

WETLANDS EVALUATION REPORT

COBB ROAD (CR 485) / US 98 PD&E STUDY

From SR 50 to Suncoast Parkway in Hernando County, Florida

WPI Nos. 257299 1 & 405017 1; FAP Nos: 2891 007 P & 2891 008 P



Florida Department of Transportation
District Seven

April 2003

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**Cobb Road (CR 485) / US 98
Project Development and Environment Study**

**Cobb Road (CR 485), from SR 50 to US 98
and
US 98, from Cobb Road to Suncoast Parkway
Hernando County, Florida**

**WPI Segment Nos.: 257299 1 & 405017 1
FAP Nos.: 2891 007 P & 2891 008 P**

**This proposed action consists of capacity and safety improvements to
Cobb Road (CR 485), a two-lane undivided arterial,
from SR 50 to US 98 and US 98, a two-lane undivided arterial,
from Cobb Road to Suncoast Parkway**

**FLORIDA DEPARTMENT OF TRANSPORTATION
District Seven**

April 2003

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PURPOSE OF THIS REPORT.....	2
2.1	Project Description.....	2
2.2	Need for Improvement.....	4
2.3	Deficiencies.....	4
2.3.1	Capacity: Existing and Future Levels of Service.....	4
2.3.2	Evacuation Routes and Emergency Services.....	4
2.4	Safety	5
2.5	Consistency with Transportation Plans.....	5
2.6	Social and Economic Demands	5
2.6.1	Population and Employment Trends.....	6
3.0	STUDY ALTERNATIVES	7
3.1	Project Segmentation	7
3.2	Recommended Build Alternative.....	7
3.2.1	Segment 1a – Urban, Fit within Existing Right-of-Way	7
3.2.2	Segment 1b – Suburban Left.....	7
3.2.3	Segment 2a – Suburban Left Transitioning to Rural Left.....	8
3.2.4	Segment 2b – Rural Realign	8
3.2.5	Segment 3 – Rural Left.....	8
3.2.6	Segment 4 – Rural Left.....	8
3.3	No Build Alternative.....	9
4.0	EXISTING ENVIRONMENTAL CHARACTERISTICS.....	10
4.1	Existing Land Use.....	10
4.2	Future Land Use.....	10
4.3	Natural and Biological Features.....	10
4.3.1	Upland Plant Communities.....	10
4.3.2	Listed Species	11
4.3.3	Outstanding Florida Waters	12
4.3.4	Aquatic Preserves.....	12
4.3.5	Soils.....	12
5.0	WETLAND EVALUATION.....	13
5.1	Wetland Identification Methodology.....	13
5.2	Wetlands and Surface Waters Within the Project Limits	14
5.3	Results of WRAP Analysis.....	39
5.4	Analysis of Potential Wetland Impacts.....	42
6.0	CONCEPTUAL MITIGATION ALTERNATIVES	46
6.1	Mitigation.....	47
7.0	PERMITTING REQUIREMENTS AND COORDINATION	48

8.0 CONCLUSIONS AND COMMITMENTS 49
9.0 REFERENCES 50

LIST OF EXHIBITS

EXHIBIT 2-1 – Project Location Map 3
EXHIBIT 5-1 – Project Wetlands..... 15

LIST OF TABLES

Table 5-1 – WRAP Summary..... 41
Table 5-2 – Wetland Impacts By Alternatives..... 43
Table 5-3 – Wetland Impacts Associated with the Recommended Alternative 46

APPENDICES

- Appendix A – Photographs of Wetland Sites
- Appendix B – Representative WRAP Data Sheets
- Appendix C – Advance Notification Responses, Correspondence, and Coordination
- Appendix D – Potential Protected Species in the Study Area

1.0 INTRODUCTION

This Wetland Evaluation Report is one in a series of reports prepared as a part of the Project Development and Environment (PD&E) study undertaken by the Florida Department of Transportation (FDOT) for the proposed widening of Cobb Road (CR 485) and US 98 in Hernando County, Florida. The purpose of this study is to collect data which will help determine the location and design of the facility and the potential impacts associated with the Build and No Build alternatives.

In accordance with Executive Order 11990, Protection of Wetlands, dated May 24, 1977, potential wetland impacts resulting from the planned project have been studied. The purpose of this Wetland Evaluation Report is to characterize wetlands impacted by the project alternatives, provide qualitative and quantitative information on potential wetland impacts, potential mitigation for these impacts, identify permitting and coordination requirements, and initiate review and request comments from jurisdictional regulatory agencies. This report also provides background information about the project area's land uses, natural features, and potential impacts to listed species.

