

# **ENVIRONMENTAL ASSESSMENT**

**ISSUANCE OF AN INCIDENTAL TAKE PERMIT**

**TO**

**ESCAMBIA COUNTY, FLORIDA**

**FOR**

**TAKE OF PERDIDO KEY BEACH MOUSE, SEA TURTLES, AND  
PIPING PLOVERS INCIDENTAL TO PRIVATE DEVELOPMENT  
AND ESCAMBIA COUNTY OWNED LANDS AND  
INFRASTRUCTURE IMPROVEMENTS ON PERDIDO KEY,  
FLORIDA**

**PREPARED BY:**

**PBS&J**

**2401 EXECUTIVE PLAZA  
PENSACOLA, FLORIDA 32504**

**FINALIZED BY:**

**U.S. FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES DIVISION  
1601 BALBOA AVENUE  
PANAMA CITY, FLORIDA 32405**

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## **ABBREVIATIONS**

Act	Endangered Species Act
AQI	Air Quality Index
BMP	Best Management Practices
BO	Biological Opinion
BOCC	Escambia County Board of County Commissioners
CCCL	Coastal Construction Control Line
CFR	Code of Federal Regulations
Comp Plan	Escambia County Comprehensive Plan
CZ	Conservation Zone
CZMA	Coastal Zone Management Act
DCA	Florida Department of Community Affairs
DO	Development Order
DRC	Escambia County Development and Review Committee
DU	Dwelling Units
EA	Environmental Assessment
ECAT	Escambia County Area Transit
ECEMS	Escambia County Emergency Medical Services
ECUA	Emerald Coast Utilities Authority
EIS	Environmental Impact Statement
FATPO	Florida-Alabama Transportation Planning Organization
FDCA	Florida Department of Community Affairs
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FNAI	Florida Natural Areas Inventory
FFWCC	Florida Fish and Wildlife Conservation Commission
FHWA	Federal Highway Administration
GUIS	Gulf Islands National Seashore
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
LU	Lodging Units
MBTA	Migratory Bird Treaty Act
MHWL	Mean High Water Line
MLW	Mean Low Water
MSBU	Municipal Services Benefit Unit
NEPA	National Environmental Policy Act
PCE	Primary Constituent Elements
PD&E	Project Development and Environment
PK	Perdido Key
PKBM	Perdido Key Beach Mouse
PKNP	Perdido Key Neighborhood Plan
PKSP	Perdido Key State Park
SEIR	State Environmental Impact Report
Service	United States Fish and Wildlife Service
WRF	Water Reclamation Facility

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**COUNTY OWNED LAND AND INFRASTRUCTURE IMPROVEMENTS ON**  
**PERDIDO KEY, FLORIDA**

**1.0 INTRODUCTION**

The U.S. Fish and Wildlife Service (Service) has received an application for an incidental take permit (ITP), pursuant to the provisions of section 10 (a)(1)(B) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). Escambia County, Florida, (Applicant) has requested an ITP to cover private development activities and Escambia County owned lands and infrastructure improvements on Perdido Key in Escambia County, Florida. If issued, the ITP would authorize the incidental take of the endangered Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*) (PKBM), threatened loggerhead sea turtle (*Caretta caretta*), endangered green sea turtle (*Chelonia mydas*), endangered leatherback sea turtle (*Dermochelys coriacea*), endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), and the threatened piping plover (*Charadrius melanodus*). This Environmental Assessment (EA) has been prepared by Escambia County via contracted services from Post, Buckley, Schuh and Jernigan (PBS&J), to comply with provisions of the National Environmental Policy Act of 1969 (NEPA). It analyzes impacts associated with private development activities and Escambia County owned lands and infrastructure improvements.

NEPA and the regulatory guidelines established by the Council on Environmental Quality which implements the NEPA (40 C.F.R. §§ 1500 et seq.) require all federal agencies to take into account environmental consequences when making decisions. In the case of the proposed activities presented in this document, the Service is the Federal agency considering the issuance of an ITP for the incidental take of the PKBM, four listed sea turtles, and the piping plover associated private development activities and Escambia County owned lands and infrastructure improvements.

The Applicant has submitted a programmatic Habitat Conservation Plan (HCP) for private development activities and Escambia County owned lands and infrastructure improvements. No formal trapping surveys for PKBM or piping plover have occurred within the programmatic HCP Plan Area specific to this EA. However, suitable habitat for the PKBM and the piping plover is known to occur within the programmatic HCP Plan Area. Formal surveys for nesting sea turtles have been conducted on Perdido Key (PK) since 1993. Therefore, we believe that PKBM, four listed sea turtles, and the piping plover utilize areas within the Plan Area for essential life functions such as breeding,

feeding, and shelter. Proposed projects related to private development activities and Escambia County owned lands and infrastructure improvements may affect PKBM, listed sea turtles, and the piping plover by killing individuals in the construction areas via crushing or entombment, introduction of competitors (house mice), attraction of predators, human occupancy disturbances, and temporary disturbances during construction and permanent loss of habitat needed for breeding, feeding, and shelter.

The Service's purpose in evaluating the application is to ensure compliance with the Act, including sections 7, 9, and 10, and NEPA, (42 U.S.C. 4321-4347). Under section 10(a)(2)(B) of the Act, if the Service finds that, with respect to the permit application and the related programmatic HCP, 1) the taking would be incidental to any otherwise lawful action, 2) the applicants minimize and mitigate the impact of the activities to the maximum extent practicable, 3) whether the applicants have ensured that management, mitigative actions, and/or funds, are adequate to implement the measures in the programmatic HCP, 4) the take would not appreciably reduce the likelihood of species survival and recovery in the wild, 5) if additional measures should be incorporated as conditions in the ITP, and (6) required assurances are received that the plan will be implemented; the Service shall issue the permit(s).

The scope of NEPA covers the direct, indirect, and cumulative effects of the proposed project and incidental take and the mitigation and minimization measures proposed from implementation of the HCPs. We have analyzed: (1) whether the proposed activities would have significant impacts on other physical or biological resources, (2) whether the activities would have significant impacts on the human environment, and (3) whether the cumulative impacts are significant.

In addition, we will evaluate the project for compliance with the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), the Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1456(c)), and the National Historic Preservation Act of 1972 (16 U.S.C. 1361 et seq.).

The EA contains an analysis of three alternatives, including: (1) take avoidance (no impacts to listed species), (2) no action alternative (Programmatic ITP not issued), and (3) issuance of an ITP in conjunction with the programmatic HCP.

Other federal and state protected species occur in the project area. They include the least tern (*Sterna antillarum*), snowy plover (*Charadrius alexandrinus*), black skimmer (*Rynchops niger*), American oystercatcher (*Haematopus pallaitus*), Cruise's golden aster (*Chrysopsis cruseana*), large-leaved jointweed (*Polygonella macrophylla*), and coastal lupine (*Lupinus westianus*). The Applicant has incorporated and committed to conservation measures that would protect these species.

## **1.1 Project Description**

The purpose of the programmatic HCP and ITP is to develop a framework for effectively conserving and improving the productivity of PKBM habitat as well as other listed

species habitat on Perdido Key while providing private property owners and Escambia County with a means of allowing take of listed species and associated habitat incidental to otherwise lawful activities. Escambia County desires to streamline processing the application of non-federal requests for take of listed species in a manner that will also ensure adequate conservation measures are in existence for listed species on Perdido Key. Implementation of the programs and policies contained in the programmatic HCP will allow the County to engage in these activities in a manner and extent compatible with the protection of PKBM, sea turtles and shorebirds.

The Perdido Key Programmatic HCP Plan Area (Plan Area) boundaries include private and Escambia County owned lands on Perdido Key, Florida. The western boundary is located at the Florida/Alabama state line. The north-south boundary includes land from the mean high water line (MHWL) of the northern shore of Perdido Key (Old River) south towards the MHWL of the Gulf of Mexico (Figure 1). However, the Plan does not include activities on Perdido Key State Park (PKSP) and Gulf Islands National Seashore (GUIS).

This EA does not include take of listed marine species whose life history is solely exclusive to use of the aquatic environment seaward of the MHWL. Potential impacts to sea turtle species discussed in the EA are relative to nesting, nest incubation, hatching, and other uses of the beach habitat above the MHWL. Shorebird habitat within the Plan Area includes use of the beach and intertidal areas of Perdido Key.

The Plan Area includes all private property and Escambia County owned property on Perdido Key, Florida as described above. Therefore, a specific description of sites associated with this EA is not feasible. Development in the general vicinity of the Plan Area is dominated by redevelopment of beach cottages with high-rise condominiums as well as other developments associated with individual Perdido Key zoning districts. Future proposed private developments will be required to complete the current Escambia County Development Review Committee (DRC) process including impact minimization measures associated with Escambia County's Code of Ordinances.

## **2.0 PURPOSE OF THE PROPOSED ACTION**

The purpose of the proposed federal action is to authorize take of PKBM, loggerhead sea turtle, green sea turtle, leatherback sea turtle, Kemp's Ridley sea turtle, and non-breeding piping plover incidental to private development activities and Escambia County owned lands and infrastructure improvements on Perdido Key in Escambia County, Florida.

## **3.0 NEED FOR THE PROPOSED ACTION**

The need for the proposed action is to comply with section 9 of the Act, which prohibits the take of any fish, wildlife, or plant species protected under the Act.

### **3.1 Issues and Concerns**

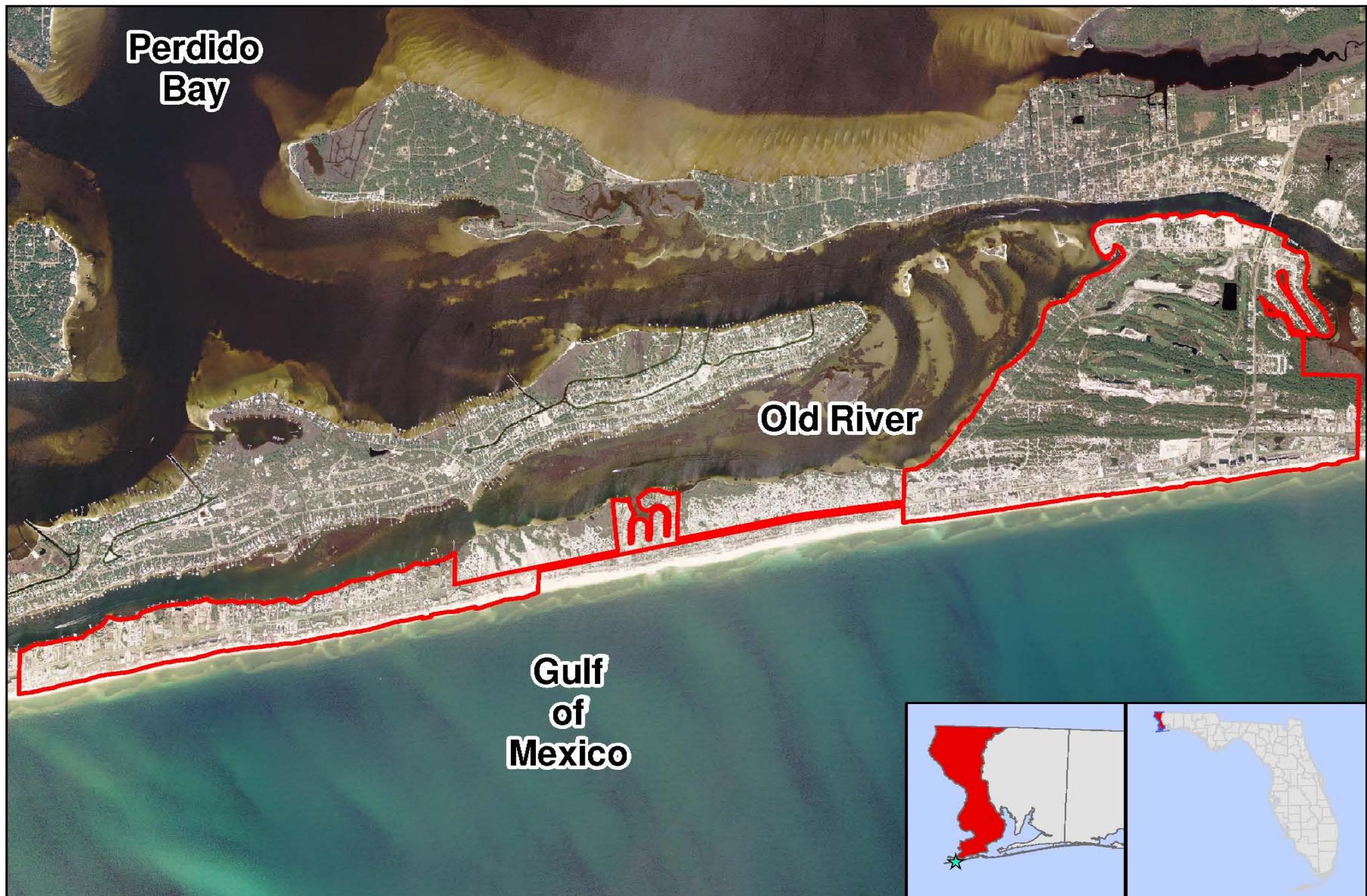
Property owners on Perdido Key have an interest in developing their properties for personal use and/or economic gain. Commercial business interests are relative to economic gain. Escambia County owns and maintains County owned property on Perdido Key. Portions of the County owned land provide public access to the Gulf of Mexico and Old River. Additionally, the County has detailed needs for infrastructure improvements on Perdido Key relative to increases in development and recreational uses.

The County is pursuing a programmatic HCP and ITP to cover private development activities, as well as County activities and infrastructure improvements on Perdido Key because it feels it can provide its citizens with a more streamlined and effective process to review and authorize take of listed species on Perdido Key. Although otherwise legal, these activities nevertheless have the potential to cause take of federally protected species.

In evaluating the HCP developed in support of Escambia County's ITP application, the Service must primarily consider the issues listed below:

1. Will issuance of the ITP appreciably reduce the likelihood of survival or recovery of PKBM, loggerhead, green, leatherback, Kemp's Ridley turtles, or piping plovers in the wild?
2. Would the HCP, as submitted, minimize and mitigate take to the maximum extent practicable?
3. What alternative actions to the taking did the Applicant consider, and why were those alternatives rejected?
4. Would issuance of an ITP result in significant adverse impacts to other physical, cultural, or biological resources in the project area?
5. Is the proposed take incidental to an otherwise lawful activity?
6. Has the Applicant ensured that adequate funding will be dedicated to ensure implementation of the programs and measures proposed in the submitted HCP?
7. Are there other measures that should be required as a condition of the ITP?

# Perdido Bay



## LEGEND

HCP Plan Area



1 inch equals 3,000 feet

**Figure 1**  
**Programmatic Perdido Key**  
**Habitat Conservation Plan**  
**HCP Plan Area**

## NOTES

Data Source:  
PBS&J Map Index  
Florida Geographic Data Library -  
Roads, Public Lands  
2004 Aerial Imagery from LABINS

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Maps Produced by PBS

### **3.1.1 Private Development**

The programmatic HCP and ITP associated with this EA will benefit Perdido Key property owners by providing assurances that applications for development, which may result in incidental take, will be processed in a timely and effective manner and will provide the baseline for conservation measures property owners will utilize for minimizing and mitigating impacts. Property owners will be afforded a streamlined permitting process with application to one agency (Escambia County) minimizing multiple permit agency application coordination efforts, saving time, money, and effort. Utilizing Escambia County's ITP, property owners can pursue private development ventures, in accordance with current rules and regulations, with protection for any take associated with approved impacts. The programmatic HCP will provide for a landscape approach to habitat conservation and promote protection of listed species and their habitat while allowing property owners to utilize their real estate investments.

### **3.1.2 Escambia County Owned Lands and Infrastructure**

Escambia County is taking a proactive approach to developing the programmatic HCP which will benefit the County by being afforded Federal protection for take of listed species covered in the programmatic HCP, pursuant to the terms and conditions of the ITP. The County will be able to provide a one-stop shop for non-federal related permit application review and to provide property owners on Perdido Key a consistent process to review the requests for take of listed species and habitat.

The County will also derive benefit from the programmatic HCP by being afforded Federal protection for take of listed species associated with public infrastructure improvements such as public beach access and emergency response. The County will also be able to streamline County permitted activities such as beach vending, special events, beach driving, and regular beach cleanup.

The County will ultimately be able to implement conservation strategies outlined in the programmatic HCP, which will provide for habitat conservation measures on a landscape scale to protect natural resources.

## **3.2 Coordination and Consultation**

Service personnel at the U.S. Fish and Wildlife Service (Service), Ecological Services Field Office, Panama City, FL, provided technical input through quarterly scheduled meetings and as requested during the development of the HCP and EA. The Service received and reviewed the ITP application.

The Florida Fish and Wildlife Conservation Commission (FFWCC), Florida Department of Environmental Protection Park Service (FDEP), and GUIS participated and provided technical input through quarterly scheduled meetings during the development of the programmatic HCP and EA.

The Service worked closely with Escambia County and its consultant, PBS&J staff located in Pensacola, Florida during development of the programmatic HCP and ITP application to ensure conformance to the Act and NEPA requirements.

Minimization and mitigation measures contained in the programmatic HCP were developed by Escambia County under the guidance of Service staff. Additionally, copies of the draft programmatic HCP were distributed to the technical committee Agency representatives prior to submittal of the ITP application to the Service.

## **4.0 PRIVATE DEVELOPMENT ALTERNATIVES, INCLUDING PROPOSED ACTION**

The Service is presented with two basic options relative to the Applicant's request for an ITP. It can either deny (No Action Alternative) or issue (Action Alternative) an ITP for the proposed action. However, to comply with NEPA, the Service is required to consider a full range of reasonable alternatives for addressing and responding to major public issues, management concerns, and resource conservation opportunities associated with private development activities and Escambia County owned lands and infrastructure improvements on Perdido Key. The Applicant presented three alternatives to the proposed action in the HCP. In determining whether these alternatives provided a satisfactory range of options, the Service evaluated the following information:

- Social, economic, environmental and other relevant issues and concerns identified during both internal and public review of the proposal to issue an ITP;
- Biological requirements of protected fauna and flora potentially affected by issuance of a Permit;
- The legal mandates of the Service under NEPA and the Act; and
- The concerns of the Applicant.

Based on the above criteria, the Service considered one of the Applicant's Action Alternatives. The Service considered two additional Action Alternatives that it believes are needed to provide a full and reasonable range of alternatives to address identified needs and concerns.

### **4.1 Alternatives Considered but Not Analyzed Further**

#### **4.1.1 Restrict Building to Certain Locations on Perdido Key**

Other locations on Perdido Key exist on which potential projects could be constructed. However, most available alternative sites are also likely to contain suitable habitat for the PKBM and/or sea turtles and piping plovers. Thus, selection of alternative sites in lieu of utilizing individually owned sites would not eliminate the potential take associated with the scale of development this EA covers. Land values at the current time are declining. While other land may be more affordable, the revenue lost from the sale of individually owned properties throughout the Plan Area may be cost prohibitive.

The restriction of building to certain locations on Perdido Key may afford for more protection to listed species, but this alternative would provide for inequitable use and capitalization of certain properties over others. This alternative is not feasible based on the location of private properties on Perdido Key and the coverage area of the Plan Area.

#### **4.1.2 Proposed Future Changes to Zoning on Perdido Key**

During the initial development stages of the programmatic HCP, the County had included consideration of proposed future changes to the zoning districts on Perdido Key. This concept was discussed and analyzed by the County and determined to not be carried forward. Since the ITP issued for the HCP is for a 30-year term, it may be reasonable to conceive that the County may reinvestigate the possibility of changes to the zoning districts on Perdido Key. As of the development of the EA there are no such plans to propose changes to the zoning on Perdido Key. Therefore this alternative will not be considered for this EA.

#### **4.2 Alternative 1: Take Avoidance**

Under Alternative 1 (Take Avoidance), the Service would not need to issue an ITP for new development and/or redevelopment of private property in the Plan Area if a proposed private development completely avoided impacts to listed species and their habitats.

If a private project was designed to avoid impacts to listed species habitat, then the site would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as most parcels within the Plan Area on Perdido Key contain some element of listed species habitat.

#### **4.3 Alternative 2: Development of Individual HCPs (No Action Alternative)**

Under the No Action Alternative (development of individual HCPs), the County would not apply and would not be issued an ITP for coverage of new development and/or redevelopment of private property in the Plan Area.

In the absence of an ITP issued to Escambia County for coverage of new development and/or redevelopment of private property, the Service would likely continue to receive individual requests for take and submittals of HCPs for processing. This could lead to increased work loads for the Service. Private property owners would not benefit from expedited review and processing of requests for take as well as any cost savings associated with the opportunity to use the County's HCP. Additionally, the landscape approach to habitat conservation outlined in the County's Perdido Key Programmatic HCP may not be realized with individual HCPs.

As described below under the Preferred Alternative, implementation of the County's programmatic HCP would provide for a more standardized minimization of impacts and a

Key-wide landscape approach to conservation. Thus, under the No Action Alternative (assuming that issuance of individual take permits will continue), impacts to PKBM, sea turtles, piping plovers, and other protected fauna and flora would be authorized, but without the benefit of the minimization and mitigation measures on a landscape approach proposed by the County in the HCP.

#### **4.4 Alternative 3: Issuance of ITP in Conjunction with Perdido Key Programmatic Habitat Conservation Plan (The Preferred Alternative)**

Under the preferred alternative (development of the programmatic HCP), the County would apply and be issued an ITP for coverage of new development and/or redevelopment of private property and county infrastructure in the Plan Area.

Implementation of the programmatic HCP would allow for private land owners to benefit from the minimization and mitigation measures proposed by the County and a Key-wide landscape approach to habitat conservation. The following sections describe the minimization measures proposed in the programmatic HCP.

##### **4.4.1 Minimization of Impacts**

This section describes programs, policies, and other measures that will be implemented by Escambia County and required of any private landowners opting to utilize the County's ITP to minimize impacts to PKBM, sea turtles, and piping plovers causally related to permitted private development and County activities and infrastructure activities. Impacts can occur during and after construction. The following sections describe minimization measures to reduce impacts resulting in the take of listed species.

###### **4.4.1.1 Proactive Planning**

One of the principal methods of minimizing the potential for impacts to PKBM, sea turtles, and piping plovers is initiation of a proactive approach to providing education relative to listed species and their long-term survival requirements to prospective land purchasers and current land owners. Many beachfront property owners, particularly those that have recently moved to Escambia County from other areas, may be unfamiliar with the sensitive nature of the habitats on Perdido Key. It is imperative that these individuals be alerted to the importance of listed species, their long-term survival requirements, and legal requirements for coverage under the Act for take of these natural resources on Perdido Key. It is also important that stakeholders are made aware of this HCP and the Escambia County's responsibilities to review proposals for development and associated requests for take of listed species and their responsibility under the Act.

Escambia County will develop a public awareness program. A brochure will be prepared and distributed and made readily available to all prospective Perdido Key development interests relative to the programmatic HCP Plan Area. The public awareness brochure will be developed within six months of issuance of the ITP. Draft copies of the document will be provided to FFWCC, FDEP, and the Service for review and approval prior to

distribution. At least one mailing will be made to all Perdido Key property owners, with property within the HCP Plan Area, once a brochure has been approved by the Service. The County will then assess the most effective method for subsequent distributions, such as during real estate transactions and pre-application consultations.

Since the programmatic HCP is developed to provide conservation measures on a landscape scale, other proactive planning considerations should be implemented to protect habitat between and around private development projects. The following general considerations are important factors in the proactive planning phases:

- Siting a project to maximize the best habitat conservation on site and incorporate appropriate connectivity and buffers between developments;
- Designing homes and other buildings to reduce their vulnerability to storm damage (e.g., elevation on pilings);
- Minimizing impervious surfaces; and
- Maximizing use of vegetation native to Perdido Key, which also provide food and cover for PKBM.

Stakeholders in proposed developments will be required to consult with the County to minimize impacts and maximize onsite conservation. The design and siting of structures, along with the timing of their construction, are intended to avoid impacts to PKBM, sea turtles and piping plovers.

#### **4.4.1.2 Project Siting**

Regardless of the size and scope of a proposed private development, appropriate project siting relative to reducing impact to existing natural resources and habitats shall be a priority. Appropriately sited designs would ideally reduce impacts to listed species and provide conservation measures to promote a landscape connection to offsite habitats. Certain minimum requirements exist for proposed developments based on the zoning district's designated use and the type of proposed developments within those districts.

Parking, sidewalks, and other requirements shall be properly sited along with structures to promote maintaining the most PKBM habitat on site as well as maintenance of important beach mouse corridors. The County currently requires maintaining 35% open space. On average 75% of open space (beach and dune habitat) is being protected through previously issued HCP's on PK.

Certain factors are essential to maintaining safety of life and property; therefore, emergency response accessibility around building perimeters must be ensured.

#### **4.4.1.3 Project Footprint**

The design of the project footprint shall limit environmental impacts on a parcel. Clustering of developments away from "environmentally sensitive land" is discussed in Section 7.13.04 of the Escambia County Code of Ordinances. Specifically, clustering of

development away from environmentally sensitive lands is considered to be clustered only when at least 90 percent of the environmentally sensitive lands remain undisturbed and preserved under a conservation easement, deed restrictions or covenants, or other method approved by the County and recorded in the public records of Escambia County. The easement may be executed in favor of Escambia County, the State of Florida, a federal agency, or other entity approved by the Escambia County Board of County Commissioners.

#### **4.4.1.4 Landscaping Design**

The Escambia County Code of Ordinances defines landscaping regulation per individual zoning district categories. Landscaping design principles included in the Escambia County Code of Ordinances are briefly discussed below.

Prior to the issuance of a building permit for any structure, a landscaping plan is submitted as a part of the site plan and related approval process. A landscape plan is required to be submitted prior to commencement of construction and simultaneously with the site plan review application to the Escambia County Development and Review Committee (DRC). The plan has to be drawn to scale showing the landscaped area, including the calculations and information made to meet the minimum landscape area requirements.

As required in article 13, section 13.18.00, of the Escambia County Code of Ordinances, the landscape plan for projects for all coastal properties shall show soil, landscaping, stabilization, and species to be planted. Native vegetation associated with PKBM habitat is listed in Appendix A. The use of these native plant species will be required in developing a proposed landscaping or restoration plan.

All disturbed areas outside the development footprint in PKBM habitat shall be landscaped with appropriate native PKBM habitat vegetation and neither sod, mulch, nor underground irrigation shall be used. The landscape plan for a development shall be reviewed and approved by the County.

##### **4.4.1.4.1 Onsite Preservation**

Onsite preservation of PKBM habitat associated with a site permitted for take, is the most preferred minimization option. Appropriately designed and designated onsite preservation can be linked to other existing habitat adjacent to a project area. Habitat linkage will promote habitat corridors and allow for movement of PKBM. Any land offered as an easement for onsite preservation will be required to be recorded as a conservation easement.

A conservation easement shall be placed on specified portions of project areas to satisfy onsite conservation requirements. Certain areas may be excluded from recorded conservation easements associated with permitted structures (i.e. dune walkovers) as allowed through specific permit conditions. The boundaries of the conservation easement

shall be surveyed by a licensed certified land surveyor. The conservation easement shall be recorded with the Clerk of Escambia County within 6 months of the completion of the Project (Owner occupancy). A draft copy of the conservation easement shall be provided to the HCP Coordinator and the Service for review and approval. A copy of the survey and recorded conservation easement shall be provided to the Service within ninety (90) days after the conservation easement is recorded.

#### **4.4.1.5 Habitat Restoration Plans**

Habitat restoration plans shall be a component of the proactive planning process. The impacted areas of beach mouse habitat of a proposed development will need to be restored.

The objective of 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 project areas will be determined based on individual site assessments and consultation with the County.

The planting shall be patterned after the species composition in native communities adjacent to a project site. To insure acceptable survival rates of installed plants, temporary irrigation may 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 any newly restored areas.

Specific habitat restoration plans will be required to be submitted as part of a building permit on PK.

#### **4.4.1.6 Conservation Corridors**

Conservation corridors shall be considered early in the proactive planning process for any developments or County infrastructure improvements. Conservation corridors shall be designated and maintained to provide corridors for the PKBM to access off-site habitat on adjacent parcels, including to the south, north, east and west and around the general perimeter of an impact site whenever feasible. One theory suggests that these corridors shall be a minimum width of 10% of its length (Laurance et al 2003). Contiguous tracts of habitat and/or functionally connected patches of suitable habitat are noted to be essential to the long-term conservation of beach mice. Regulatory mechanisms are in place to track impacts to PKBM habitat and aid in minimizing impacts from development on public lands. However, the subspecies' requirements for corridor size and level of tolerance for fragmentation are unknown (USFWS 2007). These corridors shall be planted with native vegetation (see Appendix A for a list of plant species that may be used).

Preservation of existing natural landscape elements shall be given highest priority in maintaining corridor connectivity using the following critical habitat primary constituent elements (PCE) as a conservation goal:

1. A contiguous mosaic of primary, secondary and scrub vegetation and dune structure, with a balanced level of competition and predation and few or no competitive or predaceous nonnative species present, that collectively provide foraging opportunities, cover, and burrow sites.
2. Primary and secondary dunes, generally dominated by sea oats, that despite occasional temporary impacts and reconfiguration from tropical storms and hurricanes, provide abundant food resources, burrow sites, and protection from predators.
3. Scrub dunes, generally dominated by scrub oaks, that provide food resources and burrow sites, and provide elevated refugia during and after intense flooding due to rainfall and/or hurricane induced storm surge.
4. Functional, unobstructed habitat connections that facilitate genetic exchange, dispersal, natural exploratory movements, and recolonization of locally extirpated areas.
5. A natural light regime within the coastal dune ecosystem, compatible with the nocturnal activity of beach mice, necessary for normal behavior, growth and viability of all life stages.

PCE number 5 shall incorporate minimization elements of lighting appropriate to sea turtles and should also consider additional lighting restrictions for PKBM discussed in Section 12.4 of the programmatic HCP. It should be noted that buffer requirements relative to specific PKBM needs shall take precedence over County current standardized zoning district requirements of proposed development impacts.

#### **4.4.2 Pre-permitting Assessment of Habitat**

Assessments of habitat on specific parcels subject to proposed development shall be conducted to provide a baseline of existing habitats. The habitats on site will be identified on aerial photographs to provide visual references to existing habitat on site. Any PKBM designated critical habitat on a particular parcel shall be noted. The assessment should provide an estimate in acreage of the existing habitat types including a breakout of designated critical habitat acreage for comparison, if applicable.

An applicant for development approval shall be required to determine if the site has potential for containing threatened and endangered species habitat. A professional scientist with experience in coastal resources is likely to be required to conduct the initial listed species site assessment. If the potential exists, a site specific survey shall be conducted, and such survey will include in the delineation all such threatened and endangered species habitat on the subject parcel. All site-specific surveys shall be conducted and completed by the property owner/developer, and approved by the County. County maintains oversight in conjunction with the Service. Such determinations will be

used to guide design of a project to minimize and avoid impacts to listed species. All site-specific surveys shall be conducted and completed by a landowner and/or their consultant, and approved by the County.

#### **4.4.3 Precautions Implemented During Construction Activities (All Species)**

##### **4.4.3.1 Seasonality Consideration**

The species covered under the programmatic HCP have the potential to utilize habitats on Perdido Key at various intensities and seasonal variations. PKBM typically exhibit more breeding activity during the months with cooler temperatures. However, there are no seasonal restrictions relative to PKBM. For sea turtles, all construction on the nesting beach shall be conducted outside the sea turtle nesting season (May 1 through October 31). Otherwise for work on the beach/dune interface, work can not commence until the daily sea turtle surveys and nest protection/markings have been completed. Non-breeding piping plover are found consistently in the Florida panhandle from July 15 to May 15.

Restoration that includes vegetation planting must be completed by May 1 of each year to increase chances of plant survivability by reducing effects from heat and desiccation during warmer months and reduce impacts to nesting sea turtles.

##### **4.4.3.2 Best Management Practices**

Best management practices (BMPs) are innovative, dynamic, and improved environmental protection practices developed and applied to construction projects in coastal habitats to help ensure construction activities are conducted responsibly. BMPs are considered standard operating procedures to protect wildlife and habitat.

Ensuring all construction personnel, including supervisors, are aware of the sensitive habitats within a work zone is essential to minimizing impacts. A copy of the ITP shall be provided to the general contractor and included in all sub-contracts for a specific project. The construction contract documents entered into by the Permittee/Owner shall include a stipulation that conservation objectives of the Permit shall be communicated to and agreed upon by all sub-contractors.

During construction, impacts to PKBM shall be avoided or minimized by, but not limited to the measures listed below in Table 1.

**Table 1 Minimization Measures Summary**

<b>Perdido Key Programmatic HCP Minimization Measures</b>					
<b>Measure</b>	<b>Measure Required to be Implemented By</b>		<b>Species Benefited</b>		
	<b>Private</b>	<b>County</b>	<b>PKBM</b>	<b>Sea Turtles</b>	<b>Shorebirds</b>
<b>Proactive planning</b>	X	X	✓		
<b>Project Siting</b>	X	X	✓		
<b>Project Footprint</b>	X	X	✓		
<b>Landscaping Design</b>	X	X	✓		
<b>Conservation Corridors</b>	X	X	✓		
<b>Seasonality Considerations</b>	X	X	✓	✓	✓
<b>Establishing Project Boundaries</b>	X	X	✓	✓	✓
<b>Predator control</b>	X	X	✓	✓	✓
<b>Trash Collection/Management</b>	X	X	✓	✓	✓
<b>Dune Restoration</b>	X	X	✓		
<b>Boardwalks/Walkovers</b>	X	X	✓		
<b>Wildlife lighting</b>	X	X	✓	✓	✓
<b>Vehicle Access Management</b>	X	X	✓	✓	✓
<b>HCP/ITP Training</b>		X	✓	✓	✓
<b>Public Education</b>		X	✓	✓	✓
<b>Post Construction Monitoring</b>	X	X	✓	✓	✓
X = Required to Implement			✓ = Benefitted		

Litter and trash attract raccoons as well as feral pets and other animals. Raccoons especially are notorious turtle egg predators. 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 construction plans designed for any development or public infrastructure improvement project.

Trash collection and storage for a specific project shall be confined to the permitted impact area. Trash receptacles exterior to the project limits shall not be allowed. Receptacles for trash pick-up shall be animal-proof and will reduce predator and competition pressure from nuisance and exotic species. Predator proof containers shall be elevated above the ground and covered to limit wildlife scavenger access.

Any lighting on permanent structures as well as lighting which may be used during the construction phase shall follow the general guidelines presented in Section 12.4 of the programmatic HCP (also see Appendix B - Escambia County Draft Wildlife Lighting Ordinance in this EA).

BMPs specific to shorebirds developed by the FFWCC to reduce impacts are detailed in Section 10.3.2 of the programmatic HCP.

#### **4.4.3.3 Inclusive Period of Monitoring**

The County shall ensure that sea turtle monitoring is in place on PK. The intent of monitoring is to identify and protect any nests that may be deposited in the project area during the period of construction and to ensure that marked nests, if present, are unaffected by construction activities. Daily monitoring shall commence on May 1 or a designated timeframe prior to the date of construction initiation and shall continue uninterrupted until the completion of construction or September 1, whichever is earlier. If construction proceeds beyond September 1 and marked nests remain within the project area, daily monitoring of the nests will continue until the last marked nest has hatched.

The Permittee/Owner shall be responsible for monitoring the status of PKBM on the project site for three years following issuance of the first certificate of occupancy by Escambia County, Florida. The County shall approve of the monitoring plan. The design shall be submitted to the County at least 120 days prior to the start of the monitoring. Specific details related to monitoring are discussed in Section 13.0 of the programmatic HCP.

