

ENDANGERED SPECIES BIOLOGICAL ASSESSMENT



CAPITAL CIRCLE Northwest Southwest

Expanded Project Development & Environment Study

Project No. 772
FDOT FPID No. 415782-3

June 2006

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Capital Circle NW/SW (SR 263) Expanded Project Development and Environment Study

Capital Circle NW/SW (SR 263)
from south of Orange Avenue (SR 371) to Tennessee Street (SR 10, US 90)
Leon County, Florida

Blueprint 2000 Project No. 772
FDOT FPID No. 415782-3

This proposed action consists of capacity and safety improvements to
Capital Circle NW/SW (SR 263), a two-lane undivided arterial,
from south of Orange Avenue (SR 371) to Tennessee Street (SR 10, US 90)

Prepared for:
BLUEPRINT 2000

Prepared by:
H.W. Lochner, Inc.

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1.0 INTRODUCTION

This Endangered Species Biological Assessment (ESBA) is one in a series of reports prepared as a part of the Expanded Project Development and Environment (EPD&E) study undertaken by the Blueprint 2000 & Beyond Intergovernmental Agency (Blueprint 2000) for the proposed Capital Circle Northwest/Southwest (NW/SW) improvement project in Leon County, Florida. The purpose of this study is to collect data that will help determine the location and design of the facility and the potential impacts associated with the Build and No Build alternatives.

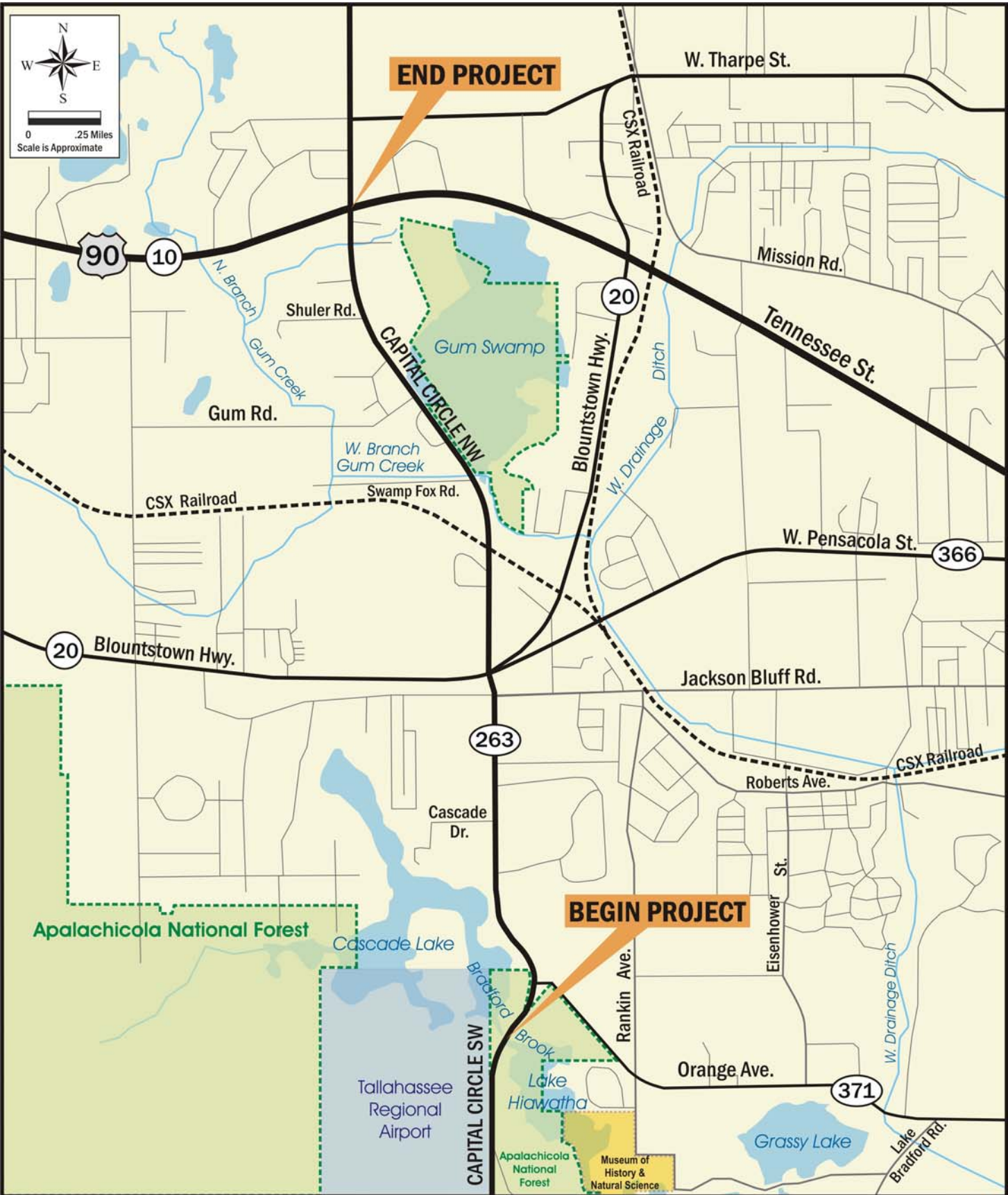
The goal of this ESBA is to assess the project corridor for the potential occurrence and impact to state and federally protected listed threatened and endangered species. Additionally, existing habitats will be evaluated to determine if they will be affected by the construction of the proposed project and coordination with environmental and regulatory agencies will be initiated.

English units of measure are utilized throughout the report.

