cover of ground vegetation with moderate number (average 3.5) of plant species~~
- ~~relatively low cover of sea oats~~

1.4.1.2. Local Populations

The habitat types described above for the Alabama beach mouse are found in coastal dune habitats of northwest Florida along Perdido Key and extending to St. Andrews Bay in Bay County **Cape San Blas in Gulf County**. This habitat description is consistent with preferred **suitable** habitats of the Perdido Key subspecies.

Currently, it is theorized that potentially three **core** populations of the **PKBM** Perdido Key beach mouse may exist along an estimated 10 to 12 miles of coastline (**Figure 1**). Each of these **core populations are** described below.

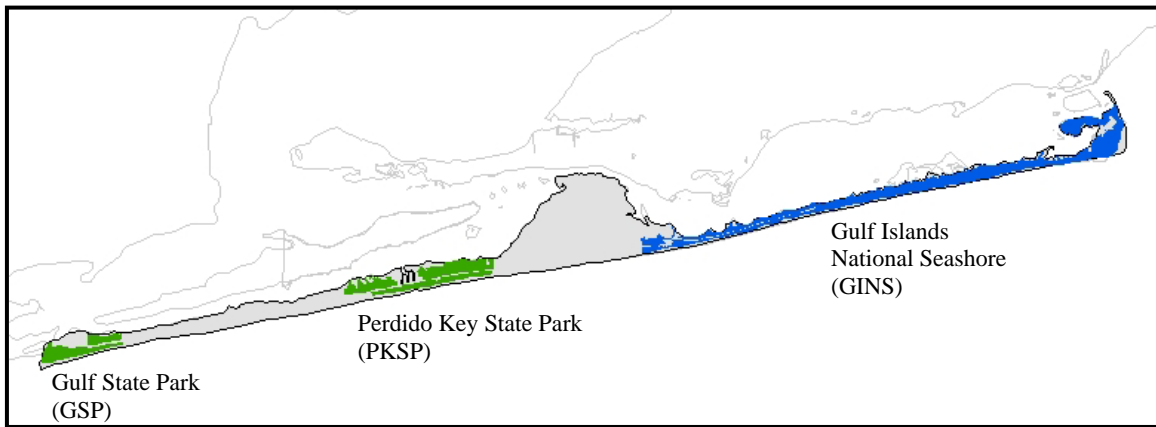


Figure 1. Map of public lands on Perdido Key. Green denotes state lands, blue denotes federal lands.

The Florida Point **GSP** population is located in the extreme western section of Perdido Key within Baldwin County Alabama, approximately **2 miles** ~~1.0 mile~~ west of the Palazzo project area. This ~~estimated 50~~ **115-acre State Park Recreation Area** has 1.1 miles of shoreline on the Gulf of Mexico with a bank of primary, secondary, and scrub dunes, paralleling the coast. **The PKBM population at GSP was believed to be the only remaining population in the early 1980s. Mice from GSP were reintroduced to GINS in 1986, but have since suffered the effects of hurricane Opal and a problematic feral cat population. The population at GSP may be extirpated, though trapping to determine absence has not been conducted.** ~~to the Florida Point Recreation area in the late 1980s and was thought to be extirpated by.~~

The Perdido Key State Park **PKSP** consists of approximately **1.5** ~~2-~~ miles of Gulf of Mexico frontage with considerable back dune acreage extending **the width of the Key** ~~to Old River~~. This area is located approximately 1 mile east of the project area. **The beach mouse population at PKSP was thought to be extirpated in the early 1980s.** Reintroduction efforts occurred in the year 2000 and 2001, and until the passage of Hurricane Ivan, indication was that the ~~sub~~ population was doing well. Personal communications with the USFWS (2006) indicate

that the beach mouse is ~~doing well~~ **currently present** within both the Gulf front section of land **as well as the scrub dunes north of SR 292**. ~~but also within the section of back dune areas.~~

The ~~Johnson beach~~ **GINS** population is located along the easternmost section of Perdido Key. This section of habitat extends for 7 miles of Gulf frontage and maintains a mosaic of habitats from tidal marsh to primary dune systems. This population was thought to be extirpated in the early 1980s, **but reintroduction efforts in 1986 yielded a healthy population**. ~~The Johnson beach sub-population also appeared to be stable with dune habitats at the GINS in good condition prior to the hurricane.~~ **Since hurricane Ivan, and the numerous tropical storms in 2005, the population and its habitat have been severely impacted. Personal communications with the USFWS (2006) indicate that the beach mouse is currently present in the park.** At this time, ~~the overall status of the beach mouse is unknown.~~

Beach mouse populations on private lands are crucial to the long-term persistence of PKBM. Loss of habitat on private lands would prevent dispersal of mice between the core populations. This dispersal behavior is necessary to beach mice to recolonize areas impacted by storms after habitat has recovered, and allows for exchange of genetic material, thereby maintaining genetic variation in the subspecies. Furthermore, PKBM need the habitat the private lands provide to sustain the population through natural population fluctuations. While a large portion of the key is public lands, we know from the past near extinction of PKBM, that public lands alone will not allow for the persistence of PKBM.

1.4.1.3 Life History

The Perdido Key beach mouse is **primarily a granivore**, ~~herbivore and generally foraging~~ mainly on seeds and fruits of **coastal dune plants such as** bluestem (~~*Schizachyrium seoparium*~~), sea oats (~~*Uniola paniculata*~~), and evening primrose (*Oenothera humifusa*); however, insects are also an important component of their diet (Moyers, 1996). These foods are often stored in burrows excavated by the mouse. ~~The Perdido Key beach mouse~~ **PKBM** is **likely** preyed upon by a variety of larger animals ~~including~~ **such as** foxes, raccoons (*Procyon lotor*), herons, and **coyotes** (*Canis latrans*) ~~gulls~~, as well as domestic cats (*Felis catus*). PKBM are nocturnal foragers, in part to avoid predation.

~~The Perdido Key beach mouse~~ **PKBM** ~~inhabits~~ **constructs intricate** burrows. Entrances to the burrows are typically on the sloping side of a dune at the base of vegetation, where the burrow is both stabilized and concealed. The burrows usually have ~~primary and secondary~~ **exits** ~~entrances~~, which provide escape from predators. The beach mouse burrow consists on an entrance tunnel, usually descending obliquely for some distance before continuing straight into the dune bank, where there is typically a nesting chamber 2 to 3 feet in depth, and an escape tunnel rising steeply to within an inch from the surface. Beach mouse home ranges may include numerous burrows for safe refuge from predators and shelter for food storage and nesting.

1.4.2 Sea Turtles

~~Sea turtles are globally distributed. However, in most cases, these sea turtles must return to the same beaches on which they were hatched to lay their eggs each summer. While the beaches of Escambia County are not home to the larger population which nest on Florida east coast beaches and beaches farther south on the Gulf coast, the relatively undeveloped conditions of the area provide nesting habitat for four species of sea turtles, which may occur along the Gulf coast.~~

~~Five~~ **Four** species of sea turtles occur along the north Florida Gulf coast, including the Gulf coast of Escambia County (Wolfe et al., 1988). Of these **four** ~~five~~, three are listed as endangered at both the state and federal levels (FNAI, 1999). The sea turtles which may nest along the Gulf coast in Escambia County include the Atlantic loggerhead turtle (*Caretta caretta*), which is listed as threatened with both the USFWS and the FWC, and the Atlantic green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*) and Kemp's ridley (***Lepidochelys kempii***), which are listed as endangered by both the USFWS and FWC. While the green sea turtle population has exhibited historic declines in response to commercial exploitation, the loggerhead, Kemp's ridley, and leatherback have no commercial value and population declines may be primarily a result of habitat loss (McDiarmid 1978), although losses have also been due to commercial fishing nets.

The green and loggerhead turtles are characterized by heart-shaped, scute-covered carapaces, paddle-like limbs with one or two claws, and with the exception of the leatherback, are the largest living aquatic turtles. **The Kemp's ridley is among the smallest of the sea turtles.** These marine turtles typically forage and breed offshore in shallow water and the sandy beaches along the Gulf coast provide important nesting habitat. The leatherback is the largest living turtle, sometimes exceeding 540 kg (1200 lb) and is classified in a different family because of the absence of a hard carapace. Sea turtles live mostly in warm waters and are graceful swimmers, with limbs modified into long flippers that enable them to migrate long distances. The green turtle, for example, migrates from the coast of Brazil to breed on the small island of Ascension, some 1400 miles out in the Atlantic.

The sandy beaches along the coastal portions of the Palazzo **I and II** project areas is important nesting habitat for sea turtles. Reaching sexual maturity, females of most species of marine turtles return to the beaches where they were hatched (Behler, 1978 and McDiarmid, 1978). At night they crawl on to the beach, dig a hole in the sand, and deposit their eggs. This may occur from one to several times in a season, depending on the species. After filling the nest with eggs they return to sea.

When female sea turtles crawl above the tide line to bury their eggs, they and their large egg clutches are easy prey to shoreline predators, including humans. Many hatchlings never reach the water and still fewer survive their first year. Drowning of turtles in fishing trawls and diminished nesting grounds due to shore development have led to the endangered status of most sea turtles.

The Florida Department of Environmental Protection (FDEP) Florida Marine Research Institute (FMRI) coordinates and maintains the state Sea Turtle Stranding and Salvage Network (STSSN). The Florida STSSN is part of the national STSSN, which was established in 1980 and is responsible for gathering data on all stranded sea turtles in the United States. Stranding

data are often used to monitor mortality rates and may sometimes be used as an indicator of relative distributions and abundances of different species and sizes of sea turtles (FMRI 1998). The number of strandings of sea turtles in Escambia County, by species, provides some indication of the relative abundance of sea turtle species on the project sites. It is important to note that absence of a stranding may not indicate the absence of the species.

A general description of the four sea turtle species potentially occurring along Perdido Key of Escambia County, Florida, within project areas is provided below. This includes a physical description, geographical distribution, and habitat requirements of the sea turtles.

1.4.2.1 Loggerhead

The loggerhead (~~*Caretta caretta*~~) occurs in temperate and subtropical waters worldwide, with major nesting beaches in eastern Australia, southeastern Africa, and the southeastern United States, and Japan (Moler 1992). The loggerhead is the most common sea turtle in the United States and nesting occurs on suitable beaches from North Carolina through Florida and to a lesser extent on islands off the Gulf states. The major nesting beaches are on the east coast of Florida between Cape Canaveral and Palm Beach. In the Southeastern region, nesting is also reported for the Culebra Island area of Puerto Rico. Current nesting estimates range from 40,000 to 50,000 nests annually. The loggerhead appears to be the most common sea turtle in the region and the nesting and stranding reports indicate the project area contains likely locations for sea turtle nests.

The loggerhead is considered threatened throughout its range. Threats to the loggerhead include loss of nesting beaches to various types of human encroachment (including the problem of hatchling disorientation arising from excessive artificial light), excessive natural predation in some areas, and marine pollution from oil, plastics, and styrofoam. The major threat to these turtles is drowning in fishing and shrimping trawls (Moler 1992).

Nesting occurs mainly on open beaches or along narrow bays having suitable soil, and it is often in association with other species of sea turtles (FNAI 1999). From laying to hatching, the nesting season for the loggerhead runs from April through September. Females typically nest at 2 to 4 year intervals and nesting occurs nocturnally (Moler 1992). Three or four clutches may be deposited in a season and incubation requires 50 to 75 days, each with 110 to 120 eggs. The hatchlings generally emerge at night. Limited information indicated that turtles reach sexual maturity in 15 to 20 years. Following the nesting season, most of the population disperses. Nesting turtles tagged in Florida have been recovered in South Carolina, Georgia, Alabama, Louisiana, Cuba and the Bahama Islands. This turtle nests farther from the equator than any other marine turtle. The loggerhead population in the U.S. was estimated at 25,000 to 50,000 individuals in 1978 (McDiarmid 1978). In addition, about 22,000 nests are dug each year in the U.S. At 3.5 nests per turtle and 2.5 years between nesting, the U.S. population is estimated at 15,714 adult female turtles. This compares with an estimated 19,895 nests in Florida by 14,210 adult female turtles. Thus, the Florida population of loggerheads makes up more than 90% of the total U.S. population.