Persons conducting the monitoring shall be required to obtain appropriate permits from the Service and FFWCC and shall follow the stipulations outlined in the permit(s). All information shall be provided in the annual reports for this Permit.

Surveys for non-breeding shorebirds shall begin 14 days prior to construction commencement and be conducted once every 2 weeks for at least one year post-construction. Data collected during these surveys will provide valuable information on the use of developed beaches to shorebirds. Survey for non-breeding shorebirds will include all potential shorebird habitats within the project boundary. Data collected on

non-breeding shorebirds shall be compatible with, and reported to, the Shorebird-Seabird Occurrence Database ( <http://myfwc.com/shorebirds> ).

#### **4.4.3.4 Establishing Project Boundaries**

The limits of disturbance due to construction activities shall be delineated on all building and site disturbance plans. An appropriate buffer specific to each site proposed for impact will be established to provide a physical demarcation between the area of permitted impact activities and areas to remain in conservation. Silt fences or other barriers approved for utilization to ensure the protection of adjacent habitat on the subject property and off-site shall be installed before construction begins. The silt fence or other appropriate barrier shall be placed along the perimeter of permitted construction impact areas. Signs providing notice to the building contractor/workers that penalties will be levied for disturbing habitat beyond the barrier shall be posted at 100-foot intervals. The silt fence or other appropriate barrier shall be designed to allow movement of PKBM and prevent pedestrian trespass. All silt fence/appropriate barriers and habitat notice signs shall be monitored and maintained daily until the project construction is completed.

The limits of the areas encompassing the construction site, buffer zone(s), access point(s), and travel corridor(s), as applicable, shall be considered as a component of the project area. Areas defined and permitted as providing temporary construction access may be defined as temporary impacts, but must be minimized and fully restored once construction activities have been completed.

Pertaining to shorebird habitat within the project area, the permittee shall establish a 300 ft-wide buffer zone around any location where shorebirds have been engaged in feeding or nesting behavior, including territory defense. Any and all construction activities, including movement of vehicles, shall be prohibited in the buffer zone. The width of the buffer zone shall be increased if birds appear agitated or disturbed by construction or other activities in adjacent areas.

Designated shorebird buffer zones must be posted with clearly marked signs around the perimeter. If pedestrian pathways are approved within the 300-foot buffer zone, these should be clearly marked. No construction activities, movement of vehicles, or stockpiling of equipment shall be allowed within the buffer area. Approved travel corridors should be designated and marked outside the buffer areas. Heavy equipment, other vehicles, or pedestrians may transit past nesting areas in these corridors. However, other activities such as stopping or turning shall be prohibited within the designated travel corridors adjacent to a nesting site.

If shorebird nesting occurs within the project area, a bulletin board will be placed and maintained in the construction area with the location map of the construction site showing the bird nesting areas and a warning, clearly visible, stating that “BIRD NESTING AREAS ARE PROTECTED BY THE FLORIDA THREATENED AND ENDANGERED SPECIES ACT AND THE STATE and FEDERAL MIGRATORY BIRD ACTS”.

#### **4.4.3.5 Construction Equipment Staging**

All permitted construction activities shall be conducted from areas specifically identified in approved plans and take permits. No heavy equipment (e.g., tracked or wheeled motorized machinery, such as bobcats, bulldozers, front-end loaders, etc.) shall be operated outside of the defined project limits. If heavy equipment must be operated on the beach in support of a permitted project, an access site as close to the construction site as possible will be selected by the County in consultation with the HCP Coordinator and sea turtle monitoring personnel. Equipment staging areas shall be specifically defined on approved plans and at the end of a work period the equipment must be staged at the appropriately designated area.

#### **4.4.3.6 Time of Monitoring and Daily Commencement of Construction**

Monitoring of a project area shall be performed as early as possible each day in accordance with the most current agency guidelines. No construction activities, including the movement of heavy equipment on the beach for work in potential sea turtle habitat and or shorebird habitat, may commence until approved sea turtle nesting survey(s) have been completed. A designated project site manager shall ensure that there is an effective line of communication between sea turtle survey monitoring personnel and construction crews.

#### **4.4.3.7 Impact Assessment**

To assess impacts of construction activities on PKBM, sea turtles, and piping plovers resultant data from monitoring events will be furnished to the County. The data will be included in the Annual Report (see Section 10.5.4 of the programmatic HCP).

### **4.4.4 Minimization Measures**

Proposed developments are anticipated to be designed within the constraints of the LDC and Florida's costal zone regulations. Considering that a parcel proposed for development includes the presence of suitable PKBM, sea turtle, and piping plover habitat; and the determination that some impacts are unavoidable, the design team(s) shall fully evaluate how a project's purpose and need could be accomplished while preserving, to the greatest extent practicable, the habitat on a subject property. Preventing or minimizing secondary impacts associated with the proposed use of the property shall also be a component of minimization measures. The programmatic HCP provides detail on minimization measures specific to private development.

#### **4.4.4.1 Perdido Key Beach Mouse**

Additional minimization measures shall be considered and incorporated specific to PKBM, while incorporating aspects of the design modifications described above. Minimization of impacts associated with a specific development may include restoration

and conservation measures, construction setbacks, boardwalks and walkovers, wildlife friendly lighting, as well as proposed activities associated with day to day operation and management of the project. The allocation of management responsibilities between developments and homeowners association (where applicable) would occur via deed restrictions on condominium complexes and the covenants and restrictions or deed restrictions on single-family properties. Shared allocation of management responsibilities would also be addressed in these same documents. Implementation of the Escambia County Wildlife Lighting Ordinance described in Section 12.4 of the programmatic HCP will enhance minimization measures for PKBM. The responsible entities for individual management activities are identified in Section 13.0 of the programmatic HCP.

#### **4.4.4.2 Sea Turtles**

Efforts to minimize take and allow for potential growth in the nesting population of sea turtles within the HCP Plan Area include implementation of:

- Methods for protecting sea turtles from vehicular traffic;
- Regulation of activities potentially impacting sea turtles;
- Standardizing data collection methodologies to allow for assessment of impacts;
- Conspicuously marking and protecting nest sites;
- A professionally managed sea turtle monitoring and nest protection program;
- An active compliance and enforcement program.

Other sea turtle take minimization measures may include restricting vehicular access to daylight hours when the risk of encountering sea turtles is lowest. Establishing a Conservation Zone (CZ) to enhance development of nesting habitat and prohibiting public access and parking near the dunes where the majority of nests are deposited.

Implementation of the Escambia County Wildlife Lighting Ordinance described in Section 12.4 of the programmatic HCP will enhance minimization measures for sea turtles.

#### **4.4.4.3 Piping Plovers**

Minimization of impacts to piping plovers has been achieved through many of the same measures implemented to protect PKBM and sea turtles. The HCP coordinator will be tasked with ensuring specific minimization measures are provided for piping plovers. Minimization measures for piping plovers will include the components described below.

Throughout the term of the ITP, Escambia County will continue to conduct and/or coordinate a survey of the Plan Area to identify beach areas used by piping plovers. Monitoring personnel may include County staff or bird survey personnel. The surveys will be conducted during the appropriate season. Survey methods are detailed in Section 13.2.10 of the programmatic HCP.

The public will be encouraged to properly dispose of trash in appropriate places. To avoid attracting predators or other vermin, refuse containers at public access sites will be wildlife resistant. Refuse will be collected on a regular schedule so that excess refuse will not pile up or become a nuisance itself.

#### **4.4.4.4 Other Shorebirds**

Minimization measures for other shorebirds will include the appropriate measures described above for piping plovers. This section also contains measures to minimize impacts to nesting shorebirds. Throughout the term of the ITP, Escambia County will continue to conduct and/or coordinate a survey of the Plan Area beaches to identify beach nesting sites of shorebirds (e.g., least terns, black skimmers, American oystercatchers, snowy plovers, etc.). Monitoring personnel may include County staff or contracted biologists. The surveys will be conducted during shorebird nesting season, typically March 1 to September 15 of each year. Survey methods are detailed in Section 13.2.11 in the programmatic HCP.

If a nesting site is identified during the survey or otherwise reported to the County, the site will be cordoned off with appropriate materials, as directed by the County in consultation with FFWCC.

Pedestrian and vehicular access to marked nesting sites will be prohibited. Signage will be installed to discourage further pedestrian disturbance. The County will periodically inspect the site to ensure appropriate protection measures remain in place until all nesting activity has ceased. Field personnel will take appropriate precautions to minimize disturbances to the nesting birds during identification, marking, and monitoring of nesting sites. Any observed or reported impacts to cordoned nesting sites will be documented and provided to the County.

Construction project boundaries will be established as described in Section 10.3.4 of the programmatic HCP. If any shorebird nesting areas are located near a construction area, a buffer zone will be established with stakes and rope (“post and rope”) such that no operation of equipment, storage of equipment or supplies or entry by construction workers is allowed within 300 feet of a nesting area. This buffer zone will be marked by the appropriate nesting bird signage and entry to this area would be prohibited. The construction site should be kept clean and free of debris in dune habitats at all times during construction.

#### **4.4.4.5 HCP/ITP Training**

Numerous County departments, contractors, and outside groups and agencies are involved in implementation of the programmatic HCP. It is essential that all involved parties understand the intent of protected species regulations and his/her responsibilities under the HCP and the ITP.

The County will develop a training manual, approved by the Service, to ensure consistency in HCP/ITP training. This manual shall contain information on the general biology and conservation issues for PKBM, sea turtles, and piping plovers, and specific measures to minimize take as described above. Material contained in the manual will be selectively presented to specific target audiences to ensure that they thoroughly understand their assigned responsibilities under the HCP.

Training for all groups with implementation responsibilities will commence during the first year that the ITP is issued and then periodically thereafter as necessary. Video taped training sessions may be used for initial and/or recurrent training, as appropriate. Training will include a thorough review of relevant HCP programs and ITP terms and conditions and the following:

- A review of procedures for each of the activities to be performed under the programmatic HCP and ITP;
- A review of the organizational chart (chain-of-command);
- All persons receiving HCP training will be required to sign a certification form indicating that they
  - (1) have received the training class,
  - (2) understand their responsibilities under the plan, and
  - (3) agree to abide by all rules and regulations regarding permitted activities.

Any substantive changes in HCP rules and regulations occurring between training classes will be forwarded, in writing, to all affected parties by the County.

#### **4.4.4.6 Public Education and Awareness**

The County will work with public and private entities to distribute educational information regarding the programmatic HCP and the conservation of protected species on Perdido Key. The County shall make every effort to ensure property owners/managers are aware of the training and educational materials. Private developments such as condominiums and/or rental units which offer services for visitors to Perdido Key that receive County permits in accordance with the ITP shall also provide educational information to further promote the conservation of listed species on Perdido Key.

#### **4.4.5 Minimization of Impacts – Post-Project**

Subject to disturbance allowed by the terms of the ITP, permanent impact to specific sites shall be limited to the specific impacts indicated in the ITP and all temporary impacts shall be restored after completion of construction. Monitoring requirements specific to species covered in the HCP are fully detailed in Section 13.0 of the programmatic HCP.

Financial responsibilities of the Permittee/Owner shall include establishing an escrow account where funds sufficient to finance specifically designated PKBM (and other species as required) monitoring events for subject properties. Property deed restrictions

and/or condominium covenants shall identify that such accounts cannot be dissolved under any circumstances until the monitoring surveys are completed.

Other specific conditions identified in an ITP issued for each individual project will also contain requirements relative to post construction responsibilities of a permittee.

#### **4.4.5.1 Monitoring of Project Areas Following Construction**

Monitoring requirements specific to species covered in the HCP are fully detailed in Section 13.0 of the programmatic HCP.

#### **4.4.5.2 Data Collection**

The County shall ensure there are standardized data sheets for monitoring project areas for PKBM, and where applicable, sea turtles, and piping plovers. Monitoring shall be conducted by qualified environmental scientists skilled in monitoring of the specific species included in the HCP, and permitted by the FFWCC and Service (as needed). More details specific to monitoring are included in Section 13.0 of the programmatic HCP.

#### **4.4.5.3 Data Reporting**

The ITP issued under Section 10 (a) requires that an activities report be submitted to the Service by January 31st of each year. The annual report shall be prepared by the responsible party and submitted to the Service and the FFWCC. 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 included in the programmatic HCP.

### **4.4.6 Mitigation**

Mitigation is considered to be compensation for unavoidable impacts or losses. More details related to mitigation are included in the programmatic HCP. Brief descriptions of mitigation possibilities are included below.

#### **4.4.6.1 Land Conservation**

##### **4.4.6.1.1 Offsite Preservation**

Most mitigation results in the acquisition of land through fee-simple purchase and purchase of conservation easements on properties other than the property subject to take, at a minimum ratio of 2:1. For offsite mitigation there may be consideration for the efficacy of preserving habitat on a particular site based on the quality of habitat existing on the site and/or restoration potential. Land acquisition options relative to offsite preservation are discussed below.

#### **4.4.6.2 Land Acquisition**

Land acquisition may be considered as land set-asides according to a prescribed mitigation ratio or direct purchase for habitat preservation.

Land acquisition, in general on Perdido Key, may include components or be comprised of the possible options below:

- Purchase of private parcels to the south of Perdido Key Drive, east and west of PKSP.
- Purchase of private parcels to the north of Perdido Key Drive, east and west of PKSP.
- Purchase of private parcels adjacent to GUIS.
- Purchase of large parcels of PKBM habitat that have sufficient connectivity or size to maintain PKBM.
- Establishment of a mouse corridor along the beachfront, south of Perdido Key Drive, from the Alabama/Florida state line east to the western edge of GUIS.

Functioning from a landscape approach at conservation and maximizing land acquisition to the fullest extent, development of a PKBM corridor to provide access of PKBM to sufficient habitat is significantly important for future survivability of the species.

Land acquisition is an effective approach to increasing conservation for the PKBM and additional protection for the other listed species covered in the HCP. However, land purchases available on Perdido Key may be more costly than if accomplished elsewhere for listed species requiring lower economic value of habitat.

#### **4.4.6.3 Voluntary Financial Contribution to PKBM Conservation Fund**

A mitigation option to offset impacts to PKBM habitat includes electing to provide in-lieu fee mitigation compensation for impacts to PKBM habitat which includes an annual assessment per unit. The current initial impact fee is \$100,000 per acre of PKBM habitat lost. The annual fee is \$201.00 per unit. The specific Ordinance is detailed below.

Ordinance No. 2006-2 is enacted under authority of Article VII, Section 1(f) of the Constitution of the State of Florida and F.S. ch. 125 for the purpose of providing a mechanism for imposition and collection of a recurring annual assessment for those properties involved in mitigation for Perdido Key Beach Mouse habitat impacts.

- a. *Short title.* This subsection shall be known as "The Perdido Key Beach Mouse Special Assessment Ordinance," and may be cited as such.
- b. *Legislative findings.*

- (1) Approximately 240<sup>1</sup> acres of private property on Perdido Key on which are located primary, secondary and scrub dunes have been identified as habitat for the Perdido Key Beach Mouse.
  - (2) Those wishing to commence new development within said 240 acres of Perdido Key Beach Mouse habitat must comply with federal, state and county permitting that includes the option of mitigation for impacts to Perdido Key Beach Mouse habitat.
  - (3) Those electing to provide in-lieu fee mitigation for impacts to Perdido Key Beach Mouse habitat will be assessed an annual assessment per unit.
  - (4) Those properties responsible for these annual assessments derive a special benefit from the improvements and services provided for by the annual assessments in that they benefit from the conservation and natural resource protection.
  - (5) The assessment is fairly and reasonably apportioned among the properties in the PKBM habitat area and is based upon the extent of the impact on the habitat.
- c. *Imposition.* For those new developments or redevelopments on Perdido Key in the approximate 240 acres identified as Perdido Key Beach Mouse (PKBM) habitat that have elected mitigation for habitat impacts shall hereby be assessed an annual, recurring special assessment per unit on the subject site. The amount assessed shall be \$201.00 per new unit as a recurring annual assessment. For purposes of this subsection, "unit" shall mean dwelling unit as defined in Part III, article 3, section 3.00.01 of this Code. Additionally, for purposes of this subsection, "unit" shall also mean any commercial or lodging establishment. In those instances where a commercial establishment has definable delineations of separate ownership, each such division of separate ownership shall be considered a unit.
- d. *Procedure for assessment.* Upon issuance of a certificate of occupancy for any unit subject to this assessment, the neighborhood and environmental services department shall report the subject parcel identification number(s) to the Escambia County Office of Management and Budget to process for collections.
- e. *Method of collection.* Collection shall be by the uniform method of collection provided for by F.S. § 197.3632.
- f. *Duration.* Recurring annual collections shall continue until such time as this subsection is repealed by the board of county commissioners.
- g. *Appeal.* Any property owner assessed this special assessment in error may appeal in writing to the Escambia County Office of Management and Budget.

#### **4.4.6.4 Conservation Corridors**

Conservation corridors described above in Section 4.4.1.6 may be considered as minimization if they are appropriate to provide benefit to listed species. Such corridors shall be protected through conservation easements and maintained in perpetuity.

#### **4.4.6.5 Dune/Habitat Restoration**

The objective of restoration/enhancement projects should be to achieve rapid and effective dune stabilization through plantings of sea oats and other native plants.

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<sup>1</sup> New evaluation of PKBM habitat has determined approximately 273 acres of PKBM habitat on privately owned and County owned lands.

#### **4.4.6.6 Predator Control**

Feral and domestic cats pose a significant threat to beach mice. Therefore, domestic cats will be prohibited from the premises of all permitted developments and/or County infrastructure improvements. Dogs will be allowed when kept confined inside the residential structure or condominium units. Dogs may be walked on a 6-foot hand held leash, outside of beach and dune areas (PKBM habitat) in the impervious areas of a condominium complex and adjacent public access areas as permitted by local ordinances. All solid waste material must be picked up and disposed of properly by the pet owner/caretaker.

Private property owners utilizing the County's ITP/HCP will be required to communicate with the County to ensure that any feral (domestic or wild species) animals occurring on their property are captured and removed. The capture and removal of these species will be accomplished through contractual arrangements with permitted nuisance species trappers and/or Escambia County Animal Control. If house mice are found within the managed project area, the County and the Service shall immediately be notified by the private property owner. Pesticide and herbicide application shall be prohibited outside the units at the development in natural areas.

#### **4.4.6.7 Lighting Ordinance**

The shoreline along Perdido Key is currently developed with future development likely to occur, which will include lighted structures in close proximity to sea turtle nesting areas and other areas that support native coastal wildlife. Structures which are built on or near the shoreline usually include some source of artificial lighting. Scientific studies conclude that certain types of artificial lighting have a detrimental effect on nesting sea turtles and their hatchlings by inhibiting nesting and interfering with the natural lighting cues used by hatchlings to properly orient to the open waters of the Gulf of Mexico.

Proper light management may positively affect other species of wildlife such as PKBM that utilize Escambia County's coastal areas. Since the County recognizes and respects the rights of citizens to use their property to the full extent and for their personal enjoyment, it is the goal of the Escambia County Board of County Commissioners (BOCC) to promote effective management of exterior and interior lighting to provide both safe and secure nighttime use of private property by property owners and minimize disturbances to nesting sea turtles, their hatchlings, and other coastal wildlife including PKBM. The County has taken steps to create a draft ordinance with the intention of reducing the detrimental affects of artificial lighting on sea turtles and other coastal wildlife. The purpose and intent of the ordinance is to reduce the impacts of artificial lighting on threatened and endangered sea turtles and other coastal wildlife including PKBM. Private development projects will be required to adhere to the conditions of the lighting ordinance. If not approved prior to ITP application, the lighting ordinance will be required to be adopted within six months of the issuance of the ITP.

See Appendix B for a copy of the draft ordinance.

#### **4.4.6.8 Cumulative Benefits**

The cumulative benefits of the mitigation proposed in the HCP will be analyzed and reported to the Service as a component of the incidental take permit reporting requirement (see Section 14.0 in the programmatic HCP). Since the HCP is a programmatic HCP, encompassing multiple future applications for take, the HCP will require oversight of individual site specific mitigation to functionally assess the cumulative benefits. The minimization of impacts coupled with the mitigation options described above provides conservation benefits to compensate for impacts likely to occur as a result of issuance of the ITP.

### **5.0 ESCAMBIA COUNTY OWNED LANDS and INFRASTRUCTURE ALTERNATIVES, INCLUDING THE PROPOSED ACTION**

#### **5.1 Alternatives Considered but Not Analyzed Further**

##### **5.1.1 Impacts for Widening SR 292 (Perdido Key Drive)**

Investigation of potential improvements to SR 292 (Perdido Key Drive) included the Project Development and Environment (PD&E) study and a State Environmental Impact Report (SEIR). Multiple meetings were conducted to outline concerns relative to proposed transportation improvements for SR 292 (Perdido Key Drive), including widening. The initial proposed Perdido Key HCP scope included consideration of impacts from widening SR 292 (Perdido Key Drive) and establishing the conservation measures to offset potential impacts to listed species and their habitats. Agency communication through the PD&E study process has resulted in a position letter from the Service that the proposed impacts to PKBM habitat would be significant. Subsequently, the SEIR has been elevated to an Environmental Impact Statement (EIS) by the Federal Highway Administration (FHWA). Because of the involvement of FHWA, a federal agency, a Section 7 consultation will be conducted. Therefore, this action will not be included in the programmatic HCP.

##### **5.1.2 Proposed Future Changes to Zoning on Perdido Key**

The investigation of potential changes to the Escambia County Comprehensive Plan (Comp Plan), which would satisfy safety, functional, and recreational needs of the Perdido Key community, was initially considered for inclusion in the HCP and EA. The proposed Comp Plan changes were to include increases to current building caps. During the process of developing the HCP, the County retracted the application for Comp Plan changes to the Florida Department of Community Affairs (DCA). Subsequently the proposed Comp Plan changes have not been included for further analysis in this EA.

## **5.2 Alternative 1: Take Avoidance**

Under Alternative 1 (Take Avoidance), the Service would not need to issue an ITP to the County for County owned lands and infrastructure improvements in the Plan Area if a proposed project completely avoided impacts to listed species and their habitats.

If a specific project design was determined to avoid impacts to listed species habitat, then the site would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as most sites within the Plan Area on Perdido Key contain some element of listed species habitat.

## **5.3 Alternative 2: Development of Individual HCPs (No Action Alternative)**

Under this alternative (development of individual HCPs), the County would not apply and would not be issued an ITP for coverage of County owned lands and infrastructure improvements in the Plan Area.

In the absence of an ITP issued to Escambia County for coverage of County activities and infrastructure improvements in the Plan Area, the Service would likely continue to receive multiple requests for take and submittals of multiple HCPs for processing. This could lead to increased work loads for the Service and delayed permitting for the County. The County would not benefit from expedited review and processing of requests for take as well as any cost savings associated with the opportunity to use the County's HCP. The County would also be required to apply for County projects and activities individually.

Additionally, the landscape approach to habitat conservation outlined in the County's HCP may not be realized with multiple individual HCPs.

As described below under the Preferred Alternative, implementation of the County's Perdido Key Programmatic HCP would provide for a more standardized minimization of impacts and a Key-wide landscape approach to conservation. Thus, under the No Action Alternative (assuming that issuance of individual take permits will continue), impacts to PKBM, sea turtles, piping plovers, and other protected fauna and flora would be authorized, but without the benefit of the landscape approach minimization and mitigation measures proposed by the County in the HCP.

## **5.4 Alternative 3: Issuance of the ITP in Conjunction with Perdido Key Programmatic Habitat Conservation Plan and Minimization of Impacts (The Preferred Alternative)**

Under this alternative (development of the Perdido Key Programmatic HCP), the County would apply and be issued an ITP for permits they issue for County activities and infrastructure improvements in the Plan Area.

Implementation of the County's programmatic HCP would allow for a Key-wide landscape approach to habitat conservation. The following sections describe the minimization measures proposed in the HCP.

### **5.4.1 Minimization of Impacts**

This section describes programs, policies, and other measures that will be implemented by Escambia County to minimize impacts to PKBM, sea turtles, and piping plovers causally related to permitted County activities and infrastructure improvements in the Plan Area. Impacts can occur during and after construction. The following sections describe minimization measures to reduce impacts from take of listed species.

#### **5.4.1.1 Proactive Planning**

One of the principal methods of minimizing the potential for impacts to PKBM, sea turtles, and piping plovers under the programmatic HCP is initiation of a proactive approach to providing education relative to listed species and their habitat for County staff to consider when planning and designing County owned lands and infrastructure improvements. It is reasonable to perceive that the County will have a need to improve the lands owned by the County as well as improve County infrastructure. It is imperative that County staff is alerted to the importance of listed species, their habitat, and legal requirements for take of these natural resources on Perdido Key. It is also important that County staff is made aware of the County's responsibilities to operate under the ITP issued for the programmatic HCP.

Escambia County will develop internal training which will include an overview of the ITP and HCP requirements, as well as an overview of the previously described public awareness brochure. The public awareness brochure shall be given to all County staff. This cross training and information dissemination will assist staff with planning and other permitting responsibilities at the County, who may possibly be contacted by potential development interests. The internal training to other departments within the County will enhance future planning efforts in determining any improvements to County owned property and infrastructure.

Since the HCP is developed to provide conservation measures on a landscape scale, proactive planning considerations should be implemented to reduce adverse impacts to listed species from County owned lands and infrastructure improvements. The following general considerations are important factors in the proactive planning phases for County based projects:

- Siting a project to avoid impacts to the best habitat on site and incorporate appropriate buffers between improvements;
- Structural designs to roads, parking areas, utility installations etc. to make them less vulnerable to storm damage;
- Minimizing impervious surfaces;

- Maximizing use of vegetation native to Perdido Key, which also provide food and cover for PKBM; and
- Restoring habitat.

The design and siting of construction elements, along with the timing of their construction, would be included to avoid impacts to PKBM, sea turtles and piping plovers.

#### **5.4.1.2 Project Siting and Footprint**

Depending on the size and scope of a proposed County owned land or infrastructure improvement project, appropriate project siting relative to reducing impact to existing natural resources and habitats shall be a priority. Appropriately sited designs would ideally reduce impacts to listed species and provide for conservation measures to promote a landscape connection to offsite habitats. Roads, parking areas, sidewalks, and other features should be properly sited to promote maintaining the most PKBM habitat on site while maintaining safety of the public. The footprint of a project or infrastructure improvement occurring on County owned lands shall incorporate appropriate designs to limit impacts to existing habitat. Depending on the type of project proposed, the HCP Coordinator shall be in contact with appropriate County Departments to ensure considerations for listed species habitat are incorporated into project footprint designs.

#### **5.4.1.3 Landscaping and Design**

Escambia County shall use native vegetation associated with Perdido Key when designing projects such as, but not limited to: County roadway improvements, public beach access locations, and beach restoration projects.

Xeriscape principles are encouraged to provide for water conservation through proper plant selection, installation and maintenance practices. The following xeriscape principles shall be incorporated into all landscape designs:

- a. Proposed plant material shall be tolerant of beach conditions, including salt, wind, low nutrient levels, and drought.
- b. Avoid turf except for areas where it is absolutely required for slope stabilization and then only use native species, such as *Paspalum* spp.
- c. Provide efficient irrigation systems (subject to possible exclusion from landscape design).
- d. Mulches and organic soil amendments will be prohibited as they are not compatible with listed species habitat requirements.

All disturbed areas outside the hardscape of a project footprint in PKBM habitat shall be landscaped with appropriate native PKBM habitat vegetation and neither sod nor mulch shall be used. The landscape plan for a County based project shall be reviewed and approved by the HCP Coordinator.

#### **5.4.1.3.1 Onsite Preservation**

Onsite preservation of PKBM habitat associated with a site permitted for take, is the most preferred minimization measure. Appropriately designed and designated onsite preservation can be linked to other existing habitat adjacent to a project area. Habitat linkage will promote habitat corridors and allow for movement of PKBM. Any land offered for onsite preservation will be required to be recorded as a conservation easement.

The County may be subject to similar requirements of establishing a conservation easement on specified portions of project areas to satisfy onsite conservation requirements. Certain areas may be excluded from recorded conservation easements associated with permitted structures (i.e. dune walkovers) as allowed through specific permit conditions. The boundaries of the conservation easement shall be surveyed by a licensed certified land surveyor. The conservation easement shall be recorded with the Clerk of Escambia County within 6 months of the completion of the Project (Owner occupancy). A draft copy of the conservation easement shall be provided to the HCP Coordinator and the Service for review and approval. A copy of the survey and recorded conservation easement shall be provided to the Service within ninety (90) days after the conservation easement is recorded.

#### **5.4.1.4 Habitat Restoration Plans**

The objective of restoration/enhancement projects are to achieve rapid and effective dune stabilization through plantings of sea oats and other native plants. Escambia County has rebuilt and vegetated a primary dune along specific areas of Perdido Key. Some minor losses associated with storm surges from hurricanes in the northern Gulf have had erosional effects.

The HCP Coordinator shall monitor private and County based development proposals to ensure that restoration plans include additional native plant species and plantings to supplement the County efforts if required. These would be expected to aid in overall coverage of the newly established dune system by the County, as well as provide additional forage opportunities for the PKBM.

Escambia County proposes to construct a dune, berm, and beach restoration project (dune, berm, and beach fill project) along 6.5 miles of Gulf of Mexico shoreline on Perdido Key. The project is specifically located between Department of Natural Resources monuments R-1 and R-34. Approximately 1.25 million cubic yards of beach quality material is proposed to be used in the project. The project is estimated to encompass approximately 197 acres, which includes 77 acres of submerged marine bottom. The beach fill placement area extends from the seaward edge of “any vegetation line” gulfward to minus 14 feet mean low water.

Take of federally listed species associated with beach nourishment projects is provided under the Federal Corps permit issued for such projects. Minimization of impacts is

established during consultations between the U.S. Army Corps of Engineers and the Service as stipulated in Section 7 of the Endangered Species Act. Environmental impacts associated with the Perdido Key beach nourishment project sponsored by the County has been addressed independently of this EA and the programmatic HCP.

#### **5.4.1.5 Conservation Corridors**

Conservation corridors shall be considered early in the proactive planning process for County infrastructure improvements. Conservation corridors shall prioritize native vegetation buffers adjacent to County lands and other County sponsored projects. However, the restoration of appropriately located corridors shall also be used when natural areas are unavailable. Conservation corridors shall be designated and maintained to provide corridors for the PKBM to access off-site habitat on adjacent parcels, to the south, north, and around the general perimeter of an impact site whenever feasible. One theory suggests that these corridors shall be a minimum width of 10% of its length (Laurance et al 2003). The HCP Coordinator shall work with County departments and with potential private development interests to ensure corridor connectivity.

#### **5.4.2 Pre-permitting Assessment of Habitat**

Assessments of habitat subject to proposed County owned lands and infrastructure improvements shall be conducted to provide a baseline of existing habitats. Whether conducted by County staff or contracted services, the habitats within a specific project area shall be identified on aerial photographs to provide visual references to existing habitat on site. Any PKBM designated critical habitat shall be noted. The assessment shall provide an estimate in acreage of the existing habitat types including a breakout of PKBM designated critical habitat acreage for comparison, if applicable. All site-specific surveys shall be provided to the HCP Coordinator for review and approval.

The HCP Coordinator shall ensure that all parties involved in designing County based projects are aware of the habitats onsite as well as assessing how direct impacts may affect adjacent suitable listed species habitat.

#### **5.4.3 Precautions Implemented During Construction Activities (All Species)**

##### **5.4.3.1 Seasonality Considerations**

The species covered under the programmatic HCP have the potential to utilize habitats on Perdido Key at various intensities and seasonal variations. PKBM typically exhibit more breeding activity during the months with cooler temperatures with population dispersal following. However, there are no seasonal restrictions relative to PKBM. For sea turtles, all construction on the nesting beach shall be conducted outside the sea turtle nesting season (May 1 through October 31). Otherwise for work on the beach/dune interface, work can not commence until the daily sea turtle surveys and nest protection/markings

have been completed. Non-breeding piping plover are found consistently in the Florida panhandle from July 15 to May 15.

Restoration designs shall require all vegetation planting be completed by May 1 of each year to increase chances of plant survivability by reducing effects from heat and desiccation during warmer months.

#### **5.4.3.2 Best Management Practices**

BMPs are innovative, dynamic, and improved environmental protection practices developed and applied to construction projects as SOPs in coastal habitats to help ensure construction activities are conducted responsibly to reduce and/or avoid environmental impacts.

Ensuring all construction personnel, including supervisors, are aware of the sensitive habitats within a work zone is critical to minimizing impacts. A copy of the ITP shall be provided to the general contractor and included in all sub-contracts for a specific project. The construction contract documents entered into for any project shall include a stipulation that conservation objectives of the Permit shall be communicated to and agreed upon by all sub-contractors. The programmatic HCP includes specific details regarding BMPs.

Litter and trash attract scavengers as well as feral cats and other animals. Raccoons especially are notorious turtle egg predators. A trash and rubbish control program will be incorporated into construction plans designed for any public infrastructure improvement project. Trash collection and storage for a specific project shall be confined to the permitted impact area. Trash receptacles outside of the project limits shall not be allowed. Receptacles for trash pick-up shall be animal-proof and would reduce predator and competition pressure from nuisance and exotic species. Predator proof containers shall be elevated above the ground and covered to limit wildlife scavenger access.

Construction crews will be directed to properly dispose of trash in appropriate places. To avoid attracting predators or other vermin, refuse containers at public access sites will be wildlife resistant. Refuse will be collected on a regular schedule so that excess refuse will not pile up or become a nuisance itself.

Any lighting which may be used during the construction phase shall implement the lighting ordinance presented in Section 12.4 of the programmatic HCP and in Appendix B (Wildlife Lighting) of this EA.

BMPs specific to shorebirds developed by the FFWCC to reduce impacts are detailed in Section 10.3.2 of the programmatic HCP and section 5.4.3 below.

BMPs for County road projects from the Service guidance document titled *Guidance for Road Construction and Maintenance In Areas with Federally Protected Beach Mice*, U.S. Fish and Wildlife Service, August 2, 2005 are detailed in the programmatic HCP. The guidance document can also be found in Appendix C.

#### **5.4.3.3 Inclusive Period of Monitoring**

A sea turtle monitoring program must be in place for the HCP Plan Area. The intent of monitoring is to identify and protect any new nests that may be deposited in the project area during the period of construction and to ensure that marked nests, if present, are unaffected by construction activities. Daily monitoring shall commence on May 1 or 70 days prior to the date of construction initiation and shall continue uninterrupted until the completion of construction or September 30, whichever is earlier. If marked nests remain beyond September 30 and construction, daily monitoring will continue until the last marked nest has hatched.

#### **5.4.3.4 Establishing Project Boundaries**

The limits of disturbance due to construction activities shall be delineated on all site plans. An appropriate buffer specific to each site proposed for impact will be established to provide a physical demarcation between the area of permitted impact activities and areas to remain in conservation. Silt fences or other barriers approved for utilization to ensure the protection of adjacent habitat within project limits and off-site shall be erected before construction begins. The barrier shall be placed along the perimeter of permitted construction impact areas. Signs providing notice to contractor/workers that penalties will be levied for disturbing habitat beyond the barrier shall be posted at 25-foot intervals. The barrier shall be designed to allow movement of PKBM and prevent pedestrian trespass. All silt fence/appropriate barriers and habitat notice signs shall be monitored and maintained daily.

The limits of the areas encompassing the construction site, buffer zone(s), access point(s), and travel corridor(s), as applicable, shall be considered as a component of the project area. Areas defined and permitted as providing temporary construction access may be defined as temporary impacts, but must be minimized and fully restored once construction activities have been completed.