2.0 PROJECT DESCRIPTION

The planned project will improve capacity and safety of the northwest/southwest segment of Capital Circle, a major corridor around the city of Tallahassee in Leon County, Florida. The limits of this EPD&E Study extend along Capital Circle NW/SW (SR 263) from south of Orange Avenue (SR 371) north to Tennessee Street (SR 10, US 90), as shown in Exhibit 2.1. The existing roadway within this 3-mile project is a two-lane undivided facility with turn lanes at major intersections. The proposed project addresses capacity improvements of Capital Circle NW/SW to a controlled access facility, including the addition of through travel lanes, frontage roads, necessary intersection improvements, and the footprint required for a future interchange at Blountstown Highway (SR 20). These improvements are part of an overall plan to improve transportation around the city of Tallahassee.

In addition to these transportation improvements, this study will evaluate and incorporate, as appropriate, other important components such as retrofit of existing flood controls, enhanced measures for protection of water quality, connection to greenway properties, and contributions to on-going efforts to restore the Gum Swamp.



CAPITAL CIRCLE Northwest Southwest

Expanded Project Development & Environment Study



Project Location Map

Exhibit 2.1

3.0 PROJECT NEED

3.1 System Linkage

The 2020 Florida Transportation Plan identifies a long range objective of establishing a Strategic Intermodal System (SIS) for the State. The SIS is meant to promote Florida's economic competitiveness by identifying transportation corridors, facilities, and services of statewide and regional significance for targeted funding and management. Capital Circle from I-10 to the Tallahassee Regional Airport, which includes the portion of the roadway addressed by this project, has been classified by FDOT as an Emerging SIS Connector. As an Emerging SIS Connector facility, an improved Capital Circle NW/SW will promote linkages between the area roadway network, airports, rail facilities, and other modal hubs throughout the region.

3.2 Transportation Demand

The improvement of Capital Circle to a high capacity circumferential roadway aims to reduce congestion on roadways inside the Capital Circle loop, including canopy roads within the city of Tallahassee, and to meet transportation demands associated with steadily increasing population and economic development. Capital Circle is also a designated state emergency evacuation route.

3.3 Federal, State and Local Government Authority

The proposed improvements to Capital Circle NW/SW are consistent with all applicable local and regional transportation plans. The Tallahassee – Leon County Year 2020 Long Range Transportation Plan (LRTP) was adopted by the Metropolitan Planning Organization (MPO) in December 2000. The LRTP is the blueprint for transportation improvements and represents a collaborative effort between the community, elected officials and professionals from local, state and federal government to address transportation needs and funding for the next 20 years. The LRTP is updated every five years to reflect changes in the community needs, populations, employment and land use.

The Tallahassee-Leon County MPO and the FDOT have identified the need to make improvements to Capital Circle NW/SW. The need for capacity improvements to this section of Capital Circle is included in the 2020 LRTP. The adopted 2020 Cost Feasible Plan includes the multi-laning of Capital Circle NW/SW to be funded by the extension of the Local Option Sales Tax (Blueprint 2000), approved in November 2000. According to the Tallahassee-Leon County Comprehensive Plan, Capital Circle NW/SW is functionally classified as a Principal Arterial, as accepted by Blueprint 2000 on November 19, 2001.

Capital Circle NW/SW is part of an Emerging SIS Connector facility, as identified by FDOT. The improvements evaluated in this study are consistent with SIS policies.

3.4 Social Demands and Economic Development

Tallahassee and Leon County have experienced significant population growth in the past 20 years, with moderate population growth expected to continue over the next 20 years. The proposed improvements to the Capital Circle NW/SW corridor are important to the continued growth and development that is occurring in the area. The proposed roadway improvements could facilitate future expansion of the commercial and retail facilities on and near the Capital Circle NW/SW corridor. Maintaining access to project corridor facilities, as well as increasing the traffic carrying capacity of the roadway, will further enhance the economic and community development of the area. Upgrading the roadway is needed to improve travel service and to serve the population and economic growth projected for the region in an effective and efficient manner.

3.5 Modal Interrelationships

As an Emerging SIS Connector facility, an improved Capital Circle NW/SW will improve the linkage between the Tallahassee Regional Airport and I-10, providing an important connection between the airport and the Florida Intrastate Highway System (FIHS). An improved Capital Circle NW/SW will also promote linkages to other modal hubs in Leon County and throughout the region.

3.6 Capacity

Level of Service (LOS) D is the minimum acceptable threshold for urbanized intersections based on FDOT Statewide Minimum LOS Standards for the State Highway System. Roadway segments designated on the SIS, however, target LOS C as the desired operating level of service threshold. Coordination with the FDOT SIS staff established LOS D as the desired operating level of service threshold for this project. A capacity analysis was performed for Capital Circle NW/SW and results are summarized in the *Capacity Analysis Report* prepared by HNTB Corporation in December 2004. Traffic volumes were projected for the opening year 2010, mid-year 2020, and design year 2030. Results of this analysis show that without improvement to the existing 2-lane corridor, anticipated traffic growth in Leon County will result in LOS F conditions on the entire length of the study corridor sometime shortly after year 2010. Capacity improvements to this roadway segment are necessary in order to achieve the desired level of service threshold.

3.7 Safety

Crash data obtained from FDOT's CARS (Computerized Accident Record System) database, indicate that 173 crashes occurred along this project over the three-year period from 2001 to 2003. Annual safety ratios for most segments of the roadway remained below the 1.0 high crash ratio threshold. The exception was the short roadway segment between Jackson Bluff Road and Blountstown Highway (SR 20), which was determined to have a significant crash rate ranging from 3.65 to 5.45. Restricted turning movements around Jackson Bluff Road, as well as a properly designed controlled access management plan along the entire project, will need to be incorporated into the roadway design to achieve a reduction in the occurrence of these incidents.