2.0 PURPOSE OF THIS REPORT

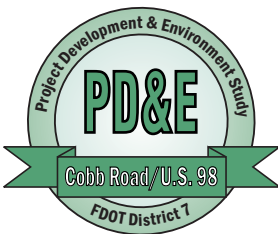
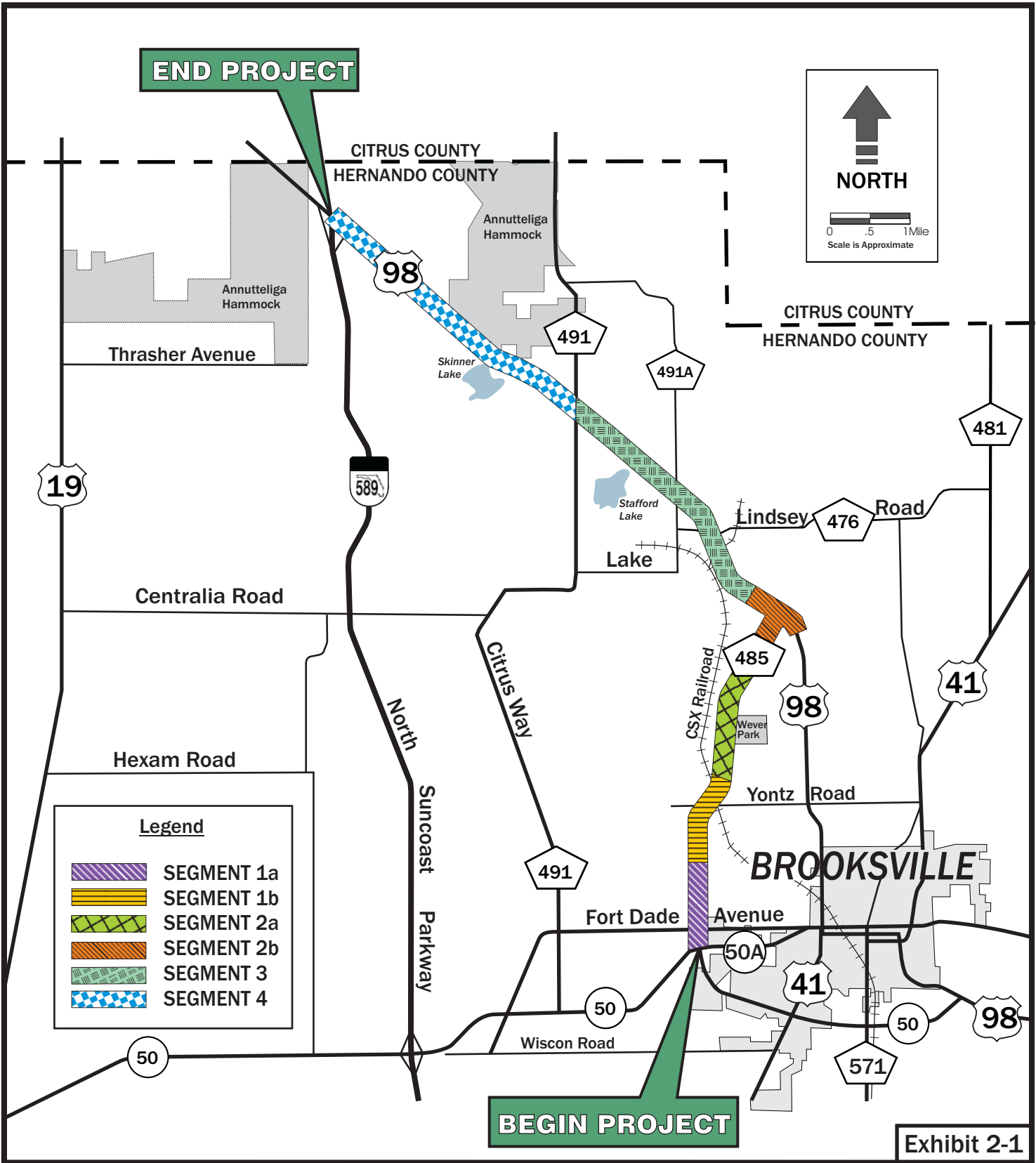
This Wetlands Evaluation Report is one in a series of reports prepared as part of the PD&E study undertaken by the Florida Department of Transportation for the proposed Cobb Road (CR 485) and US 98 improvement project in Hernando County, Florida.

2.1 Project Description

The planned project will improve the capacity and safety of the existing two-lane Cobb Road and a portion of US 98 in Hernando County, Florida. The project study area begins on Cobb Road at SR 50 in the City of Brooksville and extends northward 4.5 miles to US 98. The study area then proceeds 7 miles to the northwest along US 98 to the Suncoast Parkway (SR 589). These segments of Cobb Road and US 98 are currently two-lane undivided rural arterials. The total length of the planned project is approximately 11.5 miles. Exhibit 2-1 presents the location of the project.