Construction project boundaries will be established as described in Section 4.4.3.4 above. If any shorebird nesting areas are located near a construction area, a buffer zone will be established with stakes and rope (“post and rope”) such that no operation of equipment, storage of equipment or supplies or entry by construction workers is allowed within 300 feet of a nesting area. This buffer zone will be marked by the appropriate nesting bird signage and entry to this area would be prohibited. The construction site shall be kept clean and free of debris in dune habitats at all times during construction. See section 4.4.4.4 for a description of driving requirements specific to shorebirds that would apply to County activities as well.

Pertaining to shorebird habitat within the project area, the County or its contractors shall establish a 300 foot-wide buffer zone around any location where shorebirds have been engaged in feeding or nesting behavior, including territory defense. Any and all construction activities, including movement of vehicles, shall be prohibited in the buffer

zone. The width of the buffer zone shall be increased if birds appear agitated or disturbed by construction or other activities in adjacent areas.

Designated shorebird buffer zones must be posted with clearly marked signs around the perimeter. If pedestrian pathways are approved within the 300-foot buffer zone, these shall be clearly marked. No construction activities, movement of vehicles, or stockpiling of equipment shall be allowed within the buffer area. Approved travel corridors shall be designated and marked. Heavy equipment, other vehicles, or pedestrians may transit past nesting areas in these corridors. However, other activities such as stopping or turning shall be prohibited within the designated travel corridors adjacent to a nesting site.

If shorebird nesting occurs within the project area, a bulletin board will be placed and maintained in the construction area with the location map of the construction site showing the bird nesting areas and a warning, clearly visible, stating: "BIRD NESTING AREAS ARE PROTECTED BY THE FLORIDA THREATENED AND ENDANGERED SPECIES ACT AND THE STATE and FEDERAL MIGRATORY BIRD ACTS"

#### **5.4.3.5 Construction Equipment Operation and Staging**

All permitted construction activities shall be conducted from areas specifically identified in approved plans and take permits. No heavy equipment (e.g., tracked or wheeled motorized machinery, such as bobcats, bulldozers, front-end loaders, etc.) shall be operated outside of the defined project limits. If heavy equipment must be operated on the beach in support of a permitted project, access from the project site or if not feasible one as close to the construction site as possible, will be selected by the County in consultation with the HCP Coordinator. Equipment staging areas shall be specifically defined on approved plans and at the end of a work period the equipment must be staged at the appropriately designated area.

#### **5.4.3.6 Time of Monitoring and Daily Commencement of Construction**

Monitoring of a project area shall be performed as early as possible each day in accordance with the most current agency guidelines. No construction activities, including the movement of heavy equipment on the beach for work in potential sea turtle and or shorebird habitat, may commence until approved sea turtle survey(s) have been completed. A designated project site manager shall ensure that there is an effective line of communication between sea turtle monitoring personnel and construction crews.

#### **5.4.3.7 Impact Assessment**

To assess impacts of construction activities on PKBM, sea turtles, and piping plovers resultant data including negative sitings from monitoring events will be furnished to the HCP Coordinator. The HCP Coordinator will collect and compile the data to ensure it

meets the ITP requirements and include as appropriate in the Annual Report (see Section 10.5.4 of the programmatic HCP).

#### **5.4.4 Minimization Measures**

Proposed improvement projects conducted by the County shall be designed with consideration that a construction site includes the presence of suitable PKBM, sea turtle, and piping plover habitat; and the determination that some impacts are unavoidable, the County's design team(s) shall fully evaluate how a project's purpose and need could be accomplished while preserving, to the greatest extent practicable, the greatest amount of habitat on a subject property. Preventing or minimizing secondary impacts associated with the proposed use of a project area shall also be a component of minimization measures.

The County HCP Coordinator shall ensure minimization measures are being carried out.

Through thorough assessment of minimization opportunities and consultation with the HCP Coordinator, Service, and FFWCC, avoidance and minimization efforts shall be incorporated into a project's design. Some minimization components may include, but not be limited to: modification of the site plan; management practices during construction; and policies for long term maintenance of a project.

##### **5.4.4.1 Perdido Key Beach Mouse**

Additional minimization measures shall be considered and incorporated specific to PKBM, while incorporating aspects of the design modifications described above. Minimization of impacts associated with a specific County based project may include restoration and conservation measures, construction setbacks, boardwalks and walkovers, wildlife friendly lighting, as well as proposed activities associated with day to day operation and management of a specific project. The allocation of management responsibilities will be established amongst County departments and include coordination with the HCP Coordinator. Shared allocation of management responsibilities will be identified and relayed to the Service. The responsible entities for individual management activities are identified in Section 13.0 of the HCP.

##### **5.4.4.2 Sea Turtles**

Efforts to minimize take and allow for potential growth in the nesting population of sea turtles within the HCP Plan Area include implementation of:

- Methods for protecting sea turtles from vehicular traffic;
- Regulation of activities potentially impacting sea turtles;
- Standardizing data collection methodologies to allow for assessment of impacts;
- Conspicuously marking nest sites;

- A professionally managed sea turtle monitoring and nest protection program; and
- An active enforcement program.

Other sea turtle take minimization measures may include restricting vehicular access to daylight hours when the risk of encountering sea turtles is lowest and prohibiting public access and parking near the dunes where the majority of nests are deposited.

Implementation of the Escambia County Wildlife Lighting Ordinance described in detail in Section 12.4 of the programmatic HCP and in Appendix B of this EA will enhance minimization measures for sea turtles, PKBM, and piping plovers.

#### **5.4.4.3 Piping Plovers**

Minimization of impacts to piping plovers will be achieved through many of the same measures implemented to protect PKBM and sea turtles. Minimization measures for piping plovers will also include the components described below.

Throughout the term of the ITP, Escambia County will continue to conduct and/or coordinate a survey of the Plan Area to identify beach areas used by piping plovers. Monitoring personnel may include County staff or contracted bird surveyors. The surveys will be conducted during the appropriate season. Survey methods are detailed in Section 13.2.10 of the programmatic HCP.

#### **5.4.4.4 Other Shorebirds**

Minimization measures for other shorebirds will include the appropriate measures described above for piping plovers. Throughout the term of the ITP, Escambia County will continue to conduct and/or coordinate a survey of the project area beaches to identify beach nesting sites of shore birds (e.g., least terns, black skimmers, American oystercatchers, snowy plovers, etc.). Monitoring personnel may include County staff or contracted experienced personnel in bird identification. The surveys will be conducted during shorebird nesting season, typically March 1 to September 15 of each year. Survey methods are detailed in Section 13.2.11 of the programmatic HCP.

Pedestrian and vehicular access to cordoned nesting sites will be prohibited. Signage will be installed to further discourage pedestrian disturbance. Field personnel will take appropriate precautions to minimize disturbances to the nesting birds during identification, marking, and monitoring of nesting sites. Any observed or reported impacts to cordoned nesting sites will be documented and provided to the HCP Coordinator.

#### **5.4.4.5 HCP/ITP Training**

The County will develop a training manual and presentation, approved by the Service, to ensure consistency in HCP/ITP training. This manual shall contain information on the

general biology and conservation issues for PKBM, sea turtles, and piping plovers, and specific measures to minimize take as described above. Material contained in the manual will be selectively presented to specific target audiences to ensure that they thoroughly understand their assigned responsibilities under the plan. The manual shall be finalized and approved by Service within six months of the ITP being issued.

Training for all groups will commence during the first year that the ITP is issued and then periodically thereafter as necessary. Video taped training sessions may be used for initial and/or recurrent training, as appropriate. Upon receipt of notice of any possible HCP/ITP changes, the responsible parties must sign a standard form acknowledging the changes. Alternatively, a training session will be convened to review and discuss the changes, if deemed necessary.

Training will include a thorough review of relevant HCP programs and ITP terms and conditions and the following:

- A County maintained webpage for the PK ITP;
- A review of procedures for each of the activities to be performed under the HCP and ITP;
- A review of the County organizational chart (chain-of-command); and
- All persons receiving HCP training will be required to sign a certification form indicating that they
  - (1) have received the training class,
  - (2) understand their responsibilities under the plan, and
  - (3) agree to abide by all rules and regulations regarding permitted activities.

Any substantive changes in the ITP requirements occurring between training classes will be forwarded, in writing, to all affected parties by the County or made available on the County's website.

Prior to the beginning of each sea turtle nesting season the HCP coordinator will meet with the sea turtle permit holders to review monitoring procedures, discuss any changes in HCP rules and regulations and/or ITP terms and conditions, and establish effective lines of communication. The sea turtle permit holders will be responsible for reviewing FFWCC guidelines (see the Florida Conservation website listed for the guidelines [http://www.floridaconservation.org/seaturtle/Guidelines/Seaturtle\\_Guidelines.pdf](http://www.floridaconservation.org/seaturtle/Guidelines/Seaturtle_Guidelines.pdf)) with all persons listed on their permits and ensuring that those individuals abide by established guidelines and adhere to HCP rules and regulations. Upon request, the HCP coordinator will meet with sea turtle monitoring personnel to review or clarify protocol contained in the programmatic HCP.

#### **5.4.4.5.1 Public Education and Awareness**

In addition to the activities previously described in the programmatic HCP, the HCP Coordinator and/or other County staff will work with public education entities such as local science centers, museums, public and private schools, community organizations,

chambers-of-commerce, and others to disseminate information regarding the HCP and the conservation of protected species on Perdido Key. A standard slide show discussing these topics will be developed and can be presented to community groups upon request. Other public information dissemination may include developing public services announcements, advisories, and/or other notices to local media regarding important HCP and protected species issues on Perdido Key. The information and slide show will be made available on the County's official website.

#### **5.4.5 Minimization of Impacts – Post-Project**

Subject to disturbance allowed by the terms of the ITP, permanent impacts to specific sites shall be limited to the specific impacts indicated in the ITP and all temporary impacts shall be restored after completion of construction. Monitoring requirements specific to species covered in the HCP are fully detailed in Section 13.0 of the programmatic HCP.

Financial responsibilities of the County shall include maintaining the HCP Coordinator position and other relevant County positions to ensure the County is meeting the requirements of the programmatic HCP and ITP.

Other specific conditions identified in the County's ITP will also contain requirements relative to post construction responsibilities of the County.

##### **5.4.5.1 Monitoring of Project Areas Following Construction**

Monitoring requirements specific to species covered in the HCP are fully detailed in Section 13.0 of the programmatic HCP.

##### **5.4.5.2 Data Collection**

The HCP Coordinator shall develop standardized data sheets for monitoring project areas for PKBM, sea turtles, and piping plovers. Monitoring shall be conducted by qualified environmental scientists skilled and permitted by both Federal and State agencies in monitoring of the specific species included in this HCP. More details specific to monitoring are included in Section 13.0 of the programmatic HCP.

##### **5.4.5.3 Data Reporting**

The ITP issued under Section 10 (a) requires that an activities report be submitted to the Service by January 31st of each year. The annual report shall be prepared by the County and submitted to the Service and the FFWCC. The report shall contain a summary of activities and infrastructure improvements which took place on the project area and other information relevant to preservation of the habitat for the species of interest included in the programmatic HCP.

## **5.4.6 Mitigation**

### **5.4.6.1 Land Conservation**

#### **5.4.6.1.1 Offsite Preservation**

Mitigation actions may also include consideration for acquisition of land through fee-simple purchase and purchase of conservation easements on properties other than the property subject to take. If offsite mitigation is proposed, a potentially higher ratio of mitigation to impact area may be required. Land acquisition options relative to offsite preservation are discussed below.

#### **5.4.6.2 Land Acquisition**

Land acquisition may be considered as land set-asides according to a prescribed mitigation ratio or direct purchase for habitat preservation.

Land acquisition, in general on Perdido Key, may include components or be comprised of the possible options below:

- Purchase of private parcels to the south of Perdido Key Drive, east and west of PKSP.
- Purchase of private parcels to the north of Perdido Key Drive, east and west of PKSP.
- Establishment of a mouse corridor along the beach, south of Perdido Key Drive, from the Alabama/Florida state line east to the western edge of PKSP and between the east edge of PKSP and GUIS.

Land acquisition is an effective approach to increasing conservation for the PKBM and additional protection for the other listed species covered in the programmatic HCP. The simple fact persists that land purchases available on Perdido Key may be more costly than if accomplished elsewhere for listed species requiring different, more affordable habitat.

Escambia County has implemented land purchase for public conservation as a component of their ordinances. As per *Policy 11.B.6.1: List of Areas for Public Acquisition*, the County will develop and maintain a list of recommended areas for public acquisition. Such areas will include, but not be limited to, habitat for listed animal and plant species and parcels that would further the establishment of connected greenways. Escambia County will continue to pursue purchasing land that will provide suitable and appropriate habitat for PKBM and other listed species.

#### **5.4.6.3 Tracking of Financial Contributions to PKBM Conservation Fund**

The County will be responsible for tracking and distribution of the funds to benefit PKBM collected from private development projects utilizing the mitigation opportunity.

#### **5.4.6.4 Conservation Corridors**

Conservation corridors on County owned property described above in Section 5.4.1.6 to provide benefit to listed species. Such corridors shall be protected through conservation easements and maintained in perpetuity.

#### **5.4.6.5 Dune/Habitat Restoration**

The objective of restoration/enhancement projects shall be to achieve rapid and effective dune stabilization through plantings of sea oats and other native plants.

#### **5.4.6.6 Predator Control**

Natural predation in beach mouse populations that have sufficient recruitment and habitat availability is natural and not a concern. However, predation pressure from natural and non-native predators on populations already stressed from a variety of threats may result in the extirpation of small, local populations of beach mice. Free-roaming and feral cats are believed to have a devastating effect on beach mouse persistence (Bowen 1968; Linzey 1978) and are considered to be the main cause of the loss of at least one population of beach mice (Holliman 1983).

Any feral animals or free roaming pets will be captured and removed. The capture and removal of these species will be accomplished through contractual arrangements with permitted nuisance species trappers and/or Escambia County Animal Control. Pesticide and herbicide application shall be prohibited.

Sea turtle reproductive success is frequently reduced by a variety of animals that prey upon eggs and hatchlings. Raccoons, foxes, and other predatory animals cause considerable damage to turtle nests on Perdido Key. Trapping and selective culling of predators are the most effective methods. Trapping efforts conducted for the PKBM will also be conducted for sea turtles on Perdido Key on an as needed basis if predation is observed to be occurring on sea turtle nests. Sea turtle monitoring personnel may also incorporate integrated predator control methods that include screening sea turtle nests in predator-prone areas.

#### **5.4.6.7 Lighting Ordinance**

Requirements of the lighting ordinance described above in Section 4.4.6.7 will also apply to County owned lands and infrastructure.

#### **5.4.6.8 Cumulative Benefits**

The cumulative benefits of the mitigation proposed in the programmatic HCP will be analyzed and reported to the Service as a component of the incidental take permit reporting requirement (see Section 14.0 in the programmatic HCP). Since the HCP is a programmatic HCP, encompassing multiple future applications for take, the HCP will require oversight of individual site specific mitigation to functionally assess the cumulative benefits. The minimization of impacts coupled with the mitigation described above provides conservation benefits to outweigh impacts likely to occur as a result of issuance of the ITP.

### **6.0 AFFECTED ENVIRONMENT**

This section of the EA describes the portions of the human environment potentially affected by the proposed and alternative actions. This and the following sections adhere to the principles in 40 CFR Sections 1502.15 and 1502.16, to describe the affected environment and establish a level of information and an analysis commensurate with the impact.

In reviewing this and other proposed activities in the NEPA analyses, the Service used internal and external scoping processes including discussions with Escambia County, FFWCC, GUIS, FDEP, the Service's Daphne, Alabama Field Office who is involved in permitting of coastal development where incidental take of the endangered Alabama beach mouse may occur and PBS&J, the County's contracted consultant.

Factors of the human environment were identified including: the natural environment; the built environment; human health, welfare, and safety; for which the effects of the proposed action should be assessed.

For the subject analysis, only those issues that our scoping process concluded could potentially have effects or where the impacts were uncertain, were identified and assessed. This analysis is analytic, not encyclopedic (see 40 CFR Sections 1502.1 and 1502.2).

In reviewing a proposed activity for NEPA compliance, the Council on Environmental Quality generally considers the following elements of the human environment:

- physical environment (topography, wetlands, floodplains, coastal zones, subsurface conditions, hydrology, soils, energy and mineral resources, toxic substances and air);
- land use (zoning, existing land uses proposed long-range plans, farmland, and timberland);
- biological environment (vegetation, fisheries, wildlife, and threatened and endangered species);
- social interests (human population, human health/safety, recreation and public services);

- economy (employment, income sources, and economic uses of affected environment); and
- aesthetics (noise and air).

## **6.1 Habitat, Structure and Function**

### **6.1.1 Physical Environment**

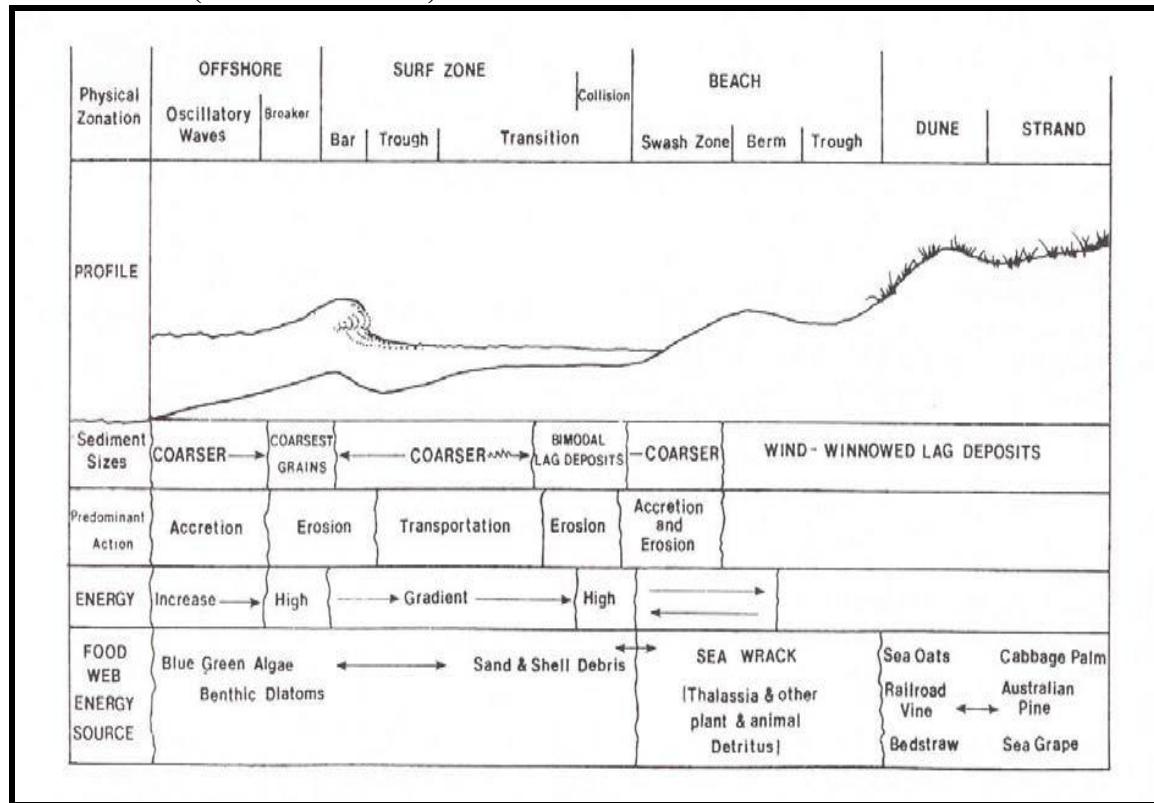
Perdido Key lies within the East Gulf Coastal Plain physiographic region (USGS 2008) and is within the Florida Coastal Lowlands ecoregion (USFS 2008). The predominant landform is a flat, weakly dissected alluvial plain formed by deposition of continental sediments onto a submerged, shallow continental shelf. This shelf was later exposed by sea level subsidence. Along the coast, fluvial deposition and shore zone processes are active in developing and maintaining beaches, swamps, and mud flats. Elevations within the Florida Coastal Lowlands ecoregion range from 0 to 80 feet (USFS 2008) and are noted to range between 0 to 25 feet on Perdido Key. Perdido Key is predominantly a flat barrier island feature, containing old dune ridges with areas exhibiting surface modification by erosion and underground solution.

The majority of the Gulf of Mexico coastlines in northwest Florida (similar to Perdido Key) include barrier islands, mainland beaches, and peninsulas. These dynamic ecosystems are subjected to diverse coastal processes including: climate, geomorphology, sediment deposition, littoral drift in ocean currents, tides, wind, saltwater and spray, erosion, and tropical storms. As described above, Perdido Key is a barrier island with limited elevation and relatively narrow width. The Gulf of Mexico shoreline of Perdido Key is a white sandy beach with diurnal tides including amplitude of 1.2 feet to 1.7 feet.

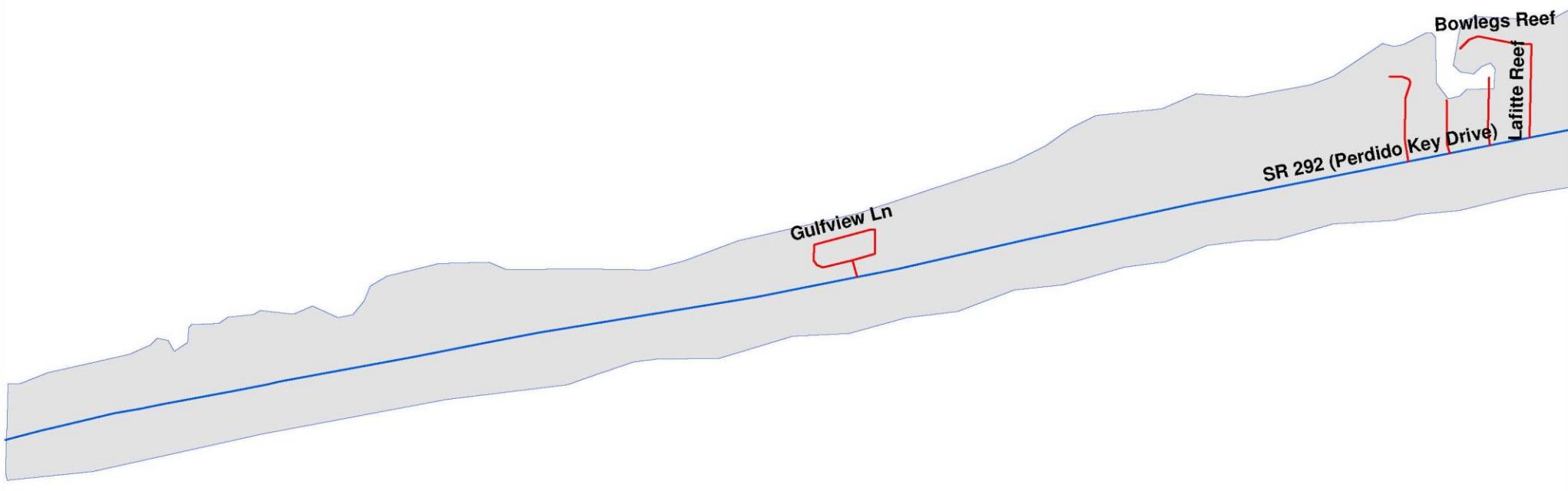
Perdido Key is located southwest of Pensacola in northwest Florida and southeast Alabama. Perdido Key totals approximately 2,940 acres. The eastern 80% is in Florida and the western 20% is in Alabama. Significant portions of the undeveloped area of Perdido Key are primary, secondary, and scrub dunes. Secondary and scrub dunes occur particularly in the areas where the Key is wider. Wetland systems are also found further inland, typically north of State Road 292.

Northwest Florida beaches are typical marine beaches and can be divided into specific zones (see Figure 2 below). Typically, there are two offshore sandbars; the first located approximately 50 to 80 feet offshore at a depth of 1 to 3 feet and the second 425 to 460 feet offshore in 7 to 8 feet of water (Wolfe *et al.* 1988). The beach habitat includes the wet beach or swash zone (the sloping surface of the beach face that is created by the run-up of water) down to the mean low water (MLW) mark.

**Figure 2: Diagram of typical cross section from the Gulf of Mexico to upland dune communities (Wolfe *et al.* 1988).**



Another element to the physical environment on Perdido Key is the presences of infrastructure such as roads, buildings, utilities etc. There are 10 County owned properties on Perdido Key. Escambia County currently provides 4 public beach access areas south of SR 292 (Perdido Key Drive). The existing transportation infrastructure on Perdido Key includes pedestrian pathways and roadways. Roads on Perdido Key include SR 292 (Perdido Key Drive) and the County maintained roads: River Road, Don Carlos Drive, Gongora Drive, and Johnson Beach Road (see Figures 3A and 3B).



#### LEGEND

- HCP Plan Area
- County Roads
- State Roads



1 inch equals 1,500 feet



**Figure 3A**  
**Programmatic Perdido Key**  
**Habitat Conservation Plan**  
**County Roads**

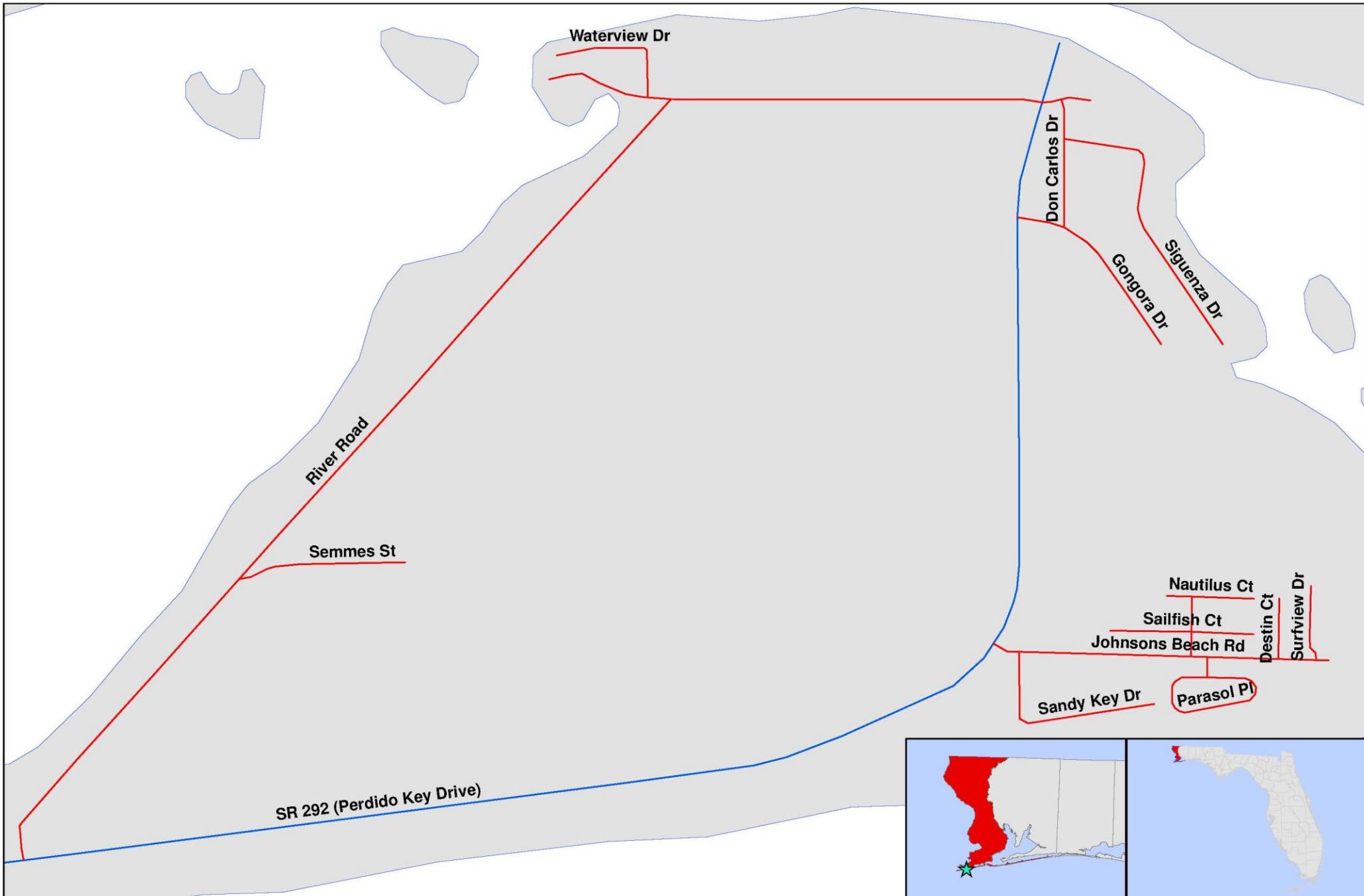
#### NOTES

Data Source:  
 PBS&J Map Index  
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Maps Produced by **PBSJ**



#### LEGEND

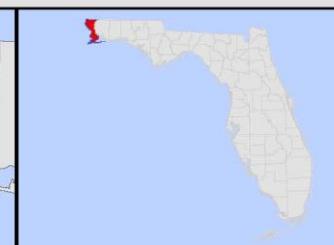
- HCP Plan Area
- County Roads
- State Roads



1 inch equals 1,000 feet



**Figure 3B**  
**Programmatic Perdido Key**  
**Habitat Conservation Plan**  
**County Roads**



#### NOTES

Data Source:  
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Maps Produced by **PBSJ**

The existing SR 292 (Perdido Key Drive) is a two-lane state roadway which spans Perdido Key from the Alabama/Florida state line east and then takes a northerly route to the Theo Baars Bridge. SR 292 (Perdido Key Drive) is a significant coastal, east-west route connecting the rapidly growing communities in coastal Alabama (Gulf Shores and Orange Beach) with those in Florida (Perdido Key and Pensacola). Alabama Route 182, which connects to SR 292, is a 4-lane divided roadway with bicycle lanes and sidewalks. SR 292 is the only through route on Perdido Key and, beyond the Theo Baars Bridge provides access to US 98 (Lillian Highway) by intersecting with CR 293 (Bauer Road) or SR 173 (Blue Angel Parkway).

SR 292 provides access to the following regional facilities: PKSP, Big Lagoon State Park, and the Perdido Key Area of the GUIS (Johnson Beach).

The Emerald Coast Utilities Authority (ECUA) provides potable water service to Perdido Key and much of southern Escambia County. The ECUA is not a County entity. The ECUA potable water facilities on Perdido Key are connected to the water supply and distribution system components on the mainland of southwest Escambia County. Between 1997 and 2002, ECUA funded and implemented a number of projects to improve the water distribution system pressure and water quality. These projects include placing into service a 3,000,000-gallon ground storage tank and Southwest Pumping Station near the intersection of Bauer and Sorrento Roads, dedicating the water produced by the Bronson Well to filling the 3,000,000-gallon ground storage tank near the Southwest Pumping Station, installing iron removal facilities at the Bronson, Lillian, and Villa Wells, and implementing a comprehensive distribution system flushing program in the southwest portion of the distribution system.

ECUA provides sanitary sewer service to Perdido Key and much of southern Escambia County. The ECUA wastewater system on Perdido Key is connected to wastewater system components on the mainland of southwest Escambia County. Septic tanks near waterways have the potential to adversely affect surface water quality. Therefore, ECUA made sanitary sewer service available to Perdido Key Coves during 1997, and wastewater systems are in the design phase for Siguenza Cove and the Old River Road/Perdido Key Drive areas.

Escambia County beach access, roadway infrastructure, utilities and other structures are a part of the physical environment and often times is located in listed species habitat.

### **6.1.2 Biological Environment**

Descriptions of the natural communities are excerpted from the *Guide to the Natural Communities of Florida* (FNAI 1990).

#### **6.1.2.1 Beach Dune**

Based on the Florida Natural Areas Inventory (FNAI) definition of a Beach Dune habitat, this ecotype is characterized as a wind-deposited, foredune and wave-deposited upper

beach that is sparsely to densely vegetated with pioneer species, especially sea oats (*Uniola paniculata*). Other typical pioneer species include sand spur (*Cenchrus* spp.), panic grass (*Panicum amarum*), railroad vine (*Ipomoea pes capre*), beach morning glory (*Ipomoea imperati*), seashore paspalum (*Paspalum vaginatum*), beach elder (*Iva imbricata*), dune sunflower (*Helianthus debilis*), sea purslane (*Sesuvium portulacastrum*), and sea rocket (*Cakile edentula*). Typical animals include ghost crab (*Ocypode* spp.), six-lined racerunner (*Cnemidophorus sexlineatus*), red-winged blackbird (*Agelaius phoeniceus*), raccoon (*Procyon lotor*) and PKBM.

The unvegetated ecotone between the mean high water line and the primary dune is the primary nesting habitat for numerous sea turtles and shorebirds, including many rare and endangered species. Beach Dune communities are characteristic to shorelines subject to high energy waves depositing sand to form the open beach. Onshore winds move sand until slowed by an obstacle such as vegetation, which results in the sand deposition. As vegetation and other obstacles promote deposition foredunes will become evident. Dune height is affected by the sand budget, winds and vegetation to form and stabilize the dunes. Beach Dunes are well known to be dynamic communities and mobile environments.

Beach Dunes are subject to drastic topographic alterations during winter and tropical storms. The established Beach Dune provides protection of inland ecotypes. The soils of Beach Dunes are composed primarily of deep siliceous or calcareous sands which drain rapidly and create xeric conditions.

Vegetation associated with Beach Dune environments have evolved to survive an array of harsh environmental conditions loose, dry, unstable, nutrient poor soils, as well as exposure to wind, salt spray, sand abrasion, intense sunlight, and storms. Many species of dune plants will root easily from fragments, or produce large seeds that can be transported by ocean currents. Other adaptations include thickened cuticles and succulent foliage to retain water and reduce the effects of salt spray and wind blown sand abrasion. Many plant species have the ability to produce roots from nodes along the stems of the plant to promote upward growth, thus increasing sand deposition.

#### **6.1.2.2 Coastal Strand**

Based from the FNAI definition of a Coastal Strand, this ecotype is characterized as stabilized, wind-deposited coastal dunes that are vegetated with dense higher trophic level salt-tolerant shrubs including saw palmetto (*Serenoa repens*). Typical plants include, but may not necessarily be limited to: sand live oak (*Quercus geminata geminata*), myrtle oak (*Quercus myrtifolia*), yaupon (*Ilex vomitoria*), lantana (*Lantana* spp.), greenbrier (*Smilax* spp.), Spanish bayonet (*Yucca aloifolia*), woody goldenrod (*Chrysoma pauciflosculosa*) and Florida rosemary (*Ceratiola ericoides*).

Typical animals include six-lined racerunner, coachwhip (*Masticophis flagellum*) and corn snakes (*Elaphe guttata guttata*), pygmy rattlesnake (*Sistrurus miliaris*), and Eastern diamondback rattlesnake (*Crotalus adamanteus*), and PKBM. Coastal Strand

occurs on deep, windblown sands. Shell fragments can be found mixed with the sand, but is rapidly leached in the course of a few hundred years.

Coastal Strand dunes are generally stable, but disturbance of vegetation can make the dune structure susceptible to damage. Shrubs in the Coastal Strand are commonly observed to be dwarfed and pruned as a result of the salt spray winds that kill branches on the seaward side. This phenomenon can result in a dense upward-slanting canopy resembling a sheared hedge. Coastal Strand is commonly observed to be an ecotonal community that lying between Beach Dune and Maritime hammock. It may also grade into Coastal Scrub.

Coastal Strand is susceptible to development pressure and impacts as it is targeted as prime resort or residential property. Coastal Strand originally occurred as a nearly continuous band along shoreline environments, but the majority of these habitats have been developed or impacted by tropical storms to become broken and isolated small patches.