4.0 STUDY ALTERNATIVES

4.1 Proposed Typical Section

The proposed urban typical sections include six-lane and four-lane sections. The four-lane typical section, which extends from the south end of the project at Orange Avenue (SR 371) to approximately ½ mile south of SR 20, consists of four 12-ft. travel lanes with a 36-ft. depressed median. From south of Blountstown Hwy./Pensacola St. (SR 20) to the north end of the project, south of Tennessee St. (SR 10), the typical section consists of six 12-ft. travel lanes with a 36-ft. depressed median, except through the Gum Swamp, where a narrower 22-ft. median will minimize wetland and floodplain impacts. The typical sections will also include 4-ft. bike lanes in each direction and a multi-use meandering sidewalk along one side. On-site stormwater will be conveyed to proposed stormwater management facilities via closed storm drain systems. The proposed right-of-way width is 230 ft and the proposed design speed is 45 mph.

4.2 Alignment Alternatives

Six alternative alignments were evaluated. A left alignment would acquire additional right-of-way width on the left side of the existing right-of-way only. A right alignment would acquire additional right-of-way width on the right side of the existing right-of-way only. A center alignment would acquire additional right-of-way width on both sides of the existing right-of-way. Finally, three combination alignment alternatives would acquire additional right-of-way on either side of the existing right-of-way in an attempt to avoid and/or minimize impacts to the social, natural and physical environment.

5.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

5.1 Existing Land Use

The project study area consists mainly of commercial land uses and undeveloped land, with scattered single-family residential uses adjacent to the project corridor. The Apalachicola National Forest is located on both sides of Capital Circle SW south of Orange Avenue. Much of the area between Orange Avenue and Blountstown Highway is undeveloped; many undeveloped

parcels are for sale or have recently sold. This portion of the study area also contains several commercial uses and a small area of residential uses along Cascade Drive. Commercial uses are concentrated near the intersection of Blountstown Highway and extend northward to the CSX railroad. Gum Swamp is a large wetland area on both sides of Capital Circle NW north of the railroad. The portion of Gum Swamp on the east side of the roadway is owned for preservation by Leon County. North of Gum Swamp, the project area includes mainly commercial uses, which are concentrated around the intersection of Tennessee Street, and also includes an area of residential uses along Shuler Road. Commercial uses in the study area include automotive and marine businesses, trucking/shipping companies, mobile home sales, gas stations, convenience stores, restaurants, storage facilities, publishing facilities and other businesses. The Leon County Transfer Station is located north of Gum Road on the west side of Capital Circle NW. An Existing Land Use Map is shown in Exhibit 5.1

5.2 Future Land Use

According to the Tallahassee/Leon County Comprehensive Plan, the primary future land use along the Capital Circle NW/SW project is 'Mixed Use B'. This development pattern utilizes low-, medium-, and high-density residential land uses centered with compact commercial, office, recreational, infrastructure, and community service land uses. Areas along this project that are not proposed as 'Mixed Use B' are the Apalachicola National Forest south of Orange Avenue and the Gum Swamp preservation area north of the railroad. A Future Land Use Map is shown in Exhibit 5.2

5.3 Vegetative Communities

Upland and wetland communities that occur within the study area were identified during preliminary field surveys using National Wetlands Inventory (NWI) maps, the Natural Resources Conservation Service (NRCS (formerly the Soil Conservation Service)) *Soil Survey for Leon County*, U.S Geological Survey (USGS) topographical maps, and aerial photographs.

The field studies included an evaluation of vegetation associations and conditions of the communities within the project area. The upland and wetland communities were classified according to the Florida Land Use, Cover and Forms Classification System (FLUCFCS) and U.S. Fish and Wildlife Service (USFWS) Classification (see Table 5.1) in accordance with the “Classification of Wetlands and Deepwater Habitats of the United States” (Cowardin, et al., 1979).

Several different plant communities are found, with many of them interspersed. The plant communities are differentiated between upland and wetland communities, including two upland categories and two wetland categories. Descriptions of these communities are provided in the following sections.

5.3.1 Upland Communities

The upland plant communities within the project area can be classified in the following two groups: (1) hardwood – conifer mixed; (2) coniferous plantation; The hardwood – conifer mixed forest (FLUCFCS 434) has slash pine (*Pinus elliottii*), loblolly pine (*Pinus taeda*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), and live oak (*Quercus virginiana*). The coniferous plantation (FLUCFCS 441) consists of planted slash pine and loblolly pine. The slash pine plantation has a sparse understory of gallberry and wax myrtle and the loblolly stand has no understory as its stocking levels is high. Sandhills with turkey oak (*Quercus laevis*) and longleaf pine (*Pinus palustris*) can be found to the south of the project and outside of current project boundaries.

Table 5.1 - Project Wetlands USFWS Classifications and FLUCFCS Codes

Wetland Site	USFWS classification	FLUCFCS code	FLUCFCS name
P1	PFO1Fx	742	Borrow areas - small, non-linear, water retention areas
P2	PEM1Fx	742	Borrow areas - small, non-linear, water retention areas
P3	PFO1Dx	742	Borrow areas - small, non-linear, water retention areas
D1	PEMAx	510	Waterway
D2	PEMAx	510	Waterway
D3	PFO1Fx	510	Waterway
D4	PEM1Dx	510	Waterway
D5	PFO1Fx	510	Waterway
D6	PFO1Dx	510	Waterway
D7	PUBHx	510	Waterway
D8	PFO1Fx	510	Waterway
W1	PFO7D	621	Cypress
W2	PFO6D	617	Mixed hardwood wetlands
W3	PFO6Dx	617	Mixed hardwood wetlands
W4	PFO6D	617	Mixed hardwood wetlands
W5	PFO6F	613	Gum Swamp
W6	PFO6F	613	Gum Swamp
W7	PFO6C	617	Mixed hardwood wetlands