Loggerhead sea turtles nest within the continental U.S. from Louisiana to Virginia. Major nesting concentrations in the U.S. are found on the Atlantic and Gulf coasts of Florida and on the coastal islands of North Carolina, South Carolina, and Georgia (Hopkins and Richardson 1984). From a global perspective, the southeastern U.S. nesting aggregation is of primary importance to the survival of the species because it is second in size only to nesting on islands in the Arabian Sea off Oman (Ross, 1982; Ehrhart, 1989; NMFS and Service 1991a). The status of the Oman colony has not been evaluated recently, but its location in a part of the world that is vulnerable to disruptive events (e.g. political upheavals, wars, catastrophic oil spills) causes considerable concern (Meylan et al. 1995). The loggerhead nesting groups in Oman, the southeastern U.S., and Australia account for about 88 percent of nesting worldwide (NMFS and Service, 1991a). Total estimated nesting in the southeastern U.S. is approximately 68,000 to 90,000 nests per year (Florida FWC statewide nesting database 2002; Georgia DNR statewide nesting database 2002; SCDNR statewide nesting database 2002; NCWRC statewide nesting database 2002). About 80 percent of loggerhead nesting in the southeastern U.S. occurs in six Florida Atlantic coast counties- Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward counties (NMFS and Service, 1991a).

Genetic research (mtDNA) has identified five loggerhead nesting subpopulations in the western North Atlantic: (1) the Northern subpopulation occurring from North Carolina to around Cape Canaveral, Florida (about 29 degrees North); (2) South Florida subpopulation occurring from about 29 degrees North on Florida's east coast to Sarasota on Florida's west coast; (3) Dry Tortugas, Florida subpopulation; (4) Northwest Florida subpopulation occurring at Eglin Air Force Base and the beaches near Panama City; and (5) Yucatan subpopulation occurring on the eastern Yucatan Peninsula, Mexico (Bowen et al. 1993; Encalada et al. 1998). These data indicate that gene flow between these five regions is very low. If nesting females are extirpated from one of these regions, regional dispersal would not be sufficient to replenish the depleted nesting subpopulation.

The Northern Subpopulation has declined substantially since the early 1970s, but most of that decline occurred prior to 1979. No significant trend has been detected in recent years (Turtle Expert Working Group, 1998, 2000). Adult loggerheads of the South Florida subpopulation have shown significant increases over the last 25 years, indicating that the population is recovering, although a trend could not be detected from the State of Florida's Index Nesting Beach Survey Program from 1989 to 2002. Nesting surveys in the Northwest Florida and Yucatan subpopulations have been too irregular to date to allow for a meaningful trend analysis (Turtle Expert Working Group, 1998, 2000).

1.4.2.2 Green Sea Turtle

While once probably abundant in Florida, the population of green sea turtles is now estimated at no more than 50 mature females. The Palazzo **I and II** project areas are located in Escambia County, where no nests or strandings have been documented (FMRI 1999). However, the project areas are considered within the range of sea turtle nesting **habitat**. This species, like all sea turtles, is now legally protected within Florida waters, but an active fishery exists in much of the Caribbean.

Sexual maturity takes 20-30 years for a green sea turtle. This turtle nests every 2-3 years and the Florida season is May through August. As many as seven clutches of eggs, with an average of 136 eggs per clutch, may be laid in a season (FNAI 1999). Mature females measure from 37 to 44 inches (0.94 to 1.12 meters) in carapace length and can weigh 250 to 285 pounds (113.6 to 129.5 kg). Adult **green sea** turtles eat only plants, primarily sea grasses, although they will consume mangrove leaves as well. Younger turtles will eat fish, jellyfish, crustaceans and algae.

The only major nesting ground existing for the green sea turtle are confined to Tortuguero, Costa Rica, and Aves Island in the east Caribbean, with dispersal from these sites throughout much of the Caribbean. Nesting in the U.S. is generally confined to the east coast of Florida between Cape Canaveral (Kennedy Space Center) and Palm Beach. Nesting has been documented in Escambia County since 1994 and specifically in 2000 on Perdido Key (State of Florida nesting database). Total population estimates for the green turtle are unavailable, and trends based on nesting data are difficult to assess because of large annual fluctuations in numbers of nesting females. For instance, in Florida, where the majority of green turtle nesting in the southeastern U.S. occurs, estimates range from 150 to 2,750 females nesting annually (Florida FWC, 2003). Populations in Surinam and **in** Tortuguero, Costa Rica may be stable, but there is insufficient data for other areas to confirm a trend.

1.4.2.3 Leatherback Turtle

The leatherback turtle (*Dermochelys coriacea*, family Dermochelyidae) is the largest of the marine turtles. The leatherback inhabits open seas, bays, and estuaries and occurs along the Florida Gulf coast. Like other sea turtles, the leatherbacks feed and breed at sea, but require sandy beaches like those along the project areas for nesting.

The leatherback is ~~also~~ the most specialized aquatic turtle (Behler 1979). The carapace has **a rubber-like texture, about 4 cm thick, and is made primarily of tough, oil-saturated connective tissue.** ~~is made up of many small bony platelets embedded in the skin and~~ Its ribs and vertebrae, unlike those of other turtles, are not attached to the carapace. Its carapace is elongated and triangular and slate to blue-black in color. The turtle reaches a total length of about 8 feet and a weight of 1200 pounds.

Like the loggerhead and green sea turtles, the leatherback may nest along the Florida Gulf coast and a nesting of a leatherback nest in Escambia County has been documented. The estimated world population of leatherbacks is 136,000 and Atlantic populations may be increasing in some areas (Moler 1992). FMRI (1999) has documented 67 leatherback nests and 5 strandings.

The leatherback occasionally nests on the east and west coasts of Florida. It nests nocturnally and may nest several times a season. Nests may number 10 per season with 80 to 85 healthy eggs, although two seasons often intervene between nesting seasons (Moler 1992). Undisturbed beaches with no obstructions, little human activity, and no lights to interfere with hatchling orientation are necessary for the females to successfully nest. Leatherbacks subsist primarily on jellyfish, although seaweed and mollusks are also included on their diet. While the leatherback turtle is not edible it is taken for oils of cosmetic value and its eggs are prized.

1.4.2.4 ~~Hawksbill and Kemp's~~ Ridley Sea Turtle

The Kemp's ridley is the most seriously endangered of the sea turtles. Its numbers have precipitously declined since 1947, when over 40,000 nesting females were estimated in a single *arribada*. The nesting population produced a low of 702 nests in 1985; however, since the mid-1980s, the number of nests laid in a season has been increasing primarily due to nest protection efforts and implementation of regulations requiring the use of turtle excluder devices in commercial fishing trawls. During the 1999 and 2000 nesting seasons, more than 3,600 nests and 6,000 nests, respectively, were deposited on the Mexico nesting beaches. The range of the Kemp's ridley includes the Gulf coasts of Mexico and the U.S., and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. This turtle is a shallow water benthic feeder with a diet consisting primarily of crabs. The solitary nesting habits and wide range of the hawksbill make adequate census difficult and these turtles rarely nest on Florida beaches (Behler 1978), **though Kemp's ridleys have nested on Perdido Key.**

~~Although the Florida Gulf coast is within the range of the Hawksbill and Atlantic Ridley, these turtles rarely if ever nest along this coast. Both turtles weigh about 100 pounds (FNAI 1999). Nesting for both these turtles is similar to those for the more common loggerhead and green sea turtles.~~

~~The Atlantic Ridley lives and feed in shallow coastal waters with rocky bottoms, coral reefs, and mangrove bordered bays and estuaries. Virtually the entire population of these turtles nest along 10 miles of beach in the State of Tamaulipas, Mexico. Mature Ridleys are restricted to the Gulf of Mexico, although immature individuals have been collected along the Atlantic coast of the U. S. and infrequently along European shores. Immatures are found seasonally in the Cedar Keys-Crystal River area and indicate the potential distribution of the Ridleys although north Florida Gulf coast.~~

1.4.3 ~~Additional Listed Species~~ Piping Plover

The piping plover (*Charadrius melodus*) is a small, American shorebird. It breeds in three distinct areas (the Northern Great Plains, Great Lakes, and Atlantic Coast) and winters in coastal areas of the United States from North Carolina to Texas. On December 11, 1985, the Great Lakes population of piping plovers was listed in the Federal Register (50 FR 50720) as endangered, while all other populations were listed as threatened under the ESA. All populations are considered threatened when on their wintering grounds. Critical habitat for wintering piping plovers was designated July 10, 2001 (66 FR 36038). Migratory patterns for the plover are not well understood. Piping plover generally migrate to their wintering areas from late July through September, returning to their breeding grounds beginning in late February.

Habitat used by piping plovers for foraging, roosting and shelter include intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. The sand or mud flats possess no or minimal emergent

vegetation. Important features of the beach and dune systems include surf-cast algae, sparsely vegetated backbeach, spits, and washover areas. In addition, adjacent non- or sparsely vegetated sand, mud, or algal flats above high tide are important habitat for roosting piping plovers, and are primary constituent elements. These roost sites may have debris and detritus that provide shelter from high winds and cold.

Non-breeding piping plover are found consistently in the Florida panhandle from July 15 to May 15. Areas used by piping plovers are ephemeral habitats that due to their nature change over time. Hurricanes and episodic storm events increase overwash processes that transport sediment (sand) across barrier islands and form inlets and sand and mud flats. Washover areas are created by the flow of water through the primary dune line with deposition of sand on the barrier flats, marsh, or into a lagoon, depending on the storm magnitude and the width of the beach. On developed beaches, structures may prevent or minimize this occurrence. Washover passes are used by migrating and wintering piping plovers for feeding and roosting. Dredging projects and shoreline manipulations in wintering areas can have an effect on the piping plovers food base, and result in habitat loss and direct disturbance of individual birds. The current use of this area by piping plovers post recent hurricane events is currently unknown.

The Florida critical habitat unit 1 – Big Lagoon encompasses 19 acres, with the majority in Big Lagoon State Park. This unit covers the peninsula, emerging sand and mudflats, emerging sandbars, and shoreline from Mean Low Water (MLW) ending at densely vegetated habitat. Occurrence records document one to five piping plovers consistently using the Big Lagoon area during migration and winter months, with no presence likely from May 15 to July 15. This area is north and east of the Perdido Key action area. If suitable habitat is found on the project site, piping plovers may be using the project area sometime during the nonbreeding season. Regular surveys would be needed to confirm their presence.