#### **6.1.2.3 Coastal Scrub**

Found in proximity to or more likely north of SR 292 (Perdido Key Drive), this habitat is similar to the Coastal Strand ecotype. Scrub as described by FNAI, occurs in many forms, but is often characterized as a closed to open canopy forest of sand pines with dense clumps or vast scrub oaks and other shrubs dominating the understory. Scrub habitat on Perdido Key is more indicative of a coastal influence to the vegetative species in this ecotype, which includes more slash pine (*Pinus elliotti*) than sand pine (*Pinus clausa*). The ground cover is generally very sparse, being dominated by ground lichens or few herbs. Patches of barren sand are common where the overstory of pines and oaks is widely scattered or absent. Typical plants include slash pine, sand pine, sand live oak, myrtle oak, Chapman's oak (*Quercus chapmanii*), saw palmetto, rosemary, and ground lichens. Typical animals include those described above for the Coastal Strand.

Coastal Scrub commonly occurs on sand ridges along former shorelines. Associated soils are composed of well-washed, deep sand which drain rapidly, creating very xeric conditions. Scrub in mainland scenarios is essentially a fire maintained community. Fire on the barrier island is less influential. Effects from harsh elements of the beach environment such as xeric conditions and salt spray likely contribute to maintaining overgrowth in the Coastal Scrub habitat.

Coastal Scrub is associated with and often grades into Coastal Strand. Some Coastal Scrubs extend into adjacent Alabama and Georgia. Coastal Scrub is also susceptible to being lost to development. Coastal Scrub can be damaged by off-road vehicle traffic or foot traffic, which may destroy ground cover species and promote erosion and further damage from tropical storms.

#### **6.1.2.4 Maritime Forest**

Maritime forest is characterized as a narrow band of hardwood forest lying just inland of the Coastal Strand community. Sand live oak, pines, and red bay (*Persea borbonia*) generally combine to form a dense, wind pruned canopy whose streamlined profile deflects winds and generally prevents hurricanes from uprooting trees. Other typical plants include American holly (*Ilex opaca*), southern magnolia (*Magnolia virginiana*), red cedar (*Juniper virginiana*), wild olive (*Osmanthus americanus*), saw palmetto, American beautyberry (*Callicarpa americana*), and ferns. Typical animals include tree frogs, ring-necked snakes (*Diapdophis punctatus*), rat snakes (*Elaphe* spp.), gray squirrels (*Sciurus carolinensis*) and to some degree PKBM. Migrating birds rely on these forests for food and shelter following transoceanic or trans-gulf migrations.

Maritime forests occur on old coastal dunes that have been stabilized long enough for the growth of a forest. Tree growth often begins in swales between old dune ridges where a higher moisture gradient exists. The isolated strips of tree growth gradually coalesce into a continuous forest. Humus buildup contributes to moisture retention, while the dense canopy minimizes temperature fluctuations by reducing soil warming during the day and heat loss at night. Soils are usually well-drained because of the underlying deep sands.

Maritime forest is closely associated with and often grades into Coastal Strand, Scrub, moist hammock, or prairie hammock. Maritime hammock is the terminal stage or succession in coastal areas.

#### **6.1.2.5 Coastal Grassland**

According to FNAI descriptions of Coastal Grassland, these habitats are characterized as treeless flat or undulating land with bare sand or a sparse to dense ground cover of grasses, prostrate vines, and other herbaceous species adapted to harsh beach conditions. Older, more established sites may include scattered or small clumps of trees or shrubs. Typical plants include muhly grass (*Muhlenbergia capillaries*), bluestem grasses, sea oats, marsh hay (*Spartina patens*), dune panic grass, beach morning glory, sea oxeye (*Borrachia frutescens*), beach elder, sea purslane, sand spurs, evening primrose (*Oenothera biennis*), ground cherry (*Physalis* spp.), sedges, dropseed (*Sporobolus virginicus*), cactus (*Opuntia* spp.), rushes, love grass (*Eragrostis* spp.), and wax myrtle (*Myrica cerifera*). Typical animals include ghost crab and redwing blackbirds. Some shorebirds may also nest in this community. Coastal Grassland is a low flat area commonly found behind the foredunes on broader barrier islands and is best developed along the Gulf Coast.

This habitat is susceptible to periodic flooding by saltwater and can be covered with sand and storm generated debris during major storms. The frequency of overwash processes is largely related to the height, structure, and continuity of the seaward beach dunes. Coastal Grassland species are capable of colonizing the newly deposited sands. These areas can become vegetated with pioneer species succeeding to prairie characteristics. The

frequency of major storms will dictate the process with Coastal Grasslands possibly being colonized by shrubs and trees. These habitats eventually may succeed to Coastal Strand.

#### **6.1.2.6 Wetlands**

Coastal Interdunal Swales are the most common wetland features found within the HCP project limits on Perdido Key as well as many other islands on the Florida panhandle coast. Common characteristics include a mix of grasslands, small ponds, and depression marshes where dune and swale topography has developed with influence from groundwater at the lower points of swales. Extensive flooding by saltwater is less common than saltwater flooding in the Coastal Grassland. Rainfall events also strongly influence the development and maintenance of these systems. Vegetative structure is dependant on elevation and groundwater/rainfall. Primary species observed in these interdunal swales is saltmarsh hay, but can also support redroot (*Lacnanthes caroliniana*), centella (*Centella asiatica*), yellow-eyed grass (*Xyris elliottii*), and broomsedge (*Andropogon virginicus*).

Other wetland habitats noted within the Project Area include freshwater marsh and tidal marsh. Wetlands within the Project Area are generally excluded from the project limits of the programmatic HCP. The primary habitats supporting the life history stages of the listed species included in the programmatic HCP are dominated by the Beach Dune and Coastal Strand/Scrub habitats. Other Federal, State, and County regulations apply to wetland habitat impacts and are not included in the programmatic HCP.

### **6.2 Migratory Birds**

Neotropical migratory songbirds use scrub habitats and maritime strand forests as stopover habitat during spring and fall migrations to and from northern breeding grounds. Stopover coastal habitats have been considered crucial to fall and spring migrants as sites to gain fat reserves or replenish depleted fat reserves prior to and after 18- to 24-hour trans-Gulf flights (Moore and Kerlinger 1987; Moore et al. 1990; Kuenzi et al. 1991; Moore and Woodrey 1993).

At GUIS, over 280 species of birds including songbirds, waterfowl, wading birds, birds of prey, marine birds, and shorebirds use the barrier islands for resting, feeding, wintering or migratory rest-stops. American osprey (*Pandalion halietus*), brown pelican (*Pelecanus occidentalis*) and bald eagle (*Haliaeetus leucocephalus*) are also observed flying around the island. While the project sites may support migratory birds, the east and west ends of Perdido Key at GUIS and Gulf State Park-Florida Point, and PKSP receive the majority of migratory bird use.

#### **6.2.1 Migratory Bird Treaty Act**

The Migratory Bird Treaty Act of 1918 was developed to end the commercial trade in birds and their feathers that, by the early years of the 20th century, had wreaked havoc on

the populations of many native bird species. The Migratory Bird Treaty Act states that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected.

The Migratory Bird Treaty Act is the domestic law that affirms, or implements, the United States' commitment to four international conventions including Canada, Japan, Mexico, and Russia, for the protection of shared migratory bird resources. Each of the conventions protects selected species of birds that are common to both countries. A [List of Migratory Birds](http://www.fws.gov/migratorybirds/intrnltr/mbtintro.html) protected by the Migratory Bird Treaty Act is available at <http://www.fws.gov/migratorybirds/intrnltr/mbtintro.html>.

The section of the [United States Code](#) pertaining to the Migratory Bird Treaty Act can be accessed at:  
[http://www.law.cornell.edu/uscode/html/uscode16/usc\\_sup\\_01\\_16\\_10\\_7.html](http://www.law.cornell.edu/uscode/html/uscode16/usc_sup_01_16_10_7.html).

### 6.3 Protected Species

The programmatic HCP is developed to provide for the effective management and protection of federally listed species utilizing or potentially utilizing habitat within the Plan Area. The specific federally protected species addressed in the programmatic HCP are the PKBM, four nesting sea turtle species (loggerhead, green, leatherback, and Kemp's Ridley sea turtles), and non-breeding piping plover. The PKBM is the primary species of interest addressed in the HCP. Table 2 provides a list of species and listing status. Biological information for listed species is provided in the following sections.

**Table 2 List of Species and Listing Status**

Species	State Status	Federal Status
Perdido Key Beach Mouse	Endangered	Endangered/Critical Habitat
Loggerhead Sea Turtle	Threatened	Threatened
Green Sea Turtle	Endangered	Endangered
Leatherback Sea Turtle	Endangered	Endangered
Kemp's Ridley	Endangered	Endangered
Piping Plover	Threatened	Threatened
Red Knot	Species of Special Concern	Candidate for Listing

### State Listed Species

The programmatic HCP also includes consideration for species listed by the State of Florida and are also protected by the HCP due to similarity of habitat with the federally listed species described above. These species may include, but are not necessarily limited to: least tern, snowy plover, black skimmer, American oystercatcher (*Haematopus pallaitus*), Cruise's golden aster (*Chrysopsis cruseana*), large-leaved jointweed (*Polygonella macrophylla*), and coastal lupine (*Lupinus westianus*). Potential habitat impacts, conservation, mitigation intents, and habitat management programs are addressed elsewhere in the programmatic HCP.

### **6.3.1 Perdido Key Beach Mouse**

The PKBM is a subspecies of the old field mouse (*Peromyscus polionotus*) and is endemic to Perdido Key in Alabama and 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 PKBM is smaller than the other subspecies and lack a stripe on the tail. The mouse generally ranges from 2.7 to 3.3 inches in length.

The historic range of the PKBM included coastal dunes extending from Gulf State Park-Florida Point in Baldwin County, Alabama to the eastern terminus of GUIS-Johnson's Beach in Escambia County. The Service originally (1987) identified three areas of critical habitat for the mouse, including:

- Gulf State Park West, Florida Point in Alabama
- PKSP and adjacent privately owned lands
- Johnson Beach section of the GUIS

Populations of PKBM also occur on privately owned, developed and undeveloped areas within the historic range. PKBM designated critical habitat was revised October 12, 2006 (71 FR 60238) and now includes private lands and higher elevation scrub habitats.

#### **6.3.1.1 Critical Habitat**

Since the listing of the PKBM, research has refined previous knowledge of beach mouse habitat requirements and factors that influence their use of habitat. The findings most pertinent to the revision of critical habitat and determination to revise critical habitat involved the role of scrub dune habitat. Coastal dune habitat is generally categorized as: primary dunes with sea oats and other grasses commonly distributed, secondary dunes characterized by such plants as woody goldenrod, Florida rosemary, and interior or scrub dunes dominated by scrub oaks and yaupon holly.

Contrary to the early belief that beach mice were restricted to (Howell 1909; 1921; Ivey 1949), or preferred the frontal dunes (Blair 1951; Pournelle and Barrington 1953; Bowen 1968), more recent research has shown that scrub habitat serves an invaluable role in the persistence of beach mouse populations (Swilling et al. 1998; Sneckenberger 2001). Beach mice occupy scrub dunes on a permanent basis and studies have found no detectable differences between scrub and frontal dunes in beach mouse body mass, home range size, dispersal, reproduction, survival, food quality, and burrow site availability (Swilling et al. 1998; Swilling 2000; Sneckenberger 2001).

While seasonally abundant, the availability of food resources in the primary and secondary dunes fluctuates (Sneckenberger 2001). In contrast, the scrub habitat provides a more stable level of food resources which becomes crucial when food is scarce or nonexistent in the primary and secondary dunes. Thus all habitat types primary,

secondary and scrub dunes are essential to beach mice at the individual level. Together, these new findings warranted a reevaluation of critical habitat of PKBM.

Based on current knowledge of the life history, biology, and ecology of the species and the requirements of the habitat to sustain the essential life history functions of the species, the Service has determined that the critical habitat PCE for Gulf Coast beach mice include:

1. A contiguous mosaic of primary, secondary and scrub vegetation and dune structure, with a balanced level of competition and predation and few or no competitive or predaceous nonnative species present, that collectively provide foraging opportunities, cover, and burrow sites.
2. Primary and secondary dunes, generally dominated by sea oats, that despite occasional temporary impacts and reconfiguration from tropical storms and hurricanes, provide abundant food resources, burrow sites, and protection from predators.
3. Scrub dunes, generally dominated by scrub oaks, that provide food resources and burrow sites, and provide elevated refugia during and after intense flooding due to rainfall and/or hurricane induced storm surge.
4. Functional, unobstructed habitat connections that facilitate genetic exchange, dispersal, natural exploratory movements, and recolonization of locally extirpated areas.
5. A natural light regime within the coastal dune ecosystem, compatible with the nocturnal activity of beach mice, necessary for normal behavior, growth and viability of all life stages.

The Service designated critical habitat on lands that have been determined to be essential to the conservation of PKBM. An area is considered essential if it possesses one or more of the PCEs and one of the following characteristics: (1) supports a core population of beach mice; (2) was occupied by PKBM at the time of listing; or (3) is currently occupied by the beach mouse and is an area essential to the conservation of the species because it represents an existing population needed for conservation.

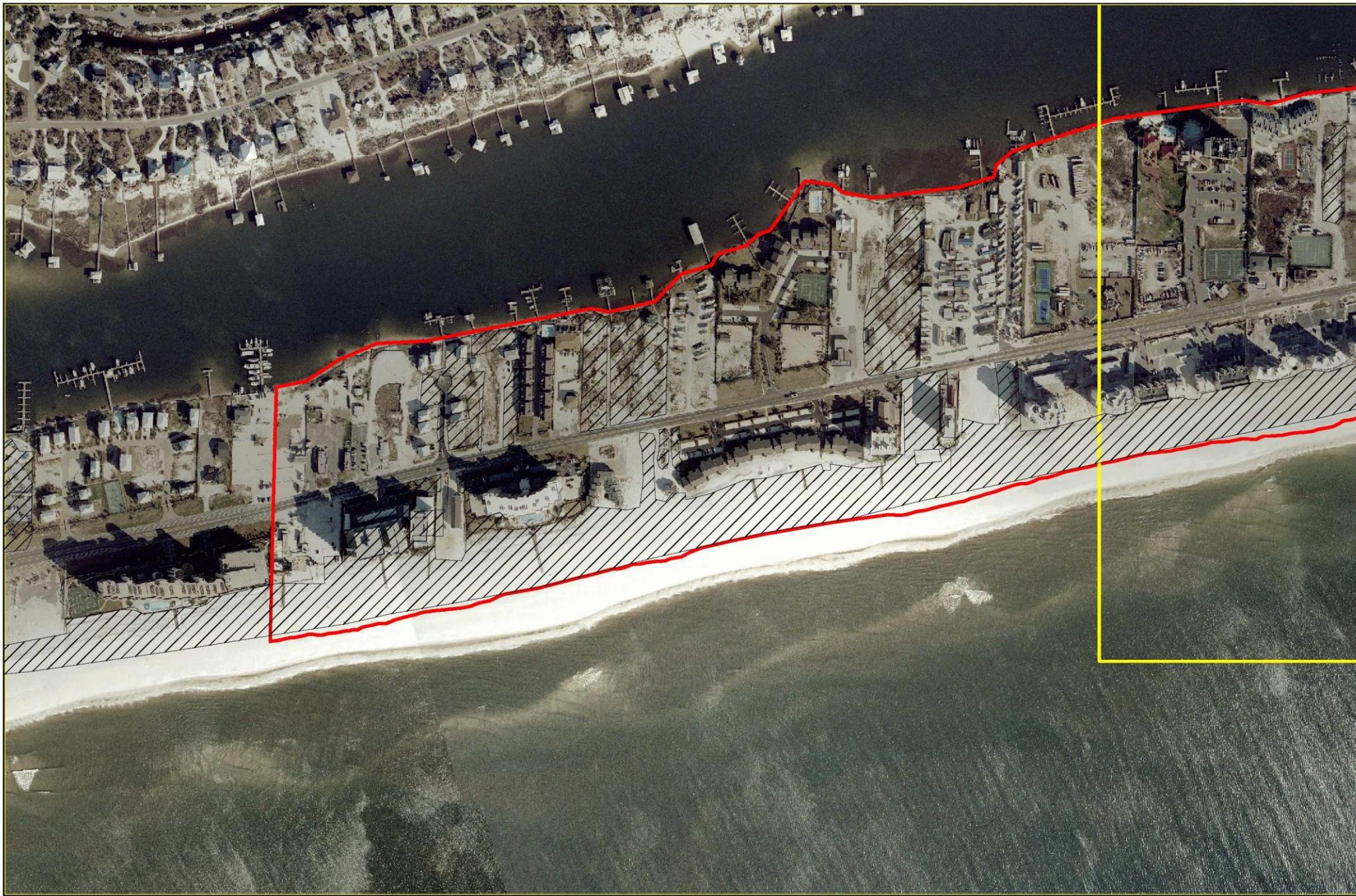
A total of 5 coastal dune areas (units) in southern Alabama and the panhandle of Florida are designated as critical habitat for the PKBM, outlined in Table 3 and shown on Figures 4A-4I. These units total 1,300 acres of coastal dunes, and include for the PKBM in Escambia County, Florida and Baldwin County, Alabama. For the PKBM, the redesignation of critical habitat is a landward expansion of previously designated units in order to include scrub dune habitat which is now known to play a crucial role in the long-term persistence of beach mice.

**Table 3 Critical Habitat Units for the Perdido Key Beach Mouse**

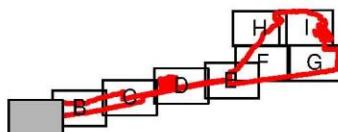
Perdido Key Beach Mouse Critical Habitat Units	Federal Acres	State Acres	Local and Private Acres	Total Acres
1. Gulf State Park Unit	0	115	0	115
2. West Perdido Key Unit	0	0	147	147
3. Perdido Key State Park Unit	0	238	0	238
4. Gulf Beach Unit	0	0	162	162
5. Gulf Islands National Seashore Unit	638	0	0	638
Total	638	353	309	1300

The Gulf State Park Unit (PKBM-1), which is not included in the HCP Plan Area, consists of 115 acres in southern Baldwin County, Alabama, on the westernmost region of Perdido Key. This unit includes beach mouse habitat within the boundary of Gulf State Park from the west tip of Perdido Key at Perdido Pass east to approximately 1.0 mile west of where the Alabama–Florida State line bisects Perdido Key and the area from the MHWL north to the seaward extent of the maritime forest. This unit was occupied by the species at the time of listing. PKBM were known to inhabit this unit during surveys in 1979 and 1982, and by 1986 this was the only known existing population of the subspecies (Humphrey and Barbour 1981; Holler et al. 1989). This population was a core population and was the donor site for the reestablishment of PKBM into GUIS in 1986.

Beach mouse habitat in this unit consists of primary, secondary, and scrub dune habitat. Because scrub habitat is separated from the frontal dunes by a highway in some areas, the population inhabiting this unit can be especially vulnerable to hurricane impacts, and therefore further linkage to scrub habitat and/or habitat management would improve connectivity. This unit is managed by the Alabama Department of Conservation and Natural Resources and provides PCEs 2, 3, 4, and 5. This unit, which contains interior scrub habitat as well as primary and secondary dunes, serves as an expansion of the original critical habitat designation (50 FR 23872).

**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4A****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
PBS&J Map Index  
PKBM Critical Habitat from USFWS  
2007 Aerial Imagery from I.F. Rooks  
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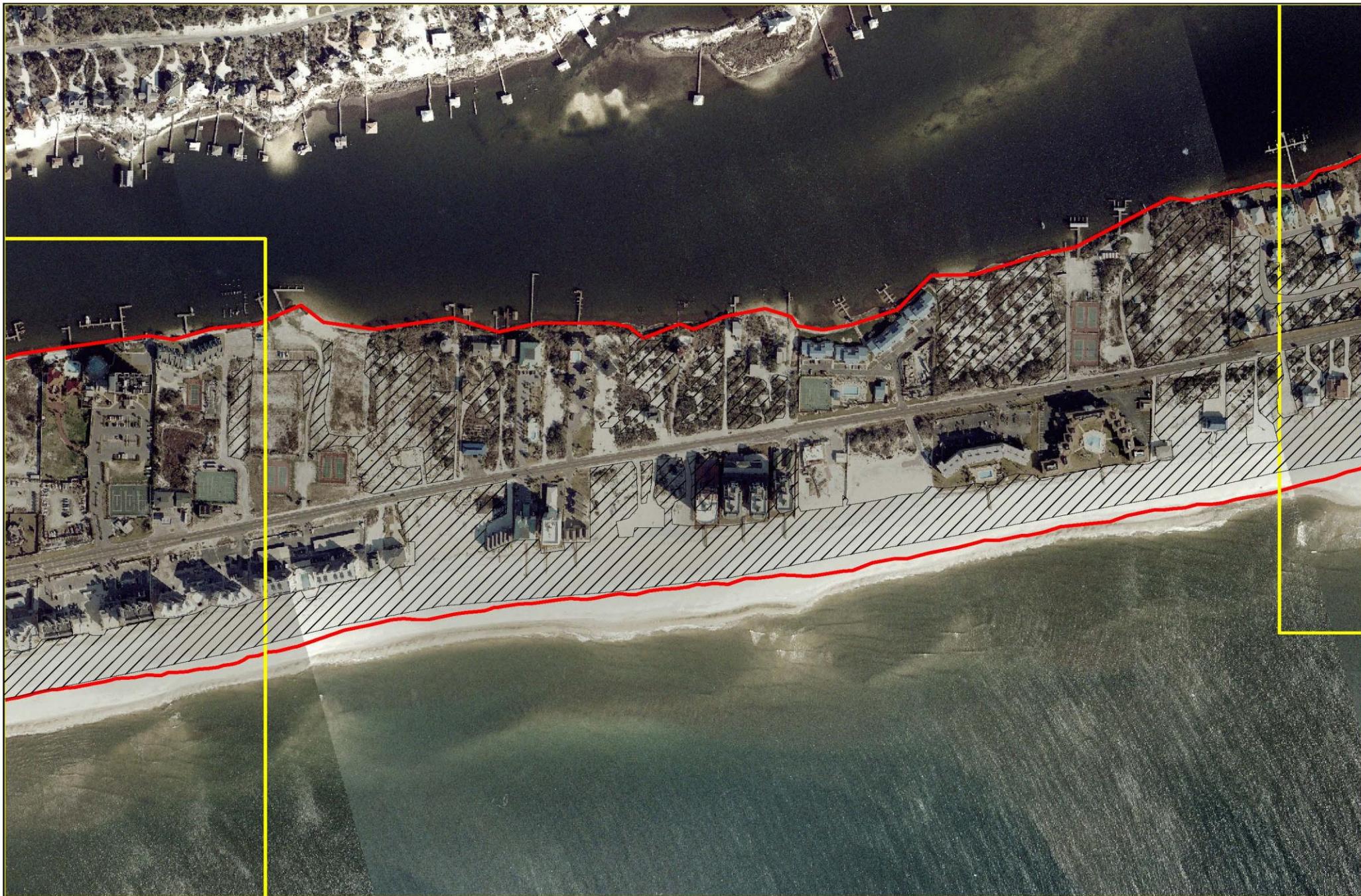
Date: 11/14/08

Staff: JC

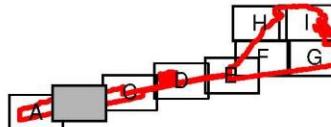
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4B****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
PBS&J Map Index  
PKBM Critical Habitat from USFWS  
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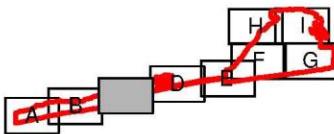
Date: 11/14/08 Staff: JC  
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4C****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
PBS&J Map Index  
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Date: 11/14/08

Staff: JC

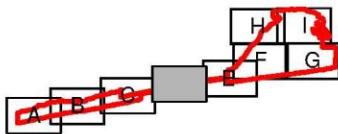
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4D**

**Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat**

**NOTES**

Data Source:  
PBS&J Map Index  
PKBM Critical Habitat from USFWS  
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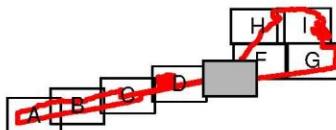
Date: 11/14/08 Staff: JC  
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4E****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
PBS&J Map Index  
PKBM Critical Habitat from USFWS  
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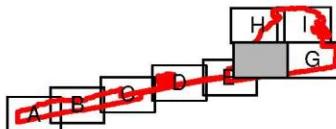
Date: 11/14/08 Staff: JC  
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by: PBS



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4F****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
PBS&J Map Index  
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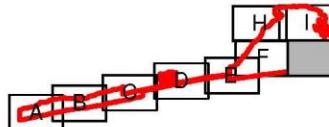
Date: 11/14/08 Staff: JC  
Project File: P:\\PROJECTS\\131092.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4G****Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat****NOTES**

Data Source:  
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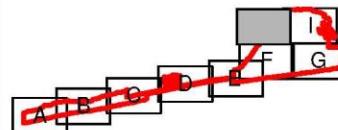
Date: 11/14/08 Staff: JC  
Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:



**LEGEND**

	HCP Plan Area
	Match Lines
	USFWS PKBM Critical Habitat
1 inch equals 500 feet	

**Figure 4H**

**Programmatic Perdido Key  
Habitat Conservation Plan  
USFWS PKBM Critical Habitat**

**NOTES**

Data Source:  
PBS&J Map Index  
PKBM Critical Habitat from USFWS  
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Project File: P:\\PROJECTS\\1310382.00 - Escambia County PK HCP\\GIS

Maps Produced by:

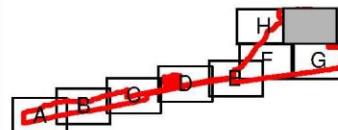




#### LEGEND

- HCP Plan Area
  - Match Lines
  - USFWS PKBM Critical Habitat
- 1 inch equals 500 feet

Figure 4I



### Programmatic Perdido Key Habitat Conservation Plan USFWS PKBM Critical Habitat

#### NOTES

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PBS&J Map Index  
PKBM Critical Habitat from USFWS  
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The West Perdido Key Unit (PKBM-2) consists of 114 acres in southern Escambia County, Florida, and 33 acres in southern Baldwin County, Alabama. The 33 acres in Baldwin County, Alabama are not included in the HCP Plan Area. This unit encompasses beach mouse habitat from approximately 1.0 mile west of where the Alabama–Florida State line bisects Perdido Key east to 2.0 miles east of the State line and areas from the MHWL north to the seaward extent of human development or maritime forest. This unit consists of private lands and ultimately includes essential features of beach mouse habitat between Perdido Key State Park (PKBM-3) and Gulf State Park (PKBM-1). Beach mouse habitat in this unit consists of primary, secondary, and scrub dune habitat and provides PCEs 2, 3, and 4.

The Perdido Key State Park Unit (PKBM-3) consists of 238 acres in southern Escambia County, Florida. This unit encompasses essential features of beach mouse habitat within the boundary of Perdido Key State Park from approximately 2.0 miles east of the Alabama–Florida State line to 4.0 miles east of the State line and the area from the MHWL north to the seaward extent of the maritime forest. Beach mouse habitat in this unit consists of primary, secondary and scrub dune habitat. Trapping efforts in this area were limited in the past. In 2000, a relocation program began to reestablish mice at PKSP. This unit provides PCEs 2, 3, 4, and 5.

The Gulf Beach Unit (PKBM-4) consists of 162 acres in southern Escambia County, Florida. This unit includes essential features of beach mouse habitat between GUIS and PKSP from approximately 4.0 miles east of the Alabama–Florida State line to 6.0 miles east of the State line and areas from the MHWL north to the seaward extent of human development or maritime forest. This unit consists of private lands. Beach mouse habitat in this unit consists of primary, secondary, and scrub dune habitat. While not known to be occupied at the time of listing, presence of beach mice has been confirmed within the unit as a result of trapping efforts in conjunction with permitting (Lynn 2004). This unit provides PCEs 2, 3, and 4 and is essential to the conservation of the species. This unit currently provides essential connectivity between two populations (PKBM-3 and PKBM-5).

The Gulf Islands National Seashore Unit (PKBM-5) consists of 638 acres in southern Escambia County, Florida, on the easternmost region of Perdido Key. This unit encompasses essential features of beach mouse habitat within the boundary of GUIS–Perdido Key Area (also referred to as Johnson Beach) from approximately 6.0 miles east of the Alabama–Florida State line to the eastern tip of Perdido Key at Pensacola Bay and the area from the MHWL north to the seaward extent of the maritime forest. This unit is not included in the HCP Plan Area. Beach mouse habitat in this unit consists mainly of primary and secondary dune habitat, but provides the longest contiguous expanse of frontal dune habitat within the historic range of the PKBM. PKBM were known to inhabit this unit in 1979, though the population was impacted by Hurricane Frederic (1979) and no beach mice were captured during surveys in 1982 and 1986 (Humphrey and Barbour 1981; Holler et al. 1989) therefore, the unit was unoccupied at the time of listing. In 1986, PKBM were reestablished at this unit as a part of the Service recovery efforts. PKBM-5, in its entirety, possesses all five PCEs and is essential to the

conservation of the species. However, most of this unit consists of frontal dunes, making the population inhabiting this unit particularly threatened by storm events.

This NEPA document is intended to analyze all potential project-related, direct, indirect, and cumulative impacts to PKBM habitat and habitat values, regardless of whether habitat is designated as critical habitat. This is a biologically-driven inquiry, and is intended to meet all NEPA-related requirements.

### **6.3.2 Loggerhead Sea Turtle**

The loggerhead sea turtle (*Caretta caretta*), was listed as a threatened species on July 28, 1978 (43 FR 32800). NOAA-Fisheries and the Service approved a revised version of the loggerhead sea turtle recovery plan on December 31, 2008 (NMFS 2008). The loggerhead inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian Oceans. Loggerhead sea turtles nest within the continental U.S. from Louisiana to Virginia. Major nesting concentrations in the U.S. are found on the coastal islands of North Carolina, South Carolina, and Georgia, and on the Atlantic and Gulf coasts of Florida (Hopkins and Richardson 1984).

The loggerhead sea turtle grows to a maximum of 3 feet and an average weight of about 200 pounds and is characterized by a large head with blunt jaws. Adults and subadults have a reddish-brown carapace. Scales on the top of the head and top of the flippers are also reddish-brown with yellow on the borders. Hatchlings are a dull brown color (NOAA-Fisheries 2002a). The loggerhead feeds on mollusks, crustaceans, fish, and other marine animals. Major loggerhead sea turtle nesting beaches are located in the Sultanate of Oman, southeastern U.S., and eastern Australia.

The species is widely distributed within its range. It may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Coral reefs, rocky places, and ship wrecks are often used as feeding areas. Nesting occurs mainly on open beaches or along narrow bays having suitable sand, and often in association with other species of sea turtles. Nesting by loggerhead sea turtles has been documented in all northwest Florida counties including Escambia County (FFWCC-FWRI 2009).

Recent genetic analyses have been employed to identify management units among loggerhead nesting cohorts of the southeastern United States. Assays of nest samples from North Carolina to northwest Florida have identified three genetically distinct nesting subpopulations: 1) north nesting subpopulation - Hatteras, North Carolina, to Cape Canaveral, Florida; 2) south Florida nesting subpopulation - Cape Canaveral to Naples, Florida; and 3) northwest Florida nesting subpopulation - Eglin Air Force Base and the beaches around Panama City, Florida. These data indicate that gene flow between the three regions is very low. If nesting females are extirpated from one of these regions, regional dispersal will not be sufficient to replenish the depleted nesting population (Bowen et al. 1993; Encalada et al. 1998).

Critical habitat has not been designated for loggerhead sea turtles including the Gulf coast of Florida.

### **6.3.3 Green Sea Turtle**

The green sea turtle (*Chelonia mydas*) was federally listed on July 28, 1978 (43 FR 32808). Breeding populations of the green sea turtle in Florida and along the Pacific Coast of Mexico are listed as endangered; all other populations are listed as threatened. The green sea turtle is a circumglobal species in tropical and subtropical waters. Within the U.S., green sea turtles nest in small numbers in the U.S. Virgin Islands and Puerto Rico, and in larger numbers along the east coast of Florida (NOAA-Fisheries and USFWS 1991b). Nesting also has been documented as far north as North Carolina and along the southwest and northwest Gulf coasts of Florida (Meylan et al. 1995; FFWCC-FWRI 2009).

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys. Critical habitat has not been designated for green sea turtles along Florida's Gulf of Mexico coast.

The green sea turtle grows to a maximum size of about 4 feet and a weight of 440 pounds. It has a heart-shaped shell, small head, and single-clawed flippers. The carapace is smooth and colored gray, green, brown and black. Hatchlings are black on top and white on the bottom (NOAA Fisheries 2002b). Hatchling green turtles eat a variety of plants and animals, but adults feed almost exclusively on seagrasses and marine algae.

The green sea turtle nesting and hatching season for northwest Florida beaches extends from May 1 through October 31. Nest incubation ranges from about 60 to 90 days. Nesting in northwest Florida has been consistently documented at least every other year since 1990 (FFWCC-FWRI 2009). Only a few dozen green turtle nests have been documented on Perdido Key (FFWCC-FWRI 2009).

### **6.3.4 Leatherback Sea Turtle**

The leatherback sea turtle (*Dermochelys coriacea*), was listed as an endangered species on June 2, 1970 (35 FR 8491), and nests on shores of the Atlantic, Pacific and Indian Oceans. Non-breeding animals have been recorded as far north as the British Isles and the Maritime Provinces of Canada and as far south as Argentina and the Cape of Good Hope (Pritchard 1992). Nesting grounds are distributed worldwide, with the Pacific Coast of Mexico supporting the world's largest known concentration of nesting leatherbacks. The largest nesting colony in the wider Caribbean region is found in French Guiana, but nesting occurs frequently, although in lesser numbers, from Costa Rica to Columbia and in Guyana, Surinam, and Trinidad (NOAA-Fisheries and USFWS 1992; National Research Council 1990a).

Marine and terrestrial critical habitat for the leatherback sea turtle has been designated at Sandy Point on the western end of the island of St. Croix, U.S. Virgin Islands (50 CFR

17.95). Critical habitat has not been designated for the leatherback sea turtle along the Gulf Coast of Florida.

This is the largest, deepest diving, and most migratory and wide ranging of all sea turtle species. The adult leatherback can reach 4 to 8 feet in length and weigh 500 to 2,000 pounds. The carapace is distinguished by a rubber-like texture, about 1.6 inches thick, made primarily of tough, oil-saturated connective tissue. Hatchlings are dorsally mostly black and are covered with tiny scales; the flippers are edged in white, and rows of white scales appear as stripes along the length of the back (NOAA-Fisheries 2002c). Jellyfish are the main staple of its diet, but it is also known to feed on sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and floating seaweed.

Documented leatherback nests are rare in northwest Florida. From 1990 to 2006, 35 nests have been reported for northwest Florida beaches, 21 in Franklin County, 3 in Okaloosa County, 7 in Bay County, 3 in Gulf County, and 1 in Escambia County (FFWCC-FWRI 2006). Leatherback sea turtle nesting has not been documented on Perdido Key. The leatherback sea turtle nesting and hatching season for northwest Florida beaches extends from May 1 through October 31. Documented nest incubation in northwest Florida ranges from about 63 to 84 days (Miller 2001; GUIS 2005; FFWCC-FWRI 2009).

### **6.3.5 Kemp's Ridley Sea Turtle**

The Kemp's Ridley sea turtle (*Lepidochelys kempii*) was listed as endangered on December 2, 1970 (35 FR 18320). The range of the Kemp's Ridley sea turtles 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. Most Kemp's Ridley sea turtles nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a small number of Kemp's Ridley sea turtles nest along the Texas coast (Turtle Expert Working Group 1998; Frey et al 2007). In addition, rare nesting events have been reported in Florida, Alabama, Georgia, South Carolina, and North Carolina. Outside of nesting, adult Kemp's Ridley sea turtles are believed to spend most of their time in the Gulf of Mexico, while juveniles and subadults also regularly occur along the eastern seaboard of the United States (NOAA-Fisheries and USFWS 1992).