The existing Cobb Road / US 98 corridor provides traffic flow around the west side of the City of Brooksville, ultimately connecting SR 50 with the Suncoast Parkway. Traffic growth in Hernando County and in the vicinity of the City of Brooksville will cause Cobb Road and US 98 to become congested if traffic capacity is not added to the system. The need to provide a safer designated bypass route around the City of Brooksville is vital, particularly for the large volume of truck traffic associated with three major rock mines and other industrial facilities situated along the project corridor.

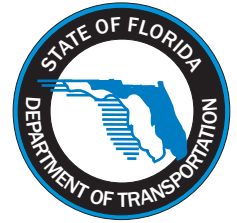
Capacity and safety improvements to Cobb Road and US 98, along with the designation of Cobb Road as US 98, represents a long-standing goal of the City of Brooksville and Hernando County. This goal has been incorporated into the Hernando County Metropolitan Planning Organization's (MPO) *2025 Long Range Transportation Plan*, which calls for widening the existing roadways to a continuous, four-lane divided, controlled access facility.



Project Location Map

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
FAP Nos: 2891 007 P & 2891 008 P



2.2 Need for Improvement

The Hernando County Metropolitan Planning Organization (MPO) identified the need for capacity improvements to Cobb Road and US 98 in 1998 during development of the adopted *2025 Long Range Transportation Plan*.

2.3 Deficiencies

2.3.1 Capacity: Existing and Future Levels of Service

Six levels of service (LOS) are defined for each type of facility with LOS A representing the best operating conditions and LOS F representing the worst conditions. Based on the *Traffic Report* (November 2001) for Cobb Road and US 98, which was prepared as part of this study, the existing segments and most of the existing intersections within the PD&E study limits are operating at adequate LOS (A and B) based on the Annual Average Daily Traffic (AADT). The segment of the roadway displaying the worst conditions is the segment from SR 50 to Yontz Road, which currently operates at LOS C during both the AM and PM peak hours. By the design year (2025), US 98 is projected to be operating at LOS C, with the exception of the segment from Cobb Road to CR 491, which is projected to be operating at LOS D for the No-Build Alternative. Cobb Road is projected to be operating at LOS D, with the exception of the segment from Yontz Road to US 98, which is projected to be operating at LOS B for the No-Build Alternative.

2.3.2 Evacuation Routes and Emergency Services

According to Hernando County's Comprehensive Plan, Cobb Road is intended to serve as a future evacuation route, and US 98 is currently identified as an evacuation route. The existing two-lane undivided arterial would not provide an efficient or safe evacuation route due to capacity deficiencies.

2.4 Safety

Crash records from Hernando County's CARS 2000 (Computerized Accident Record System 2000) indicated that 53 crashes occurred within the Cobb Road portion of the project study area over the five-year period between 1995 and 1999. This accounts for approximately 10 crashes per year. In addition, during the five-year period, there were 12 injuries and no fatalities.

Summary crash data was obtained from the FDOT, reporting a total of 48 crashes occurring on US 98 from Cobb Road to the Suncoast Parkway during the years from 1995 to 1999. These crashes resulted in two fatalities and 68 injuries.

2.5 Consistency with Transportation Plans

The proposed capacity improvements to Cobb Road and US 98 are consistent with the Hernando County MPO's *2025 Long Range Transportation Plan*. Cobb Road and US 98 are essential elements of the State Transportation Plan. Cobb Road and US 98, which are not limited-access facilities, will meet state design criteria and standards, including LOS standards and right-of-way (ROW) protection.

2.6 Social and Economic Demands

Hernando County has experienced substantial growth over the past two decades and will continue to experience growth in population and in residential and commercial development according to population projections. Hernando County is part of the 4-County Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area (MSA), sharing close economic and commuter ties with Hillsborough, Pasco and Pinellas Counties to the south. The counties have recently become further linked through the construction of the Suncoast Parkway, which provides a direct route from the Veterans Expressway in Tampa to US 98 in northern Hernando County. Hernando County is expected to experience additional growth with the construction and completion of the Suncoast Parkway, which provides commuter ties with the Tampa Bay area. Corresponding development will demand acceptable levels of police and fire protection, emergency medical vehicle response time, and access to employment, shopping, schools, churches,

community centers, and social service agencies. Furthermore, an alternate route for vehicles, particularly trucks, traveling around the City of Brooksville will come into demand. For Hernando County, particularly around the City of Brooksville, many of these social and economic demands will be better served with the proposed capacity improvements of Cobb Road and US 98 and the associated designation of an alternate route around the City of Brooksville. Capacity improvements associated with this project will have a positive social and economic impact on the citizens of Hernando County by improving local and regional accessibility.