~~There are several species that may occupy beach, dune, or other coastal habitat similar to that of the Perdido Key beach mouse, sea turtles, or piping plover snowy plover. These species likely would not be impacted by the Palazzo project but associated activities likely will benefit the species by the implementation of the HCP. Habitat and listed state and federal species, which may occur in the project areas, are listed in Table 1-4. The habitat in the project area may be used by these species but the habitat is not crucial to these species.~~

1.4.4.1 Additional Listed Species

Although the ESA does not generally prohibit the incidental taking of listed plants on private property in accordance with State Law (USFWS 1996), plants ~~considered endangered or threatened, and~~ **listed by the State of Florida may be protected by this HCP due to the similarity of habitat needs.** ~~are addressed in the HCP. These include:~~ Cruises golden aster, large-leaved jointweed, and coastal lupine ~~inhabit coastal dunes, although the jointweed is more common in sand pine scrub and coastal oak scrub.~~ Because these species are tolerant of high-energy dune systems, they may also occur in locally disturbed areas where other plant species

have not yet been established or re-established. ~~All three of these plants are listed as threatened or endangered in Florida, but are not listed federally.~~

~~These plant species occupy, and in fact make up part of, the same habitat occupied by the Perdido Key beach mouse. As a result, these listed plants can be considered impacted by the same activities designed to manage for Perdido Key beach mouse habitat.~~

2. PROPOSED ACTIVITIES

Proposed development of the Palazzo **I and II** condominium projects may result in an incidental take on the project areas. The first mandatory element of the HCP (USFWS 1996) related to the potential incidental take requires that:

- activities proposed in the plan area that are likely to result in incidental take must be identified; and
- anticipated take levels be quantified.

2.1 Development Intent: Proposed Activities Which May Result in Incidental Take

Proposed activities, which may result in an incidental take, are described for each of the project areas in the following paragraphs.

2.1.1 Palazzo I & II

The applicant proposes to develop the Palazzo **I and II** projects, within a 2.6 acre-~~acre~~-tract along the Florida Gulf coast beaches of southwest Escambia County.

- **2-nine story buildings consisting of** 15 residential dwelling units within each tower (**30 units in total**) and associated parking;
- recreation amenities including a **two** swimming pools **and deck areas** and one centralized beach-access dune walkover.

Development is planned to occur upon receipt of all applicable State, Federal and County permits. Build out is expected to take 15 months till completion, and occupancy expected thereafter. An elevated boardwalk will ~~replace the previously existing at grade pedestrian dune crossings,~~ provide controlled **pedestrian** access to the beach.

The beach front area will provide day-use portable recreational amenities including beach chairs, cabanas, umbrellas, and beach recreational equipment for use by the residents and guests of the project.

2.1.2 Alternative Action

Alternative actions considered included:

- no development (no action alternative);
- minimization of impacts and mitigation for impacts within the project area; and
- minimization of impacts and mitigation both inside and outside the project area (proposed action), as conditioned by this HCP.

2.1.3 No Action

The applicant is seeking to establish two multi-unit condominium projects within two single family residential areas destroyed by Hurricane Ivan in 2004. The previous structures were built in the 1970s when there was very little County Land Development Codes to adhere to, as well as very little regard to environmental issues such as lighting, and the maintenance of sanitary refuse. The re-development will require the building design to consider current Land Development Code issues as associated with building setbacks (6.05.08.E.4), parking requirements (7.02.00.C.1), Pool Deck Design (Florida Building Code Section 1004), and design, maintenance, and treatment of stormwater as regulated by the Florida Department of Environmental Protection. Additionally, the new development will maintain sanitary garbage collection, prohibit cats, as well as develop a State approved lighting plan. These regulations required additional footprint of the developable area to comply with the “new” code/regulations.

If the applicant were to take no action and reduce the units to make the development fit within the prior (post Ivan) footprint, **they would still need to follow coastal construction best management practices (such as wildlife lighting, refuse management, feral cat control) as any other new development.**

~~nothing would preclude the occupants from potentially providing circumstances that would be a detriment to the survival of the mouse in the projects vicinity. Owners could have cats, use many ground level cuts for beach access, initiate recreation (volleyball) activities within potential habitats and potentially initiate a host of other activities that could be detrimental to the mouse's and other endangered or threatened species existence, where these activities will be precluded by the development, submittal, and approval of the HCP.~~

2.1.4 Development with All Mitigation Activity On-site

Under this alternative, the proposed projects will be developed and impacts will be minimized and mitigated on-site through compliance with the HCP.

Additionally, one existing dune cut will be restored to natural grade and revegetated to enhance the habitat for the beach mouse. The elevated dune walkover is to be constructed to replace the existing dune cut. The elevated walkovers will protect the vegetation communities on the dunes and control access to the beach.

The restoration of 1.2 acres of coastal dune habitat is offered as additional mitigation for the impacts of development. Other mitigation actions proposed by the Applicant include ~~the installation of turtle compatible lighting on the condominium complex and facilities and~~ the conservation of 1.7 acres of primary dune field and open beach. The natural areas will provide

protections for the Perdido Key beach mouse, as well as habitat for federally listed birds and sea turtles.

Minimization of impacts to the Palazzo I and II project area includes limited development activities within the suitable habitat portions of the project area.

2.2 Impact on Habitat: Quantifying Anticipated Incidental Take

Anticipated incidental take levels have been quantified for the Palazzo I and II project areas (**Tables 1 and 2**), and are presented below. Quantifying the anticipated take of the Perdido Key beach mouse is directly dependent upon impacts to the ~~designated~~ suitable habitat. Suitable, non-suitable, and open beach habitats are quantified in an effort to better evaluate incidental take.

The project site habitat previously consisted primarily of ~~Primary~~ **frontal** dunes with a fairly consistent cover of *Uniola* and *Schizachyrium*. There existed 1.7 acre of primary and secondary dunes in the project area, making up 100 percent of the suitable habitat. The remainder of the parcel consisted of two single residences and driveways which accounted for 0.38 acre of non-suitable habitat, and 0.49 acre of beach front.

Permanent impacts to suitable habitat due to pavement, buildings, and amenities amount to 0.58 acre. Habitat which will be disturbed but not permanently converted to a more intensive land use (e.g., temporary construction) will be restored. The value of retaining habitat, where possible, within the project area and augmented with native landscaping will be accomplished in all areas outside the developed core of the lots.

Table 1. Current and proposed conditions (preferred alternative) associated with the Palazzo I and II projects with respect to Perdido Key beach mouse habitat (in acres).

Palazzo I & II	Current condition	Preferred Alternative
Total Acres	2.6	2.6
PKBM habitat remaining on site	1.7	1.2
PKBM habitat to be permanently impacted	NA	0.58
Development on non-PKBM habitat	0.4	0.32
Undeveloped non-PKBM habitats	0.49	0.49

Due to extensive damage to the primary dune system caused by the landfall of hurricane Ivan, the areas that previously supported vegetation will be restored through the development of a primary dune system and re-vegetation efforts. This restoration of suitable habitat accounts for 1.2 acre.

In addition to direct impacts of habitat loss, indirect impacts due to increased human activity may occur. These include increased pedestrian traffic resulting in disturbance, introduction of house pets, attraction of feral animals, increased trash, disturbance due to lighting, and habitat fragmentation. Many of these secondary impacts will be reduced or eliminated by the ~~initiation~~ **implementation** of the **conservation measures HCP**.

Table 2. Existing and proposed impacts associated with the Palazzo I and II projects (in acres).

	Open Beach	Primary Dunes	Secondary Dunes	Scrub Dunes	Current Infrastructure/ Impacted Area	Total	Habitat (Total - Current Infrastructure)
Parcel Total	21,158	41,011	34,044	0	16,956	113,169 (2.6 ac)	96,213 (2.2 ac)
Permanently Impacted	0	0	25,197	0	16,956	42,153 (0.97 ac)	25,197 (0.58 ac)
Temporarily Impacted	0	0	8,847	0	0	8,847 (0.2 ac)	8,847 (0.2 ac)
Restored	0	41,011	8,847	0	2,951	52,809 (1.2 ac)	52,809 (1.2 ac)
Unimpacted	21,158	41,011	0	0	2,951	65,120 (1.5 ac)	62,129 (1.42 ac)
Total PKBM habitat on site	0	41,011	8,847	0	2,951	52,809 (1.2 ac)	52,809 (1.2 ac)

Based on habitat and local distributions, impacts to the Perdido Key beach mouse, the ~~snowy~~ **piping** plover, and sea turtles as a result of the project are addressed in the following sections. The loss of habitat comprises a direct effect only to habitat suitable to the Perdido Key beach mouse.

2.2.1 Palazzo I & II

The Palazzo project area contains a total 2.6 acres. Of this, 1.7 acres are suitable habitat for the Perdido Key beach mouse (there is no designated Perdido Key beach mouse critical habitat at the project site, **though the 1.7 acres of suitable habitat on the project site are currently proposed critical habitat [70 FR 74426]**). Non suitable habitat is limited to the existing driveways, associated parking, and the footprint of the two single piling supported residences (consisting of 0.4 acre) **as well as open beach (0.49 acre)**.

2.2.2 Habitat Types

Two general habitat types make up the suitable habitat associated with the PKBM described for the Palazzo project area. Dune and disturbed habitats are described below. The third type of habitat found within the project area consists of open beach that is utilized by the **piping** ~~snowy~~ plover and sea turtles as described.

2.2.2.1 Open beach habitat

Open beach habitat includes those areas of uniformly flat to gently sloping open sand between the shoreline and the toe of the primary dune. Areas of historically recent tidal wash over from high tidal and storm surges are also included within this open beach habitat. The beaches have little to no vegetation and are subjected to periodic tidal and storm surge inundation. Beach habitat includes 0.49 acre. There will be no loss of beach habitat in the project area. Beach habitat provides:

- ~~critical~~ **essential** resting and feeding **wintering** habitat for the **piping** ~~snowy~~ plover; and
- ~~critical~~ **essential** nesting habitat for the ~~three~~ **four** sea turtles listed and described earlier.

~~The snowy plover is the only Florida nesting bird limited to the bare sand and beaches for breeding and nesting. The preferred~~

Habitat used by piping plovers for foraging, roosting and shelter include intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. Piping plover generally migrate to their wintering areas from late July through September, returning to their breeding grounds beginning in late February. All populations are considered threatened when on their wintering grounds.

~~**Snowy plover** breeding habitat is relatively undisturbed dry or sandy ground near to water (Richards, 1988) where they nest on open, dry white sand. Other bird species are intolerant of the bare sand and beach habitat for either feeding or nesting or both, thereby eliminating competition with other species, and providing a niche in which the snowy plover are considered adverse. **Conservation measures implemented as conditions of the HCP (e.g., prohibiting cats, use of boardwalks) will reduce and/or eliminate these impacts so that take of piping plovers would not be anticipated.**~~

While sea turtles feed and live in offshore waters, all of them must come ashore to nest and lay their eggs, and most return to the same beaches ~~on which~~ **where** they ~~were~~ hatched. Soft, sandy beaches provide the habitat in which the females dig the nest, deposit their eggs, and return to the ocean. Hatchlings later dig through the sand before racing to the ocean amid predation, disturbance, and possible disorientation. Development on these beaches results in direct loss of nesting habitat, as well as decreased nesting success due to disturbance, increased predation, and disorientation of hatchlings due to lighting. Impacts, which preclude nesting by a sea turtle **or decrease nesting success**, are considered adverse.

Although seeds are their primary source of food, the PKBM may occasionally forage for invertebrates, especially during the late winter and early spring when seeds are scarce, and venture from the cover of the vegetation for short periods of time. The sandy beaches are not primary habitat for PKBM, however, because they are at a greater risk of predation when on the open beach.

Indirect impacts ~~are~~ **would** be expected as a result of **the subject** project. These may include disturbance of nesting activities or physical disturbance of nests by increased pedestrian traffic;

predation on adult or hatchling species of interest due to pets; predation due to increased feral animals; competition with invasive species (e.g., house mice) due to construction of dwellings and accessible trash; erosion of habitat due to increased pedestrian traffic; and disturbance due to increased beach artificial lighting. **Conservation measures implemented as conditions of the HCP (e.g., prohibiting cats, use of wildlife lighting) will reduce and/or eliminate these impacts so that take of sea turtles would not be anticipated.**

2.2.2.2 Dune Habitat

The dune habitat consists of a severely impacted primary **frontal** dune system and back **or scrub** dunes, which together comprise the "dune field". The generally flat primary and secondary sand dunes, which occur along the coastal portions of the project areas, support vegetation communities of sea oats, grasses, herbs, and small shrubs. Vegetation along the dunes includes sea oats, sea rocket, gulf bluestem (*Schizachyrium maritimum*), and woody goldenrod (*Chrysoma pauciflosculosa*).