Critical habitat has not been designated for the Kemp's Ridley loggerhead sea turtles including the Gulf coast of Florida.

Hatchlings, after leaving the nesting beach, are believed to become entrained in eddies within the Gulf of Mexico, where they are dispersed within the Gulf and Atlantic by oceanic surface currents until they reach about 7.9 inches in length, at which size they enter coastal shallow water habitats (Ogren 1989).

Documented Kemp's Ridley nests are rare in northwest Florida. The first Kemp's Ridley nest documented in northwest Florida was on Perdido Key in 1998 (GUIS 2005). Since then (1998-2007), there have been 12 Kemp's Ridley nests documented on Perdido Key, 1 in Santa Rosa County, 1 in Walton County, and 1 in Gulf County (FFWCC-FWRI

2008). Average incubation for the three documented nests is 63 days (range 61 to 65 days) (GUIS 2005; Spector 2005).

### 6.3.6 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 as endangered (50 FR 50720), while all other populations were listed as threatened under the Act. 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 piping plover are not well understood. Piping plovers generally migrate to their wintering areas from late July through September, returning to their breeding grounds beginning in late February.

The Florida critical habitat unit 1 – Big Lagoon encompasses 19 acres, within Big Lagoon State Park. This unit covers the peninsula, emerging sand and mudflats, emerging sandbars, and shoreline from 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 HCP area just across Big Lagoon. If suitable habitat is found in the HCP Plan Area, there is a possibility that piping plovers could be using the habitats in the Plan Area sometime during the nonbreeding season.

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 are unvegetated or have 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 of critical habitat. These roost sites may have debris and detritus that provide shelter from high winds and cold.

Non-breeding piping plovers 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 plover food base, and result in habitat

loss and direct disturbance of individual birds. The current use of this area by piping plovers since the 2004-2005 hurricane events is unknown.

### **6.3.7 Other Shorebirds**

This section contains other shorebirds that may or have been documented to occur on Perdido Key and therefore have a potential to occur in the HCP Plan Area. This includes the red knot, snowy plovers, least tern, black skimmer and the American oystercatcher. In addition to being in compliance with all state laws, the HCP will comply with the protections afforded to native bird species under the Migratory Bird Treaty Act (MBTA).

#### **Red Knot**

The red knot (*Calidris canutus*) is noted as the largest calidridine sandpiper of North America and largest species in the genus *Calidris*, which is exceeded in size only by the Great Knot (*C. tenuirostris*). The red knot is colorful in breeding plumage, changing to a dull gray in winter plumage with few distinct markings. This species is a Holarctic breeder, mainly in middle and high-arctic zones, with 3 races (*islandica*, *rufa*, and *roselaari*) distributed in the Nearctic from Greenland to northern Alaska. The red knot was added as a Federal candidate species in 2006 (71 FR 53755). Red knots are federally protected under the MBTA.

Red knots are principally marine shorebirds in the non-breeding season. Red knots in Florida have been observed to use salt marshes, brackish lagoons, and tidal mudflats, while feeding on invertebrates, especially bivalves, small snails, and crustaceans. Huge flocks gather during spring migration on the mid-Atlantic Coast (Delaware Bay) to feed on eggs of horseshoe crabs that come ashore to lay eggs in late May. Starting in mid-July and mid-August the red knot south migration begins. Red knots seek U.S. Atlantic coastal staging sites including tidally flooded peat banks where individuals prey on the spat of marine mussels. Small numbers of red knots may occur in New Jersey year-round, while large numbers of birds rely on Atlantic and Delaware Bay stopover habitats during the spring and fall migration periods.

Red knots winter at the southern tip of South America and breed above the Arctic Circle. Migrating red knots will fly in non-stop segments of 1,500 miles or more, utilizing a few critical stopover areas. Large flocks of red knots arrive at stopover areas along the Delaware Bay and Atlantic coast each spring. Many of the birds have flown directly from northern Brazil.

A lack of data specific to red knots in Florida and specifically to Perdido Key has been noted by the FFWCC. The FFWCC describes red knots as one of the species of greatest conservation concern in Florida. Improving gaps in data is a priority of the FFWCC Avian Taxa Team. It is ranked among the most biologically vulnerable avian species in the FFWCC Species Ranking Database and occurs exclusively in coastal habitats, identified as Florida's highest priority biotic region. Red knots are also identified as a Species of Greatest Conservation Need in *Florida's Comprehensive Wildlife*

*Conservation Strategy.* Red knots winter in four distinct areas of the Western Hemisphere with Florida and Georgia being the main locations in southeastern United States.

## **State Listed Shorebirds**

### **Snowy Plover**

The snowy plover (*Charadrius alexandrinus*) is a small whitish light colored shorebird with a dark, thin bill and dark legs. In breeding plumage, adult snowy plovers have black patches on either side of their breast, not a full breast band like many similar plover species. The pale brown plumage of their upper body is similar to that of the piping plover, but much lighter than other closely related species like the Wilson's plover and semipalmated plover. The relatively long dark legs and bill help distinguish the snowy plover from the piping plover, which has a stubby bill (orange in breeding plumage) and orange legs (Page et al. 1995). Snowy plovers feed on seeds, small mollusks, flies, beetles, and aquatic invertebrates (Howell 1932).

Snowy plovers are solitary nesters and require open dry sand near dunes for breeding. Nesting can occur in early February but typically the nesting season is March to September in Florida. Nests are an open scrape, sometimes lined with shell matter, within sight of the Gulf of Mexico and near the frontal dune line. Locations of nest are usually near an object such as a log, debris, or small clumps of vegetation. Renest attempts are typically farther back in the dunes in open flat areas. Snowy plovers typically lay three eggs, which are light blue with black markings. Incubation is about 26 days with both males and females participating. Chicks fledge about 30 days later. The length of the snowy plovers nesting season may allow the species to raise two broods per season (Stevenson and Anderson 1994).

Snowy plover nesting has been well documented at GUIS and recent nesting attempts were documented at PKSP (Anne Harvey, PKSP pers. comm. 2008). All nesting locations have been on State or Federal lands. Suitable nesting habitat does not usually exist in the privately owned lands in the Plan Area (Himes et al. 2006). However, resting and feeding habitat does occur in the Plan Area.

### **Least Tern**

The least tern (*Sterna antillarum*) is the smallest of American terns and is listed as threatened by the State of Florida. The historical habitat of least terns are seacoasts, beaches, bays, estuaries, lagoons, lakes and rivers, preferring breeding on sandy or gravelly beaches and banks of rivers or lakes. The least tern also breeds on flat gravelly rooftops of buildings that simulate natural habitat. During breeding season, a black cap covers the crown and nape. It has a white forehead, a short white eye stripe and the bill is yellow with a black tip. The back is light gray. Its underside is white. It has a black leading wing edge to the wing tip. In the non-breeding season its plumage includes a black eye stripe extending to the back of the head, white top of head, and black bill. Each sex is highly similar in coloration. Immature or juvenile least terns have a U-shaped

mark on their back. Immature least terns resemble winter adult plumage. Least terns are excellent predators of small fish. Invertebrates such as shrimp and marine worms also make up some of the diet. Least terns plunge into water from flight or a hovering flight to grab their prey (Thompson et al. 1997).

Least terns build nests of a shallow scrape or bowl in sand, soil, or pebbles. Least tern nesting season in Florida is April to July but, renesting and late-nesting pairs often extend the season into August or even September. The adult least terns construct each nest by simply working a shallow depression, or scrape, into the loose sand or gravel (FFWCC 2003).

In Florida, two eggs are usually produced, but clutches of 1 or 3 are also recorded. The eggs, which are cream colored with blotches or spots of dark brown, are laid in April or May and hatch after about 21 days. When the young hatch, their eyes are open, are covered with downy and are able to walk but they stay in the nest. After 3 or 4 days, the young leave the nest, but cannot fly strongly until about 4 weeks of age.

In Florida, nests are found primarily along the coast, nearby gravelly roofs that provide nest sites and near waters containing a supply of small forage fish. Small colonies can occur inland on flat, gravel-covered rooftops of warehouses, shopping malls, and other large buildings with nearby canals, lakes, or ponds (Fisk 1978). Due to natural beach nesting habitat loss, more nesting colonies are now found on roofs or dredged material than on natural beach sites (Gore 1991). Rooftop colonies may be difficult to notice. In south Florida, least terns also occupy recently dredged or deposited sandy substrates in active phosphate mines and in lime rock quarries.

Least tern nesting colonies may consist of only a few nests to several hundred or more. The number of nests and their density is governed by many factors, including past reproductive success of the colony, availability of food, and disturbance. Least terns usually return to the same nesting site each year, unless the colony has consistently failed to fledge young, then the site will be abandoned (FFWCC 2003).

Least terns have been documented to nest in Escambia County. Several roof nesting colonies exist throughout the coastal area and ground nesting colonies have been documented at GUIS–Fort Pickens (FFWCC 2008). Individual sightings or nests have occurred at GUIS– Johnson Beach (1990, 1993, 1999), Big Lagoon State Park (1987) and Big Lagoon Spoil Island (1993, 1998, 2000) (Himes 2008). Suitable resting and nesting habitat exists in the Plan Area, but all nesting locations have been on State or Federal lands.

### **Black Skimmer**

The black skimmer (*Rynchops niger*) is the only American representative of the skimmer family. The other two, rather similar, species are the African skimmer and the Indian skimmer. All skimmers use the same unusual feeding method. Although the black skimmer is active throughout the day, it is largely crepuscular (active in the dawn and

dusk) and even nocturnal. Its use of touch to catch fish allows it to be successful in low light or darkness. This enables the birds to forage by night, when waters are calmer and fish are closer to the surface (FFWCC 2003).

The black skimmer is a medium-sized to large water bird. It has a long red and black bill, with the upper bill shorter than the lower bill. The red color of the bill covers about one quarter of the bill and is near the face while the black color covers about three quarter of the bill and is more towards the tip. The black skimmer has a solid black back and cap. Its underparts are white. The black skimmer has very short red legs and long pointed wings. Although black skimmers are a water bird with webbed feet, it is unusual for them to be seen on the water swimming (MDNR 2007). The size of the black skimmer is 16 – 20 inches and weight is usually between 7.48 -15.78 ounces (212-447 g). Male black skimmers are slightly larger and have a longer bill than female black skimmers. Immature black skimmers are similar to adults, but have a mottled black and white back and head (Gough et al. 1998).

Black skimmers nest in colonies, usually in association with other aggressive shorebirds. Their nests are built on the ground on open sandy beaches, inlets, sandbars, offshore islands, and dredge disposal islands that are sparsely vegetated and contain shell fragments. The growth of dense vegetation may cause colony relocation. Skimmers also frequently nest on wrack mats (deposits of dead seagrasses and other vegetation) on marsh islands in the back bays; however, these colonies are typically much smaller than the beach colonies. Similar coastal and estuarine habitats are used throughout the year. Black skimmers have also adapted to rooftop nesting where loss of native habitat has occurred (FFWCC 2003).

Mates take turns scraping, exhibiting exaggerated sand-kicking posture (neck, head, bill, and tail elevated) with alternate foot strokes that throw sand backwards. Birds rotate in the scrape to create a saucer-shaped depression, similar to resting scrapes used throughout the year. The depression takes only a few minutes to create, but the process of nesting may involve several scrapes and nest showing behavior, requiring 5-7 days between onset of nest “building” and laying. No material is added to the nest.

Black skimmers lay four to five blue or pink eggs with brown, lavender, and gray marks. Eggs are perfectly camouflaged and hard to spot in the natural habitat. Both parents share incubation responsibilities which range from 21 to 23 days. Young fledge in 23-25 days (Gochfeld and Burger 1994). Breeding colonies of black skimmers can be found along Florida’s Gulf and Atlantic coasts. On busy beaches, the birds and their nests are extremely vulnerable to human disturbance and predation by domestic dogs, raccoons and laughing gulls. At hatching, the two mandibles of a young black skimmer are equal in length, but by fledging at four weeks, the lower mandible is already nearly 0.39 inches longer than the upper (FFWCC 2003).

Black skimmers forage in shallow-water tidal creeks, inlets, and ponds and get their name from “skimming” the surface of the water with their black-tipped bright red bills. The unique adaptation of their bill, the lower half of the bill is longer than the upper, allows

the black skimmer to cut through the water and dip down to grab small fish encountered near the surface. When sensing a fish, the bird snaps its upper bill shut, tucks its head and seizes its prey. They will also catch shrimp and other small crustaceans in this manner (Dick 2008).

Black skimmer nests have been documented in Escambia County. However, no nests have been documented on Perdido Key. Ground colony nest locations include Pensacola Beach, GUIS-Fort Pickens, and the Pensacola Port Authority (FFWCC 2008). Suitable resting and nesting habitat exists in the Plan Area.

### **American Oystercatcher**

The American oystercatcher (*Haematopus palliates*) is the largest and heaviest Florida shorebird. Its bright red-orange bill is built for opening mussels and oysters. They have black heads and necks and dark blackish-brown underparts. They have white wing and upper tail patches. A diagonal white stripe in each wing forms a V-pattern aiding identification in flight. Their legs are a tan or sand color. Males and females look alike but females are larger and heavier than males. In young birds, the bill is a pinkish brown and dusky black toward the tip. It has a yellow eye and an orange-red eye ring. Breeding and non-breeding plumage is almost identical (FFWCC 2006).

This shorebird eats oysters, clams, barnacles, starfish, crabs, jellyfish, limpets, chitons, marine worms, and other marine invertebrates. When an American oystercatcher pries an oyster shell open, it quickly clips the bivalve's adductor muscle. The bivalve cannot protect itself by closing its shell and is eaten by the oystercatcher (TPWD 2008). Their mating season is from February through July. Nests are shallow scraped depressions lined with tiny pebbles, bits of shell and seaweed and are on higher parts of sandy or rocky beaches above the high tide line. Females typically lay two to four buff-colored eggs with light and dark brown spots and other marks. Both parents incubate the eggs. The chicks can run within 24 hours of hatching, but it takes up to 60 days for their beaks to become strong enough to pry open bivalves. The young birds may remain with their parents for up to six months. American oystercatchers can live ten years or longer in the wild (TPWD2008).

Oystercatchers are very protective of their young. To distract predators, adult birds will fake an injury to attract attention away from the nest or pretend to brood where there is no nest. Oystercatchers give such extensive care to their young that the adults sometime starve.

No site specific information exists for Perdido Key or Escambia County. However, suitable resting and feeding habitat does occur within the Plan Area.

### **6.3.8 Flora**

Although the Act does not generally prohibit the incidental taking of listed plants on private property in accordance with State Law (USFWS 1996), plants listed by the State

of Florida may be protected by the programmatic HCP due to the similarity of habitat used by the covered wildlife species. These include: Cruises golden aster, large-leaved jointweed, and Gulf Coast lupine. 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.

#### **6.4 Demographics and Economy**

Escambia County is located in the extreme northwestern corner of the State of Florida, bordered on the west and north by Alabama, on the east by Santa Rosa County, Florida, and on the south by the Gulf of Mexico. The County encompasses 661 square miles, or 420,480 acres, with an additional 64,000 acres of water area. The population of Escambia County is currently estimated at 296,709. Perdido Key is a 16.9-mile long, narrow barrier island located in southwestern Escambia County, Florida and Baldwin County, Alabama. About one-half (51 percent) of the Key is in public lands (GUIS, PKSP, Gulf State Park).

Leisure and recreational pursuits are on the increase on Perdido Key, along with northwest Florida. The impact of recreation and tourism on the economy continues to expand. Recreational visits to state and national parks grew by an estimated 300,000 visitors from 2003 to 2004. GUIS attracted approximately 51 percent of all visitors to Florida parks and 2 percent of all visitors nationwide. In northwest Florida, visitor days for national parks and state parks were up 5 percent from 2003-2004. Taxable sales of transient facilities outpaced Florida's growth rate (7.7 % v. 6.3%). Employment and payroll for the tourism industry was also up (0.8 % and 2.4%, respectively).

By the late 1990's, distinct patterns of development had emerged on Perdido Key. Several areas consisted primarily of single family houses - the waterfront lots on Old River Road, the interior portion of the Key, the northeast section of the Key, and Pirates Cove in the center portion of PKSP. The area near the "curve" on Perdido Key Drive had developed at higher densities and heights. The lots on both sides of SR 292 (Perdido Key Drive), bordered by the "curve" on the east and the conservation land on the west, are a mix of commercial, multi-family residential and some single-family detached houses. The dominant residential development in this area was low-rise (up to four stories) condominiums. The far west portion of the Key is the most difficult to define because it has a large number of single-family and low-rise multi-family structures, but it also has some of the largest (and tallest) multi-family developments.

Extensive development on the Key occurred prior to 1990. Between 1990 and 1994 the majority of development was single-family dwellings. Since 1995, there has been an increase in the number of multi-family developments on the Key, typically being developed at the maximum density allowed. This is due primarily to market factors that made multi-family development profitable at that time. Into the early 2000's, development or re-development continued at a fast pace. Single-family residences and small multi-family complexes were being sold for redevelopment as high-rise/high density complexes (PKNP 1997 as referenced in the PKNP 2003), a trend that continues into 2008 and will likely continue into the future.

In the 1997 Settlement Agreement with DCA, a dwelling cap was issued for Perdido Key. The terms were that the maximum allowed units on the Key consisted of 7,150 dwelling units and 1,000 lodging units. Tables 4 and 5 profiles the current allocation of dwelling units and lodging units on Perdido Key as of May 2009. The majority of the projects are located on the eastern part of the Key between the bridge and River Road and the west end of Perdido Key Drive near the Alabama border. Relative to the rest of Escambia County from 2003 to 2008, Perdido Key accounts for approximately 10% (138 DO of 1,445 DOs County-wide) of the Development Orders/Agreements. In northwest Florida, coastal areas even in the down markets have become significant sources of revenue for counties.

([http://www.myescambia.com/departments/planning\\_zoning/DevelopmentOrders.php](http://www.myescambia.com/departments/planning_zoning/DevelopmentOrders.php) ).

**Table 4 Dwelling Units on Perdido Key (as of May 2009)**

<http://soe.co.escambia.fl.us/Bureaus/DevelopmentServices/DevelopmentMonitoring.html>

<b>DEVELOPMENT ON PERDIDO KEY</b>	
<b>Dwelling Units (DU)</b>	
Total Existing Dwelling Units on the Ground	3811
Total Dwelling Units with Approvals or Development Rights but <b>NOT BUILT</b>	2439
Dwelling Units without Development Orders but have Development Agreement	523
<b>Dwelling Unit Data Summary</b>	
<b>Total Dwelling Units Available</b>	<b>7150</b>
Minus Existing on the Ground	3811
Minus Dwelling Units with Approval or Development Rights	2344
Minus Units with Development Agreements	523
<b>Total Dwelling Units Left Available</b>	<b>472</b>

**Table 5 Lodging Units on Perdido Key (as of May 2009)**

<b>Lodging Units (LU)</b>	
Total Lodging Units Available	1000
Minus Lodging Units-Existing and Approved	149
Minus Lodging Units with Development Agreements	200
<b>Total Lodging Units Remaining</b>	<b>651</b>

## **6.5 Public Infrastructure**

### **6.5.1 Water Supply**

The ECUA provides potable water service to Perdido Key. The ECUA potable water facilities on Perdido Key are connected to the water supply and distribution system components on the mainland of southwest Escambia County (Escambia County 2003).

### **6.5.2 Wastewater**

ECUA provides sanitary sewer service to Perdido Key. The ECUA wastewater system on Perdido Key is connected to wastewater system components on the mainland in southwest Escambia County. To address the replacement of septic tanks near waterways, ECUA made sanitary sewer service available to Perdido Key Coves during 1997, and wastewater systems are in the design phase for Siguenza Cove and the Old River Road/Perdido Key Drive areas. The components of the ECUA wastewater system on Perdido Key include the following:

- Gravity collection systems,
- Force main transmission lines, and
- Regional and sub-regional lift stations.

The ECUA wastewater system on Perdido Key is connected to the following wastewater system components on the mainland of southwest Escambia County:

- A 12-inch diameter transmission line to the mainland,
- Gravity collection systems,
- Force main transmission lines,
- Regional and sub-regional lift stations, and
- The Bayou Marcus Water Reclamation Facility (WRF), which discharges reclaimed water to a 1,000 acre wetlands application system, located west of Blue Angel Parkway and north of Lillian Highway.

### **6.5.3 Roads and Traffic**

The major transportation facility on Perdido Key is State Road 292 (Perdido Key Drive), a two-lane highway connecting the area with Pensacola to the east and Gulf Shores, Alabama to the west. The 1997 Neighborhood Plan recommended that SR 292 (Perdido Key Drive) and the bridge into Pensacola should include four lanes in the context of a pedestrian and bicycle friendly community.

The Florida – Alabama Transportation Planning Organization (FATPO) recently amended the 2025 Cost Feasible Long Range Transportation Plan to include expanding SR 292 (Perdido Key Drive) between the Alabama Line and Blue Angel Parkway to a four lane facility.

Escambia County maintains a database that tracks vehicle capacity for all existing and proposed developments on the Key. This database is used to monitor traffic demand on SR 292 (Perdido Key Drive) ensuring that the capacity of the roadway is not exceeded. As development is completed, it is accounted for in the traffic counts and removed from the available “trips” and included as background traffic. A Perdido Key Drive Capacity review was completed in 2004 (PBS&J 2004). A travel demand and concurrency analysis was conducted based on existing and approved development on Perdido Key at the time. Trips were calculated for all of the development that was in place and for each development that had received approvals. These trips were loaded on to Perdido Key Drive and determined that SR 292 (Perdido Key Drive) exceeded capacity. PBS&J then investigated what would be required to meet the level of service standards adopted for the roadway, which led to the recommendation of a four lane road for SR 292 (Perdido Key Drive).

## **6.6 Land Use and Development of Perdido Key**

According to the Escambia County, Florida, Comprehensive Plan, the land use on Perdido Key is designated as mixed use (MU-4). This category provides for a complementary mix of residential, commercial and tourism (resort) related uses. As of May 2009, Development Orders/Agreements for 6,778 dwelling units have been issued or reserved. Only 149 lodging units have been issued or reserved (leaving 651 units).

The majority of development is located on the eastern part of the Key between the bridge and River Road and the west end of Perdido Key Drive near the Alabama border ([http://cfhost.co.escambia.fl.us/cfmx/gman/permit\\_status\\_dureport.cfm](http://cfhost.co.escambia.fl.us/cfmx/gman/permit_status_dureport.cfm)). There have been preliminary discussions with the State of Florida Department of Community Affairs concerning the possibility of increasing the dwelling unit cap. One of the issues with increasing the cap is having the adequate infrastructure (road capacity, water supply, waste water disposal, and emergency services) to support the increase. In addition, there have been discussions relative to transferring a portion of the lodging units to the dwelling units cap.

Approximately 16 percent of the land may be developed in resort/tourism related uses and in small scale commercial uses. Site specific densities are pursuant to the requirements of the zoning districts where a site is located (R1PK, R2PK, R3PK, C1PK, CCPK, CGPK, and PRPK). Each zoning district has its own height and building footprint limitations, which vary from one zoning district to the next. Density units may not be transferred to parcels south of SR 292 (Perdido Key Drive).

To respond to the increasing demand for development on Perdido Key, the Perdido Key Advisory Committee was formed in 1997. The Committee developed a Neighborhood Plan (PKNP) for the future of Perdido Key. The overall goal was to “encourage responsible, quality growth on the Key with a balanced mixture of residential and commercial development while maintaining its character as a family oriented beach community and preserving its natural amenities.” The Committee, with public input, determined the following seven areas needed to be addressed: (1) Land Use; (2)

Hurricane Evacuation; (3) Transportation; (4) Signage; (5) Community Center; (6) Public Waterfront Access areas, and (7) Gateway Area (PKNP 1997). The PKNP was updated in 2002. Those updates also included seven additional areas to be considered: (8) Natural Resource Protection; (9) Fire Rescue/Emergency Medical Services; (10) Potable Water; (11) Sanitary Sewer; (12) Drainage; (13) Economic Development; (14) Transportation (PKNP 2002).

The Florida Legislature enacted the Local Government Comprehensive Planning and Land Development Regulation Act (F.S. Ch. 163, pt. II) which mandated the preparation of comprehensive plans and unified land development codes for all units of local government. On May 10, 1994, the Governor and Cabinet found the Escambia County adopted comprehensive plan, Ordinance 93-20, to be in compliance. Adoption of a unified LDC is required to implement the comprehensive plan. Escambia County adopted their LDC under Ordinance 96-3. The intent of the ordinance was to provide orderly growth management rules and regulations for those areas of unincorporated Escambia County.

**Concurrency:** The LDC contains a provision stating that public facilities must meet or exceed the level of service standards established by the comprehensive plan and that the public facilities and services needed to support development are available concurrent with the impacts of such development. This process is commonly known as concurrency. Escambia County provides a manual for determining concurrency (Escambia County 2001).

The primary purpose of concurrency is to determine if proposed new development or redevelopment activities can or will be supported and served by infrastructure facilities or services at prescribed levels. The various levels of service that must be provided include: 1) stormwater drainage, 2) sanitary sewer system, 3) potable water services, 4) mass transit availability, 5) solid waste disposal system, 6) recreation and open space, and 7) traffic capability. If sufficient capacity exists to meet the projected service demands for a project, then a development order (DO) and a "certificate of concurrency" is issued by the County (Ord. No.99-33, § 1, 7-1-1999; Ord. No. 2001-11, § 4, 3-1-2001). A development order is any order granting, denying, or granting with conditions, an application for a development permit.

Any applicant desiring development approval for a project is required to undergo concurrency review and determination and is responsible for demonstrating compliance. For each system, service or facility impacted by a proposed development, the applicant must demonstrate concurrency as follows:

- A. **Drainage.** The drainage level of service standards shall be met if the application includes certification that a stormwater management plan will be submitted and detailed within construction plans prepared by a registered and licensed professional engineer in the State of Florida documenting the plan meets or exceeds the adopted level of service standard.

The standards to be certified are:

1. The retention or detention of the first one-half-inch of runoff onsite;
2. That the post development runoff rate will not exceed the predevelopment runoff rate for a 25-year storm event, up to and including an event with 24-hour duration;
3. Use of the criteria established in F.A.C. Ch. 17-25, in its entirety (including exemptions), and F.A.C. 17-3.02;
4. That the contribution of the new development to any existing, functioning area-wide drainage system will not degrade the ability of the area-wide system to adequately retain/detain/store and control stormwater runoff.

**B. Sanitary sewer.** Obtain certification from the purveyor of sanitary sewer services. In the event the project or parcel is not and will not be served by a central sanitary sewer collection system, then the applicant for the project must present to the County a valid permit for a septic tank or package plant or other sewage disposal system as authorized by Health Department and/or FDEP.

**C. Potable water.** Certification from the purveyor of potable water services must be obtained. If the project is not within the service area of a central water system, then the applicant must submit an approved, valid well (extraction or consumptive use) permit issued by the Northwest Florida Water Management District or other state regulatory agency.

**D. Mass transit.** The availability of capacity for mass transit shall be reassessed and a determination made as to whether the available capacity exists for projected demand for the current year. The applicant will rely on the comprehensive plan implementation annual report or the annual report prepared by the director of Escambia County Area Transit (ECAT) establishing the projected available capacity.

**E. Solid waste.** The available capacity for solid waste shall be reassessed, and a determination made as to whether the available capacity exists for project demand. The applicant will rely on the comprehensive plan implementation annual report or the annual report prepared by the director of solid waste management establishing the projected available capacity.

**F. Recreation and open space.** The available capacity for recreation and open space shall be reassessed, and a determination made as to whether the available capacity exists for projected demand for the current year. The applicant will rely on the comprehensive plan implementation report or the annual report prepared by the director of parks and recreation establishing projected available capacity.

**G. Traffic.** Use generally accepted methodologies approved by the county engineer to determine the impact a proposed development may have on the traffic system within the impact. (Ord. No. 98-53, § 1, 12-3-1998; Ord. No. 99-33, § 1, 7-1-99; Ord. No. 2001-11, § 4, 3-1-2001; Ord. No. 2002-36, §§ 5, 6, 8-1-2002)

## **6.7 Public Lands and Recreation**

### **Gulf Islands National Seashore**

The Johnson Beach-Perdido Key Area of GUIS consists of approximately 1,100 acres along 7-miles of the 16.9-mile Perdido Key. The GUIS composes the east end of the Key and is a peninsula bounded to the north by Big Lagoon and to the south by the Gulf of Mexico. The GUIS was first acquired through donations from the Navy between 1972 and 1981. The majority of the remaining parcels were acquired through donations, purchase, transfer from other Federal agencies, land exchange, and condemnation. In 1995, the last two parcels were acquired from the Bureau of Land Management. The developed area of the GUIS -Perdido Key Area (prior to Hurricane Ivan) consisted of a 2.5- mile paved road, an entrance station, main parking lot, snack bar, ranger station, maintenance building, public restrooms and showers, picnic pavilions, and public swimming beach. Some of these facilities have been rebuilt, most in more landward locations. Although not within the HCP Plan Area boundaries, the GUIS is an important component of Perdido Key.

### **Perdido Key State Park**

The PKSP, which was acquired in 1978 using Environmentally Endangered Lands funds, consists of 290.32 acres (273.36 upland acres and 16.96 acres submerged). At PKSP public outdoor recreation and conservation is the primary designated use of the property. There are no legislative or executive directives that constrain the use of this property. Perdido Key offers two use areas with parking and restroom facilities. Two additional boardwalks access 1.6 miles of beach. Both the East and West use areas provide four covered picnic shelters. Access in the PKSP is by payment through a honor system located at the toll booths or boardwalk entrances.

PKSP promotes fishing along the Gulf of Mexico and along the Old River Trail on the northeast parcel. Outdoor showers and foot wash facilities are provided at each bathhouse. Access to the beach provides swimming along the Gulf of Mexico.

Snowy Plover and Least Tern are known to nest in PKSP in spring and early summer. Portions of their nesting areas and a buffer zone are closed to visitor access for several weeks during the nesting period. The PKBM is an important component of the PKSP and PKSP provides critical habitat for the PKBM. Kemp's Ridley, green and loggerhead sea turtles nest on these beaches from May through August. Shorebirds and butterflies from the Mississippi Flyway migration are noted to visit in spring and fall. Although not

within the HCP Plan Area boundaries, the PKSP is an important component of Perdido Key.

The Old River Trail is less than one mile long and traverses the northeast portion of the park along Old River. Access to this hiking trail is provided from Lafitte Reef Road, but there is no parking at the trail entrance. Pets are permitted on the trail, if kept on a 6-foot leash. Periodically, this area may be closed for resource management activities.

### **Escambia County, Florida**

The Escambia County owned land, including parcels and County road right-of-way, on Perdido Key consist of approximately 14.75 acres acres. There are 11 County owned properties on Perdido Key, of which 4 are public beach access areas south of SR 292 (Perdido Key Drive). The public beach access areas include parking, trash receptacles and restroom facilities.

Escambia County Code of Ordinances Policy 11.B.6.3 states that protected lands held in public ownership shall be provided for public use, ensure the provision of facilities for outdoor recreation activities, including nature trails or boardwalks, waterway trails, interpretive displays, educational programs, wildlife observation areas, or picnic areas, whenever feasible (Ord. No. 2002-38, § 3(Att. A), 8-15-2002).

Recreation opportunities on Perdido Key revolve around the mild climate and water related activities typical of the Gulf coast. Recreational swimming and sun bathing provide seasonal enjoyment for residents and tourists, and fishing, both on Old River and the Gulf provide year round opportunities. Approximately half of Perdido Key is public land that provides significant recreational opportunities.

### **Gulf State Park, Alabama**

While not in the Plan Area, Florida Point is part of the Gulf State Park complex on Perdido Key in Alabama. The main portion of the complex is located in the City of Gulf Shores. Prior to the passage of Hurricane Ivan, the main complex in Gulf Shores offered 6,150 acres with 2-miles of white sand beaches including primitive camping, cottages, marina, golf, trails and fishing (saltwater and fresh water). Most of Gulf State Park was severely damaged by Hurricane Ivan. The Florida Point portion, situated on the western part of Perdido Key adjacent to Perdido Pass provides fishing, swimming and sunbathing along the Gulf of Mexico beachfront. Two parking and public access areas are provided. Florida Point was also impacted by Hurricane Ivan by extensive overwash of the former low rolling dunes leaving most of the Park with little vegetation.

## **6.8 Air Quality**

Air quality on Perdido Key varies, depending upon turbulence, wind direction, and thermal stratification. Sources of air pollutants include vehicular traffic and construction/development activities.

There is an ozone monitoring station at the Pensacola Naval Air Station directly north of the eastern portion of Perdido Key. Ozone has the same chemical structure and properties whether it occurs miles above the earth or at ground level; however, ozone has both good and bad effects depending on its location in the atmosphere. Ozone occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful ultraviolet radiation. In the lower atmosphere, where natural ozone levels are low, additional ground-level ozone is formed as a result of human emissions of volatile organic compounds and oxides of nitrogen. Breathing this ozone can result in damage or irritation to the lungs. The Air Quality Index (AQI) for ozone for the period from 2001 to 2003 indicates that Escambia County had a "good" AQI; 90 percent of the time and moderate AQI, 9.4 percent of the time (FDEP 2005). Only 0.5 percent of the time did the AQI for ozone reach levels "unhealthy for sensitive groups."

Particle Pollution is the general term used for a mixture of solid particles and liquid droplets found in the air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as sulfates and nitrates), organic chemicals, metals, soil or dust particles and allergens (such as fragments of pollen or mold spores). The size of the particles is directly linked to their potential for causing health problems. Small particles pose the greatest threat. PM2.5 describes the small particles of concern, they are fine particles (such as those found in smoke and haze) which are 2.5 micrometers in diameter or less. Coarse particles describe particles greater than 2.5, but less than or equal to 10 micrometers in diameter. PM10 refers to all particles less than or equal to 10 micrometers in diameter. Ten micrometers are about one-seventh the diameter of human hair.

Particle Pollution originates from many different stationary and mobile sources as well as from natural sources. Fine particles can result directly from emissions of fuel combustion from motor vehicles, power generation, and industrial facilities, as well as from residential fireplaces and wood stoves. In other cases, gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds interact with other compounds in the air to form fine particles. Coarse particles are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, crushing and grinding operations, and windblown dust. Their chemical and physical compositions vary depending on location, time of year, and weather.

When inhaled, both fine and coarse particles can accumulate in the respiratory system and are associated with numerous health effects. FDEP provides a daily AQI for Pensacola, Florida, based on ozone and particulate concentrations and can be found on the web at <ftp://ftp.dep.state.fl.us/pub/air/PenOz/penaqi.pdf>.

## **6.9 Noise**

Noise is unwanted sound. Sound is all around us; sound becomes noise when it interferes with normal activities, such as sleep or conversation. Sound or noise levels are measured

in A weighted decibels (dBA), a unit of sound pressure adjusted to the range of human hearing, with intensity greater than the ambient or background sound pressures. Normal speech has a noise level of approximately 60 dBA; sound levels above 110 dBA begin to be felt inside the human ear as discomfort. Sound levels above 140 dBA are felt as pain.

Noise levels on Perdido Key are influenced by military aircraft operations (Pensacola Naval Air Station), vehicular traffic, low-density and high-density residential activities, and limited seasonal recreation activities. Residential construction is increasing on the Key where temporary noise may become an issue, especially at the developments located in or near beachfront areas during the tourist season.