Classification in accordance with Cowardin, et al., 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

The descriptions of the USFWS Classification codes used to identify the wetland areas within the Capital Circle NW/SW improvement project limits are listed below:

<u>USFWS Classification Code</u>	<u>Description</u>
System - P	Palustrine
Class - EM	Emergent
Class - FO	Forested
Subclass - (EM)1	Persistent,
Subclass - (FO) 1	Broad-Leaved Deciduous
Subclass - (FO) 6	Deciduous
Subclass - (FO) 7	Evergreen
Water Regime - A	Temporarily flooded
Water Regime - C	Seasonally flooded
Water Regime - D	Seasonally Flooded/Well Drained
Water Regime - H	Permanently Flooded
Special Modifier - x	Excavated

5.3.2 Wetland Communities

Man-Made Conveyance and Retention Areas - Retention ponds (indicated by P in Table 5.3), swales and ditches (indicated by D in Table 5.3) can be found throughout the project area, some of which have freshwater marsh characteristics and/or forested wetland characteristics.

Forested Wetlands – The forested wetlands (indicated by W in Table 5.3) are mostly of a mixed hardwood variety with one cypress (*Taxodium* sp.) dominated wetland within or adjacent to current project boundaries.

Exhibit 5.3 shows the location of the project wetlands within the study area.

6.0 PROTECTED SPECIES

6.1 Methodology

This section describes the methodology used to evaluate the habitat, wildlife and protected species that may occur within the project area. The following briefly lists project methods and materials used for these tasks, which are further discussed in the following sections:

- USFWS, Florida Fish & Wildlife Conservation Commission (FWC) agency responses;
- Florida Natural Areas Inventory (FNAI) Leon County Inventory;
- USGS Quad Sheet, NWI maps; project aerials;
- Discussions with agency personnel and knowledgeable parties;
- Reference materials and information from previous studies;
- Field surveys and observations; and
- Correspondence with agencies and other organizations.

6.2 Preliminary Data Collection

Using the responses and data base search from the FNAI and FWC, a preliminary literature search was conducted to determine the habitat requirements of the protected or listed species, or critical habitats that have been documented by the FNAI within the project area. Additionally, project biologists consulted standard references such as the *Rare and Endangered Biota of Florida* and other studies to help determine potential listed species in the project area. A detailed review of project aerial photographs was undertaken and a preliminary field survey was conducted in October, 2004, to determine the various habitat types within the project study area. The FNAI list was used as the list of species that may potentially occur within the project study area. The list of potentially occurring protected species has been continually updated to reflect recent changes in listings.

6.3 Determination of Survey Methodology

Field reviews for all potentially occurring species were conducted. During field reviews, the presence of potential habitat was evaluated. Approved USFWS and FWC guidelines and methodologies were used to conduct all surveys.

Coordination with the USFWS and FWC was initiated during the Advanced Notification process and has continued throughout the project. Preliminary field reviews for verification of existing habitats were conducted by project biologists on various days in October of 2004. The various upland and wetland habitats within the study area were ground-truthed and depicted in FLUCFCS categories.

6.4 Results of General Corridor Surveys

Project biologists performed meandering pedestrian transects within the survey area and visually scanned adjacent areas. Surveys were conducted throughout the day. During these surveys, all indications of wildlife in the study area were recorded. These indications typically included observation of actual animals or signs of their presence including tracks, burrows, dens, scat, nests, and calls (typically with avian fauna).

Appropriate habitats were surveyed for listed species. The surveys for avifauna were conducted in the late afternoon and in the early morning during peak foraging times. The following sections include brief discussions of protected species for which there is a special concern or that are known to occur in this area of Leon County.

Table 6.1 shows the listed species that potentially occur within the project study area.

There was evidence of the presence of whitetail deer and armadillos in the study area. No feral hog sign was evident. Various species of hawks were seen on a regular basis throughout the project area. Various songbirds, crows, grackles and woodpeckers are plentiful throughout the project area. One black racer was observed. One great egret was observed.

Table 6.1 - Listed Species Potentially Occurring Within Project Study Area

Common Name	Scientific Name	Status	
		FDACS	USFWS
Flora		FDACS	USFWS
Bent Golden Aster	<i>Pityopsis flexuosa</i>	E	--
Chapman's Rhododendron	<i>Rhododendron chapmanii</i>	E	E
Chaffseed	<i>Schwalbaea americana</i>	E	E
Fauna		FWC	USFWS
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	SSC	--
American Alligator	<i>Alligator mississippiensis</i>	SSC	T (S/A)
Florida Black Bear	<i>Ursus americanus floridanus</i>	T	--
Gopher Tortoise	<i>Gopherus polyphemus</i>	SSC	--
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>	SSC	--
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	T	--
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T
Wood Stork	<i>Mycteria americana</i>	E	E
Other Wading Birds		SSC	--
Osprey	<i>Pandion haliaetus</i>	SSC	--

T = Threatened
E = Endangered
SSC = Species of Special Concern

Potential project involvement with these listed species is described within the following pages.

6.5 State and Federally Listed Species

Surveys for state and federally listed plants or animals were conducted on various days in October of 2004 by qualified biologists with H.W. Lochner, Inc. According to FNAI and the FWC, no federally endangered or threatened species are known to occur within one (1) mile of the project limits. However, federally listed species that possibly occur in the project vicinity include the American alligator (*Alligator mississippiensis*), Eastern indigo snake (*Drymarchon corais couperi*), bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), Chapman's rhododendron (*Rhododendron chapmanii*), and chaffseed (*Schwalbea americana*). State listed species with known or possible occurrences in the project vicinity include the American alligator, Eastern indigo snake, bald eagle, wood stork, Florida black bear (*Ursus americanus floridanus*), Sherman's fox squirrel (*Sciurus niger shermani*), gopher tortoise, southeastern American kestrel (*Falco sparverius paulus*), wading birds, Florida pine snake (*Pituophis melanoleucus mugitus*), Chapman's rhododendron, chaffseed, and bent golden aster (*Pityopsis flexuosa*). Exhibit 6.1 shows the locations of protected species occurrence recorded in FNAI.