Scrub dune habitat is characterized as stabilized, wind-deposited coastal dunes that are vegetated with salt-tolerant shrubs. Typical plants include sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), yaupon (*Ilex vomitoria*), southern magnolia (*Magnolia grandiflora*), sand pine (*Pinus clausa*), beach heather (*Conradina canescens*), marsh elder (*Iva frutescens*), greenbrier (*Smilax* spp.), woody goldenrod, and Florida rosemary (*Ceratiola ericoides*). Typical animals include gopher tortoise (*Gopherus polyphemus*), six-lined racerunner (*Cnemidophorus sexlineatus*), southern hognose snake (*Heterodon simus*), coachwhip snake (*Masticophis flagellum*), diamondback rattlesnake (*Crotalus adamanteus*), and beach mice (*Peromyscus polionotus* spp.).

Scrub dunes are generally quite stable but are susceptible to severe damage if the vegetation is disturbed. Shrubs in the coastal strand are frequently dwarfed and pruned as a result of the salt spray-laden winds that kill twigs on the seaward side, producing a smooth dense upward-slanting canopy resembling a sheared hedge.

The project areas include 1.7 acres of dune habitat of which the applicant is proposing impacting 0.58 acre. These vegetated dunes make up the primary habitat of the Perdido Key beach mouse. The dunes themselves are the substrate into which burrows are dug, while the vegetation provides both cover and forage for the mouse. The loss of the dune habitat would result in the loss of suitable habitat for the endangered Perdido Key beach mouse and is considered adverse and possibly a "taking" incidental to the development. Loss of portions of habitat, which provide habitat corridors to other areas, may separate and isolate individuals or groups of mice.

Consequently, the loss of this dune habitat would likely result in the taking of PKBM.

Impacts to sea turtle nesting success as a result of loss of dune habitat are similar to those described for the beach habitat. The seaward portions of the sand dunes along the project areas also make up the edge habitat along which sea turtles nest. The increased elevation and vegetation prevents the turtles from progressing much farther, and they often nest along the seaward edge of the dunes.

Vegetated dunes do not provide habitat for ~~snowy~~ **piping** plover or other shorebirds, which prefer bare, sandy beaches. Other passerine birds and gulls may occasionally inhabit these dunes. In addition, gull colonies, oyster catchers, and willets (*Catoptrophorus semipalmatus*) often nest in or along the edge of dune vegetation. Indirect impacts to each of these species are similar to those described for the beach habitat.

2.3 Avoidance and Minimization

This section specifically addresses the conservation, mitigation, and restoration intent of the HCP, listed previously in section 1.1. These mandatory elements concern:

- **avoiding** and minimizing ~~mitigating~~ impacts; and
- alternative actions.

2.3.1 Site plan amendments to avoid and minimize take:

- 1. Buffers along the east and west sides of the proposed buildings would be maintained to provide corridors to connect PKBM habitat onsite with off-site habitat to the north of both properties. These corridors, originally designed as landscape buffers with sod and ornamental plants, would be a minimum of 10-foot wide and would be planted with native vegetation.**
- 2. Both proposed projects have been designed to include the minimum number (46) of parking spaces (1.5 spaces per unit) required by County code. The proposed footprint of the parking areas represents the minimum area needed to accommodate the required number and size of the parking spaces. The parking-lot design was devised to cantilever the parking spaces on the perimeter of the parking lot to maximize the width of the habitat corridors.**
- 3. Hand-rails would be installed on the decks as a deterrent to pedestrians from entering the dune habitat from the deck area.**
- 4. Fence would be installed along the east and west property boundaries and from the building to the property boundaries to prevent access to beach mouse habitat. The fence would allow movement of beach mice and prevent pedestrian trespass.**
- 5. Sand fence would be installed seaward of the fore dune to both enhance sand retention and prevent pedestrian access to the dune habitat on both properties. The sand fence would be installed in a sea turtle compatible configuration. Sufficient fencing may originally be installed by Escambia County to restore dunes after the tropical storms of 2004 and 2005. The applicant is still responsible for sand fencing to restore dunes after future storms and/or to enhance any efforts by the County (refer to Section 2.4).**

6. A single dune walkover would be constructed (226 feet) to provide access over the dune habitat to the beach. The walkover would provide the only access to the beach, minimizing future habitat impact on both properties. The walkover on each property would be constructed using top-down techniques and would have a minimum elevation of 3 feet above grade.
7. Educational signs would be installed on the decks and walkovers providing ~~anecdotal~~-natural history information about the PKBM, sea turtles, shorebirds including piping plovers, and habitat conservation. These signs are intended to increase awareness resulting in beneficial behavior modification of residents and guests of the facilities.
8. Trash collection and storage for the units of both projects would be contained in the interior spaces. Exterior trash receptacles have been eliminated with the exception of one in the pool area at each development. These receptacles would be animal-proof and would reduce predator and competition pressure from nuisance and exotic species.
9. The projects were redesigned to relocate exterior entrances to mechanical and life-safety equipment rooms these entrances to the interior. This was to eliminate exterior entrance areas and occasional pedestrian traffic within habitat areas.

2.3.2 Project Construction to minimize impacts to PKBM during construction of the development.

1. A summary of the HCP and any issued permit requirements would be provided to the general contractor and included in all sub-contracts for both projects. The construction contract documents would include a stipulation that conservation objectives be communicated to and agreed upon by all sub-contractors.
2. Limits of construction would be clearly marked on all construction plans and would be clearly indicated onsite with silt fence or other barrier fence for both projects.
3. No barriers would be placed waterward of the proposed structures that would limit wildlife movement to and from adjacent properties.
4. Wildlife lighting would be utilized for the parking lots, common areas and exteriors of the structures. All windows and glass doors would have the appropriate glass or window tint that only allows 45 percent light transmittance from inside to outside.

5. All areas temporarily impacted during construction would be restored to ambient or design grade and planted with native vegetation. The Service would approve of the landscape plans for the developments.

2.3.3 Operation and Management

Measures have been incorporated in the project operation and management for both projects. Where relevant, operation policies will be included in both condominium documents provided to each unit owner. Section 10.17 of The condominium documents will contain the referenced provisions and has been included in the HCP. The referenced provisions are:

1. Cats would be prohibited on both premises. All other pets would be restricted to the inside of the condominium units.
2. Waste receptacles have been eliminated from all outdoor common areas in the projects with the exception of one in each of the pool areas. These receptacles would be animal-proof.
3. Pesticide and herbicide application would be prohibited outside the units at both developments.
4. All beach chairs and umbrellas or similar items would be removed from the beach at both properties each night during the sea turtle nesting season from May 1 through October 31.
5. Access to the sites would be granted to the Service, the FWC, and their representatives to conduct permit compliance monitoring, PKBM population monitoring, and predator control.
6. General guidance provided in the covenants and restrictions for the condominiums would provide reference and information about the Endangered Species Act and the presence of the endangered PKBM, prohibit littering on the beach or common areas, and prohibit access to the conservation easement and other natural areas on the site.

2.4 Conservation and Mitigation

The design for the projects minimizes impacts to natural habitat and provide for the restoration of impacted areas that do not presently provide suitable habitat. Additionally, other mitigation measures will be employed to benefit the listed species, the mitigation and conservation portion of the plan contains the following four parts.

- ~~Restoration and enhancement of 1.2 acres dune habitats (outside Escambia County's berm and revegetation effort) through re-contouring and re-vegetation.~~

• ~~Management and conservation of remaining natural areas:~~

- ~~Implementation and participation of conservation measures currently considered by the agencies including trapping, relocation, monitoring, and management efforts. Trapping will be conducted by the~~

- The applicants would place in escrow, with **????**, funds sufficient to finance 12 PKBM monitoring events at the property. These 5-night trapping events would be conducted four times a year (quarterly) for three years. The data collected from this effort would be provided in an annual report to the Service. Any undesirable species captured during the trapping events would be destroyed, thus reducing competitive stress on the PKBM. Further, authorization and access to natural areas would be granted to the Service and FWC to conduct additional monitoring of their own.

- **To ensure perpetual maintenance of the frontal dune community on both properties, the land owners offer to record a conservation easement on the undeveloped portion of the sites. With the exception of a 10-foot access easement associated with the dune walkover, this measure ensures that all land seaward of the proposed structures would remain in its natural state in perpetuity.**

- **The applicants would establish a condition in the covenants and restrictions of the developments that require restoration of sand and vegetation in the dune community after a named storm event should it be lost or degraded, and if such areas are not otherwise restored by a governmental entity or other third party as part of an overall or isolated dune restoration program (such as, for example purposes only, the dune restoration program undertaken by state, federal and local government entities after Hurricane Ivan) and, provided that this requirement shall not interfere with or otherwise prohibit future participation in any such dune restoration program. This mitigation measure provides legal assurance that restoration of future habitat losses would occur.**

- **The applicant has also proposed to contribute \$58,000 (\$100,000 x 0.58 ac.) to the PKBM conservation fund to compensate for the 0.58 acres of impacts to PKBM habitat. This conservation fund allows for restoration and enhancement activities on Perdido Key for the sole purpose of recovery of the PKBM. This fund would be perpetually augmented by a \$201 annual assessment of each unit owner in both developments. The funds in the conservation fund would be spent in accordance with the conservation strategy (FWC et al., 2005) prepared for the PKBM. Annual conservation effort priorities would be determined by an interagency committee including the Service.**

~~In summary, non-suitable~~ **Previously impacted** habitat comprises 15% of the project area and ~~basically~~ encompasses areas previously disturbed by the existing structures, parking and access. **Permanent** impacts to suitable habitat account for 34% of the suitable PKBM habitat within

project area. ~~Total~~ Unimpacted open beach, and restored primary, and secondary dunes make up the remainder of the parcel or 65% of the property. These areas will be ~~are intended~~ for placed under a conservation easement.

2.4.1 Conservation Intent in the Palazzo I and II Project Area

The conservation intent in the Palazzo project area includes several components:

- Restoration of the degraded dune and areas associated with previously impacted lands
- Development of appropriate covenants and restrictions
- Recording of a conservation easement
- ~~Conservation of suitable habitat area~~
- A prescriptive management program **(described in section 2.5), which addresses design and construction modifications made to the original project to minimize impacts to coastal dune habitat.**

Each of these components is intended to conserve and manage habitat for the listed Perdido Key beach mouse and benefit other species with similar habitat requirements.

2.4.1.1 Dune Restoration/Enhancement

Escambia County has begun to re-build the primary dune and had some minor losses associated with the storm surges from ~~this years land~~ falling **2005** hurricanes in the northern Gulf. The County will solicit a contract to vegetate the berm. It is expected that the vegetation bid specifications will call for ~~at the most two~~ **to three** primary dune species, provided as bare root specimens planted on **12 inch to 18 inch** centers.