2.6.1 Population and Employment Trends

Hernando County's population has increased consistently over the past 20 years, with dramatic growth occurring in the 1980's. According to the Hernando County Economic Development Study of April 2001, Hernando County's population grew by 125% between 1980 and 1990. This rapid growth slowed between 1990 and 2000 with an overall increase of 30%. Growth rates are projected to be 37% between 2000 and 2015 and 18% between 2015 and 2025. Major employment centers within and adjacent to the study area consist mainly of the D.S. Parrott Middle School and three major mining facilities.

3.0 STUDY ALTERNATIVES

3.1 Project Segmentation

For this PD&E Study, the project was divided into segments for analysis. The segments of Cobb Road were chosen based on surrounding characteristics such as land use and environmental constraints, as well as the potential need for realignments. The segments of US 98 were chosen to match FDOT resurfacing project limits for consistency. The project segmentation is shown on the Project Location Map in **Exhibit 2-1**. The segments of the project are identified as follows:

- **Segment 1a:** Cobb Road from north of SR 50 to north of the Brooksville Water Reclamation Facility (WRF) driveway
- **Segment 1b:** Cobb Road from north of the Brooksville WRF driveway to north of Yontz Road
- **Segment 2a:** Cobb Road from north of Yontz Road to south of US 98
- **Segment 2b:** Cobb Road/US 98 Intersection
- **Segment 3:** US 98 from north of Cobb Road to CR 491
- **Segment 4:** US 98 from CR 491 to Suncoast Parkway

3.2 Recommended Build Alternative

3.2.1 Segment 1a – Urban, Fit within Existing Right-of-Way

The proposed typical section for Segment 1a is an urban typical section consisting of two 12-ft. travel lanes in each direction, a 6-ft. sidewalk on the left (west) side and a 12-ft. shared use path on the right (east) side. This typical section utilizes a 17.5-ft. median and fits within the existing right-of-way width (minimum 100 ft.). The proposed design speed is 45 mph.

3.2.2 Segment 1b – Suburban Left

The proposed typical section for Segment 1b is a suburban typical section consisting of two 12-ft. travel lanes in each direction with 8-ft. outside shoulders (5 ft. paved) and a 12-ft. shared use path on the right (east) side. This typical section utilizes a 30-ft. median

(22-ft. curb to curb and 4-ft. offsets to edge of inside travel lanes). The proposed minimum right-of-way width required is 158 ft. The proposed design speed is 55 mph. A left alignment is proposed for this segment.

3.2.3 Segment 2a – Suburban Left Transitioning to Rural Left

Two typical sections are proposed for Segment 2a. The proposed typical section for the portion of Segment 2a south of Youth Drive is a suburban typical section as described above in **Section 3.2.2**. North of Youth Drive, a transition would take place to a rural typical section consisting of two 12-ft. travel lanes, 8-ft. outside shoulders (5-ft. paved) and 6-ft. inside shoulders (4-ft. paved) in each direction and a 12-ft. shared use path on the right (east) side. The proposed minimum right-of-way width required is 240 ft. The proposed design speed is 70 mph. A left alignment is proposed for this segment.

3.2.4 Segment 2b – Rural Realign

The proposed typical section for Segment 2b is a rural typical section as described above in **Section 3.2.3**. This proposed rural typical section would be utilized on a new alignment to create a through movement between Cobb Road and US 98 to the north. The existing US 98 to the south would be realigned to a “T” intersection with the new alignment.

3.2.5 Segment 3 – Rural Left

The proposed typical section for Segment 3 is a rural typical section as described above in **Section 3.2.3**. A left alignment is proposed for this segment.

3.2.6 Segment 4 – Rural Left

The proposed typical section for Segment 4 is a rural typical section as described above in **Section 3.2.3**. A left alignment is proposed for this segment.

3.3 No Build Alternative

Under the No Build Alternative, no action would be taken with respect to improving Cobb Road and US 98 within the limits of the project study area. Based on the No Build Alternative having major deficiencies, it is not recommended.

4.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

4.1 Existing Land Use

The predominant existing land uses in the study area are rural, mining and agricultural. Some scattered single-family residential and commercial uses are situated mostly in the southern portion of the corridor, but can be found throughout. Large rock and sand mining operations are located to the north and west of the study corridor. Notable land uses along the corridor include D. S. Parrott Middle School, the Ernie Wever Youth Park, the Annutteliga Hammock Conservation and Recreation Lands (CARL) project, and three major mining facilities.

4.2 Future Land Use

The study area immediately adjacent to the Cobb Road corridor is anticipated to undergo a developing transition towards industrial and residential land uses. The majority of the study area along US 98 will remain as mining and rural land uses with some planned development and commercial development near the Suncoast Parkway.

4.3 Natural and Biological Features

4.3.1 Upland Plant Communities

Prior to field surveys, aerial photographs of the project study area were reviewed. Field reviews were conducted in October and November 2001 to verify cover types and habitats within the study area. Upland plant communities within the study area are discussed below. Wetland plant communities are discussed in Section 5.