6.5.1 Avian

6.5.1.1 Southeastern American Kestrel

The southeastern American kestrel, a member of the Falconidae family, is the smallest falcon in the United States and is similar in size to the common mourning dove. The sexes are distinctive with the male having blue-gray wings and the female having a more uniformly rufous back and wings. The females are larger than the males and both sexes have a mustached black and white facial pattern with strong perpendicular lines extending below the eye and near the ear. Both sexes have a black band at the end of a rufous tail. Falcons in general have long pointed wings and long tails.

The southeastern American kestrel can be found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. The availability of suitable nesting sites is key during breeding season. Kestrels are cavity nesters with suitable nest sites occurring in tall dead trees or utility poles that have an unobstructed view of the surrounding area. Sandhill habitats seem to be the preferred habitat type, but the kestrel will also utilize flatwoods. Open patches of grass or bare ground are needed in flatwoods settings, since dense palmettos inhibit the detection of prey items.

Southeastern American kestrels can be found year-round throughout Florida, but seasonal occurrence can be complicated by the arrival of northern migrants in the winter months. The sub-species that breed in Florida are listed by the FWC as “Threatened” but the northern migrants are not listed. Northern migrants usually arrive in September and depart by March. All birds encountered during the breeding season (April through early September) should be treated as the listed sub-species.

There are no known kestrel nest sites within the project corridor and no kestrel were observed during field surveys. The project area contains some marginal to good foraging habitat as well as potential nesting habitat, although no nesting locations or live birds were seen during recent pedestrian surveys. A resurvey of the project corridor, or appropriate habitat, may be required prior to construction. Presence of this listed species will require coordination with the appropriate resource agency at that time.

6.5.1.2 Bald Eagle

Considered to be threatened by the USFWS and threatened by the FWC, the bald eagle is a large blackish bird with a white head and tail. Juveniles resemble the adult golden eagle, but have a pale wing lining and a more massive bill. Primarily riparian, bald eagles build their nests near the shores of bodies of water or in marsh areas where they feed on fish and small waterfowl. Nests can usually be found in the larger pine and/or cypress trees in the eagles' territory. A nesting pair will often use alternate nests in different years with both nests in close proximity to one another. Clutches usually consist of two to three eggs and are laid in late fall or winter. Both parents will care for the offspring.

Because the bald eagle is wide ranging, it has been seen in a diverse range of habitats from pine flatwoods to hardwood forests to agricultural areas. Its preferred habitat during the nesting season (October-May) includes the shores of fresh water lakes and rivers, marshes, wet prairies, salt marshes and coastal beaches, where food is readily available.

The project corridor was assessed for the potential occurrence of the bald eagle. This assessment entailed consulting the FNAI Leon County Inventory, FWC database, Florida's Bird Breeding Atlas, and field observations. There are several bald eagle occurrences in the northern part of the county, but none are located within 1 mile of this project. No bald eagles were observed during field surveys. Therefore, no impact to this species will occur as a result of this project.

6.5.1.3 Wood Stork

The wood stork is primarily associated with freshwater and estuarine habitats for nesting, roosting, and foraging. Wood storks typically construct their nests in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water. In one study of wood stork nesting throughout Florida, which was conducted prior to the 1960s, more than half of all wood stork nests were located in large bald cypress stands, 13 percent were located in red mangrove, eight percent in partially harvested bald cypress stands, six percent in dead oaks (*Quercus* spp.), and five percent in small pond cypress (*T. distichum* var. *nutans*).

Potential impacts to the wood stork, listed as endangered by the FWC and the USFWS, were assessed by consulting the FNAI Leon County Inventory, FWC database, Florida's Bird Breeding Atlas, and field observations. This search shows three rookeries within the 18 mile USFWS

recommended buffers for the wood stork. One is approximately 13 miles to the east and the other two are approximately 4 and 6 miles to the north. Wetlands in the project area possibly support feeding activities by the wood stork and some of these wetlands will be impacted by this project which might affect feeding opportunities for this species. No wood stork were seen during field surveys.

6.5.1.4 Other Wading Birds

Other wading birds include the little blue heron (*Egretta ceulea*), snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), limpkin (*Aramus guarauna*), and tri-colored heron (*Egretta tricolor*). All of these species are listed as SSC by the FWC and could potentially occur. While each species is distinct, wading birds are discussed collectively since they occupy similar habitats and have similar life styles.

Historically, the populations of these species have been adversely affected by plume hunting, destruction of wetlands due to development, and by the drainage of wetlands for agriculture and/or flood control.

All of the above species employ similar nesting strategies by building nests of sticks and twigs in shrubby wetland areas. Most of the species nest in both single and multi-species colonies. All species occupy a general spring-summer nesting season. The species of the genera *Egretta* have diets consisting of mostly fish supplemented by frogs and small snakes. The ibis subsist primarily on insects and crustaceans (crayfish, grass shrimp, crabs) and small snakes with a lesser portion of their diet consisting of fish.

While the two genera have different food preferences, they prefer the same habitat. Preferred habitat for these listed species include; hardwood swamp, cypress swamp, wet prairie, freshwater marsh, coastal beach, salt marsh, urban stormwater retention areas, and flooded agricultural environments.

The primary concern for impacts to these wading birds would be loss of feeding habitat, i.e. wetlands.