The applicant proposes to supplement the County effort with additional species and number of plantings **to restore** impacted areas of beach dune located southward of the Palazzo I and II project ~~will be restored~~. The exact numbers and species have yet to be determined, but are expected to aid in overall coverage of the newly established dune system, as well as provide additional forage opportunities for the PKBM. ~~The dune system in front (south) of the residences was has been overwashed by hurricane Ivan in 2004.~~ To provide conditions appropriate for the natural ~~re-building~~ **recovery** of the dunes **during this current effort and any subsequent efforts**, several steps will be required:

- sand placement to begin the process;
- install sand fencing to expedite sand accretion in restored areas;
- acquisition of sea oats **and other plants native to Escambia County coastal dune habitat** which are of sufficient quality, health and genetic integrity,
- installation of plants in a way that ensures their success,
- maintenance of the plants to ensure their continued success,
- installation of additional sand fence as necessary to inhibit disturbance by pedestrians, and

- protection of the plants to avoid disturbance from human activities.

The objective of ~~this~~ restoration/enhancement projects is to achieve rapid and effective dune stabilization through plantings of sea oats and other native plants. The habitat to be restored in the Palazzo I and II project areas is made up **of the frontal dunes south of the condominium towers**. ~~of a single continuous dune, or "foredune". The foredune is the sand dune closest to the water and is unprotected from Gulf winds.~~ The vegetation is **relatively** sparse along those areas proposed for restoration and bare sand makes up most of the area. The dominant vegetation along the foredune is sea oats (*Uniola paniculata*).

Other species which occasionally occur on the fore dune include **blue stem** ~~bunch grass~~ (*Andropogon maritimus*), beach **panic** grass (*Panicum amarum*), beach morning glory (*Ipomoea stolonifera*) and railroad vine (*Ipomoea pes-caprae*). The PKBM forages and nests among beach grasses and sea oats that will be ~~addressed~~ **used** as part of the dune restoration.

~~Each of the~~ **The sea oat** component ~~parts~~ of the restoration effort is addressed specifically and in detail in Appendix C. A generalized restoration design is presented in the following sections.

2.4.1.2 General Planting Design

The foredune vegetation will be restored using container plants. Sea oats, panic grass, **and other plants native to Escambia County dunes** will be planted in a 12-foot wide strip along the **frontal dunes** ~~base of the foredune~~ and throughout the area to repair the dune breaches. The plantings will be arranged on 12 to 18 inch centers in linear patterns. The plants will be planted six inches deep with a small amount of slow release fertilizer and a hydrated biodegradable polymer placed in each planting hole.

The planting will be patterned after the species composition in the adjacent native community. To insure acceptable survival rates of these plants, temporary irrigation will be used in the initial establishment of appropriate herbaceous plantings. Post and rope fences and appropriate signs will be used to deter pedestrian traffic from the newly restored areas.

This effort is intended to supplement the County effort. It is usually considered that more planting units tends to solicit higher survival rates and ~~thusly~~ will therefore provide habitat (forage and cover) more quickly.

2.4.1.3 Habitat Conservation and Covenants and Restrictions

To ensure perpetual maintenance of the frontal dune community on the property, the undeveloped portion of the sites (1.2 acres) will be recorded as a conservation easement with ????. With the exception of a 10-ft access easement associated with the dune walkover, this measure ensures that all land seaward of the proposed structures would remain in its natural state in perpetuity.

After issuance of the incidental take permit and prior to the occupancy of land uses with in the suitable habitat area, the Applicant will produce legally binding covenants and

restrictions to implement the provisions of this HCP. The FWS will be provided a draft for review and concurrence. These will include building restrictions, trash, and pest control regulations, as well as funding and enforcement to insure full compliance with the HCP. The ITP will be transferred to the property owners association.

2.4.2 Minimize Impacts and Develop the Site with Off-site Mitigation as Conditioned by this HCP.

The proposed alternative is the development of Palazzo I and II with on-site and off-site mitigation that will:

- Restore 1.2 acres of dune habitat in the Palazzo I and II project area,
- Consent to the participation of trapping (**beyond quarterly trapping conducted on-site as a condition of the HCP**) or other conservation measures deemed important by State and Federal wildlife agencies as well as participate in activities within State or Federal lands that would benefit the long range survival of the sub-species, and
- **A financial contribution will be made to PKBM conservation efforts through the interagency agreement/conservation fund.**

~~Prior to beginning development and after issuance of the ITP, The Applicant will provide the Service with~~ legally binding covenants and restrictions to implement the HCP. These will include ~~building restrictions~~ **coastal construction practices** and trash and pest control regulations, as well as funding and enforcement mechanisms to insure full compliance with this HCP (**Appendix E**). These mitigation actions include compliance with the conditions of the HCP. ~~This mitigation will result in the restoration of 1.2 acres of coastal dune habitat.~~

The remaining undeveloped property will be managed as suitable **beach mouse** habitat. Management will also include those actions prescribed in this plan including turtle compatible lighting, control of litter and trash, predator control, and restoration and/enhancement of habitat impacted during construction.

The applicant has also proposed to contribute \$58,000 (\$100,000 x 0.58 ac.) to the PKBM conservation fund to compensate for the 0.58 acres of impacts to PKBM habitat. This conservation fund allows for restoration and enhancement activities on Perdido Key for the sole purpose of recovery of the PKBM. This fund would be perpetually augmented by a \$201 annual assessment of each unit owner in both developments. The funds in the conservation fund would be spent in accordance with the conservation strategy (FWC et al., 2005) prepared for the PKBM. Annual conservation effort priorities would be determined by an interagency committee including the Service.

~~2.3.2 Additional Measures that may be Required for the HCP~~

~~Section 10(a)(2)(B) of the ESA which describes issuance criteria for incidental take permits authorizes the USFWS to obtain “such other assurances as (they) may require that the plan will be implemented”. This provision allows the USFWS broad latitude to require measures as~~

~~necessary to accommodate the wide variety of circumstances often encountered in HCPs. Because discussions with the USFWS regarding this issue have not yet occurred, it has not been determined whether additional assurances will be required or not.~~

2.5 Prescriptive Management Program

The prescriptive management program (PMP) (USFWS 1996) addresses the protection and management of the coastal beaches and secondary and primary dune habitat in the project areas. Design and habitat management activities will be accomplished through appropriate:

- design of facilities
- construction
- operation, including long-term management of the project area.

The PMP will include restoration of marginal habitat, mitigation for impacted habitat, and installation of boardwalks and lighting compatible with management for coastal beach and dune habitat. Finally, there will be allocation of responsibilities to management agencies (e.g., hotels, homeowners association). The activities required for the management of these areas, as well as the entities responsible for the management, are specifically addressed in the following sections.

2.5.1 Design

~~The design of~~ The condominiums **were redesigned from their original design** to minimize impacts to beach and dune habitat through the scale and orientation of structures and the placement of associated facilities, such as dune walkovers, parking lots, recreation facilities, and landscaped areas.

Of the 2.2 acres of existing PKBM habitat on site, after avoidance and minimization, the facilities development is anticipated to impact ~~25,197 sq/ft~~ **0.58 acre** of suitable habitat for the PKBM. **This was reduced from the original design by 0.12 acre.** The remaining acres of dune and beach habitat will be managed as natural habitat areas and landscaping will be limited to native vegetation consistent with beach mouse foraging and shelter needs. No invasive or exotic species shall be planted during any landscaping or restoration activities. **Mulch will not be used in any landscaping as it cannot be considered beach mouse habitat.**

Existing dune loss restored by **Escambia County** ~~establishing natural topographic relief and replanting~~ will be supplemented with sea oats to stabilize the dune and ~~thus restoring~~ **enhance** 1.2 acres of optimal habitat for the Perdido Key beach mouse. ~~This restoration effort will replace dune loss with dune creation and re-vegetation efforts.~~

The design of the elevated dune walkovers is intended to minimize impacts to the existing habitat. The elevated walkovers will be placed at elevations **3 ft above grade**, which will not inhibit plant growth **or dune growth** beneath the walkway. This design elevation will not preclude foraging or nesting of the beach mouse.

2.5.2 Construction

Habitat management during the construction phase will include the placement of sediment barriers and flagging around habitat areas to restrict access and avoid incidental impact on the habitat. The general contractor's scope of services will stipulate avoidance of impacts to the delineated habitat areas during the construction process. Weekly inspections will be performed during construction by a qualified biologist in an effort to identify and curtail unnecessary impact on the habitat. Construction methods to minimize impacts to natural areas will be discussed with the contractor. These construction methods ~~are anticipated to~~ **will** include top down construction of boardwalks, dune walkovers, and decking in sensitive habitat areas. Placement of construction materials and equipment will be restricted to appropriate staging areas (**outside of beach mouse habitat**) and will be prohibited adjacent to delineated habitat areas. The contractor will be required to keep the construction site clean through periodic site inspections and clean-up efforts. **Trash containers will be predator proof to avoid attraction of predators to the site.** Rubbish and construction debris will also be restricted to areas away from the delineated natural areas. Additional conservation measures are addressed below.

2.5.2.1 Establishment of Limits of Disturbance

The limits of disturbance due to construction grading shall be delineated on all building plans. An appropriate buffer area between the habitat fence and the physical construction activities are **identified by 3 ft on the east and west sides, and 6 ft on the south side.**~~shall be identified.~~ Temporarily disturbed areas within this buffer shall be revegetated.

2.5.2.2 Habitat Fencing

Fences to ensure the protection of adjacent habitat shall be erected before construction begins. Silt fence shall be placed along the perimeter of construction grading disturbance and signs giving notice of the penalty for disturbing habitat beyond the fence shall be posted at 100-foot intervals. **The fencing will be installed and inspected regularly to ensure that it allows for movement of beach mice.**

2.5.2.3 Revegetation of Temporarily Disturbed Areas

Areas designed for habitat protection, which are temporarily disturbed during construction grading shall be revegetated to ensure habitat conditions compatible with the Perdido Key beach mouse. ~~Areas included under~~ The revegetation provision includes road shoulders, boardwalk areas, and natural areas impacted by construction. Topographic restoration and re-vegetation efforts are expected to occur in conjunction with the construction sequencing. For instance when areas are deemed to be outside and clear from potential future disruption, they will be cleared for restoration. Plants to be installed in these natural areas shall include only species native to coastal Escambia County.

2.5.2.4 Turtle Lighting

Any lighting on permanent structures as well as lighting which may be used during the construction phase which occurs during turtles nesting and emergence seasons (May through September) shall follow the general guidelines presented in section 2.4.3.7 (Turtle Lighting).

2.5.3 Management Activities

Management and conservation activities proposed to provide for long-term management of the coastal communities addressed in the HCP are presented in this section. These management activities will:

- ~~avoid and minimize impacts to suitable habitat through design consideration~~
- ~~restore and enhance 1.2 acre of disturbed dunes and restore temporarily disturbed habitat (0.2 acre) associated with the project area.~~
- implement management actions designed to ~~avoid impacts~~, maintain and enhance the ecological integrity of habitat in the project area
- consent to future trapping/participation recovery efforts of beach mouse by the USFWS, FWC or FDEP

2.5.3.1 Conservation

Conservation of **1.2 acres** shall be accomplished through conservation easement, **held by Escambia County**, ~~or deed restriction~~ on the condominium tract, and covenants and restrictions (**Appendix E**) within the homeowners association. **Who holds the easement?** The specific language within the document will allow a right of entry for County, State, and Federal agencies. These will insure that the responsible party will comply with the conditions of the HCP, on all portions of the site under their ownership or lease.

2.5.3.2 Dune Restoration

Because dune restoration requires natural accretion of sand, it cannot be conditioned as a single event. Enhancement of Escambia County's restoration efforts and restoration of areas naturally disturbed in the future, within the preserved habitat area, will occur as described previously in **Section 2.4.1.1 and 2.4.1.2** and detailed in Appendix C. Restoration shall include the grading of the dunes to historic elevations and vegetation of the dunes with characteristic vegetation.