The upland floral communities in the Cobb Road/US 98 improvement project can be described as old-field, mixed hardwood and pine and hardwood hammock. The old-field community is dominated by dogfennel (*Eupatorium capillifolium*), blackberry (*Rubus* sp.), with some yucca (*Yucca* sp.), gallberry (*Ilex glabra*), broomsedge (*Andropogon* sp.), and prickly pear cactus (*Opuntia* sp.). The mixed hardwood and pine are dominated by

slash pine (*Pinus elliottii*), water oak (*Quercus nigra*), southern magnolia (*Magnolia grandiflora*) and hickory (*Carya* sp.). The hardwood hammocks are dominated by live oak (*Quercus virginiana*), southern magnolia and hickory. Soils are mostly sandy with some areas having varying degrees of clay.

4.3.2 Listed Species

In accordance with Section 7 of the Endangered Species Act of 1973, as amended, the study area was initially evaluated for the potential for occurrences of federally and state-listed threatened and endangered species. Informal consultation was conducted with the United States Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FWC), and Florida Natural Areas Inventory (FNAI) to request information on threatened and endangered species that may occur within the study area. A list of threatened and endangered species and critical habitat was provided by FNAI for the county, including FWC eagle nest locations and production data.

After compilation of the data, the study area was analyzed for habitat availability for threatened and endangered species. A table of potential protected species and their assigned status can be found in Appendix D. The acreage of preferred habitat does not imply that the species is found in the project area.

The federal and state listed (endangered) species Cooley's water willow (*Justicia cooleyi*) can be found adjacent to Wetland 9.

Full details of all listed species surveys conducted for this project can be found in the Endangered Species Biological Assessment located in the project files in the FDOT's District Environmental Management Office in Tampa.

According to the FWC database, there is one known eagle nest within one mile of the project (HN010). Skinner Lake is possibly this eagle's primary feeding spot and is located between US 98 and the nest on the west side of US 98. The nest is approximately

4000 ft. from US 98. The minimal disturbance associated with construction should allow for no impact to occur to this animal as a result of the planned project.

4.3.3 Outstanding Florida Waters

In accordance with Section 62-302.700, Florida Administrative Code (F.A.C.), the study area was evaluated for the occurrence of Outstanding Florida Waters (OFWs). There are no OFWs identified in the study area.

4.3.4 Aquatic Preserves

Aquatic Preserves are also regulated by the Florida Department of Environmental Protection (FDEP) under Chapter 258 of the Florida Statutes to maintain and improve existing habitats and resources through land management. All Aquatic Preserves have been designated as OFWs in the State of Florida. There are no Aquatic Preserves located in the study area.

4.3.5 Soils

The Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service) Soil Survey for Hernando County was reviewed with respect to geology and near-surface soil conditions in the project area. Soils maps show multiple soil map units within the study area. The primary soils in the study area are those of the Nobleton-Blichton-Flemington upland soil association. The soils mapped by the NRCS Soil Survey within the project limits are listed below:

NRCS Soil Survey Classification/Map Symbol Numbers

- Soil Type 6 – Arredondo Fine Sand
- Soil Type 12 – Blichton Loamy Fine Sand
- Soil Type 14 – Candler Fine Sand
- Soil Type 15 – Candler Fine Sand
- Soil Type 20 – Flemington Fine Sandy Loam
- Soil Type 21 – Flemington Fine Sandy Loam
- Soil Type 22 – Flemington Fine Sandy Loam

Soil Type 25 – Floridana Variant Loamy Fine Sand

Soil Type 29 – Kendrick Fine Sand

Soil Type 34 – Micanopy Loamy Fine Sand

Soil Type 36 – Nobleton Fine Sand

Soil Type 41 – Pits

Soil Type 42 – Pits-Dumps Complex

Soil Type 47 – Sparr Find Sand

Soil Type 52 – Wauchula Fine Sand

Of the 15 soil types, only one soil is classified as Hydric; however, inclusions of Hydric Soil can be found within the larger soil mapping units. This soil is Floridana Variant Loamy Fine Sand and can be found in Wetland 10.

5.0 WETLAND EVALUATION

This section presents information regarding wetlands in the study area.

5.1 Wetland Identification Methodology

Wetlands within the project limits were initially identified through review of mapping resources including the *Soil Survey of Hernando County*, USFWS National Wetlands Inventory maps, and 1"=200' scale project aerial photography. Wetlands were identified in the field utilizing the U.S. Army Corps of Engineers (USACOE) *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1987). Representative wetland types were also photographed (see Appendix A). The dominant floral species, hydrological contiguity, anticipated impacts, and related observations are contained in the following portions of this section.