All impacts to wetland areas as a result of this project will be mitigated to prevent a net loss of functional wetland area. The exact type of mitigation will be determined during coordination with regulatory entities who work closely with the USFWS and FWC in reviewing the effect of

wetland impacts on protected species. Mitigation will be designed to provide replacement for any wading bird feeding habitat lost to project impacts.

This project should have no lasting adverse impact to these species.

6.5.2 Reptiles

6.5.2.1 Eastern Indigo Snake

The Eastern indigo snake is a large, black, non-venomous snake found in the southeastern U.S. It is widely distributed throughout central and south Florida but primarily occurs in sandhill habitats in northern Florida and southern Georgia.

Wherever the Eastern indigo snake occurs in xeric habitats, it is closely associated with the gopher tortoise, the burrows of which provide shelter from winter cold and desiccation. In wetter habitats that lack gopher tortoises, Eastern indigo snakes may take shelter in hollowed root channels, hollow logs, or the burrows of rodents, armadillo (*Dasypus novemcinctus*), or land crabs (*Cardisoma guanhumi*). Throughout peninsular Florida, this species may be found in all terrestrial habitats which have not suffered high-density urban development. In central and coastal Florida Eastern indigo snakes are mainly found within many of the state's high, sandy ridges. They are especially common in the hydric hammocks throughout this region.

The longleaf pine-xeric oak (sandhill) habitat, found south of the study area, is preferred by the Eastern indigo snake where it possibly occurs as a commensal of the gopher tortoise, which is known to occur there. During field surveys, no individual Eastern indigo snakes were observed.

Although an Eastern indigo snake in the project area could be unintentionally killed during construction, their secretive habits confound capture, so no effort would be made to relocate Eastern indigo snakes prior to construction. The construction contract will include special provisions for supplying construction personnel with a species description and a warning of the penalties for intentional harm. Contact with any Eastern indigo snake discovered during construction will be avoided. Due to the possible presence of the Eastern indigo snake, provisions in the construction contract will require the contractor to follow precautionary measures. Standard protection measures for construction are included in Appendix A. If the Eastern indigo snake is discovered, coordination with the USFWS and FWC in accordance with Section 7 of the Endangered Species Act of 1973, as amended through 1982, will occur. Through

adhering to these precautions, the proposed project will not have a significant impact on the Eastern indigo snake.

6.5.2.2 Florida Pine Snake

The Florida pine snake is a large, stocky, tan or rust colored snake with an indistinct pattern of large blotches on a lighter background. The blotches are more distinct posteriorly and the venter is white. This snake may be dark brown in the western panhandle of Florida where it intergrades with another sub-species. The body is muscular with keeled scales and an undivided anal scale. Its head is relatively small with a pointed snout. Adults measure 4-7 feet and the young are 15-24 in. at hatching.

Habitats with relatively open canopies and dry sandy soils in which the Florida pine snake burrows are preferred, particularly sandhill and former sandhill habitats including old fields and pastures but also sand pine scrub and scrubby flatwoods. This snake often co-exists with pocket gophers (*Geomys pinetus*) and gopher tortoises. The Florida pine snake spends most of its time underground with occasional surface activity from spring through fall.

Although pine snakes in the project area could be unintentionally killed during construction, their secretive habits confound capture, so no effort would be made to relocate pine snakes prior to construction.

No members of this species were seen during field surveys and no impact to this species during construction is anticipated. Presence of this listed species will require coordination with the appropriate resource agency at that time.

6.5.2.3 Gopher Tortoise

The gopher tortoise has suffered a large population decline over most of its historic range, which includes the sandy coastal plain of the southeastern U.S. Florida is now the last stronghold for this species. Habitat loss is the main cause of decline. The gopher tortoise requires well-drained and loose sandy soils for burrowing, and low-growing herbs and grasses for food. These habitat conditions are best provided in the sandhill (longleaf pine-xeric oak) community, although tortoises are known to use many other habitats, including sand pine scrub, xeric oak hammocks, dry prairies, pine flatwoods, and ruderal sites. The gopher tortoise is considered a keystone species since its burrows harbor and protect a number of commensal species, such as the Florida

mouse (*Podomys floridanus*) and the gopher frog (*Rana capito*).

Habitat for this species is not currently present in the study area for this project. Some of the soils found in the hardwood/conifer mixed forest type are well drained. It is possible that the historic vegetative community on these soils once harbored gopher tortoises, however, hardwoods have been allowed to thrive unchecked by fire which has altered the natural community to the detriment of sandhill species such as the gopher tortoise. No gopher tortoises or their burrows were observed during field surveys, therefore no impact to this species will occur as a result of this project.

6.5.2.4 American Alligator

The American alligator is recovered from uncontrolled poaching and hunting which severely depleted populations in the 1960s. The increase in populations has been recognized by a relaxation of the species protected status in recent years and by the opening of controlled hunting for management purposes in some parts of the state. Current management efforts are also underway to minimize the conflicts between humans and alligators that are occurring in populated areas.

The alligator is not described in detail due to its adaptive nature and its mobility. This species is capable of utilizing a variety of wetland areas, including those within the project area. As the project will not cause any net loss of wetland area, it will not affect the overall habitat area available to the alligator. Given the opportunity to do so the alligator will avoid the noise and disturbance that occurs during construction. The mobility of the alligator and its ability to use habitats adjacent to the project area should prevent any impact to the species during the completion of this project.

6.5.3 Mammals

6.5.3.1 Florida Black Bear

Florida black bears have large home ranges and require expansive habitat of forested landscapes. Some of the more important forest types include pine flatwoods, hardwood swamp, cypress swamp, cabbage palm forest, sand pine scrub, and mixed hardwood hammock. Fragmented Florida black bear populations occur throughout the state.