2.5.3.3 Reporting

The ITP issued under Section 10 (a) requires an activities report submitted to the USFWS by 31 January of each year. The annual report shall be prepared by **the applicant during construction and by the homeowners' association post-construction**. The report shall be ~~responsible party and~~ submitted to the USFWS and the FWC. The report shall contain a summary of development activities which took place on the project area and other information relevant to preservation of the habitat for the species of interest discussed in previous sections.

2.5.3.4 Control or Removal of Pests and/or Predators

If house mice are found within the managed project area, a trapping program shall be implemented **after approval by the Service that it will not affect beach mice** and the animals removed. No domestic cats shall be allowed free range outside and feral cats will be removed. Dogs will be permitted outdoors only on a leash. Any feral animals will be captured and removed. The capture and removal of these species will be accomplished through contractual arrangements with permitted nuisance species trappers.

2.5.3.5 Litter and Trash Control

Litter and trash attract raccoons as well as feral pets and other animals. Raccoons especially are notorious turtle egg predators and have been observed standing on a turtles back and catching and eating the eggs as they are deposited. Strict ordinances to store trash and litter are necessary if turtle eggs are to be protected from these animals.

A trash and rubbish control program will be incorporated into the deed restrictions and covenants of the condominium complex. This program will include consideration of control of trash generated during the use of the outdoor recreational amenities and control of the rubbish and domestic solid waste generated by the hotel and restaurant. **Predator proof** Standard trash receptacles will be installed to prevent trash exposure and subsequent attraction of pests.

This plan will require the placement and service of trash containers along the trails, dune walkovers and on the beach. **Predator proof** containers will be elevated above the ground and covered to limit wildlife scavenger access. Trash pickups will be scheduled to accommodate peak use of the beach and in late afternoons to avoid having full containers on the trails and beach overnight. ~~Once collected, the solid waste will be deposited in a **predator proof** dumpster within a controlled area.~~ Solid waste from the condominium complex will be collected and placed in a **predator proof** dumpster on the loading dock for frequent collection. Frequent pickup will be scheduled to remove waste from the project site. ~~A standard rodent control program, typical for a condominium complex, will be implemented for the solid waste collection point in order to prevent attracting field mice into the area.~~

2.5.3.6 Identification and Protection of Turtle Nests

The maintenance of natural beach areas in the nesting territory of this species is necessary for their long-term persistence. Nesting sites, when they occur on-site, should also be closed to public access to minimize disturbance. The Applicant will work with the local State permitted sea turtle monitoring program concerning sea turtle nests on the project site.

2.5.3.7 Turtle Lighting

Many coastal counties and communities in Florida have developed lighting ordinances to reduce nesting adult and hatchling disorientation. Specific lighting requirements for sea turtles are presented here. Lighting restrictions will be implemented as part of the constructions plans (Appendix E).

Lighting Guidelines to Reduce Impacts to Marine Turtles

General Information. The negative effects of beachfront lighting on marine turtle hatchlings and nesting females are well documented. Hatchlings emerge during hours of darkness, allowing them to make their journey to the sea when sand temperatures are low and terrestrial, avian, and aquatic predators are comparatively few. Proper hatchling orientation depends largely on a visual response to light. Under natural conditions, the ocean presents the brightest and most open horizon, and this serves as a cue to hatchlings in their new ocean finding behavior.

Artificial lights disrupt this behavior, and attract hatchlings as they emerge from their nests. Visible light sources and the reflection or “glow” resulting from the cumulative effects of coastal lights both contribute to this problem. Instead of making their way to the ocean, hatchlings become disoriented and may wander extensively on the beach. Even for those hatchlings that eventually reach the ocean, unnecessary wandering increases their vulnerability to predation and expends limited energy stores. In addition, hatchlings may wander landward through beachfront property or across parking lots and highways towards light sources. Most die from desiccation, **predation**, direct exposure to the morning sun, or contact with vehicles. Furthermore, beachfront lighting has been documented to negatively affect nesting females and often results in reduced or abnormal nesting activity.

General Guidelines. To prevent hatchling mis-orientation and adverse impacts to nesting turtles, installation of exterior lighting is strongly discouraged. If exterior lighting is proposed, the following guidelines will be followed. Adherence to these guidelines will help in developing an acceptable lighting plan. However, some cases may warrant more stringent restrictions.

1. Lights should not be placed on the seaward side of the subject property or in any location visible from the nesting beach.
2. Lights positioned seaward of the landward toe of the dune (or its equivalent) are prohibited.
3. The light source or any reflective surface of the light fixture must not be visible from any point on the nesting beach. Illumination of any area of the nesting beach, either through direct illumination, reflective illumination, or cumulative illumination is prohibited.
4. Downlight shall be completely shielded without exterior reflective surfaces. All fixtures shall be appropriately shielded, louvered, and/or recessed.
5. Fixtures shall be low mounted through the use of low bollards, ground level fixtures, or low wall mounts.
6. Lights proposed for the seaward side of the property must incorporate shielded low pressure sodium lamps or low wattage (i.e. 50 W or less) bulbs.
7. Lights for purely decorative or accent purposes shall not be used on the seaward side of the property and, if proposed for the landward side, shall be limited in number and intensity. The use of uplights is strongly discouraged and in most cases cannot be approved.
8. High intensity lighting, such as that proposed for roadways, shall use shielded low pressure sodium lamps. The number of fixtures shall be kept to a minimum and shall be positioned and mounted in a manner such that the point source of light or any reflective

surface of the fixture is not visible from any point on the nesting beach. Light emanating from these fixtures may not directly or indirectly illuminate the nesting beach.

9. Only low intensity lighting shall be used in parking areas that are visible from any point on the nesting beach. This lighting shall be set on a base which raises the source of light no higher than 48” from the ground and shall be positioned and shielded such that the point source of light or any reflective surface of the light fixture is not visible from any point on the nesting beach. The light emanating from such fixtures may not directly or indirectly illuminate the nesting beach.
10. Parking lots and roadways, including any paved or unpaved area upon which motorized vehicles will operate, should be designed or positioned such that vehicular headlights do not cast light toward or onto the nesting beach. Hedges, native dune vegetation, and/or other ground level barriers should be utilized to meet this objective.
11. During construction, temporary security lighting during the main portion of the sea turtle nesting season (May 1 to October 31) is strongly discouraged. Security lights shall be completely shielded and low mounted. Low pressure sodium vapor lamps or low wattage yellow “bug” type bulbs shall be utilized. Under no circumstances shall these lights directly or indirectly illuminate any area of the nesting beach.
12. Tinted glass or window film that meets a transmittance value of 45% or less (inside to outside transmittance) shall be used on all windows and glass doors visible from any point on the nesting beach.

Development of a Lighting Plan. The lighting plan shall be a plan view drawing or schematic plainly showing the location of all exterior lighting fixtures. Distinctive and clearly marked symbols shall be utilized to show the location of each type of proposed fixture. The plan shall include a table with the following column headings:

- Symbol
- Fixture (name or stock number)
- Total number of each fixture
- Bulb wattage and type (e.g. 40 watt yellow “bug” lamp)
- Type of mount (e.g. wall, pole, bollard)
- Mounting height

A detailed description (manufacturer’s cut sheet) for each fixture shall be included. Two copies of the completed lighting plan shall be transmitted to:

Marine Turtle Coordinator
Bureau of Beaches and Coastal Systems
3900 Commonwealth Blvd., Mail Station 300
Tallahassee, FL 32399

U. S. Fish and Wildlife Service
Field Office
1601 Balboa Avenue
Panama City, FL 32405

The lighting plan must be approved by the Service.

~~2.5.3.8 Identification and Protection of Snowy Plover Nests~~

~~The restoration of natural beach areas in the breeding territory of this species is recommended for this species survival. Identified nesting areas should also be closed to public access during breeding season to minimize disturbance. These birds nest individually, not in colonies, so closing large areas to public access will not be advantageous. Designated roped areas with signs warning pedestrians of possible nests during the nesting season should be marked with warning signs.~~

2.5.3.8 Storage of Beach Equipment During Nesting Season

Recreational beach equipment including beach chairs, umbrellas, and surf boards will be removed from the beach **every evening** and stored in a centralized area during nesting season from May 1 through October 31. This beach equipment will be placed in storage facilities located adjacent to the dune walkovers for the condominium complex.

2.5.3.9 Controlled Beach Access

Access to the beach from the condominium complex, as well as public access, will be controlled by the strategically placed dune walkovers. Fencing, signs, and information kiosks will direct pedestrian traffic along pathways and walkovers, plus inform the public of the sensitivity of the dune communities and the associated Perdido Key beach mouse, sea turtle, and shorebird habitat.

2.5.3.10 Education of Guests and Residents

An environmental education program will be developed to inform the residents and guests of the listed species that inhabit the coastal areas. This program will include the development of an informational brochure regarding the listed species and the coastal habitat, the placement of an informational kiosk, and signs.

2.5.4 Allocation of Management Responsibilities

Section 10 [50 CFR] regulations require the Applicant to provide legal and financial assurances that HCP obligations will be met for minimization, monitoring, and mitigation of project impacts. Allocation of management responsibilities and commitment to these elements are addressed below.

2.5.4.1 Minimization of Impacts

Minimization of impacts associated with the development of the project include protection measures accomplished through activities described previously, including restoration and conservation measures, construction setbacks, boardwalks and walkovers, environmental friendly lighting, as well as proposed activities associated with day to day operation and management of the project. The allocation of management responsibilities between the condominium complex and the homeowners association would occur via deed restrictions on the condominium complex and the covenants and restrictions for the homeowners association. Shared allocation of management responsibilities would also be addressed in

these same documents. The responsible entities for individual management activities were identified previously in section 2.4.3.

2.5.4.2 Responsibilities for Beach Mouse Monitoring

Section 10 regulations require that an HCP specify the measures the Applicant will take to “monitor” the impacts of the taking resulting from the project actions [50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222.22 (b)(5)(iii)].

The Applicant will commit to a five year trapping program designed to establish the presence and population dynamics of the Perdido Key beach mice in association with the proposed condominium.

Subsequent to the initial five year program, the Applicant is committed to the continuing annual report for the life of the permit (indefinite). The annual reports will describe activities and provide an analysis of whether the terms of the HCP were met for the reporting period.

Funding will be accomplished through assessments on individual property owners. The homeowners association will administer the program. The Applicant will defray the cost of the trapping and reporting programs until such a time that the homeowners association is established and can assume the administrative and funding responsibilities of the program. ~~The annual cost to individual homeowners may vary during the first 5 year monitoring program and the perpetual reporting program is anticipated to cost individual homeowners approximately \$6.50 to \$8.00 per year.~~ *****THIS SEEMS LOW*****

2.5.4.3 Mitigation

Implementation of the restoration requirements will be part of the construction plans and specifications. These plans will provide details of restoration and project associated landscaping. Funding for the restoration will be included as part of the construction budget for the development of the project’s land uses. The management and maintenance activities required for these restoration areas will be addressed in the covenants and restrictions. These provisions will provide a means of allocating responsibility for activities required for compliance with the ITP.

The applicant will also contribute \$58,000 to the PKBM conservation fund to compensate for the 0.58 acres of impacts to PKBM habitat. This conservation fund allows for restoration and enhancement activities on Perdido Key for the sole purpose of recovery of the PKBM. This fund would be perpetually augmented by a \$201 annual assessment of each unit owner in both developments. The funds in the conservation fund would be spent in accordance with the conservation strategy (FWC et al., 2005) prepared for the PKBM.