The military flies over the GUIS on the eastern portion of Perdido Key. The aircraft also occasionally fly down Big Lagoon. Banner tows, a recent occurrence on Perdido Key, fly low along the middle of the Key. Noise issues have been reported by GUIS to the Federal Aviation Administration.

## **6.10 Coastal Construction Control Line**

The state of Florida's Coastal Construction Control Line (CCCL) program's purpose is to protect the natural environment from improperly sited and designed structures which can jeopardize the stability of the beach dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, and interfere with public beach access. Adoption of the CCCL establishes an area of jurisdiction in which special siting and design criteria are applied for construction and related activities. These standards may be more stringent than those already applied in the rest of the coastal building zone because of the greater forces expected to occur in the more seaward zone of the beach during a storm event.

The control line represents the landward limit of significant damage to upland structures from water forces expected in a one-hundred year coastal storm. Structures located seaward of the CCCL are expected to be impacted by the high winds and storm surges which accompany such severe storms and need to be designed and built to withstand those forces.

The CCCL for Escambia County, Florida was re-established in 1986 (FDEP 2005). Establishing a CCCL for each county's beachfront includes using historical weather data (including past hurricanes which have impacted the area), tide cycles, offshore bathymetry, erosion trends, upland topography, and existing vegetation and structures using appropriate engineering predictive models and scientific principles to determine the upland limits of the effect of a 100 year coastal storm. It is important to note that some major storm effects, including wind and flooding, may penetrate much farther inland than the control line; however, the magnitude of the forces associated with those effects is considerably less than those which are anticipated seaward of the control line. The CCCL on Perdido Key is located approximately 140 feet (range 48 to 400 ft) seaward of SR 292. Thus, the majority of most current structures south of the highway are seaward of the

CCCL. In addition, development consists of one single row of structures between the highway and the CCCL.

The Escambia County Board of County Commissioners adopted ordinance 2005-56, on November 17, 2005, to prohibit construction of major structures, minor structures, and non-habitable major structures seaward of the 1975 CCCL (see Figures 5A-5G). This action was taken by the County to minimize impacts to PKBM from new and redevelopment projects. It was estimated that approximately 90 acres of PKBM habitat would be protected through compliance with this ordinance. Thus, construction of new developments must comply with this ordinance.

## **6.11 Coastal Zone Management Act**

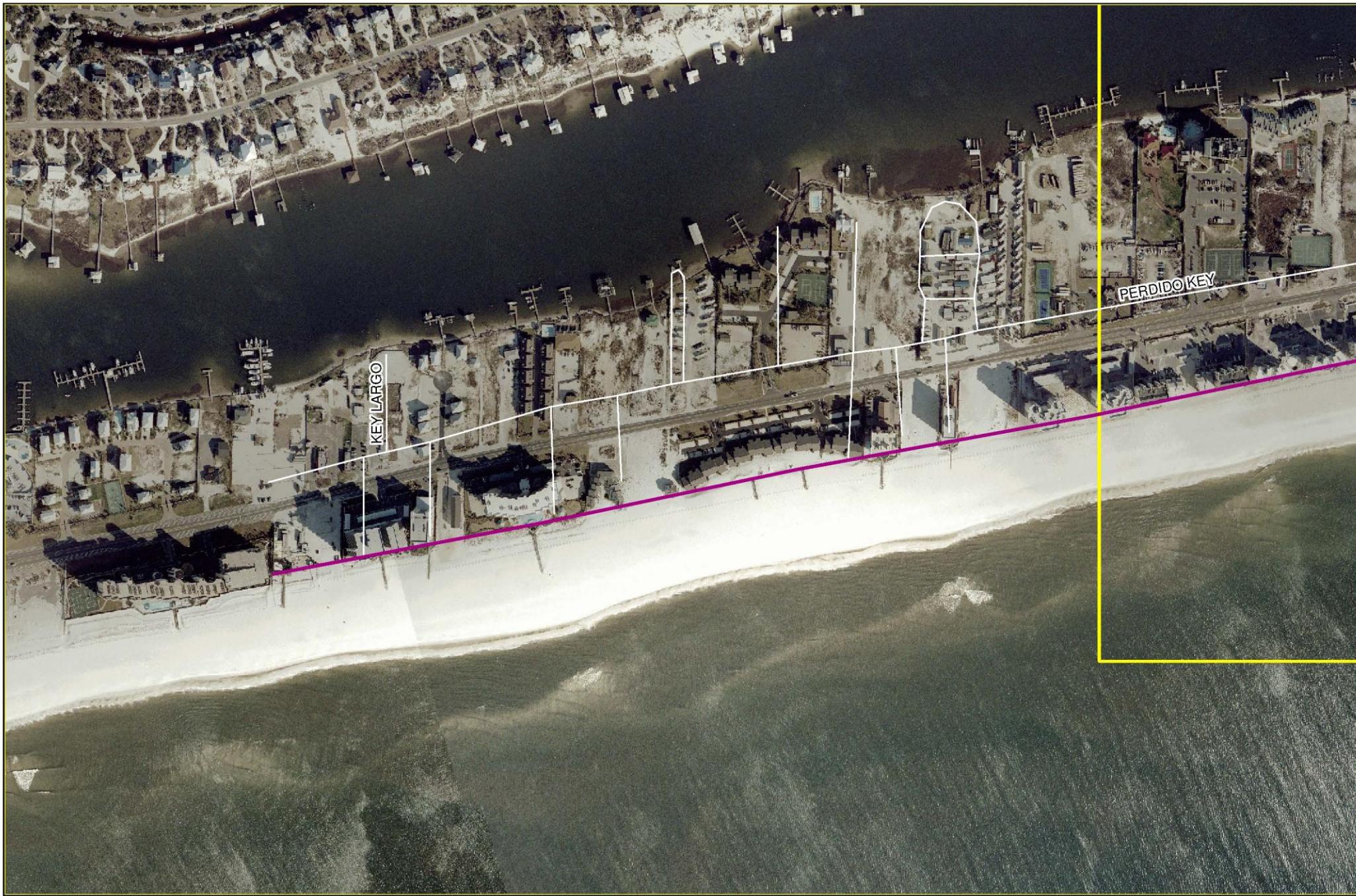
Congress passed the Coastal Zone Management Act (CZMA) to assist coastal states, Great Lake states, and United States territories to develop state coastal management programs, and comprehensively manage and balance competing uses of and impacts to coastal resources. Federal consistency is the CZMA requirement that all federal actions affecting any land or water use, or natural resource of the coastal zone be consistent with the enforceable policies of a coastal state's or territory's federally approved coastal management program.

Specifically, the process authorizes states to review the following categories of activities for compliance with the requirements of their approved management programs:

- 1) activities conducted by or on behalf of a federal government agency;
- 2) activities which require a federal license or permit;
- 3) activities conducted pursuant to an Outer Continental Shelf Lands Act exploration plan or lease; and
- 4) federally funded activities.

Federal consistency is a mandatory, but flexible, mechanism to resolve potential conflicts between state and federal agencies by fostering early consultation, cooperation, and coordination. Since the Service would be issuing a permit to the applicants, this activity would be reviewed for consistency with CZMA. A package will be submitted to the State of Florida for consistency review following publication of a notice announcing the receipt of a permit application and availability of the environmental assessment in the Federal Register.

Florida is authorized by the CZMA to review federal agency permits, requests for federal assistance, and federally licensed and permitted actions to ensure compliance with the provisions of the 23 Florida Statutes included in the Florida Coastal Management Program as enforceable policy. The reviews are coordinated by the Florida State Clearinghouse and the state agencies that issue permits under Chapter 373, Part IV, Florida Statutes. The Service has coordinated with the State of Florida concerning the issuance of previous ITPs on Perdido Key and the State's endangered species permit process, and will continue coordination concerning this ITP application.

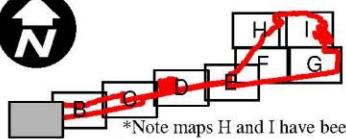


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5A



\*Note maps H and I have been omitted from this map set.

## Escambia County 1975 CCCL

(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

#### NOTES

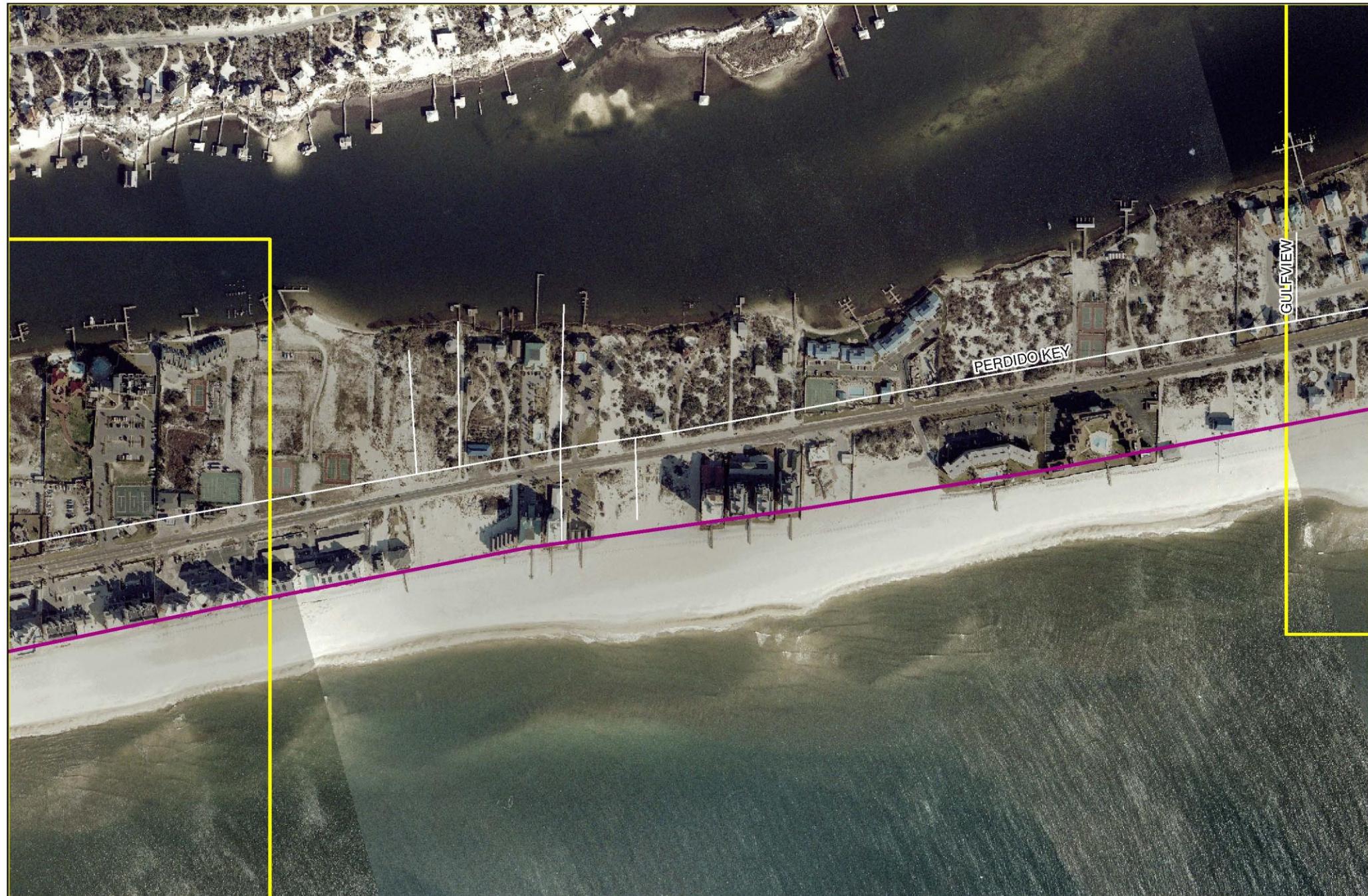
Data Source:  
PBS&J Map Index  
CCCL Line from Escambia  
County GIS Department  
Roads from FGDL  
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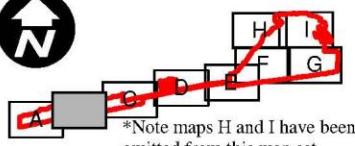


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5B



**Escambia County  
1975 CCCL**  
(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

Data Source:  
PBS&J Map Index  
CCCL Line from Escambia  
County GIS Department  
Roads from FGDL  
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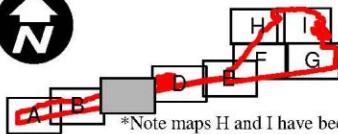


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5C



## Escambia County 1975 CCCL

(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

#### NOTES

Data Source:  
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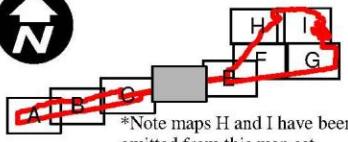


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5D



**Escambia County  
1975 CCCL**  
(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

Data Source:  
PBS&J Map Index  
CCCL Line from Escambia  
County GIS Department  
Roads from FGDL  
Aerial Photo from I.F. Rooks 2007

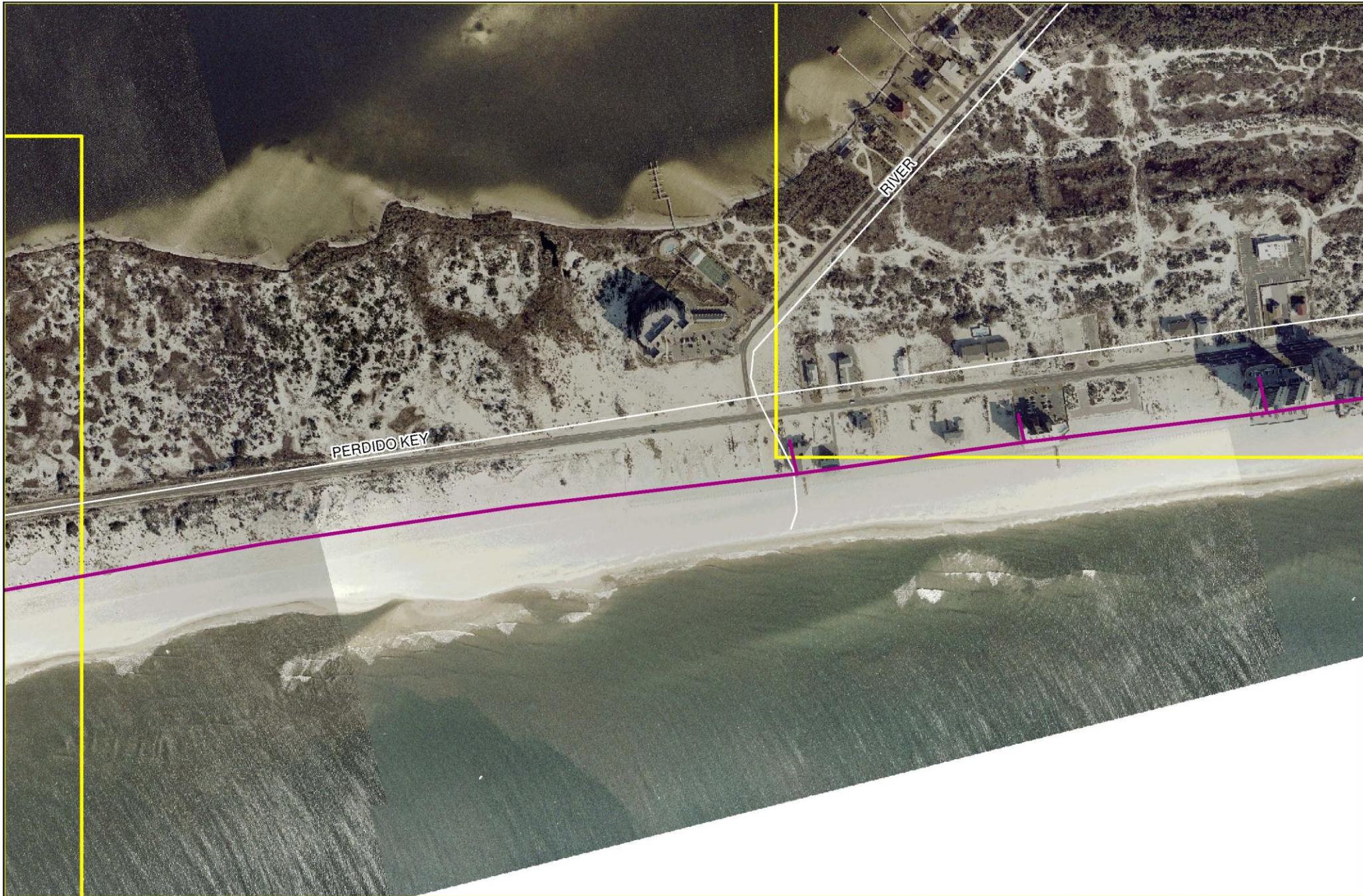
Date: 11/14/08 Staff: JC  
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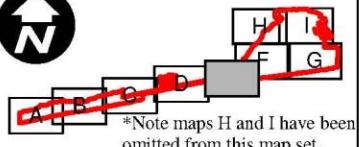


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5E



#### **Escambia County 1975 CCCL**

(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

Data Source:  
PBS&J Map Index  
CCCL Line from Escambia  
County GIS Department  
Roads from FGDL  
Aerial Photo from I.F. Rooks 2007

Date: 11/14/08 Staff: JC  
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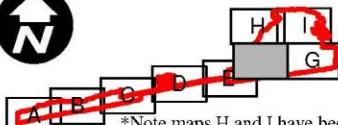


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5F



\*Note maps H and I have been omitted from this map set.

## *Escambia County 1975 CCCL*

(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

#### NOTES

Data Source:  
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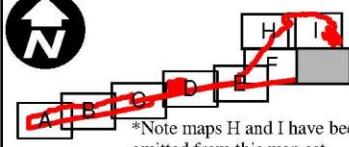


#### LEGEND

- Escambia County 1975 CCCL
- Roads
- Match Lines



Figure 5G



#### **Escambia County 1975 CCCL**

(The Escambia County Shoreline Protection Zone commences at the MHWL and runs to and includes the 1975 CCCL.)

1 inch equals 500 feet

#### NOTES

Data Source:  
PBS&J Map Index  
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Roads from FGDL  
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## **6.12 Human Safety**

Fire protection for the Perdido Key area is currently provided by a combination fire/EMS Service. The Innerarity Point Volunteer Fire Department provides primary emergency response. The Department's volunteer firefighters are heavily relied upon to respond to the myriad of emergencies that occur on Perdido Key. Volunteer fire fighting resources are augmented by a small contingent of career firefighters throughout the County who are on-duty Monday-Friday from 7:00 a.m. to 4:00 p.m. A Municipal Services Benefit Unit (MSBU) funds all fire protection services in the unincorporated portion of Escambia County (Escambia County 2003).

Escambia County Emergency Medical Services (ECEMS) has a mission to "provide pre-hospital care and transportation of sick and injured persons, preventing unnecessary disability and loss of life." Currently, ambulance response to Perdido Key is covered from locations in Pleasant Grove, Warrington, Bellview and West Pensacola (Escambia County 2003).

## **7.0 ENVIRONMENTAL CONSEQUENCES**

This section of the EA displays and discusses the impacts of each alternative on the physical, biological, and human related environmental aspects of private development activities (Section 7.1) and Escambia County owned lands and infrastructure improvements (Section 7.2). A direct result of an action occurs at the same time and place; an indirect result of an action occurs later in time or in a different place and is reasonably foreseeable; and the cumulative results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR 1508.8). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

A fundamental goal of assessing direct, indirect, and cumulative effects is to identify impacts and mitigation measures, and to provide information about how the selected alternative may affect the balance between current needs and long-term productivity, including commitments that may foreclose options for future generations.

### **7.1 Private Development Alternatives, Including Proposed Action**

#### **7.1.1 Alternative 1: Take Avoidance**

Under Alternative 1 (Take Avoidance), for new development and/or redevelopment of private property in the Plan Area, a take permit (ITP) would not be needed for coverage under the Act if a proposed private development completely avoided impacts to listed species and their habitats, or a proposed redevelopment was able to be accomplished within a previously existing impacted footprint.

If a private project was designed to avoid impacts to listed species and their habitat, then the site would likely not need coverage under the Act. This is likely to be an improbable scenario as most parcels within the Plan Area on Perdido Key contain some element of listed species habitat.

#### **7.1.1.1 Habitat, Structure, and Function**

No permanent impacts to the habitat, structure, and function of listed species would be expected to occur for the take avoidance alternative scenario. This scenario, however, may not fully exclude impacts to other habitat types found on Perdido Key. Avoidance of impacts to PKBM habitat, which is primarily upland, may result in impacts to other habitats, i.e. wetlands, on Perdido Key. Other habitats such as wetlands and coastal shorelines are protected under other rules and regulations.

#### **7.1.1.2 Migratory Birds**

No permanent impacts to migratory birds would be expected to occur for the take avoidance alternative scenario, unless other habitats (i.e. wetlands) are impacted to avoid threatened and endangered habitats.

#### **7.1.1.3 Protected Species**

No permanent impacts to protected species would be expected to occur for the take avoidance alternative scenario because habitat supporting listed species would be completely avoided and conservation measures would be implemented.

#### **7.1.1.4 Demographics and Economy**

Possible impacts to the local demography and economics would be expected to occur for this scenario because it is foreseeable to expect that a majority of proposed developments would not be constructed as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat. Take avoidance may prevent many proposed developments from accommodating sufficient usage to be economically feasible.

Without development revenues to the local economy from construction of private development projects, sale and rental of the units, land improvement values, taxes, furniture, fixtures, and equipment sales would be lost. Demographically, housing for an expanding permanent and visitor population on Perdido Key would be negatively affected.

#### **7.1.1.5 Public Infrastructure**

Minor impacts to public infrastructure on Perdido Key would be expected to occur under the take avoidance scenario because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat. Although private development may be reduced, an increase in visitors to Perdido Key

may continue to increase. Increase in visitors may result in increased use of public infrastructure.

#### **7.1.1.5.1 Water Supply**

Minor impacts to public water supply on Perdido Key would be expected to occur under the take avoidance scenario because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

Without an increase in development and commercial services, an increase in residents and visitors to Perdido Key is less likely to occur. Potential future proposed water supply expansion would not likely be required, but upgrades to existing water supply infrastructure may still be required due to current use and age of infrastructure. This does not include the scenario of repairing any damaged existing water supply infrastructure.

#### **7.1.1.5.2 Wastewater**

Minor impacts to public wastewater infrastructure on Perdido Key would be expected to occur under the take avoidance scenario because limited to no development would occur as most parcels on Perdido Key contain some element of listed species habitat.

Without an increase in development and commercial services, an increase in residents and visitors to Perdido Key is less likely to occur. Potential future proposed wastewater supply expansion would not likely be required, but upgrades to existing wastewater supply infrastructure may still be required due to current use and age of infrastructure. This does not include the scenario of repairing any damaged existing wastewater infrastructure.

#### **7.1.1.5.3 Roads**

Minor impacts to roads and traffic on Perdido Key would be expected to occur under the take avoidance scenario because limited to no development would occur as most parcels on Perdido Key contain some element of listed species habitat.

Without an increase in development and commercial services, an increase in residents and visitors to Perdido Key is less likely to occur. Potential future proposed road expansion may not likely be required, but upgrades to existing roadways may still be required due to current use and age of the driving surfaces. This does not include the scenario of repairing existing roads and traffic infrastructure.

### **7.1.1.6 Land Use and Development of Perdido Key**

Minor impacts to land use and development of Perdido Key would be expected to occur under the take avoidance alternative scenario because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

### **7.1.1.7 Recreation**

Impacts would be reduced (minor), but still occur to recreation on Perdido Key under the take avoidance alternative scenario because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat. Increased visitors to recreational areas are still possible from day use visitors of Perdido Key.

### **7.1.1.8 Other Public Lands**

Impacts would likely be reduced (minor), but still occur to public lands on Perdido Key under the take avoidance alternative scenario due to continued use from visitors seeking recreational pursuits. Increased visitors to other public lands are still possible.

### **7.1.1.9 Air Quality**

No impacts to the air quality of Perdido Key would be expected to occur under the take avoidance alternative scenario for private development because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

### **7.1.1.10 Noise**

No impacts to noise on Perdido Key would be expected to occur under the take avoidance alternative scenario for private development because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

### **7.1.1.11 Coastal Construction Control Line**

No impacts to the CCCL on Perdido Key would be expected to occur under the take avoidance alternative scenario for private development because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

### **7.1.1.12 Coastal Zone Management Act**

No impacts to the CZMA on Perdido Key would be expected to occur under the take avoidance alternative scenario for private development because limited to no development would occur as most parcels in the Plan Area on Perdido Key contain some element of listed species habitat.

### **7.1.1.13 Human Safety**

Minor impacts to human safety on Perdido Key would be expected to occur under the take avoidance alternative scenario because limited to no development would occur as most parcels on Perdido Key contain some element of listed species habitat.

Without an increase in development and commercial services, an increase in residents to Perdido Key would not likely occur. Increased visitors to Perdido Key are still possible under this alternative.

### **7.1.2 Alternative 2: Development of Individual HCPs (No Action Alternative)**

Under the no action alternative (development of individual HCPs), the County would not apply and would not be issued an ITP for coverage of County issued permits for new development or redevelopment of private property including, but not limited to: residential, commercial, and private utility impacts in the Plan Area.

In the absence of an ITP issued to Escambia County for coverage of new development and/or redevelopment of private property, the Service would likely continue to receive multiple individual requests for take and submittals of multiple HCPs for processing. This could lead to increased work loads for the Service. Private property owners would not benefit from expedited review and processing of requests for take as well as any cost savings associated with the opportunity to use the County's HCP. Additionally, the landscape approach to habitat conservation may not be realized with multiple individual HCPs.

#### **7.1.2.1 Habitat, Structure and Function**

##### **7.1.2.1.1 Physical Environment**

Under this alternative scenario, the Service is likely to continue to receive individual requests for take relative to private development. The current and future presence of physical structures in the coastal environment could result in disruption of the dynamic processes associated with barrier islands over the long term. If a specific parcel is an undeveloped property, any building of structures on the property would contribute to disruption of the coastal processes.

If a specific parcel is a developed property where a property owner proposes structural additions or demolition and redevelopment, any building of structures on the property would contribute to disruption of the coastal processes.

The increased presence of people and associated infrastructure (beach chairs, tents, umbrellas) on the beach could possibly decrease dune formation by increased foot traffic. However, the use of dune walkovers, educational materials, and signs incorporated into

developments would encourage beach users to minimize impacts on the coastal environment.

Impacts to the geology and soils from this alternative would be negligible. The State of Florida requires that all sand remain on the project site. Sand may be temporarily disturbed during construction but the development must accommodate the quantity of sand found onsite. Typical uses of excess sand are to build dunes on the seaward portion of property. Private developments would be required to propose restoration and dune creation, where applicable onsite. Native landscaping would be used on proposed private developments. Thus, there would be a minimal need for planting soils other than sand. Following construction and the installation of native landscaping, effects to the geology and soils would be expected to be negligible.

In summary, standard conservation measures incorporated into a proposed development would minimize the overall impact to the coastal environment from future proposed developments. However, cumulatively a small reduction in the viability of the dynamics of the coastal landscape within the Plan Area would be expected.

#### **7.1.2.1.2 Biological Environment**

Disturbance to habitat, structure, and function would be expected to occur because it is likely that individual applications for take would continue to be submitted to the Service for private development projects. Permanent impacts to wildlife would be expected, but would be at levels specific to each separate proposed development or commercial establishment. The temporary disturbance factor would be specific to a proposed impact.

#### **7.1.2.2 Migratory Birds**

Possible impacts to migratory birds would include impacts to habitat, structure, function, and harassment from disturbance by developments and increased human presence associated with the future proposed projects. Impacts are likely to be negligible, but would be relative to take approved for each specific private development proposed. Under this scenario, a landscape approach to habitat conservation on Perdido Key would not be realized.

#### **7.1.2.3 Protected Species**

Possible impacts to protected species would include impacts to habitat, structure, function, and harassment from disturbance by developments and increased human presence associated with future proposed projects. Impacts to the PKBM would likely be the most significant impacts, since PKBM habitat is the predominant component of listed species occurrence on Perdido Key within the Plan Area. Impacts to sea turtles and piping plovers would also be expected. Overall impacts would be relative to take approved for each specific private development proposed. Under this scenario, a landscape approach to habitat conservation on Perdido Key would not be realized. Piecemeal HCPs are not likely to provide the same level of landscape level conservation

measures. The Service would receive multiple analysis reports and be required to analyze the data and performance of individual HCPs.

#### **7.1.2.4 Demographics and Economy**

Minor effects to demographics and economy would result from this alternative based in increased time frames for Service review of multiple individual requests for take. As Perdido Key continues to be a residential, recreational and commercial destination for residents and visitors, it is reasonable to perceive that individual applications for take of listed species and their habitat are likely to continue and increase relative to private development. The Service would likely continue to receive multiple individual requests for take and submittals of multiple HCPs for processing.

With overall economic downturn affecting the national economy, it is likely that development activities on Perdido Key will decrease, but some level of development is likely to continue and be promoted. The design and development of future private projects is likely to provide sources of revenues from construction of the projects, sale and rental of units, land improvement values, taxes, furniture, fixtures, and equipment sales.

Demographically, future proposed residential and commercial developments would provide housing and retail opportunities for an expanding permanent and visitor population on Perdido Key. Typical associated revenues include businesses, companies, and corporations which support residential construction, occupancy and maintenance. Examples include building material suppliers, furniture retailers, decorating services, lawn care professionals, grocery stores, restaurants, or any entity which would financially benefit from new construction, occupancy, and retail transactions by an owner or visitor.

Additional future revenue generating activities and opportunities are likely to be promoted to entice visitors seeking recreational pursuits of the natural aspects of Perdido Key. Perdido Key is promoted to provide outstanding outdoor experiences. Eco-tourism revenues could include tours, equipment, festivals, and other special events celebrating the environment for activities such as bird watching, fishing, hiking, camping, canoeing, kayaking, etc.

#### **7.1.2.5 Public Infrastructure**

Moderate impacts to public infrastructure on Perdido Key would be expected to occur under the no action scenario because development proposals and issuance of take are likely to continue. The Service would likely continue to receive multiple individual requests for take and submittals of multiple HCPs for processing, which may impact implementation timeframes of public infrastructure projects.

The no action scenario is likely to result in piecemeal applications for take and HCPs to continue to be submitted to the Service, as private developments on Perdido Key

continue. As private developments on Perdido Key are likely to continue, the need for improvements and expansion of public infrastructure will also be a factor.

#### **7.1.2.5.1 Water Supply**

Impacts to the water supply infrastructure on Perdido Key would be expected to occur under the no action scenario because individual development proposals and issuance of take would be likely to continue.

With an increase in development and commercial services, an increase in residents and visitors to Perdido Key would likely occur, therefore upgrading the current water supply would likely be required. This does not include the scenario of repairing any damaged existing water supply infrastructure.

#### **7.1.2.5.2 Wastewater**

Impacts to the wastewater infrastructure on Perdido Key would be expected to occur under the no action scenario because individual development proposals and issuance of take would be likely to continue to increase.

With an increase in development and commercial services, an increase in residents and visitors to Perdido Key would likely occur, therefore upgrading the current wastewater infrastructure would likely be required. This does not include the scenario of repairing any damaged existing water supply infrastructure.

#### **7.1.2.5.3 Roads**

Increased traffic on Perdido Key roads would be expected to occur under the no action scenario because individual development proposals and issuance of take would be likely to continue.

With an increase in development and commercial services, an increase in residents, visitors, and vehicular traffic on Perdido Key would likely occur, therefore upgrading the current County maintained roads and traffic infrastructure may be necessary. This does not include the scenario of repairing any damaged existing roads and traffic infrastructure maintenance.

### **7.1.2.6 Land Use and Development of Perdido Key**

Land use changes and development of Perdido Key would be expected to continue under the no action scenario. The Service would likely continue to receive multiple individual requests for take and submittals of multiple HCPs for processing.

Piecemeal requests for take and HCPs are likely to further impact listed species on Perdido Key since they would not necessarily reflect a landscape approach to conservation measures. If the County pursued changes to land use and codes for

development of Perdido Key, County resources are likely to be required for additional collaboration with agencies such as the DCA and state and Federal agencies involved in the process.

#### **7.1.2.7 Recreation**

Recreation on Perdido Key would be expected to increase under the no action scenario. Along with continued development, an increase in visitors to areas available for recreational use would likely occur.

Existing recreational opportunities would continue, but improvements to County owned areas associated with providing recreational opportunities would be subject to piecemeal processing of take of listed species, if such improvements resulted in impacts to listed species. Budgetary resources from the County would be required to apply for individual improvements to County owned areas used for recreation. Budget constraints and permit processing schedules may limit the County's ability to provide for recreation improvements.

#### **7.1.2.8 Other Public Lands**

Recreation pressures on public lands on Perdido Key would be expected to increase under the no action scenario as recreation increased.

#### **7.1.2.9 Air Quality**

The analysis of air quality issues for each proposed private development project will be addressed under concurrency determinations during the Development Review Committee (DRC) approval process. The primary purpose of concurrency is to determine if proposed new development or redevelopment activities can or would be supported and served by infrastructure facilities or services at prescribed levels. The evaluation, analyses, and quantitative methods are designed to measure the impact of a proposed project against the capacity of impacted infrastructure. Any applicant desiring development approval for a project is required to undergo concurrency review and determination and is responsible for demonstrating compliance.

Impacts to air quality on Perdido Key are impossible to assess based on an unknown number and type of future proposed private developments to occur under the no action alternative scenario.

#### **7.1.2.10 Noise**

The analysis of noise issues for each proposed private development project will be addressed under concurrency determinations during the DRC approval process. The primary purpose of concurrency is to determine if proposed new development or redevelopment activities can or would be supported and served by infrastructure facilities or services at prescribed levels. The evaluation, analyses, and quantitative methods are

designed to measure the impact of a proposed project against the capacity of impacted infrastructure. Any applicant desiring development approval for a project is required to undergo concurrency review and determination and is responsible for demonstrating compliance.

Impacts to noise on Perdido Key are impossible to assess based on an unknown number and type of future proposed private developments to occur under the no action alternative scenario.

#### **7.1.2.11 Coastal Construction Control Line**

No impacts to the CCCL on Perdido Key would be expected to occur under the no action scenario for private development and County infrastructure improvements since proposed developments and improvements would be required to satisfy CCCL requirements during the DRC process.

#### **7.1.2.12 Coastal Zone Management Act**

No impacts to the CZMA on Perdido Key would be expected to occur under the no action scenario for private development and County infrastructure improvements since proposed developments and improvements would be required to satisfy CZMA requirements during the DRC process.

#### **7.1.2.13 Human Safety**

Roads, sidewalks, and other public infrastructure improvements along with improvements to emergency services are likely to be needed in the future to address additional residents, visitors, and commercial consumers on Perdido Key related to residential and commercial development.

### **7.1.3 Alternative 3: Issuance of the ITP in Conjunction with Perdido Key Programmatic Habitat Conservation Plan and Minimization of Impacts (The Preferred Alternative)**

Under Alternative 3 (The Preferred Alternative), the Service would issue an ITP to the County for coverage of County issued permits for new development or redevelopment of private property including, but not limited to: residential, commercial, and private utility impacts in the Plan Area.

This alternative includes the implementation of a programmatic HCP developed by Escambia County, which will provide opportunities to address PKBM, sea turtle, and piping plover conservation at a landscape scale with consideration of private development including private utility provider upgrades. The programmatic aspects of the HCP include County activities and infrastructure improvement needs, which are discussed separately in Sections 7.2.1 through 7.2.3. Proposals for impacts from private

entities will be primarily required to implement applicable minimization and avoidance measures and mitigate for unavoidable impacts.