The FWC has not prepared any survey guidelines for the Florida black bear. Occurrence is

typically reported from incidental sighting of animals or discovery of paw prints or scat. There is a known Florida black bear population located in the Apalachicola National Forest which can be found just south of the project.

No bears or bear signs were seen during field surveys for this project and there should be no impact to this species as a result of this project.

6.5.3.2 Sherman's Fox Squirrel

Sherman's fox squirrel is quite different in size and appearance from the gray squirrel (*Sciurus carolinensis*). The Sherman's fox squirrel is considerably larger, measuring 23.6 to 27.6 inches in total length and weighing from 2.0 to 2.6 lbs. The top of the head is typically black, with white nose and ears. The rest of the pelage is variable in color ranging from agouti to black, light agouti to tan, or dark over tan, or tan over dark. Sherman's fox squirrels utilize large leaf nests, most built in large oaks. Typically, two breeding seasons occur each year, one in the winter and one in the summer. Habitat dependent, the Sherman's fox squirrel may skip a breeding season, depending on resource abundance. This species depends on a variety of food sources for its survival. Major food resources include turkey oak acorns, longleaf pine seeds, and live oak acorns. Other acorns and nuts, fungi, bulbs, vegetative buds, insects and staminate pinecones also are eaten.

To accommodate the squirrel's large home range and varied food resources, suitable habitat must be fairly extensive. The mature, fire-maintained longleaf pine-turkey oak sandhills and flatwoods are the optimal habitat for the Sherman's fox squirrel.

No Sherman's fox squirrels were observed during field studies and no known nests occur within the construction zone of this project, although habitat does occur just south of the study area.

No standard survey methodology currently exists for this species; however, general pedestrian transects were surveyed. It is not anticipated that any adverse impact to Sherman's fox squirrel habitat will occur as a result of this project. No unique habitats or nesting sites were observed. Presence of this listed species will require coordination with the appropriate resource agency at that time.

6.5.4 Plants

6.5.4.1 Bent Golden Aster

Bent golden aster is a perennial herb with a silvery or lead colored pubescence. This plant has zig-zag stems with alternate leaves which are narrowly linear. It has ray flowers with yellow ligules which are 0.39 in. - 0.50 in. long. This plant can be found in sandhill and scrub habitat in the Florida panhandle.

The FNAI database shows this plant within a mile of the project, however, no members of this species were seen during preliminary field surveys. More comprehensive surveys for this plant may be needed before construction commences on this project. Documented presence of this listed species will require coordination with the appropriate resource agency at that time.

6.5.4.2 Chapman's Rhododendron

Chapman's rhododendron is an evergreen shrub which grows to about 6 feet tall. Its branches are usually erect and rigid, the barks of new shoots are reddish-brown becoming gray and breaking away slightly in thin longitudinal strips on older parts. The leaves are alternate and elliptic on short glandular-scaly petioles. Leaf margins are entire and slightly turned under. The upper surface of the leaves is green; the lower surface is reddish due to many flat red scales. This plant's inflorescence is a terminal raceme or tight cluster of large flowers. Each flower has five roseate petals about long, fused at the base, spreading in a funnel shape and slightly unequal in size (the largest is the lowest). There are 10 stamens which project out of the flower; the fruit as ovoid capsule about 3/8 in. long which produces many seeds. Flowering occurs in March and April.

This plant requires habitat with good drainage and no possibility of flooding, light shade, sandy soil with abundant organic matter, and a stable, soft acid water table near the surface. Typically, Chapman's rhododendron is found in the ecotonal region where the drier pine-turkey oak vegetation border on moister titi (*Cliftonia* sp.) bogs.

Chapman's rhododendron, listed as endangered by the FWC and the USFWS, was assessed for potential occurrence in the project area. This assessment entailed consulting the FNAI Leon County Inventory, FWC database, and field observations. Chapman's rhododendron is not known to occur in Leon County, but can be found in Gadsden County which is the neighboring county to the west. Agency databases do not show any occurrence of this species within one mile

of the project corridor and field observations did not locate this species within the project corridor. No impact to this species will occur as a result of this project.

6.5.4.3 Chaffseed

American chaffseed, listed as endangered by the FWC and USFWS, is an erect perennial herb with unbranched stems (or stems branched only at the base) with large, purplish-yellow, tubular flowers that are borne singly on short stalks in the axils of the uppermost, reduced leaves (bracts). The leaves are alternate, lance-shaped to elliptic, stalkless, 1 to 2 inches long, and entire. The entire plant is densely, but minutely hairy throughout, including the flowers. Chaffseed fruits are long, narrow capsules enclosed in a sac-like structure that provides the basis for the common name. *Schwalbea* is a hemiparasite (partially dependent upon another plant as host). Like most of the hemiparasitic Scrophulariaceae, it is not host-specific, so its rarity is not due to its preference for a specialized host.

American chaffseed occurs in sandy (sandy peat, sandy loam), acidic, seasonally moist to dry soils. It is generally found in habitats described as open, moist pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric sandy soils, and other open grass-sedge systems. Chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables to maintain the crucial open to partly-open conditions that it requires. Historically, the species existed on savannas and pinelands throughout the coastal plain and on sandstone knobs and plains inland where frequent, naturally occurring fires maintained these sub-climax communities. Under these conditions, herbaceous plants such as *Schwalbea* were favored over trees and shrubs.

Chaffseed was assessed for potential occurrence in the project area by consulting the FNAI Leon County Inventory, FWC database, and field observations. Chaffseed has one known population in Leon County on private land. Agency databases do not show any occurrence of this species within one mile of the project corridor, and field observations did not locate this species within the project corridor. No impact to this species will occur as a result of this project.