2.5.4.4 Unforeseen Circumstances

The HCP proposes all reasonable and demonstrated methods for protecting listed species and species of concern, including the Perdido Key beach mouse, piping plover, and sea turtles. Protection measures for the Perdido Key beach mouse may include introduction of beach mouse populations into the Palazzo project area if deemed appropriate by the agencies. Provisions for sea turtle protection include all measures recommended by the USFWS and FWC, including appropriate lighting measures, nest protection, and proper storage of beach equipment. ~~Snowy plover nest and habitat protection measures are also addressed in the HCP.~~

Even though the Applicant has agreed to implement all necessary provisions for minimizing and mitigating impacts to the Perdido Key beach mouse and sea turtles ~~and the snowy plover~~ as identified by the USFWS and set forth in this Habitat Conservation Plan, unanticipated circumstances may arise. If ~~in the unanticipated event of an~~ incidental take of any of these species occurs **and/or an unforeseen circumstance arises**, the applicant and wildlife agencies (USFWS/FWC) will review the available data and work together to determine the cause of such an incidental take and whether additional protective measures would be appropriate for the species in question. If either the applicant or the USFWS becomes aware of circumstances which would result in an incidental take of one of these species or which would adversely affect in a material way the ability of the Applicant or its assigns to implement this Habitat Conservation Plan, that party will promptly notify the other. The Applicant and agencies will jointly evaluate those circumstances based on available data and discuss possible additional steps.

2.6 Regulatory Controls and Enforcement

The provisions of this HCP will be enforced through the terms and conditions of the Section 10(a)(1)(B) permit and the HCP as well as through provisions mandated by the State incidental take permit. Should any development disturbance take place outside the limits set by this HCP, the agencies can enforce provisions of the Endangered Species Act as they relate to the taking of an endangered species with respect to each individual lot. If general terms and conditions required under the HCP and the Section 10(a)(1)(B) permit are not carried out in a timely manner, the USFWS may suspend the Section 10(a)(1)(B) permit for the entire project.

After issuance of the incidental take permit and prior to the occupancy of land uses with in the suitable habitat area, the Applicant will produce legally binding covenants and restrictions to implement the provisions of this HCP. **The FWS will be provided a draft for review and concurrence.** These will include building restrictions, trash, and pest control regulations, as well as funding and enforcement to insure full compliance with the HCP. The ITP will be transferred to the property owners association.

2.6.1 Boundary Violations

A series of controls intend to reduce the chances that construction will damage habitat are specified in the HCP and will be in plans approved by Escambia County. In general, the construction boundary will be delineated with a fence. Any construction related damage that

extends across the construction boundary is a violation of the terms of the HCP and the Section 10(a)(1)(B) permit. Violation of the construction boundary will be followed by enforcement action including, but not limited to:

- notification of the USFWS or FWC of the violation
- ~~termination~~ **suspension** of work
- preparation and submission of a damage report
- restoration of damaged area
- return to work once these steps have been completed

Construction related damage is defined as direct damage, such as bulldozer activity through a fence, and indirect damage, such as slope failure in the construction area across the construction boundary, erosion, or unauthorized vehicle activity.

Enforcement action is taken against a property owner regardless of the actual agent of the damage in order to accelerate abatement and remediation and also because there is a direct link between the landowner and the Section 10(a)(1)(B) permit.

2.6.2 Failure to Re-vegetate or Restore Specified Areas

The HCP requires that the developer/landowner restore degraded sand dunes to enhance habitat for the Perdido Key beach mouse. The principal means of enforcement for the restoration requirement is through permitting, inspections and as-built certifications by the developer. If the developer does not meet the obligation in a timely fashion, the USFWS or FWC will notice the developer and landowner of the deficiencies and request that remedial actions be taken to meet the intent of the HCP and ITP. Re-vegetation efforts will proceed in a manner consistent with the elimination of potential construction influences. When an area is deemed to be outside the construction corridor, then appropriate grade and vegetation will be planted.

2.6.3 Post-Construction Enforcement

Once construction is completed, there must be long term assurances that future homeowners association will maintain development boundaries and maintain the open space as habitat. In no case shall an individual homeowner or tenant encroach beyond the development boundaries set forth in the HCP.

Any encroachments shall be fined an agreed upon amount and the homeowners association shall be responsible for restoring any habitat damage by unauthorized encroachment.

2.7 Amendment Procedures

The HCP includes a wide range of management efforts designed to limit and mitigate take of the endangered Perdido Key beach mouse and develop the condominium in a manner consistent with Escambia County land use policies. If, over the ~~usual~~ thirty year life of the permit, there are unforeseen circumstances which change development or other conditions,

HCP amendments may be needed. Amendments which may be included are listed and described below.

2.7.1 Administrative Amendments

Changes which would not appreciably alter the extent of incidental take, the mitigation prescribed for take, or the funding of the HCP, are primarily administrative and can be accomplished by amending the HCP text without modifying the underlying Section 10(a)(1)(B) permit. The determination of the administrative status of a change will be made by the USFWS and/or FWC with concurrence by other parties, and must take into account the cumulative effect of the proposed change and all preceding or pending administrative changes.

2.7.2 Permit Amendments

Changes which may appreciably alter the extent of the incidental take, the mitigation prescribed for take, and the funding of the HCP will require an amendment to the Section 10(a)(1)(B) permit as well as to the HCP text. Only the permittee can request a permit amendment, and the request is processed by the USFWS and the FWC.

2.7.3 Minor Construction Boundary Adjustments

To accommodate conditions encountered during construction, an explicit provision is made for minor construction boundary adjustments. Upon request by the landowner, the USFWS and the FWC shall consider **requests to move** the construction boundary fence ~~to be moved~~ up to 50 feet from the approved location if there is a compelling reason to do so. The USFWS and FWC shall determine the appropriateness of fence movement on a case by case basis. Minor boundary adjustments cannot increase the cumulative extent of temporary disturbance of habitat by more than 5 percent. Construction boundary adjustments are not intended to allow a change in the permanent development footprint.

3.0 LITERATURE REVIEW

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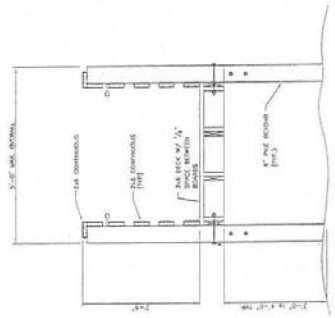
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APPENDIX A

Site plan depicting development details and habitat typology

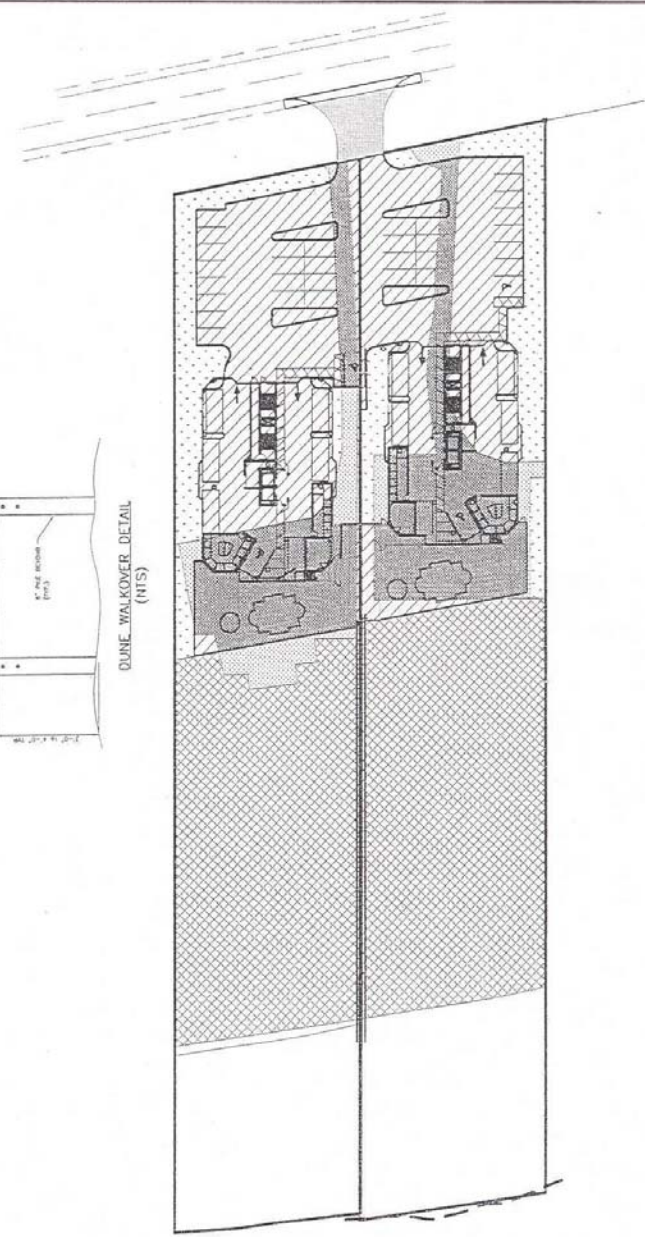
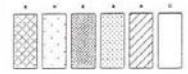


Scale: 1" = 50'



DUNE WALKOVER DETAIL (NIS)

- AREA TO BE RESTORED TO BEACH WOODS HABITAT - 0.24 ACRES (10,241 SF)
 - AREA TO BE RESTORED WITH APPROPRIATE BEACH WOODS VEGETATION - 0.20 ACRES (8,647 SF)
 - EXISTING NON-RESTORABLE BEACH WOODS HABITAT IN DEVELOPMENT AREA - 0.11 ACRES (4,748 SF)
 - EXISTING NON-RESTORABLE AREA TO BE RESTORED WITH BEACH WOODS VEGETATION - 0.07 ACRES (2,971 SF)
 - AREA OF BEACH WOODS HABITAT IMPACT - 0.28 ACRES (12,171 SF)
 - OPEN BEACH AREA - 0.49 ACRES (21,316 SF)
- TOTAL SITE AREA - 2.41 ACRES (103,084 SF)



APPENDIX B

SITE PHOTOGRAPHS

Palazzo I



View South depicting access (non-suitable habitat)



View South showing parking (non-suitable habitat)



View South exhibiting eastern parking area



South View western side of house



View South exhibiting dune cut through (restoration)



**View northward with gulf access depicted (restoration)
Palazzo II**



View southward Palozzo I on left & Palozzo II on right



View westward showing north side of subject parcel



View south depicting west side of property



View northward from primary dune placement



View northward depicting eastern property between Palazzo I and Palazzo II



View northward depicting driveway (non-suitable)

APPENDIX C

DUNE RESTORATION THROUGH SEA OATS PLANTING

1. Dune Restoration - Sea Oats Plantings

The restoration portion of the HCP includes restoration of a beach dune in the Palazzo project area. **The frontal dune habitat within the project area has been severely impacted by hurricane Ivan (2004) as well as the tropical storms in 2005. Escambia County will be establishing and vegetating a primary frontal dune. The applicant is responsible for enhancing the work of the county as well as restoration efforts following future natural impacts to the habitat.** ~~The dune has been degraded over time as a large cut developed through the dune as a result of heavy pedestrian traffic to the beach. The restoration of the historic elevation grade and vegetation on primary dune includes approximately 0.07 acre.~~ Restoration involves planting and other activities which allow for the natural and gradual rebuilding of the dune by:

- restoration of the historic elevation of the dune with sand
- acquiring sea oats for re-vegetation which are of sufficient quality, health, and genetic integrity
- installing the plants in a way which ensures their success
- maintenance of the plants to ensure their continued success
- protection of the plants to avoid disturbance from human activities

The component parts of the restoration effort are addressed specifically and in detail in the following sections. These parts include:

- plant quality
- source materials
- propagation methods
- plant preparation and shipping
- plant size, age and condition
- planting season and delivery date
- planting zone profile
- planting depth and spacing
- irrigation
- fertilization
- signs and fencing
- success criteria

1.1 Plant Quantity

Planting Unit Definition- For the purpose of this restoration effort, the term “planting unit” refers to an individual nursery grown plant (as specified below) of sea oats (*Uniola paniculata*). No other plant species will be accepted as substitutes under this bid.