A private landowner or developer would agree to adhere to the County's ITP and HCP. The County would have coverage under the Act for protected federal species that allows the County to issue their permits for construction on private properties. The intent of this alternative is to allow reasonable use of property by landowners, while affording the most effective conservation for listed species.

#### **7.1.3.1 Habitat, Structure and Function**

Quantifying impacts to habitat, structure, and function on Perdido Key relative to this alternative are difficult to assess based on an unknown number and type of future proposed private developments to occur under the preferred alternative scenario. Descriptions of potential impact to the physical and biological environment are described below.

For the 30-year coverage period of the ITP, up to 66 acres of PKBM habitat is anticipated to be permanently impacted, resulting in take of the PKBM. The take would result from private development activities, County owned lands and infrastructure improvement activities, and actions within the coverage area of the programmatic HCP. This excludes State-maintained roadways and improvements (e.g., SR 292 (Perdido Key Drive)). Actions received by the Service and not processed during the HCP preparation or the ITP processing however must be considered and would be subtracted from the 66 acres of take.

The resulting 66 acres of anticipated permanent impact would include all development and County owned infrastructure improvement activities and actions described in the HCP, regardless of whether the Service issues separate individual permits or conducts section 7 consultations with federal agencies during the 30-year timeframe. By this method, the County retains flexibility to provide oversight where take of PKBM habitat may occur on the Key. For a more detailed description of the phased take approach, see section 8.1 of the Perdido Key programmatic HCP.

##### **7.1.3.1.1 Physical Environment**

The current and future presence of physical structures in the coastal environment could result in disruption of the dynamic processes associated with barrier islands over the long term. If a specific parcel is an undeveloped property, any building of structures on the property would contribute to disruption of the coastal processes.

If a specific parcel is a developed property where a property owner proposes structural additions or demolition and redevelopment, any building of structures on the property would contribute to disruption of the coastal processes.

The increased presence of people and associated infrastructure (beach chairs, tents, umbrellas) on the beach would decrease dune formation by increased foot traffic and trampling of dune vegetation that prevents dune growth. However, the use of dune walkovers, educational materials, and signs incorporated into developments would encourage beach users to minimize impacts on the coastal environment.

Impacts to the geology and soils from this alternative would be negligible. The State of Florida requires that all sand remain on the project site. Sand may be temporarily disturbed during construction but the development must accommodate the quantity of sand found onsite. Typical uses of excess sand are to build dunes on the seaward portion of property. Private developments would be required to propose restoration and dune creation, where applicable onsite. Native landscaping would be used on proposed private developments. Thus, there would be a minimal need for planting soils other than sand. Following construction and the installation of native landscaping, effects to the geology and soils would be expected to be negligible.

In any case, under this alternative there would likely be impacts to plant and animal communities. However, the implementation of minimization measures and conservation measures outlined in the HCP developed for the Plan Area would minimize impacts on the biological environment.

In summary, standard conservation measures incorporated into a proposed development would minimize the overall impact to the coastal environment from future proposed developments. However, cumulatively a small reduction in the viability of the dynamics of the coastal landscape within the Plan Area would be expected.

#### **7.1.3.1.2 Biological Environment**

Quantifying impacts to plant and animal communities on Perdido Key relative to this alternative are difficult to assess based on an unknown number and type of impacts that would occur to plant and animal communities relative to individual future proposed private developments within the Plan Area.

In any case, under this alternative there would likely be impacts to plant and animal communities. Appropriate siting of a specific project may reduce potential impacts. The increased presence of people and associated infrastructure (beach chairs, tents, umbrellas) on the beach would to some degree impact plant and animal communities from increased foot traffic. However, the implementation of minimization measures and conservation measures outlined in the HCP developed for the Plan Area would minimize impacts on the biological environment. Cumulatively a reduction in the viability of the dynamics of the biological environment within the Plan Area would be expected.

#### **7.1.3.2 Migratory Birds**

Possible impacts to migratory birds would include impacts to habitat, structure, function, and harassment from disturbance by developments and increased human presence

associated with the future proposed projects. Impacts are likely to be negligible, but would be relative to take approved for each specific private development proposed.

Under this scenario, a landscape approach to habitat conservation on Perdido Key would incorporate conservation measures of the programmatic HCP. A programmatic HCP establishing consistent conservation measures, signifying the County as the responsible entity to ensure that conservation measures are being met would reduce overall impacts to migratory birds and their habitats.

### **7.1.3.3 Protected Species**

#### **7.1.3.3.1 Perdido Key Beach Mouse**

In this alternative, PKBM habitat on a specific private development property would be maintained except for the footprint of approved impacts including but not limited to associated structures, parking areas, swimming pools etc. The impacts on a specific site would include the loss of PKBM habitat acreage, but quantification would be site and project specific.

An applicant would provide for long term assurances of PKBM conservation by agreeing to implement the conditions of the programmatic HCP which would first avoid, then minimize impacts to PKBM habitats, and then compensate for unavoidable impacts, including site preparation, structural and associated facilities along with the occupancy and use of a development by people. Minimization efforts may include parking under structures, design of parking areas to provide additional native landscaping, minimization of other impervious surface area, dune walkovers, protection and connection of habitat before, during, and after construction, but minimization efforts would be specific to each impacted parcel.

Post construction mitigation could include restoration of existing dune areas disturbed by damaging tropical storms, and the project construction. Additional compensation for unavoidable impacts to PKBM and their habitat would include, but not be limited to: monitoring of the PKBM population onsite following construction completion, controlling free-roaming pets, fence installation to protect habitat and allow animal movements, native landscaping, land acquisition, conservation easement, or a one-time endowment and annual unit assessment to the PKBM Conservation Fund.

Monitoring of previously issued incidental take permits for single family and low density developments in Alabama indicates that the Alabama beach mouse continue to exist in the remaining natural areas after construction and occupancy of the projects. It is the Service's position that, whether future projects are high or low density developments, future developments can be compatible with PKBM conservation provided appropriate conservation measures and mitigation are in place to protect and maintain connectivity of PKBM habitat and minimize the effects of the construction and occupancy of the structures. Thus, the Service believes that with development of specific projects within

the Plan Area including the proposed conservation measures of the programmatic HCP, such properties would continue to support PKBM.

The designs of projects would provide for PKBM habitat connections with adjacent properties (east and west), as well as across SR 292 (Perdido Key Drive) to other areas that may provide suitable habitat. Remaining habitat specific to a development site and connections to additional habitat would continue to provide for PKBM movement, dispersal, food, shelter, and the other ecological needs of the species.

Some habitat and population fragmentation would likely occur as a result of proposed private developments. This would be minimized by leaving corridors on all sides of a development in native, natural vegetation which would provide cover, forage, and breeding habitat for PKBM. Lighting from the developments may alter nocturnal behavior or interfere with breeding, or foraging behavior of PKBM. The applicant would use “wildlife friendly lighting” for the entirety of the project. Use of wildlife friendly lighting would reduce artificial light emanating over the PKBM dune habitats through the use of shielded fixtures that decrease light distribution.

PKBM habitat outside of a project footprint on a project site may be temporarily disturbed during construction, but would be restored and placed in a conservation easement. The construction of any dune walkovers would minimize the impact of unmanaged foot traffic across the dunes degrading foraging, cover, and breeding habitat. Protection of the dunes also protects the structures by providing a sacrificial barrier during storms. To detract predators from a specific property, minimal trash receptacles would be used in common or outside areas of a private development. The trash receptacle would be designed to be animal proof. No cats would be allowed and all other pets would be restricted to the insides of any units or restrained by a leash. This would decrease the risk of predation to PKBM. The use of herbicides and pesticides that would be harmful to beach mice would be prohibited for use in the exterior areas of a development. Educational signs would be placed in the outdoor areas of the development to educate unit owners and visitors about protecting PKBM and other coastal wildlife. The County will also implement other conservation measures for PKBM including but not limited to a wildlife lighting ordinance, monitoring, predator control, dedicated HCP coordinator, etc.

In summary, the impact of private development proposed under this alternative would be expected to be mitigated and compensated for by the measures contained and conceptually approved in the programmatic HCP. For example, because the actual footprint of proposed private developments, associated facilities (pool, decks, etc) and parking areas would have been minimized, actual habitat loss would be minimized. Because the programmatic HCP includes measures requiring native vegetation on the remainder of a property, corridors of habitat would remain to facilitate travel of mice between various habitat areas. Predation and competition should not increase because domestic cats, feral cats, and house mice would be eliminated or minimized by the measures contained in the programmatic HCP.

Cumulative impacts, which include reasonably foreseeable future effects, on PKBM include new and/or redevelopment construction of residential dwellings, lodging units, and commercial facilities. Future development impacts are currently limited by the dwelling and lodging unit cap for Perdido Key (Escambia County portion only). The current cap limits are 7,150 residential units and 1,000 lodging units. Future development in PKBM habitat not covered under the HCP/ITP is likely to require an incidental take permit or a section 7 consultation with the Service.

A private landowner or development interest would have the option of applying for an individual ITP and development of an individual HCP if they opted to not utilize the County's ITP and programmatic HCP. However, reasonably foreseeable future actions would be required to minimize and mitigate to the maximum extent practicable, similar to the County's ITP and programmatic HCP.

Impacts from future private development proposals are unknown at this time and it is virtually impossible to quantify impact estimates since site specific conditions of each separate site would need to be assessed. However, based on ITPs issued between 2004-2008, conservation needs of PKBM, current habitat remaining on Perdido Key, and the current status of the PKBM, a phased approach for the take is being proposed by the Service (see Section 8.1, programmatic HCP) .

The minimization and avoidance and conservation measures provided in the programmatic HCP are developed to allow for private development while maximizing conservation of PKBM and its habitat. Subsequently, the Service considers the overall context of the impacts to the PKBM relative to the County's programmatic HCP and ITP to not be significant as related to NEPA analyses for the following reasons:

1. The PKBM habitat on a specific project site would continue to provide habitat onsite and maintain connectivity with adjacent properties.
2. The secondary dune habitats on a specific project site would remain connected to primary dune habitats.
3. Primary and secondary dunes would remain onsite and would be maintained and restored following storm events.
4. Unobstructed habitat corridors would be provided along the east-west and north-south boundaries of a project.
5. A specific project site would continue to provide areas for PKBM population expansion, as well as connections to such areas.
6. A specific development is required to install appropriate lighting for coastal areas, prohibit cats and free ranging dogs, and would be responsible for contacting County animal control to handle predator and feral cat issues.
7. A specific development would permanently protect PKBM habitat on a site through conservation easements that minimize future threats to PKBM habitat and designated critical habitat areas.

### **7.1.3.3.2 PKBM Critical Habitat**

The potential exists that a proposed private development project within the Plan Area may impact designated critical habitat for the PKBM. PKBM critical habitat is described in section 6.3.1.1 in this document. If the habitat onsite of a proposed development property is suitable for the PKBM, the beach mouse is considered to occupy the project area. Activities that may destroy or adversely modify critical habitat include, but are not limited to:

(1) Actions that would significantly alter dune structure, soil compaction levels, and substrate characteristics. Such activities could include, but are not limited to, excessive foot traffic, the use of construction, utility, or off-road vehicles in beach mouse habitat, and sand contamination from gravel, clay, or construction debris. These activities, even if temporary, could alter burrow construction, reduce the availability of potential burrow sites, and degrade or permanently alter beach mouse habitat.

*Analysis: Individually, the proposed actions may result in temporary soil compaction from the use of heavy construction equipment, and the temporary contamination of sand from construction debris. However, the conservation measures for a proposed private development would include restoration of habitat after completion of the construction phase of a specific project.*

(2) Actions that would significantly alter the natural vegetation of the coastal dune community. Such activities could include, but are not limited to, allowing non-native species to establish in the area, landscaping with plants that do not reflect habitat type prior to disturbance, landscaping that yields excessive leaf litter. These activities could alter beach mouse foraging activities and degrade or destroy beach mouse habitat.

*Analysis: The proposed action is not expected to affect this constituent element as proposed conservation measures include restoration and planting only with native Escambia County dune plants.*

(3) Actions that would significantly alter the natural predator/prey balance of the coastal dune community. Such activities could include, but are not limited to, allowing unprotected refuse in the area, and allowing or encouraging feral cat communities. These activities could alter beach mouse foraging activities and the availability of foraging resources and directly alter beach mouse survival.

*Analysis: The proposed action is not expected to affect this constituent element because the proposed conservation measures include prohibiting cats on specific premises, the limiting of waste receptacles in outdoor common areas, the use of predator proof refuse containers, and the granting of access to the site for predator control.*

(4) Actions that would significantly alter natural lighting. Such activities could include, but are not limited to, allowing artificial lighting that does not comply with wildlife-friendly lighting specifications. These activities could alter beach mouse foraging

activities, increase predation upon beach mice, and reduce the use of otherwise suitable beach mouse habitat.

*Analysis: The proposed action is not expected to affect this constituent element because the proposal includes adoption of a wildlife lighting ordinance.*

(5) Actions that would directly result in a significant loss of habitat and/or elimination or degradation of functional pathways within and among critical habitat units. Such activities could include, but are not limited to residential or commercial development, road widening, or land clearing. These activities eliminate beach mouse habitat, reduce connectivity necessary for gene flow, reduce all necessary resources such as food, mates, burrow sites, refugia from storms; and decrease space available to conduct natural behaviors, thereby limiting their ability to persist.

*Analysis: The proposed action would permanently alter acres of beach mouse habitat. However, proposed conservation measures to maintain corridors on the east and west boundaries of a specific project, as well as maintenance of the frontal dune areas (where applicable), would ensure that functional pathways are maintained. An additional conservation measure in the form of a conservation easement of beach mouse habitat onsite would also result in the permanent protection of these important functional pathways.*

#### **7.1.3.3.3 Sea Turtles**

Based on proper siting, private developments that front the Gulf of Mexico would not likely impact the beachfront that provides sea turtle nesting habitat on specific properties. The lighting ordinance would be followed. The removal of beach chairs, tents, umbrellas and other equipment every night for storage in the upper beach during the sea turtle nesting season which occurs between May 1 and October 31 would also be required. Education materials to be prepared and installed, as applicable, at specific developments would include information about sea turtle conservation. Thus, the Service has determined that future proposed private development projects would not result in incidental take of nesting or hatchling sea turtles and impacts to nesting sea turtles, their nests, or hatchlings would be negligible if conservation measures of the programmatic HCP are implemented.

#### **7.1.3.3.4 Piping Plover**

Possible impacts to non-breeding piping plover would be harassment from disturbance by increased human presence on the beach associated with future proposed private developments. However, the proposed conservation measures for piping plovers would reduce these impacts. Certain conservation measures implemented for beach mice and nesting sea turtles also benefit piping plover. These include, but are not limited to: no cats allowed on a specific site, predator control, reduced beachfront lighting, dune walkovers, and native landscaping.

Thus, the Service has determined that future proposed private development projects would not result in incidental take of non-breeding piping plover if conservation measures of the programmatic HCP are implemented.

#### **7.1.3.3.5 Other Shorebirds**

Possible impacts to other shorebirds would be harassment from disturbance by increased human presence on the beach associated with future proposed private developments. Impacts are likely to be negligible. A few conservation measures implemented for beach mice, nesting sea turtles, and piping plovers also benefit other shorebirds. These include, but are not limited to: avoidance of nesting areas, no cats allowed on a specific site, predator control, reduced beach front lighting, dune walkovers, and native landscaping.

#### **7.1.3.3.6 Flora**

Quantifying impacts to plant communities on Perdido Key relative to this alternative are not feasible based on an unknown occurrence of specific plant species and communities on a specific site in the Plan Area, as well as future proposed private developments that may occur on a specific site within the Plan Area.

In any case, under this alternative there would likely be impacts to plant communities. Appropriate siting of a specific project may reduce potential impacts. The increased presence of people and associated infrastructure (beach chairs, tents, umbrellas) on the beach could possibly impact plants from increased foot traffic. However, the implementation of minimization measures and conservation measures outlined in the programmatic HCP developed for the Plan Area would minimize impacts to plants.

In summary, standard conservation measures incorporated into a proposed development would minimize the overall impact to the existing plant communities from future proposed developments. However, cumulatively a reduction in the viability of the dynamics of the biological environment within the Plan Area would be expected.

#### **7.1.3.4 Demographics and Economy**

Future private developments will provide sources of revenues from construction of a project, sale and rental of units, land improvement values, taxes, furniture, fixtures, and equipment sales. Demographically, future developments would provide housing, commercial, and retail opportunities for an expanding permanent and visitor population on Perdido Key. Typical associated revenues include businesses, companies, and corporations which support residential construction, occupancy and maintenance. Examples include building material suppliers, furniture retailers, decorating services, lawn care professionals, grocery stores, restaurants, or any entity which would financially benefit from new residential and commercial construction and occupancy.

Additional revenue could come from visitors seeking more of the natural outdoors. Developments that protect and provide increased natural areas have become valuable and

sought-after commodities. Since the preferred alternative would not allow for complete build out of subject parcels, it may make these developments more attractive to potential buyers. Perdido Key is promoted as the “Lost Key” that provides outstanding outdoor experiences. Eco-tourism revenues could include tours, equipment, festivals, and other special events celebrating the environment for activities such as bird watching, fishing, hiking, camping, canoeing, kayaking, etc.

Regardless of the location of future private developments, building densities cannot exceed the current development cap on Perdido Key. Thus, changes in building densities could only occur as a result of density transfers between two parcels, acquisition of a parcel with approved more density, waiting for additional densities to be available from other developments losing their approved DO status, or requests to modify the existing Comprehensive Plan. A DO is any order granting, denying, or granting with conditions an application for a development permit. Any applicant desiring development approval for a project is required to undergo concurrency review and determination and is responsible for demonstrating compliance.

#### **7.1.3.5 Public Infrastructure**

Any future applicants for development will be required to receive concurrency and a DO for each specific project from the County. The primary purpose of concurrency is to determine if proposed new development or redevelopment activities can or would be supported and served by infrastructure facilities or services at prescribed levels. The evaluation, analyses and quantitative methods are designed to measure the impact of a proposed project against the capacity of impacted infrastructure. Any applicant desiring development approval for a project is required to undergo concurrency review and determination and is responsible for demonstrating compliance. For each system, service, or facility impacted by a proposed development, the applicant must demonstrate concurrency.

##### **7.1.3.5.1 Water Supply**

Water supply infrastructure improvements are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County’s programmatic HCP also includes conservation measures that private water supply utility providers may utilize to apply for take associated with improvements to the water supply infrastructure on Perdido Key. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the water supply requiring improvements to distribution lines and additional capacity needs.

##### **7.1.3.5.2 Wastewater Treatment**

Wastewater supply infrastructure improvements are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County’s programmatic HCP also includes conservation measures that private water supply utility providers may utilize to apply for take associated with

improvements to the wastewater treatment infrastructure on Perdido Key. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to wastewater treatment infrastructure requiring improvements to distribution lines and additional capacity needs.

#### **7.1.3.5.3 Roads**

Roads and traffic infrastructure improvements are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures for County activities and infrastructure improvements which include considerations for County roadway improvements, but exclude the expansion of SR 292 (Perdido Key Drive). Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the levels of service provided by current County roadway infrastructure, requiring improvements to safely accommodate additional capacity needs.

#### **7.1.3.6 Land Use and Development of Perdido Key**

Changes to land use designations consistent with development trends are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures for land use. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the existing land use, requiring changes to address future needs.

#### **7.1.3.7 Recreation**

Changes to recreation could occur as more people are associated with additional developments. Depending on the size and cumulative number of future proposed private developments, there will likely be increased impacts to existing recreational facilities.

#### **7.1.3.8 Other Public Lands**

Changes to other public lands could occur as more people are associated with additional private developments. Depending on the size and cumulative number of future proposed private developments, there will likely be increased impacts to the existing public lands. See Section 7.2 below for a description of Escambia County owned lands and infrastructure alternatives.

#### **7.1.3.9 Air Quality**

Impacts to air quality could occur as more people, vehicles, and commercial services are associated with additional private developments. Depending on the size and cumulative number of future proposed private developments, there will likely be minimal impacts to air quality.

### **7.1.3.10            Noise**

Impacts from additional noise could occur as more people, vehicles, and commercial services are associated with additional private developments. Depending on the size and timing of future proposed private developments, there will likely be increased noise.

### **7.1.3.11            Coastal Construction Control Line**

No impacts to the CCCL on Perdido Key would be expected to occur under the preferred alternative for private development since proposed developments would be required to satisfy CCCL requirements during the County's DRC process.

### **7.1.3.12            Coastal Zone Management Act**

No impacts to the CZMA on Perdido Key would be expected to occur under the preferred alternative for private development since proposed developments would be required to satisfy CZMA requirements during the County's DRC process.

### **7.1.3.13            Human Safety**

Roads, sidewalks, and other public infrastructure improvements along with improvements to emergency services are likely to be needed in the future to address additional residents, visitors, and commercial consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures for County activities and infrastructure improvements which include considerations for County infrastructure improvements. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the levels of service provided by current roadway infrastructure, requiring improvements to safely accommodate additional capacity needs.

## **7.2 Escambia County Owned Lands and Infrastructure Alternatives, Including the Proposed Action**

### **7.2.1 Alternative 1: Take Avoidance**

Under Alternative 1 (Take Avoidance), a take permit would not be needed under the Act for Escambia County owned lands and infrastructure improvements in the Plan Area if a proposed County project completely avoided impacts to listed species and their habitats. This relates to a scenario where County owned land would not contain habitat suitable for listed species covered in this EA, or a proposed County-based infrastructure improvement was able to be accomplished within a previously existing impacted footprint, such as a maintained County road right-of-way or public beach access.

If a County project was designed to avoid impacts to listed species habitat, then the activity would likely be exempt from requirements to obtain take authorization. This is

likely to be an improbable scenario as most County owned lands and/or right-of-ways within the Plan Area on Perdido Key contain some element of listed species habitat.

The analysis presented here assumes that no take would result from future proposed County projects.

#### **7.2.1.1 Habitat, Structure and Function**

No permanent impacts to the habitat, structure, and function would be expected to occur for the take avoidance alternative scenario because these elements would be nonexistent within a specific Escambia County owned lands/infrastructure project site or impacts to listed species would be completely avoided.

This scenario, however, may not fully exclude impacts to other habitat types found on Perdido Key. Avoidance of impacts to PKBM habitat, which is primarily upland, may result in impacts to other habitats, i.e. wetlands, on Perdido Key. Other habitats such as wetlands and coastal shorelines are protected under other rules and regulations.

#### **7.2.1.2 Migratory Birds**

No permanent impacts to migratory birds would be expected to occur for the take avoidance alternative scenario because habitat for migratory birds would be nonexistent within a specific Escambia County owned land/infrastructure project site or impacts to such habitat would be completely avoided, unless other migratory bird habitats (i.e. wetlands) are impacted.

#### **7.2.1.3 Protected Species**

No permanent impacts to protected species would be expected to occur for the take avoidance alternative scenario because habitat or occurrence of protected species would be nonexistent within a specific Escambia County owned land/infrastructure project site or impacts to protected species would be completely avoided.

#### **7.2.1.4 Demographics and Economy**

Impacts to the local demography and economics would be expected to occur for this scenario because it would be foreseeable to expect that a majority of proposed Escambia County owned land improvements as well as improvements to County infrastructure would not occur as most Escambia County owned property and/or right-of-way on Perdido Key include some element of listed species and their habitat. Take avoidance may prevent many County based improvements from being completed.

If a County project was designed to avoid impacts to listed species habitat, then the activity would likely not need coverage for take. This is likely to be an improbable scenario as most County owned lands and/or right-of-ways within the Plan Area on Perdido Key contain some element of listed species habitat.

Without future improvements and upgrades to County owned property and infrastructure, improvements to public use facilities (such as County beach access locations and County road right-of-way) may not occur. If private development and visitors to Perdido Key were to continue to increase without County owned public use facility improvements, there may be direct impacts to the quality of County services provided to residents and visitors. This could relate to inadequate County beach access opportunities and failing conditions of County owned roads on Perdido Key.

### **7.2.1.5 Public Infrastructure**

#### **7.2.1.5.1 Water Supply**

Public water supply improvements and or upgrades on Perdido Key would likely be expected to occur under the take avoidance scenario, even if County-based projects were able to avoid take. Existing water supply infrastructure may require future replacement. Increases in individual private development may also result in needs to upgrade service lines.

If water supply improvements/upgrades were designed to avoid impacts to listed species habitat, then the activity would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as utility easements within the Plan Area on Perdido Key are likely to not need coverage under the Act. Therefore water supply improvements proposed by private entities for water supply transmission lines would need to be processed individually by the Service if the County did not have the option to utilize an ITP issued to the County for Perdido Key.

This does not include the scenario of emergency repairs to any damaged existing water supply infrastructure.

#### **7.2.1.5.2 Wastewater Treatment**

Wastewater treatment improvements and or upgrades on Perdido Key would likely be expected to occur under the take avoidance scenario, even if County-based projects were able to avoid take. Existing wastewater treatment infrastructure may require future replacement. Increases in individual private development may also result in needs to upgrade service lines.

If wastewater treatment improvements/upgrades were designed to avoid impacts to listed species habitat, then the activity would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as utility easements within the Plan Area on Perdido Key are likely to contain some element of listed species habitat. Therefore wastewater supply improvements proposed by ECUA for water supply transmission lines would need to be processed individually by the Service if the County did not have the option to utilize an ITP issued to the County for Perdido Key.

This does not include the scenario of emergency repairs to any damaged existing wastewater treatment infrastructure.

#### **7.2.1.5.3 Roads**

Road improvements and/or upgrades on Perdido Key would likely be expected to occur under the take avoidance scenario, even if County-based projects were able to avoid take. Road use and increased traffic is likely to occur in the future on Perdido Key. If a road improvement project on County right-of-way was designed to avoid impacts to listed species habitat, then the activity would likely not need coverage for take. This is likely to be an improbable scenario as most County owned lands and/or road right-of-ways within the Plan Area on Perdido Key contain some element of listed species habitat.

Existing road surfaces may require future replacement. Increases in individual private development may also result in needs to upgrade roadways on Perdido Key. It is reasonable to expect improvements to SR 292 (Perdido Key Drive) may be proposed in the future. SR 292 (Perdido Key Drive) improvements (not covered in this EA) may relate to a need for improving County roads on Perdido Key. Take avoidance is an improbable scenario in future proposed roadway improvements, including County or State roadways on Perdido Key.

This does not include the scenario of emergency repairs to any damaged existing roadway infrastructure.

#### **7.2.1.6 Land Use and Development of Perdido Key**

Impacts to the land use and development of Perdido Key would be expected to occur for this scenario as land use and development is likely to occur independent from County-based projects. If a County project was designed to avoid impacts to listed species habitat, then the activity would likely not need coverage for take. This is likely to be an improbable scenario as most County owned lands and/or right-of-ways within the Plan Area on Perdido Key contain some element of listed species habitat. Although take avoidance may prevent County-based improvements from being completed, private development is likely to continue separately.

Under the scenario of take avoidance, the County would not be afforded the opportunity of improvements to County owned lands and County road right-of-way.

#### **7.2.1.7 Recreation**

Increased recreational activities could occur independent from County-based improvements, as more people are associated with additional private developments and/or visitors to Perdido Key. Depending on the size and cumulative number of future proposed private developments, there will likely be increased impacts to existing recreational facilities. However, County public accesses may need to be expanded or upgraded to address increased recreational needs.

If a County project was designed to avoid impacts to listed species habitat, then the activity would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as most County owned lands, relative to recreation within the Plan Area on Perdido Key, contain some element of listed species habitat.

Take avoidance may prevent many County-based improvements from being completed. Without improvements to County owned lands and infrastructure, the quality and type of amenities associated with recreational areas may be affected.

#### **7.2.1.8 Other Public Lands**

Changes to other public lands could occur as more people are associated with additional private developments that would occur independent of County-based improvements. Depending on the size and cumulative number of future proposed private developments and increases in visitors to Perdido Key, there will likely be increased impacts to the existing public lands.

If a County project was designed to avoid impacts to listed species habitat, then the activity would likely be exempt from requirements to obtain take authorization. This is likely to be an improbable scenario as most County owned lands within the Plan Area on Perdido Key contain some element of listed species habitat. Take avoidance may prevent many County based improvements from being completed and thus result in additional visitors and resultant impacts to other public lands on Perdido Key.

#### **7.2.1.9 Air Quality**

No impacts to the air quality of Perdido Key would be expected to occur under the take avoidance alternative scenario for Escambia County owned lands and infrastructure because limited to no development of County owned lands or infrastructure would occur.

#### **7.2.1.10 Noise**

No impacts to noise on Perdido Key would be expected to occur under the take avoidance alternative scenario for Escambia County owned lands and infrastructure because limited to no development of County owned lands or infrastructure would occur.

#### **7.2.1.11 Coastal Construction Control Line**

No impacts to CCCL on Perdido Key would be expected to occur under the take avoidance alternative scenario for Escambia County owned lands and infrastructure because limited to no development of County owned lands or infrastructure would occur.

### **7.2.1.12 Coastal Zone Management Act**

No impacts to the CZMA on Perdido Key would be expected to occur under the take avoidance alternative scenario for Escambia County owned lands and infrastructure because limited to no development of County owned lands or infrastructure would occur.

### **7.2.1.13 Human Safety**

Impacts to human safety on Perdido Key could be expected to occur for this scenario because it is foreseeable that a majority of proposed Escambia County owned land improvements as well as improvements to County infrastructure would not occur as most Escambia County property and/or dedicated infrastructure easements on Perdido Key includes some element of listed species and their habitat. Take avoidance may prevent many County based improvements from being completed.

Without improvements to County owned property and infrastructure, human safety may be impacted since County roadways, fire station, public beach access, and other infrastructure may not be improved or upgraded.

## **7.2.2 Alternative 2: Development of Individual HCPs (No Action Alternative)**

Under the no action alternative (development of individual HCPs), the County would not apply and would not be issued an ITP for coverage of all County activities and infrastructure improvement projects in the Plan Area.

In the absence of an ITP issued to Escambia County for coverage of County activities and infrastructure improvement projects, the Service would likely continue to receive individual requests from the County for take associated with County-based projects. The County would incur expenses and time constraints associated with individual take applications. This could lead to increased work loads for the Service. Additionally, the landscape approach to habitat conservation may not be realized with multiple individual HCPs.

This no action alternative would mean that applications for take associated with future proposed County-based projects would require individual processing by the Service or not occur. Possible impacts to the physical, biological, and human related environmental aspects of future proposed County-based projects would still be expected to occur for this scenario because the need exists for future improvements and or upgrades to existing County owned lands and infrastructure (i.e. County roads). Most areas associated with County owned land and/or County right-of-way on Perdido Key likely contain some element of listed species habitat. Applying for multiple separate requests for take may prevent timely execution of design and implementation of many County projects.

#### **7.2.2.1 Habitat, Structure and Function**

Disturbance to habitat, structure, and function would be expected to occur because it is likely that applications for take would continue to be submitted to the Service for County-based improvement projects. Permanent impacts to wildlife would be expected, but would be at levels specific to each proposed Escambia County owned lands and infrastructure development or project. The temporary disturbance factor would be specific to a proposed impact.

Under this scenario, a landscape approach to habitat conservation on Perdido Key would not be realized.

#### **7.2.2.2 Migratory Birds**

Possible impacts to migratory birds would include impacts to habitat, structure, function, and harassment from disturbance by construction of County owned lands and infrastructure development and improvement projects; and increased human presence associated. Impacts are likely to be negligible, but would be relative to each specific Escambia County owned lands and infrastructure improvement project proposed.

Under this scenario, a landscape approach to habitat conservation on Perdido Key would not be realized.

#### **7.2.2.3 Protected Species**

Possible impacts to protected species would include impacts to habitat, structure, function, and harassment from disturbance by Escambia County owned lands and infrastructure development and improvement projects; and increased human presence associated with future proposed projects. Impacts to the PKBM would likely be the most significant impacts, since PKBM habitat is the predominant component of listed species occurrence on Perdido Key within the Plan Area. Overall impacts would be relative to take covered for each specific County project proposed.

Under this scenario, a landscape approach to habitat conservation on Perdido Key would not be realized. Piecemeal HCPs would not provide the same level of landscape level conservation measures. The Service would receive multiple analysis reports and be required to analyze the data and performance of individual HCPs.

#### **7.2.2.4 Demographics and Economy**

As Perdido Key continues to be a residential, recreational and commercial destination for residents and visitors, it is reasonable to perceive that increases in application for take of listed species and their habitat are likely to continue relative to County-based projects to address the needs of the Perdido Key community.

It is likely that County activities and infrastructure improvements on Perdido Key will continue to be promoted to provide public services for visitors and residents. The promotion, design, and development of future County-based projects is likely to provide sources of revenues from construction of the projects.

Demographically, future proposed County-based projects would provide opportunities for an expanding permanent and visitor population on Perdido Key. Typical associated revenues from infrastructure improvements include construction and maintenance of the facilities.

Additional future revenue generating activities and opportunities on Escambia County owned lands are likely to be promoted to entice visitors seeking recreational pursuits of the natural aspects of Perdido Key. Perdido Key is promoted to provide outstanding outdoor experiences. Eco-tourism revenues could include tours, festivals, and other special events celebrating the environment for activities such as bird watching, fishing, hiking, camping, canoeing, kayaking, etc.

#### **7.2.2.5 Public Infrastructure**

Impacts from County-based projects on Perdido Key would be expected to occur under the no action scenario because County activities and infrastructure improvement project proposals are likely to continue.

The no action scenario is likely to result in piecemeal applications for take and HCPs to continue to be submitted to the Service for County-based projects on Perdido Key. As private developments on Perdido Key are likely to continue to increase, the need for the County to pursue improving County-based public infrastructure will also be a factor.

##### **7.2.2.5.1 Water Supply**

Public water supply improvements and or upgrades on Perdido Key would likely be expected to occur under the no action scenario. Existing water supply infrastructure may require future replacement. Increases in individual private development may also result in needs to upgrade service lines.

Water supply improvements proposed by a private water supply provider for water supply transmission lines would need to be processed individually by the Service if the County did not have the option to utilize an ITP issued to the County for Perdido Key. These potential proposed projects would also not benefit from a HCP designed to conserve listed species on a landscape approach.

This does not include the scenario of emergency repairs to any damaged existing water supply infrastructure.

#### **7.2.2.5.2 Wastewater**

Impacts to the wastewater infrastructure on Perdido Key would be expected to occur under the no action scenario because service demands on the wastewater supply infrastructure are likely to occur from increases in private development. To maintain and improve levels of service for wastewater transmission on Perdido Key, improvement projects would be likely to continue to increase. Wastewater treatment infrastructure improvements proposed by a private utility provider for wastewater supply transmission lines would need to be processed individually by the Service if the County did not have the option to utilize an ITP issued to the County for Perdido Key. These potential proposed projects would also not benefit from a HCP designed to conserve listed species on a landscape approach.

With an increase in development and commercial services, an increase in residents and visitors to Perdido Key would likely occur. Therefore, upgrading the current wastewater infrastructure would likely be required. This does not include the scenario of repairing any damaged existing wastewater supply infrastructure.

#### **7.2.2.5.3 Roads**

Impacts to County maintained roads and traffic infrastructure on Perdido Key would be expected to occur under the no action scenario because service demands on the roadway infrastructure are likely to occur. Therefore, improvements to County roads and right-of-way are likely to occur including needing coverage under the Act.

With an increase in development and commercial services, an increase in residents and visitors to Perdido Key would likely occur, therefore upgrades to other roadways is a likely scenario. This does not include the scenario of repairing any damaged existing County roads.

#### **7.2.2.6 Land Use and Development of Perdido Key**

Land use changes and development of Perdido Key would be expected to continue under the no action scenario. The Service would likely continue to receive multiple individual requests for take and submittals of multiple HCPs for processing.