The wetlands were classified according to the USFWS methodology (Cowardin, *et al.*, 1979). Wetland types were also classified using the FDOT *Florida Land Use, Cover and Forms Classification System (FLUCFCS)* Second Edition, September 1985. Sizes of existing wetlands and potential impacts were determined from field surveys and digitized wetland boundaries using project aerial photography. Representative wetland types were

assessed for functional significance using the Wetland Rapid Assessment Procedure (WRAP) as developed by the South Florida Water Management District (Miller and Gunsalus, 1997) and utilized by the USACOE.

5.2 Wetlands and Surface Waters within the Project Limits

Five wetland types were identified within the Cobb Road and US 98 study area. They are contained within the Withlacoochee River Drainage Basin and the Crystal River to St. Petersburg Drainage Basin located in the Brooksville Ridge Physiographic Province. However, there is no well defined surface drainage system in Hernando County with the exception of the Withlacoochee River in the eastern portion and the Weeki Wachee River in the western portion. Most of the County is drained through numerous closed sinks, depressions, lakes and grassy prairies. This is also the case in the US 98/Cobb Road study area. The five wetland types are forested floodplain wetland, creek, pond/lake, freshwater marsh, and man-made conveyance and retention areas (ditches, swales and retention ponds/sumps).

Forty-six wetlands were identified within or near the impact zone of the Cobb Road/US 98 improvement project (Exhibit 5-1). A discussion of the wetland characteristics of each is presented below, including:

- USFWS Classification
- Location
- Vegetation
- Hydrology
- Soils



NORTH

Legend

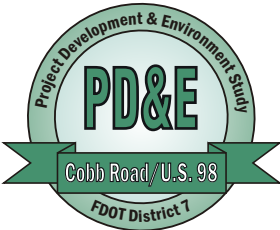


Wetlands



Wetland Site Number

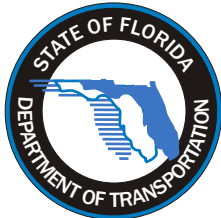
Exhibit 5-1



Location of Project Wetlands

Cobb Road (CR 485) / US 98 PD&E Study

WPI Segment Nos: 257299 1 & 405017 1
 FAP Nos: 2891 007 P & 2891 008 P



Wetland 1 is a natural creek channel that has been ditched. This creek runs through uplands. There is no vegetation in the channel. The USFWS classifies this wetland as a riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated system (R2UBHx). According to *FLUCFCS*, this wetland is a Waterway/ditch (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Kendrick fine sand (0 to 5 percent slopes). In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall.

Wetland 2 is a forested floodplain wetland located on the east side of Cobb Road just south of Fort Dade Avenue. The dominant vegetation consists of sweet gum (*Liquidambar styraciflua*) and laurel oak (*Quercus laurifolia*). The exotic air potato (*Dioscorea bulbifera*) was also noted here. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists two soil types for this wetland. The first soil type is Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil on the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The second soil type is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found on small areas in the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 3 is a forested floodplain wetland located on the east side of Cobb Road at its intersection with Old Cobb Road and directly across the street from Wetland 4. The dominant vegetation consists of red maple (*Acer rubrum*) and swamp chestnut oak (*Quercus michauxii*). Black gum (*Nyssa sylvatica*) and box elder (*Acer negundo*) are also present. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey*

of *Hernando County, Florida* lists the soil type as Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil in the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The hydrology is controlled by seasonal rainfall.

Wetland 4 is a freshwater marsh with some open water located on the west side of Cobb Road directly opposite Old Cobb Road. The dominant vegetation is cattail (*Typha* sp.) with some willow (*Salix* sp.). The USFWS classifies this system as a palustrine, emergent, persistent, semi-permanently flooded system (PEM1F). According to the *FLUCFCS*, this wetland is a Freshwater Cattail Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type as Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil in the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The hydrology is controlled by seasonal rainfall.

Wetland 5 is a small, man-made retention area (wet ditch) on each side of a culvert located 1000 feet south of Wetland 6. The dominant vegetation consists of water-primrose (*Ludwigia octovalvis*). The USFWS classifies this system as a palustrine, emergent, persistent, temporarily flooded, excavated system (PEM1Ax). According to the *FLUCFCS*, this wetland is a Borrow Area (742). The *Soil Survey of Hernando County, Florida* lists the soil type as Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil on the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The hydrology is controlled by seasonal rainfall.

Wetland 6 is a forested floodplain wetland located on the east side of Cobb Road approximately 0.7 mi. south of the Yontz Road/Cobb Road intersection. Swales alongside the highway convey stormwater to this wetland. The dominant vegetation consists of sweet gum (*Liquidambar styraciflua*), swamp chestnut oak (*Quercus michauxii*), persimmon (*Diospyros virginiana*), hackberry (*Celtis laevigata*) and poison ivy (*Toxicodendron radicans*). The USFWS classifies this wetland as a palustrine, forested,

broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Flemington fine sandy loam (2 to 5 percent slopes). This is a gently sloping, poorly drained soil on the uplands. This soil has a perched water table above the Bt horizon. Bt horizons are zones where clay accumulates from above. The upper part of the Bt horizon is saturated for one to four months during wet seasons. The hydrology is controlled by seasonal rainfall.