Required Number of Planting Units- The Contractor shall provide a total number of planting units (sufficient to cover the designated dune restoration areas at a density of 18" on center). All planting units must be grown from acceptable source material, and delivered in an acceptable size, age and condition, as described below.

1.2 Source Materials

Planting Unit Sources- The source material for all planting units delivered under this bid shall be limited to seeds and propagated plants collected from Panhandle Florida, including the counties of Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf and Franklin. Source material collected from areas other than Panhandle Florida (e.g. the Atlantic coast, the Gulf peninsula of Florida, or the Caribbean) shall be rejected under this bid.

1.3 Propagation Methods

Seed Preparation- All seed material used in the production of planting units delivered under this bid shall be subjected to cold treatment within one week prior to being seeded in liners. Cold treatment shall constitute exposure to temperatures of 3 to 5 degrees Celsius for a minimum of no less than 10 days.

Liners- All planting units shall be grown in multi well trays (liners) not to exceed a size of approximately 1.5" wide by 1.5" long; and not less than 2.5", or more than 3" in depth.

Seed Number per Liner- The number of seeds placed in each liner shall be determined through germination experiments by the Contractor such that deliverable planting units with 2 to 4 stems, on average are produced.

Soil Matrix- The Contractor shall use an appropriate soil matrix in each liner such that germination success and survival are optimized. Prior to shipping, roots should fill the entire volume of the liner but should not be root bound.

Irrigation and Disease Control- the Contractor shall spray irrigate the planning units during nursery propagation at such a rate that root health is maximized and the pathogenic loss is minimized.

Micropropagation- Planting units frown from approved sources via micropropagation techniques may be accepted under this bid. Plants produced from cuttings or the division of larger plants may be used if the material is derived from Panhandle Florida sources and meets all of the specification for seed produced planting units. However, planting units derived from micropropagation techniques shall no exceed 25% of the total number of planting units delivered under this bid.

Inspections- The Contractor shall provide access to all nursery operations to the Owner's Representative, in the manner and timeframe requested, for the purpose of compliance inspection of the propagation methods being used by the Contractor.

1.4 Plant Preparation and Shipping

Plant Preparation- All deliverable planting units shall be removed from their liners and stacked in waxed cardboard boxes immediately prior to shipping. The root ball shall be properly moistened to prevent dessication. All planting units shall be handled and packed in such a manner as to ensure protection against dessication, thermal stress or physical damage. Plants deemed to have been improperly handled may be rejected by the Owner's Representative upon delivery.

Shipping Time- The total shipping time, or time from when planting units are packed in shipping boxes until they are delivered to the installation site, shall not exceed 3 days.

On-Site Holding Time- No deliverable planting units shall be stored in shipping boxes any longer than 2 days upon receipt at the installation site. At no time shall planting units be exposed to direct sunlight except while actually being installed. Shipping boxes must be shaded while plants are being staged for installation.

Total Handling Time- The total handling time, or the time from when planting units are packed in shipping boxes until they are installed, shall not exceed 5 days, unless authorized in advance by the Owner's Representative.

1.5 Plant Size, Age and Condition

Plant Size- Deliverable planting units shall be no less than 8", and no more than 12", in height, as measured from the top of the root ball to the apical meristem.

2. Dune Restoration – Plantings of other species within frontal dunes

Please see Section 2.3.1 for general information concerning vegetation planting of land seaward of the proposed development. Detailed plans will be reviewed by the Service prior to planting.

Appendix D. Sea turtle Lighting

SEA TURTLES AND BEACHFRONT LIGHTING

The negative effects of beachfront lighting on sea turtle hatchlings and nesting females are well documented. Hatchlings emerge during hours of darkness, allowing them to make their journey to the sea when sand temperatures are low and terrestrial, avian, and aquatic predators comparatively few. Proper hatchling orientation depends largely on a visual response to light. Under natural conditions, the ocean presents the brightest and most open horizon, and this serves as a cue to hatchlings in their ocean-finding behavior. Artificial lights disrupt this behavior and attract hatchlings as they emerge from their nests. Visible light sources and the reflection or "glow" resulting from the cumulative effects of coastal lights both contribute to this problem. Instead of making their way to the ocean, hatchlings become misoriented and may wander extensively on the beach. Even for those hatchlings that eventually reach the ocean, unnecessary wandering increases their vulnerability to predation and expend limited energy stores. In addition, hatchlings may wander landward through beachfront property or across parking lots and highways toward light sources. Most die from desiccation, direct exposure to the morning sun, or contact with vehicles. Furthermore, beachfront lighting has been documented to negatively affect nesting females and often results in reduced or abnormal nesting activity.

GENERAL GUIDELINES TO REDUCE IMPACTS TO SEA TURTLES*

To prevent hatchling misorientation and adverse impacts to nesting turtles, installation of the minimal amount of exterior lighting for human safety and security is strongly encouraged.

1. Lights should not be placed on the seaward side of the subject property such that the light is visible from the nesting beach.
2. Lights should not be located seaward of the landward toe of the dune (or its equivalent).
3. The light source or any reflective surface of a light fixture should not be visible from any point on the nesting beach. There should be no illumination of any area of the nesting beach, either through direct illumination, reflective illumination, or cumulative illumination.
4. Light bulbs should be either low pressure sodium lamps or low lumen (i.e., 480 lumens or less) "bug" type bulbs or florescent bulbs. The light fixtures should be completely shielded with interior black baffles and without interior reflective surfaces and directed downward. Lights may also be louvered and/or recessed, with baffles or without interior reflective surfaces as appropriate.
5. Light fixtures should be mounted as low as feasible to provide light where it is needed (i.e. pedestrian paths). This can be accomplished through the use of low bollards, ground level fixtures, or low wall mounts.
6. Lights for purely decorative or accent purposes should not be used on the seaward side of the subject property and, if on the landward side, shall be limited in number and intensity to decrease the possibility of contributing to sky glow. Up-lights should not be used.
7. High intensity lighting, such as that proposed for roadways, should utilize full cut off shielded low pressure sodium (LPS). The number of fixtures should be kept to a minimum needed to meet safety highway standards and should be positioned and mounted in a manner such that the point source of light or any reflective surface of the fixture is not visible from any point on the nesting beach. Light emanating from these fixtures should not directly or indirectly illuminate the nesting beach.
8. Lighting in parking areas that are visible from any point on the nesting beach should be low intensity lighting. The lighting should be set on a base which raises the source of light no higher than 48 inches off the ground, and should be positioned and shielded such that the point source of light or any reflective surface of the light fixture is not visible from any point on the nesting beach. The light emanating from such fixtures may not directly or indirectly illuminate the nesting beach.
9. Parking lots and roadways, including any paved or unpaved area upon which motorized vehicles will operate, should be designed or positioned such that vehicular headlights do not cast light toward or onto the nesting beach. Hedges, native dune vegetation, and/or other ground-level barriers should be utilized to meet this objective.
10. Minimal temporary lighting during construction that occurs in the main portion of the sea turtle nesting season (May 1 - October 31) should only be used security and safety. The lights should be completely shielded and low-mounted. Low pressure sodium lights or low wattage yellow

"bug" type bulbs (50-watt or less) should be utilized. The lights should not directly or indirectly illuminate any area of the nesting beach.

11. Light fixtures using natural gas as the light source should not be used for fixtures located on the seaward or sides of structures.
12. Tinted glass or window film that meets a transmittance value of 45% or less (inside to outside transmittance) should be utilized on all windows and glass doors visible from any point on the nesting beach (this could include the sides of structures).

*Based on the FDEP and FWC Coastal Construction Control Line Guidelines to Reduce Impacts to Marine Turtle



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Appendix E. Covenants and Restrictions

Coastal Construction Conservation Measures to Protect Beach and Dune Habitats

Conservation measures can be implemented that would protect beach and dune habitats of coastal species including sea turtles, beach mice, shorebirds, and dune vegetation. A strong dune system is important for the first line of defense against storms to help protect human lives, property, and upland habitats.

Sea turtles come ashore to nest on the beach from May through October. Optimal nesting habitat is a dark beach free of barriers that restrict their movement. Nesting shorebirds lay their nests, raise their young, and forage for food from April through August. Shorebirds depend upon beach and dune habitats with minimal human disturbance. Wintering shorebirds need the beach and dune habitats to feed and rest escaping the colder weather from the north. Beach mice are nocturnal and forage for food throughout the dune system. Beach mouse habitat can comprise separate or a mixture of habitats including primary, secondary, scrub dunes, and interdunal areas. Beach mice dig burrows mainly in the primary dunes and in other secondary and interior scrub dunes where the vegetation provides cover.

Conservation Measures for Single-family Homes

1. Minimize structure footprint to reduce overall impacts to dune habitats. For beachfront projects, site the structure as far landward as possible to conserve primary dune habitats.
2. Site the construction footprint to preserve connection between primary, secondary, and scrub dune habitats onsite and with adjacent properties
3. Install a minimal size boardwalk over the dunes for beach access. The boardwalk should be designed to allow natural dunes to grow (a minimum of three feet above grade). Avoid creating a weak spot that could blow out in a storm.
4. Landscape using only native plants and soils characteristic of local dune habitats. No lawn sod.
5. Install sea turtle lighting including windows and glass doors around the entire homesite. This will reduce the direct and ambient lighting of the beach and dune habitats within and adjacent to the project site. The lighting plan should be reviewed and approved by the Fish and Wildlife Service.
6. Prohibit free movement of pets in beach and dune habitats. Do not encourage (feed) feral cats in dune habitats.
7. Provide sturdy animal-proof garbage containers to prevent the invasion of house mice and their predators.
8. Post or fence property boundaries that allow movement of native wildlife to and from adjacent habitats and control access by people and pets.



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Coastal Construction Conservation Measures to Protect Beach and Dune Habitats

Conservation measures can be implemented that would protect beach and dune habitats of coastal species including sea turtles, beach mice, and shorebirds. A strong dune system is important for the first line of defense against storms to help protect human lives, property, and upland habitats.

Conservation Measures for Multi-family or Commercial Developments

1. Minimize development footprint to reduce overall impacts to dune habitats.
2. Site the development as far landward as possible to conserve primary dune habitats.
3. Maximize the quality of non-developed areas within the development by connecting dune habitats and landscaped areas using native vegetation.
4. Limit pedestrian crossing of dune habitat by installing the minimal number and size boardwalks over the dunes for beach access. The boardwalk should be designed to allow natural dunes to grow. Avoid creating a weak spot that could blow out in a storm. .
5. Landscape using only native plants and soils characteristic of local dune habitats.
6. Install sea turtle lighting within the entire development. This will reduce the direct and ambient lighting of the beach and dune habitats within and adjacent to the project site.
7. Prohibit free movement of pets in beach and dune habitats. Do not encourage (feed) feral cats in dune habitats.
8. Provide sturdy animal-proof garbage containers to prevent the invasion of house mice and their predators.
9. Remove all beach chairs, umbrellas, etc., from the beach *each night* from May 1 through October 31. These should be moved either to landward of the CCCL or to a storage enclosure seaward of the CCCL .
10. Incorporate the above Conservation Measures as Covenants and Restrictions for the development.

Implementation of these measures will help protect coastal habitat. For additional information please contact the U.S. Fish and Wildlife Service.



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