Piecemeal requests for take and HCPs are likely to further impact listed species on Perdido Key, since they would not necessarily reflect a landscape approach to conservation measures. If the County pursued changes to land use and codes for development of Perdido Key, County resources are likely to be required for additional collaboration with agencies such as the DCA and state and Federal agencies involved in the process.

#### **7.2.2.7 Recreation**

Recreation on Perdido Key would be expected to increase regardless of the no action scenario. Along with continued development, an increase in residents and visitors to areas available for recreational use would likely occur.

Existing recreational opportunities would continue, but improvements to County owned areas associated with providing recreational opportunities would be subject to piecemeal processing of take of listed species, if such improvements resulted in impacts to listed species. Budgetary resources from the County would be required to apply for individual improvements to County owned areas used for recreation. Budget constraints and permit processing schedules may limit the County's ability to provide for recreation improvements.

#### **7.2.2.8 Other Public Lands**

Recreation pressures on other public lands on Perdido Key would be expected to increase regardless of the no action scenario as recreation increased.

#### **7.2.2.9 Air Quality**

The analysis of air quality issues for each proposed County-based projects will be addressed at the time of conceptual design specific to the activity proposed.

Impacts to air quality on Perdido Key are difficult to assess based on an unknown number and type of future proposed County-based projects to occur under the no action alternative scenario.

#### **7.2.2.10 Noise**

The analysis of noise impact issues for each proposed County-based projects will be addressed at the time of conceptual design specific to the activity proposed.

Impacts to noise on Perdido Key are difficult to assess based on an unknown number and type of future proposed County-based projects to occur under the no action alternative scenario.

#### **7.2.2.11 Coastal Construction Control Line**

No impacts to the CCCL on Perdido Key would be expected to occur under the no action scenario for County-based projects since future proposed projects would be required to satisfy CCCL requirements.

### **7.2.2.12 Coastal Zone Management Act**

No impacts to the CZMA on Perdido Key would be expected to occur under the no action scenario for County-based projects since future proposed projects would be required to satisfy CCCL requirements.

### **7.2.2.13 Human Safety**

Roads, sidewalks, and other public infrastructure improvements along with improvements to emergency services are likely to be needed in the future to address additional residents, visitors, and commercial consumers on Perdido Key related to residential and commercial development.

### **7.2.3 Alternative 3: Issuance of the ITP in Conjunction with Perdido Key Programmatic Habitat Conservation Plan and Minimization of Impacts (The Preferred Alternative)**

Under Alternative 3 (The Preferred Alternative), the Service would issue an ITP to Escambia County for impacts occurring to PKBM, sea turtles, and piping plovers within the Plan Area relative to County activities and infrastructure improvement projects.

This alternative includes the implementation of a programmatic HCP developed by Escambia County that will provide opportunities to address PKBM, sea turtle, and piping plover conservation at a landscape scale including coverage for County activities and infrastructure improvement projects. Alternatives analysis of private development interests is covered in sections 7.1.1 through 7.1.3 above.

The County would implement the ITP and programmatic HCP. The County would be responsible for processing requests for take associated with their ITP and subsequently issue take to internal County departments. The intent of this alternative is to allow improvements to County activities and infrastructure, while affording the most effective conservation for listed species.

#### **7.2.3.1 Habitat, Structure and Function**

Quantifying impacts to habitat, structure, and function on Perdido Key relative to this alternative are difficult to assess based on an unknown number and type of future proposed County based projects to occur under the preferred alternative scenario. Descriptions of potential impact to the physical and biological environment are described below.

For the 30-year coverage period of the ITP, up to 66 acres of PKBM habitat is anticipated to be permanently impacted, resulting in take of the PKBM. The take would result from private development activities, County owned lands and infrastructure improvement activities, and actions within the coverage area of the HCP. This excludes State-maintained roadways and improvements (e.g., SR 292 (Perdido Key Drive)). Actions

received by the Service and not processed during the HCP preparation or the ITP processing however must be considered and would be subtracted from the 66 acres of take.

The resulting 66 acres of anticipated permanent impact (Table 8.2) would include all development and County owned infrastructure improvement activities and actions described in the HCP, regardless of whether the Service issues separate individual permits or conducts section 7 consultations with federal agencies during the 30-year timeframe. By this method, the County retains flexibility to provide oversight where take of PKBM habitat may occur on the Key.

#### **7.2.3.1.1 Physical Environment**

The presence of physical structures in the coastal environment could result in disruption of the dynamic processes associated with barrier islands over the long term. If a specific County project area is unimpacted at the time of project design, any new structures constructed on a site could contribute to disruption of the coastal processes depending on the specific location of a structure. The increased presence of people and associated infrastructure (parking areas, and restroom facilities) could possibly decrease dune formation by structural impediment and increased foot traffic. However, the use of designated paths to the beach, dune walkovers, educational materials, and signs incorporated into developments would encourage beach users to minimize impacts on the coastal environment.

If a specific County sponsored project area is previously impacted and the County proposes structural additions or demolition and redevelopment, any building of structures on the property could contribute to disruption of the coastal processes. Appropriate siting and design of new structures and/or additions to existing structures may reduce disruption.

Impacts to the geology and soils from this alternative would be negligible. The State of Florida requires that all sand remain on the project site. Sand may be temporarily disturbed during construction but the development must accommodate the quantity of sand found onsite. County projects would be required to restore and possibly create new habitat, where applicable onsite. Native landscaping would be required to be used on County projects. Thus, there would be a minimal need for planting soils other than sand. Following construction and the installation of native landscaping, effects to the geology and soils would be expected to be negligible.

In summary, standard conservation measures incorporated into a County based project would minimize the overall impact to the coastal environment from future proposed projects. However, cumulatively a small reduction in the viability of the dynamics of the coastal landscape within the Plan Area would be expected.

#### **7.2.3.1.2 Biological Environment**

Quantifying impacts to plant and animal communities on Perdido Key relative to this alternative are difficult to assess based on an unknown occurrence and species of plant and animal communities on future project sites within the Plan Area.

In any case, under this alternative there would likely be impacts to plant and animal communities. Appropriate siting of a specific project may reduce potential impacts. The increased presence of people and associated effects (beach chairs, tents, umbrellas) on the beach could possibly impact plant and animal communities from increased foot traffic. However, the implementation of minimization measures and conservation measures outlined in the programmatic HCP developed for the Plan Area would minimize impacts on the biological environment.

In summary, standard conservation measures incorporated into a County based project would minimize the overall impact to the biological environment from future proposed projects. However, cumulatively a reduction in the viability of the dynamics of the biological environment within the Plan Area would be expected.

#### **7.2.3.2 Migratory Birds**

Possible impacts to migratory birds would include impacts to habitat, structure, function, and harassment from disturbance by developments and increased human presence associated with the future proposed projects. Impacts are likely to be negligible, but would be relative to take approved for each specific private development proposed.

Under this scenario, a landscape approach to habitat conservation on Perdido Key would incorporate conservation measures of the programmatic HCP. A programmatic HCP establishing consistent conservation measures, as well as an HCP that signifies the County as the responsible entity to ensure that conservation measures are being met would reduce overall impacts to migratory birds and their habitats.

In addition to being in compliance with all state laws, this proposed alternative would comply with the protections afforded to native bird species under the MBTA. Except where permanently lost, impacts to wildlife would be expected to be minimized because of the conservation measures included in the programmatic HCP.

In addition, control of domestic pets and non-native wildlife is another conservation measure that would be in place on Perdido Key. It would benefit the native birds by reducing predation and competition for habitat from non-native species such as coyote, red fox, and free-roaming pets (dogs and cats) or feral cats.

### **7.2.3.3 Protected Species**

#### **7.2.3.1.1 Perdido Key Beach Mouse**

In this alternative, PKBM habitat, on Escambia County owned lands and/or within County road right-of-way, would be maintained except for the footprint of approved impacts including but not limited to associated structures, roads, parking areas, boardwalks etc. The impacts on a specific site would include the loss of PKBM habitat acreage, but quantification would be site specific.

The County would provide for long term assurances of PKBM conservation by agreeing to implement the conditions of the programmatic HCP which would first avoid, then minimize impacts to PKBM habitats, and then compensate for unavoidable impacts, including site preparation, structural and associated facilities along with the occupancy and use by the public. Minimization efforts may include design of parking areas to provide additional native landscaping, minimization of other impervious surface area, dune walkovers, protection and connection of habitat before, during, and after construction. Minimization efforts would be specific to each impacted parcel. Post construction mitigation could include restoration of existing dune areas disturbed by Hurricane Ivan (completed by Escambia County), and the project construction. Additional compensation for unavoidable impacts to PKBM and its habitat would include, but not be limited to: monitoring of the PKBM population onsite following construction completion, controlling free-roaming pets, fence installation to protect habitat and allow animal movements, and native landscaping.

It is the Service's position that, habitat impacts can be compatible with PKBM conservation provided appropriate conservation measures and mitigation are in place to protect and maintain connectivity of PKBM habitat and minimize the effects of the construction, post-construction use, and occupancy of the structures. Thus, the Service believes that specific County projects within the Plan Area incorporating the proposed conservation measures of the programmatic HCP, would continue to support PKBM. The designs of projects would provide for PKBM habitat connections with adjacent properties (east and west), as well as across SR 292 (Perdido Key Drive) to other areas of Perdido Key that may provide suitable habitat. Remaining habitat specific to a County sponsored project site and connections to additional habitat would continue to provide for PKBM movement, dispersal, food, shelter, and the other ecological needs of the species.

Some habitat and population fragmentation would likely occur as a result of proposed County activities and infrastructure improvement projects. This would be minimized by leaving corridors on all sides of a project area in native, natural vegetation which would provide cover, forage, and breeding habitat for PKBM. Lighting from the projects may alter nocturnal behavior or interfere with breeding, or foraging behavior of PKBM. The County would use wildlife lighting for the entire project. Use of wildlife lighting would reduce artificial light emanating over the PKBM dune habitats through the use of shielded fixtures that decrease light distribution.

PKBM habitat outside of a project footprint on a project site may be temporarily disturbed during construction, but would be restored and placed in a conservation easement. The construction of any dune walkovers would minimize the impact of unmanaged foot traffic across the dunes degrading foraging, cover, and breeding habitat. Protection of the dunes also protects the structures by providing a barrier during storms. To detract predators from a specific property, minimal trash receptacles would be used in common or outside areas of a private development. The trash receptacle would be designed to be animal proof. No cats would be allowed and all other pets would be restricted to the insides of any units or restrained by a leash. This would decrease the risk of predation to PKBM. The use of herbicides and pesticides that would be harmful to beach mice would be prohibited for use in the exterior areas of a development. Educational signs would be placed in the outdoor areas of the development to educate unit owners and visitors about protecting PKBM and other coastal wildlife. The County will also implement other conservation measures for PKBM including but not limited to a wildlife lighting ordinance, monitoring, predator control, dedicated HCP coordinator, etc.

In summary, the impact of County sponsored projects proposed under this alternative would be expected to be minimized and compensated for by the measures contained and conceptually approved in the programmatic HCP. For example, because the actual footprint of proposed County projects would have been minimized, actual habitat loss would be minimized. Because the programmatic HCP includes measures requiring native vegetation to be incorporated into a project, corridors of habitat would remain to facilitate travel of mice between various habitat areas. Predation and competition should not increase because domestic cats, feral cats, and house mice should be eliminated or minimized by the measures contained in the programmatic HCP.

The Service considers the overall context of the impacts to the PKBM relative to the County's programmatic HCP and ITP to not be significant as related to NEPA analyses for the following reasons:

1. The PKBM habitat on a specific County project site would continue to provide habitat onsite and maintain connectivity with adjacent properties.
2. The secondary dune habitats on a specific County project site would remain connected to primary dune habitats.
3. Primary and secondary dunes would remain onsite and would be maintained and restored following storm events.
4. Unobstructed habitat corridors would be provided along the east-west and north-south boundaries of a project.
5. A specific County project site would continue to provide areas for PKBM population expansion, as well as connections to such areas.
6. A specific County project is required to install appropriate lighting for coastal areas, prohibit cats and free ranging dogs, and would be responsible for contacting County animal control to handle predator and feral cat issues.
7. The County would permanently protect PKBM habitat on a site through conservation easements that minimize future threats to critical habitat areas.

#### **7.2.3.1.2 PKBM Critical Habitat**

The potential is likely to exist that a proposed County project site within the Plan Area requiring take authorization will be located within designated critical habitat for the PKBM. PKBM critical habitat is described in Section 6.3.1.1 in this document. If the habitat onsite of a proposed development property is suitable for the PKBM and is connected to known occupied habitat, the beach mouse is considered to occupy the project area. Activities that may destroy or adversely modify critical habitat include, but are not limited to:

(1) Actions that would significantly alter dune structure, soil compaction levels, and substrate characteristics. Such activities could include, but are not limited to, excessive foot traffic, the use of construction, utility, or off-road vehicles in beach mouse habitat, and sand contamination from gravel, clay, or construction debris. These activities, even if temporary, could alter burrow construction, reduce the availability of potential burrow sites, and degrade or permanently alter beach mouse habitat.

*Analysis: The proposed action may result in temporary soil compaction from the use of heavy construction equipment, and the temporary contamination of sand from construction debris. However, the conservation measures for a proposed County project would include restoration of habitat after completion of the construction phase of a specific project.*

(2) Actions that would significantly alter the natural vegetation of the coastal dune community. Such activities could include, but are not limited to, allowing non-native species to establish in the area, landscaping with plants that do not reflect habitat type prior to disturbance, landscaping that yields excessive leaf litter. These activities could alter beach mouse foraging activities and degrade or destroy beach mouse habitat.

*Analysis: The proposed action is not expected to affect this constituent element as proposed conservation measures include restoration and planting with only native Escambia County dune plants.*

(3) Actions that would significantly alter the natural predator/prey balance of the coastal dune community. Such activities could include, but are not limited to, allowing unprotected refuse in the area, and allowing or encouraging feral cat communities. These activities could alter beach mouse foraging activities and the availability of foraging resources and directly alter beach mouse survival.

*Analysis: The proposed action is not expected to effect this constituent element because the proposed conservation measures include prohibiting cats on Perdido Key, control of trash and debris at public beach access areas, the use of predator proof refuse containers, and the access to a site for predator control.*

(4) Actions that would significantly alter natural lighting. Such activities could include, but are not limited to, allowing artificial lighting that does not comply with wildlife-

friendly lighting specifications. These activities could alter beach mouse foraging activities, increase predation upon beach mice, and reduce the use of otherwise suitable beach mouse habitat.

*Analysis: The proposed action is not expected to affect this constituent element because the proposal includes a conservation measure that wildlife friendly lighting would be used for the parking areas, common areas, and exteriors of a County structure. Sea turtle lighting is considered to be wildlife friendly.*

(5) Actions that would directly result in a significant loss of habitat and/or elimination or degradation of functional pathways within and among critical habitat units. Such activities could include, but are not limited to residential or commercial development, road widening, or land clearing. These activities eliminate beach mouse habitat, reduce connectivity necessary for gene flow, reduce all necessary resources such as food, mates, burrow sites, refugia from storms; and decrease space available to conduct natural behaviors, thereby limiting their ability to persist. Cats on Perdido Key have been identified to be another significant contributing factor affecting beach mice via predation.

*Analysis: The proposed action would permanently alter beach mouse habitat associated with a specific County project site. However, proposed conservation measures to maintain corridors on the east and west boundaries of a specific project, as well as maintenance of the frontal dune areas (where applicable), would ensure that functional pathways are maintained. An additional conservation measure in the form of a conservation easement of beach mouse habitat onsite would also result in the permanent protection of these important functional pathways. Specific prohibition of cats on Perdido Key would be effective in reducing predator stressors on beach mice.*

#### **7.2.3.1.3 Sea Turtles**

County projects that involve the beach and dune environment of the Gulf of Mexico would not likely impact the beachfront that provides sea turtle nesting habitat. The County would propose to include wildlife lighting, which would include sea turtle lighting for specific projects. The requirement for removal of beach chairs, tents, umbrellas and other equipment every night for storage in the upper beach during the sea turtle nesting season which occurs between May 1 and October 31 would also be required. Education materials to be prepared would include information about sea turtle conservation. Additional specific conservation measures related to sea turtles can be found in the programmatic HCP, such as beach driving restrictions and trash collection. Thus, the Service has determined that future proposed County projects would not result in incidental take of nesting sea turtles, their nests, or hatchlings would be negligible if conservation measures of the programmatic HCP are implemented.

#### **7.2.3.1.4 Piping Plover**

Possible impacts to non-breeding piping plover would be from disturbance by increased human presence on the beach associated with future proposed County projects. However,

the proposed conservation measures for piping plover would reduce these impacts. Certain conservation measures implemented for beach mice and nesting sea turtles also benefit piping plover. These include, but are not limited to: no cats allowed, predator control, reduced beach front lighting, dune walkovers, and native landscaping. Additional specific conservation measures related to piping plovers can be found in the programmatic HCP, such as beach driving restrictions and trash collection. Thus, the Service has determined that future proposed County projects would not result in incidental take of non-breeding piping plovers and impacts to piping plovers would be negligible if conservation measures of the programmatic HCP are adhered to.

#### **7.2.3.1.5 Other Shorebirds**

Possible impacts to other shorebirds would be from disturbance by increased human presence on the beach associated with future proposed County projects. Impacts are likely to be negligible. Certain conservation measures implemented for beach mice, nesting sea turtles, and piping plovers also benefit other shorebirds. These include, but are not limited to: avoidance of nesting areas, no cats allowed, predator control, reduced beach front lighting, dune walkovers, and native landscaping. Additional specific conservation measures related to other shorebirds can be found in the programmatic HCP, such as beach driving restrictions and trash collection.

#### **7.2.3.1.6 Flora**

Quantifying impacts to plant communities on Perdido Key relative to this alternative are difficult to assess based on an unknown occurrence of specific plant communities and species on a specific County project site in the Plan Area, as well as future proposed County projects that may occur on a specific site within the Plan Area.

In any case, under this alternative there would likely be impacts to plant communities. Appropriate siting of a specific project may reduce potential impacts. The increased presence of people and associated infrastructure (beach chairs, tents, umbrellas) on the beach could possibly impact plants from increased foot traffic. However, the implementation of minimization measures and conservation measures outlined in the programmatic HCP developed for the Plan Area would minimize impacts to plants.

In summary, standard conservation measures incorporated into a proposed County project would minimize the overall impact to the existing plant communities from future proposed projects. However, cumulatively a reduction in the viability of the dynamics of the biological environment within the Plan Area would be expected.

#### **7.2.3.4 Demographics and Economy**

As Perdido Key continues to be a residential, recreational and commercial destination for residents and visitors, it is reasonable to perceive that increases in take requests of listed species and their habitat are likely to continue relative to Escambia County owned lands and infrastructure development. With the issuance of an ITP to Escambia County for

coverage of County activities and infrastructure improvement associated with the programmatic HCP, the Service would likely prevent multiple individual County project requests for take for processing. The Applicant (County) would provide for long term assurances of PKBM conservation by implementing a programmatic HCP which would first avoid and then minimize impacts to PKBM habitats and then compensate for unavoidable impacts.

Demographically, future proposed Escambia County owned lands and infrastructure projects would provide public services for an expanding permanent and visitor population on Perdido Key. Typical associated revenues from public services and infrastructure improvements include increases in visitor populations, residential construction, and visitor/residential occupancy.

Additional future revenue generating activities and opportunities on Escambia County owned lands are likely to be promoted to entice visitors seeking recreational pursuits of the natural aspects of Perdido Key. Perdido Key is promoted to provide outstanding outdoor experiences. Eco-tourism revenues could include tours, equipment, festivals, and other special events celebrating the environment for activities such as bird watching, fishing, hiking, camping, canoeing, kayaking, etc.

In summary, the preferred alternative scenario is likely to reduce future piecemeal applications for take and HCPs to the Service, as County projects on Perdido Key are promoted to increase local economic revenue generation. The preferred alternative would provide a streamlined approach to take processing; and the benefits of a programmatic HCP would be available to Escambia County project interests.

#### **7.2.3.5 Public Infrastructure**

The County's LDC contains a provision stating that public facilities must meet or exceed the level of service standards established by the comprehensive plan and that the public facilities and services needed to support development are available concurrent with the impacts of such development.

##### **7.2.3.5.1 Water Supply**

Water supply infrastructure improvements are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures that private water supply utility providers may utilize to apply for take associated with improvements to the water supply infrastructure on Perdido Key. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the water supply requiring improvements to distribution lines and additional capacity needs servicing County owned property and subsequently need take authorization.

#### **7.2.3.5.2 Wastewater Treatment**

Wastewater supply infrastructure improvements are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures that private wastewater supply utility providers may utilize to be covered for take associated with improvements to the wastewater supply infrastructure on Perdido Key. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the wastewater supply requiring improvements to distribution lines and additional capacity needs servicing County owned property and subsequently need take authorization.

#### **7.2.3.5.3 Roads**

Roads and traffic issues, for County roads, will be directly affected by the preferred alternative by providing a streamlined approach to take processing; and the benefits of a programmatic HCP would be available to County maintained roads. The County would provide for long term assurances of critical habitat by implementing the programmatic HCP which would first avoid and then minimize impacts to listed species habitat and then compensate for unavoidable impacts. Roads and traffic projects would be part of the County owned land and infrastructure projects, thereby using the HCP to avoid and minimize impacts through the design phase of County road and traffic projects (e.g. construction, traffic signalization).

#### **7.2.3.6 Land Use and Development of Perdido Key**

Changes to land use designations consistent with development trends are likely to be needed in the future to address additional consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures for land use. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the existing land use, requiring changes to address future needs.

#### **7.2.3.7 Recreation**

Recreation on Perdido Key will be directly affected by the preferred alternative by providing a streamlined approach to take processing; and the benefits of a programmatic HCP would be available to County-based projects associated with recreation. The County would provide for long term assurances of critical habitat by implementing the programmatic HCP, which would first avoid and then minimize impacts to listed species habitat and then compensate for unavoidable impacts.

County-based improvements for recreational activities on Perdido Key may include impacts to listed species habitat. The County would implement conservation measures from the HCP to avoid and minimize impacts.

#### **7.2.3.8 Other Public Lands**

Other public lands on Perdido Key may be directly affected from the preferred alternative from additional visitors. There are possible indirect effects to other public lands as the County would promote improving County infrastructure and public services on Perdido Key, which may benefit other public lands. Other effects may be from additional residents and guests as occupancy increases on Perdido Key.

#### **7.2.3.9 Air Quality**

The air quality of Perdido Key will not likely be directly affected from the preferred alternative. Any potential air quality affect would be analyzed and addressed in the County departmental review for proposed Escambia County owned lands and infrastructure projects.

#### **7.2.3.10 Noise**

The noise issue from Escambia County owned land or infrastructure projects would possibly have affects to Perdido Key from new construction activities. Temporary noise may become an issue, especially at the developments located in or near beachfront areas during the tourist season. Any noise affect would be analyzed and addressed in the County specific departmental review for proposed Escambia County owned lands and infrastructure projects.

#### **7.2.3.11 Coastal Construction Control Line**

Impacts to the CCCL on Perdido Key from the preferred alternative would be required to satisfy CCCL requirements during the design and permit review phases. All Escambia County projects waterward of the CCCL line would be required to satisfy CCCL requirements. Adoption of the CCCL establishes an area of jurisdiction in which special siting and design criteria are applied for construction and related activities. These standards may be more stringent than those already applied in the rest of the coastal building zone because of the greater forces expected to occur in the more seaward zone of the beach during a storm event.

The County would provide for long term assurances of listed species habitat by implementing the programmatic HCP which would first avoid and then minimize impacts to listed species habitat and then compensate for unavoidable impacts.

#### **7.2.3.12 Coastal Zone Management Act**

Impacts to the CZMA from the preferred alternative will depend on the Escambia County project proposed and whether it meets the criteria for projects to be reviewed by the State of Florida for CZMA consistency.

Congress passed the CZMA to assist coastal states, Great Lake states, and United States territories to develop state coastal management programs, and comprehensively manage and balance competing uses of and impacts to coastal resources. Federal consistency is the CZMA requirement that all federal actions affecting any land or water use, or natural resource of the coastal zone be consistent with the enforceable policies of a coastal state's or territory's federally approved coastal management program.

No impacts to the CZMA on Perdido Key would be expected to occur under the preferred alternative for County projects since proposed projects would be required to satisfy CZMA requirements during the DRC process.

#### **7.2.3.13 Human Safety**

County roads, sidewalks, and other public infrastructure improvements along with improvements to emergency services are likely to be needed in the future to address human safety components of additional residents, visitors, and commercial consumers on Perdido Key related to residential and commercial development. The County's programmatic HCP also includes conservation measures for County activities and infrastructure improvements which include considerations for County infrastructure improvements. Depending on the size and cumulative number of future proposed private developments, there will likely be impacts to the levels of service provided by current County roadway infrastructure, requiring improvements to safely accommodate additional capacity needs.

Fire protection for the Perdido Key area is currently provided by a combination fire/EMS Service. Future Escambia County owned land and infrastructure projects may include fire stations, emergency medical clinics, and hospitals. Proposed human safety related projects may be constructed on Escambia County owned land and thereby would use the streamlined approach to take processing; and the benefits of a programmatic HCP would be available to Escambia County owned lands and infrastructure projects associated with human safety. The County would provide for long term assurances of critical habitat by implementing a programmatic HCP, which would first avoid and then minimize impacts to critical habitat and then compensate for unavoidable impacts.

### **8.0 Cumulative Effects**

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the area of the proposed project considered in this environmental assessment.

Except areas set aside for wildlife and natural resources within the public lands, existing land uses on Perdido Key are primarily related to coastal development for human recreation and habitation. It is reasonably certain to expect that human occupancy and recreational use of Perdido Key will increase in the future. There has been an increase in the number of multifamily developments on the Key since 1995, typically being developed at the maximum density allowed. Into the early 2000s development or re-

development continued. Single-family residences and small multi-family complexes have been sold for construction of high-rise/high density complexes (PKNP 1997 as referenced in Escambia County 2003).

Cumulative impacts, which include reasonably foreseeable future effects, on PKBM include the construction of residential and commercial lodgings limited by the dwelling unit cap for Perdido Key in Florida (7,150 residential units and 1,000 lodging units). All future development in PKBM habitat is likely to require section 7 or section 10 permitting with the Service. Reasonably foreseeable future actions would be required to minimize and mitigate to the maximum extent practicable.

In addition, if these project areas (private and public) contain endangered or threatened species habitat and they will require section 7 or 10 permitting from the Service, a private entity has the opportunity to pursue an individual ITP and HCP. However, we expect that the conservation activities to be conducted through the programmatic HCP will reduce the adverse affects of additional developments.

The following projects are reasonably foreseeable and their cumulative impacts have been considered in this environmental assessment:

While we are not aware of any additional future actions that are reasonably certain to occur within the Action Area that will not require separate section 7 or 10 permitting in the future, we nonetheless mention several of the more significant actions below to demonstrate the coordination efforts and large scale conservation efforts that are likely to result from these actions. The FATPO recently amended the 2020 Cost Feasible Long Range Transportation Plan to include four-laning SR 292 (Perdido Key Drive) from the Alabama Line to Innerarity Road. The roadway runs adjacent to designated critical habitat for the PKBM along the length of Perdido Key. Much of the right-of-way likely used for the expansion is designated as critical habitat. Dependent on whether or not federal funds are used for this project, a section 7 consultation or a section 10 permit for coverage under the Act may be needed.

Prior to and immediately following the hurricane season of 2004, coastal development and redevelopment of Perdido Key began to substantially increase. Land values rose considerably. The traditional method of land acquisition for offsetting impacts to listed species was hindered due to the high cost of land. Further, recovery efforts for the PKBM were needed Key-wide and would be best managed from a centralized entity rather than on an individual property basis. Because of the current and anticipated requests for permits, the Service, FFWCC, and County realized that consistency and streamlining of the process were needed. Formalizing the process and objectives was recognized by the three entities through participation in an intergovernmental agreement. The Intergovernmental Agreement, signed in December 2005, established a Conservation Fund for PKBM that is based on a Conservation Strategy and Business Plan completed for the PKBM. The Conservation Fund donations, obtained through state and federal sections 7 and 10 permitting actions, will be used to fund conservation actions intended to perpetuate a viable population of PKBM in native habitat on Perdido Key.

After Hurricane Ivan, FEMA provided funds for Escambia County to construct an emergency berm for storm protection along the Gulf of Mexico beachfront. While the berm project may potentially have adversely affected the PKBM during construction, the project restored dune habitats and connectivity to over 4 miles of beachfront PKBM habitat. The berm protected landward PKBM habitats that are naturally restoring after the 2004 and 2005 hurricane seasons. An emergency consultation was completed for this work.

Escambia County is currently planning a beach nourishment project for Perdido Key. The County has received funds from the State of Florida to conduct a feasibility study for the nourishment project. A large portion of the feasibility study is to locate suitable offshore borrow areas that contain an adequate quantity and quality (beach compatible) nourishment material. If the Feasibility Study is positive (i.e., adequate borrow material is located and it is economically feasible to use it) the project design phase will be initiated. New beach nourishment projects may take 3 to 5 years (or more) to complete the project planning and the State and federal permitting process. While the nourishment project may potentially adversely affect the PKBM, sea turtles, and piping plover during construction, the project would help restore beach and dune habitats and connectivity within over 4 miles of beachfront. The nourished beach and restored dunes would also protect landward PKBM habitats that are naturally recovering after the 2004 and 2005 hurricane seasons.

A second beach nourishment project planned by the Pensacola Naval Air Station (Navy) has proposed to dredge their navigation channel resulting in the need to place 8 million cubic yards of dredged material that is beach compatible. Because of the cost to pump the dredged material, Perdido Key is the closest and most logical area to receive the material. Receiving areas include the Perdido Key offshore borrow site, the Pensacola offshore borrow site, a nearshore site at the eastern end of Perdido Key, and the beachfront of GUIS at Johnson Beach (Perdido Key) and Fort Pickens.

Because Perdido Key has suffered erosion from the 2004 and 2005 storm seasons, a portion of the 8.0 million cubic yards could help in restoring beach and dune habitats Key-wide. The Service completed a biological opinion (BO) for the project's Corps permit in October of 2007. Terms and Conditions of the BO, address the need to place the dredged material to enhance the natural dune restoration process and minimize negative affects to the PKBM, seas turtles, and piping plover. While the Navy project may potentially adversely affect the PKBM during construction, it could help restore beach and dune habitats and connectivity within over 16 miles of beachfront. The project would also protect landward PKBM habitats that are naturally recovering after the 2004 and 2005 hurricane seasons. The Mobile Corps of Engineers contacted the Service in May 2009 concerning the need to conduct maintenance dredging of the inlet before the Navy completes their proposed work. This dredging may occur in late 2009 or early 2010.

## **9.0 Comparison of Alternatives**

Table 6 provides a summary of potential impacts from the three analyzed alternatives for both private developments and County activities and infrastructure improvements. Descriptions below are inclusive of alternatives analysis relative to private and County-based scenarios.

Alternative 1, take avoidance, has been determined to be impractical since it precludes the use of private property, private utility improvements/upgrades, and improvements to County owned lands. Since many areas in the Plan Area covered by this EA include some element of listed species habitat, it is impractical to perceive that take avoidance of impacts to listed species can be accomplished with future proposed projects.

Alternative 2, no action alternative, would require the continued submittal of separate individual requests for take to the Service, also listed species would not benefit from the landscape approach to conservation included in the programmatic HCP. This alternative is not preferred since it would not improve application review times for take, costs savings would not be realized, and conservation measures on a landscape scale would not be implemented.

Alternative 3, preferred alternative, maximizes conservation on a landscape scale for listed species, encompasses cost savings for future proposed private and County proposed projects, and is projected to result in a more efficient application review process for take requests while meeting local, state, and federal regulatory requirements.

**Table 6 Comparison of Alternatives**

Affected Environment Issue	Alternative 1 Private Take Avoidance	Alternative 2 Private No Action	Alternative 3 Private Preferred	Alternative 1 County Take Avoidance	Alternative 2 County No Action	Alternative 3 County Preferred
<b>Habitat, Structure and Function</b>	No effect	Permanent & temporary effects	Permanent & temporary effects, but reduced effects from conservation measures in HCP	No effect	Permanent & temporary effects	Permanent & temporary effects, but reduced effects from conservation measures in HCP
<b>Migratory Birds</b>	No effect	Negligible permanent & temporary effects	Negligible permanent & temporary effects	No effect	Negligible permanent & temporary effects	Negligible permanent & temporary effects
<b>Protected Species</b>						
<b>PKBM</b>	No effect	Permanent & temporary effects, developments still occur with individual take requests	Permanent & temporary effects, but with reduced effects due to HCP conservation measures	No effect	Permanent & temporary effects, County projects still occur with individual take requests	Permanent & temporary effects, but with reduced effects due to HCP conservation measures

<b>Sea Turtles</b>	No effect	Permanent & temporary effects, developments still occur with individual take requests	Permanent & temporary effects, but with reduced effects due to HCP conservation measures	No effect	Permanent & temporary effects, County projects still occur with individual take requests	Permanent & temporary effects, but with reduced effects due to HCP conservation measures
<b>Piping Plover</b>						
<b>Demographics and Economy</b>	Minor negative effects	Moderate negative effects from increases in timelines to accomplish economic development due to multiple individual ITP requests	Beneficial effects - new development activity occur more efficiently	Minor effects - reduced ability to improve County property to enhance economic potential of Perdido Key	Moderate negative effects from increases in timelines due to multiple individual ITP requests for County projects	Beneficial effects - new County projects occur more efficiently
<b>Public Infrastructure</b>						
<b>Water Supply</b>						
<b>Wastewater</b>						
<b>Roads</b>						

<b>Land Use and Development of Perdido Key</b>	Minor effects	Minor effects	Minor effects to density requirements	Minor effects	Minor effects	Minor effects
<b>Recreation</b>	Minor effects	Increased use of recreational areas - minor effects	Increased use of recreational areas - minor effects	Moderate - reduced ability for County to improve recreational opportunities on Perdido Key	Moderate effects from increased uses and increased timelines for County improvement reviews	Increased use of recreational areas - minor effects
<b>Other Public Lands</b>	Minor effects	Increased use of other public areas - minor effects	Increased use of other public areas - minor effects	Minor	Increased use of other public areas - minor effects	Increased use of other public areas - minor effects
<b>Air Quality</b>	No effect	Unknown - varies depending on proposed development	Unknown - varies depending on proposed development	No effect	Unknown - varies depending on proposed project	Unknown - varies depending on proposed project
<b>Noise</b>	No effect	Unknown - varies depending on proposed development	Unknown - varies depending on proposed development	No effect	Unknown - varies depending on proposed project	Unknown - varies depending on proposed project
<b>Coastal Construction Control Line</b>	No effect - required to satisfy CCCL	No effect - required to satisfy CCCL	No effect - required to satisfy CCCL	No effect - required to satisfy CCCL	No effect - required to satisfy CCCL	No effect - required to satisfy CCCL
<b>Coastal Zone Management Act</b>	No effect - required to satisfy CZM	No effect - required to satisfy CZM	No effect - required to satisfy CZM	No effect - required to satisfy CZM	No effect - required to satisfy CZM	No effect - required to satisfy CZM

<b>Human Safety</b>	Minor effects	Increased human safety issues - minor effects	Increased human safety issues - minor effects	Moderate - reduced ability for County to improve certain human safety elements on Perdido Key	Moderate - reduced ability for County to improve certain human safety elements on Perdido Key	Increased human safety issues - minor effects, but County can implement proposed improvements more efficiently with the ITP
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## 11.0 Appendix