7.0 PROTECTED SPECIES CONCLUSIONS

No listed species were observed during field studies. The FNAI database shows bent golden aster within a mile of the project, however, no individuals of this species were observed. The habitats and natural features in the central and southern portion of the project corridor have been lightly impacted by human activity, allowing for continued biological viability. Due to these conditions, a fair amount of wildlife is likely present throughout most of the study area with the exception of the urbanized areas.

7.1 Evaluation of Alternatives

As noted previously in Section 4.2 there are six alignment alternatives for this project. As no listed species were documented within any of these alternatives each alternative carries the same weight in potential impact to listed species.

8.0 SUMMARY AND RECOMMENDATIONS

An Endangered Species Biological Assessment was prepared for the proposed improvements to Capital Circle NW/SW to address concerns regarding potential protected species in the project area.

General wildlife and floral surveys of existing habitats within the project corridor were conducted to determine the presence or potential occurrence of threatened and endangered floral and faunal species. The field investigations conducted to date have not revealed the existence of the Eastern indigo snake. However, upon the recommendation of the USFWS, construction precautions for this species will be implemented. With these precautions, no impact on the Eastern indigo snake is expected. Because of concerns for the occurrence of the Eastern indigo snake, standard protection measures for the Eastern indigo snake have been included in this document, in Appendix A.

The project corridor was assessed for the potential occurrence of the bald eagle which is listed as threatened by the FWC and the USFWS. This assessment entailed consulting the FNAI Leon County Inventory, FWC database, Florida's Bird Breeding Atlas, and field observations. There

are several bald eagle occurrences in the northern part of the county but none are located within 1 mile of this project. Therefore, no impact to this species will occur as a result of this project.

Potential impacts to the wood stork, listed as endangered by the FWC and the USFWS, were assessed by consulting the FNAI Leon County Inventory, FWC data base, Florida's Bird Breeding Atlas, and field observations. The database search shows an occupied rookery approximately 13 miles to the east of this project and two more approximately 4 and 6 miles to the north. All of these rookeries are within the 18 mile recommended buffer for this species. Wetlands in the project area could possibly support feeding activities by the wood stork. Wetland impacts will be mitigated for which should negate negative impacts to this species.

Chapman's rhododendron, American chaffseed (both listed as endangered by the FWC and the USFWS), and bent golden aster (listed as endangered by the FWC) were assessed for potential occurrence in the project area. This assessment entailed consulting the FNAI Leon County Inventory, FWC database, and field observations. Chapman's rhododendron is not known to occur in Leon County but can be found in Gadsden County which is the neighboring county to the west. Chaffseed has one known population in Leon County on private land. Agency databases do not show any occurrence of these species within one mile of the project corridor and field observations did not locate either of these species within the project corridor. The FNAI database did show bent golden aster within one mile of the project, however, no individuals of this species were observed during field studies. No impact to these species will occur as a result of this project.

Active gopher tortoise burrows are present just south of the study area which can lead one to assume that gopher tortoises themselves can be found there. No gopher tortoises or their burrows were observed during field studies for this project. No impact to this species is expected as a result of this project.

The study area was also evaluated for the potential of Critical Habitat. USFWS has been delegated authority as a Federal agency to protect from destruction or adverse modification the biological or physical constituent elements essential to the conservation of the listed species within the Critical Habitat. No Critical Habitat(s) were identified within the study area for any species.

Given the above commitment, data collection and analysis, it has been determined that the proposed project will not adversely affect or jeopardize the existence of any federally threatened or endangered species. There is no officially designated Critical Habitat for threatened and endangered species in the project vicinity. In addition, the proposed project will not substantially impact other wildlife species or their habitats.

Based upon the findings of the preliminary data collection, the general and species-specific surveys, and ongoing coordination with the USFWS and FWC, the following commitments are made:

- The preferred project alternative will impact some wetland habitats that may be used as foraging habitat for a variety of wading birds. These wetlands will be replaced through the mitigation process, therefore eliminating any impacts to wading birds; and
- It has been determined that the Eastern indigo snake could be present within the project area. To satisfy USFWS and FWC concerns about this species, the provisions stated in Appendix A will be implemented.

Given the above conclusions and commitments, it can be stated that the proposed project will not adversely affect or jeopardize the existence of the previously mentioned listed species, even if they are known or expected to occur in the project vicinity.

APPENDIX A

Eastern Indigo Snake Protection Measures

Eastern Indigo Snake Standard Protection Procedures

The Eastern indigo snake is a threatened species that occurs throughout peninsular Florida. This species is actually characteristic of moist habitats, but inhabits sandy xeric habitats in conjunction with gopher tortoises (*Gopherus polyphemus*). In the drier habitats, the Eastern indigo snake will occupy gopher tortoise burrows. The preferred habitats include pine flatwoods, xeric oak stands, palmetto scrub, and tropical hammocks.

No Eastern indigo snakes were observed within the study area during any of the field surveys. The prevalence of potential habitat within the corridor could potentially involve the Eastern indigo snake. However, to minimize any impacts to any individual Eastern indigo snakes during construction, the following special provisions will be included in the construction contract to advise the contractor of the potential presence of this species and its protected status:

- If an Eastern indigo snake is sighted during construction, the contractor will be required to cease all operation(s) which might cause harm to the snake.
- If the snake does not move away from the construction area, a state or federal biologist will be contacted to capture and relocate the snake to suitable habitat either adjacent to the project area or off-site to an acceptable donor site.
- If an Eastern indigo snake is killed or found dead within the construction area, the snake should be frozen and the USFWS Jacksonville Field Office [(904) 232-2580] will be notified immediately.
- In addition, educational signs with pictures shall be posted throughout the project prior to initiation of construction.

Due to the condition of the surrounding area, the abundance of habitat in the project area, and the special provisions to protect transient individuals encountered during construction, the proposed project is not anticipated to affect the Eastern indigo snake.