Wetland 7 is a man-made water retention area. It is an excavated ditch with forested floodplain characteristics on the west side of Cobb Road and freshwater marsh characteristics on the east. It is located approximately 100 feet south of the Yontz Road/Cobb Road intersection. Water collects here off the roadway and when it stages up on the west it goes through a culvert to the other side of the road. On the east, the dominant vegetation is planted grasses (*Bahia* sp.). On the west, willow (*Salix* sp.) and sweet gum (*Liquidambar styraciflua*) are the dominant species. The USFWS classifies the marsh component as a palustrine, emergent, persistent, temporarily flooded, excavated system (PEM1Ax); and the forested floodplain component as a palustrine, forested, broad-leaved deciduous temporarily flooded, excavated system (PFO1Ax). According to the *FLUCFCS*, both components are Borrow Areas (742). The *Soil Survey of Hernando County, Florida* lists the soil type as Flemington fine sandy loam (2 to 5 percent slopes). This is a gently sloping, poorly drained soil on the uplands. This soil has a perched water table above the Bt horizon. The upper part of the Bt horizon is saturated for one to four months during wet seasons.

Wetland 8 is a man-made water retention area. It is an excavated ditch with forested floodplain characteristics on the east side of Cobb Road and freshwater marsh characteristics on the west. It is located approximately 300 feet north of the Yontz Road/Cobb Road intersection. Water collects here off the roadway and when it stages up goes through a culvert to the west side of the road. Sweet gum (*Liquidambar styraciflua*) and water oak (*Quercus nigra*) are the dominant species present to the east. Water-

primrose (*Ludwigia octovalvis*) is the only plant to the west. On the western side, it is a very small catchment area next to the culvert. The USFWS classifies the marsh component as a palustrine, emergent, persistent, temporarily flooded, excavated system (PEM1Ax); and the forested floodplain component as a palustrine, forested, broad-leaved deciduous temporarily flooded, excavated system (PFO1Ax). According to the *FLUCFCS* both components are Borrow Areas (742). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years.

Wetland 9 is a freshwater marsh and forested floodplain wetland that occurs on both the west and east side of Cobb Road respectively. The wetland is small and appears on each side of a culvert which crosses under Cobb Road. This wetland is located approximately 1400 feet north of the Yontz Road/Cobb Road intersection. On the east side the wetland is depressional with sweet gum (*Liquidambar styraciflua*) and willow (*Salix*. sp.) as the dominant plant species. Also observed, adjacent to the wetland, was the Federally-listed Cooley's water willow (*Justicia cooleyi*). On the west side is pickerelweed (*Pontederia cordata*), flat sedge (*Cyperus* sp.), and water-primrose (*Ludwigia octovalvis*). The USFWS classifies the marsh component as a palustrine, emergent, persistent, temporarily flooded system (PEM1A); and the forested floodplain component as a palustrine, forested, broad-leaved deciduous temporarily flooded system (PFO1A). According to the *FLUCFCS*, the marsh component is a Freshwater Marsh (641); and the forested floodplain component is a Wetland Hardwood Forest with 10 to 30% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall and possibly de-watering activities by local mines.

Wetland 10 is a large forested floodplain wetland adjacent to a large pond (<20 ac.). This wetland is located on the west side of Cobb Road just south of the middle school. The forested wetland component had some standing water at time of observation. This wetland has a dominant canopy of laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), sweet gum (*Liquidambar styraciflua*), and red maple (*Acer rubrum*). The mid-story is comprised of saplings of the canopy species. The pond is mostly open water with some buttonbush (*Cephalanthus occidentalis*) and willow (*Salix* sp.) at the edge. The water at the time of observation was high. The USFWS classifies the forested floodplain component as a palustrine, forested, broad leaved deciduous, seasonally flooded system (PFO1C). According to the FLUCFCS, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The USFWS classifies the pond component as a palustrine, unconsolidated bottom, permanently flooded system (PUBH). According to the FLUCFCS, the pond component is a Lake Larger than 10 acres but Less than 100 Acres (523). An American alligator (*Alligator mississippiensis*) was observed in the pond. The *Soil Survey of Hernando County, Florida* lists 4 types of soil within the confines of this wetland system. The first is Flemington fine sandy loam (0 to 2 percent slopes). This is a nearly level, poorly drained soil on the uplands. In most years, under natural conditions the water table is perched in the A horizon. In this case, the A horizon is the upper 8 inches of soil. The second is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The third is Pits-Dumps complex. This complex consists of pits from which limestone has been or is being removed and dumps where the limestone is being piled. Most areas of Pits-Dumps complex are still actively being mined. Many of the pits contain water. Such areas are mapped separately on the soil map, and may have a high potential for fish if they are stocked and managed properly. The fourth type of soil is Floridana Variant loamy fine sand (less than 2 percent slopes). This is a nearly level, very poorly drained soil in depressions and along poorly defined drainageways. In most years, under natural conditions, the water table is above the surface for 6 months or more. The hydrology is controlled by seasonal rainfall and possibly de-watering activities by local mines.

Wetland 11 is a freshwater marsh directly across Youth Drive from Wetland 15. Youth Drive is the entrance to D. S. Parrott Middle School. This wetland is approximately 180 feet from the Cobb Road ROW. Wetland 11 is a freshwater marsh dominated by cattail (*Typha* sp.), with some willow (*Salix* sp.) and buttonbush (*Cephalanthus occidentalis*). The USFWS classifies this wetland as a palustrine, emergent, persistent, semi-permanently flooded system (PEM1F). According to the *FLUCFCS*, this wetland is a Freshwater Cattail Marsh (641). The *Soil Survey of Hernando County, Florida* lists two types of soil in this wetland. The first is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The second soil found on this wetland is Wauchula fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, poorly drained soil on broad, low areas in the flatwoods and on hillsides in the uplands. In most years, under natural conditions, the water table is at a depth of less than 10 inches for one to four months each year. The hydrology is controlled by seasonal rainfall.

Wetland 12 is a forested floodplain wetland with some standing water located on the east side of Cobb Road adjacent to Youth Drive. The standing water area of this wetland is dominated by buttonbush (*Cephalanthus occidentalis*) with some water hyacinth (*Eichhornia crassipes*). Red maple (*Acer rubrum*) dominates the wetland just above the water line. Also present are ironwood (*Carpinus caroliniana*), black gum (*Nyssa sylvatica*) and sphagnum moss (*Sphagnum* sp.). The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, semi-permanently flooded system (PFO1F). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 31 to 50 % crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Blichton loamy fine sand (2 to 5 % slopes). This is a gently sloping, poorly drained soil that is commonly found on small areas in the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 13 is a forested floodplain wetland located on the west side of Cobb Road, directly opposite the southern portion of Wetland 15. There is a small channel, that emerges from a culvert, which runs west approximately 100 feet to a round, depressional wetland with standing water, possibly a sinkhole, approximately 35 feet in diameter. The channel exits on the opposite side of the pool which leads to lower areas outside of the impact area. The dominant canopy vegetation in and around the channel and pool is sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and cabbage palm (*Sabal palmetto*). In the mid-story can be found young of the canopy trees and ironwood (*Carpinus caroliniana*). The USFWS classifies this wetland as a palustrine, unconsolidated bottom, semi-permanently flooded system (PUBF). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Flemington fine sandy loam (0 to 2 percent slopes). This is a nearly level, poorly drained soil on the uplands. In most years, under natural conditions the water table is perched in the A horizon. In this case, the A horizon is the upper 8 inches of soil. The hydrology is controlled by seasonal rainfall.

Wetland 14 is a man-made ditch that is located on the east side of Cobb Road, at a culvert, approximately 0.35 mile north of Youth Drive. The ditch connects the culvert with Wetland 15. Planted pasture grasses are the dominant vegetation. The USFWS classifies this wetland as a palustrine, emergent, persistent, seasonally flooded, excavated system (PEM1Cx). According to the *FLUCFCS*, this wetland is a Waterway/ditch (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 15 is creek channel with an associated forested floodplain (spotty) wetland that can be found on the east side of Cobb Road. This wetland includes a distinct, incised, undulating channel that emerges out of the east end of Wetland 17, which runs through

uplands interspersed with secondary channels and depressional areas. This channel is shallow and dry in some areas and deep with standing pools of water in other areas. This channel runs in a north/south direction paralleling Cobb Road. In the southern portion of Wetland 15, a ditch (Wetland 14) runs from the channel directly out to Cobb Road where a culvert connects this wetland to the west side of Cobb Road. The dominant canopy vegetation in the channel is sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and ironwood (*Carpinus caroliniana*). Above the channel, the same species are found dominant along with scattered southern magnolia (*Magnolia grandiflora*). The channel is mostly outside of the impact area, but approaches to within 200 feet in some areas. The USFWS classifies this wetland as a riverine, intermittent stream bed, seasonally flooded system (R4SBC). According to the *FLUCFCS*, this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists three types of soil found in and around the channel on the east side of Cobb Road. The first is Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The second soil type listed by the soil survey is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The third soil type is Flemington fine sandy loam (0 to 2 percent slopes). This is a nearly level, poorly drained soil on the uplands. In most years, under natural conditions the water table is perched in the A horizon. In this case, the A horizon is the upper 8 inches of soil. The hydrology is controlled by seasonal rainfall.

Wetland 16 is a freshwater marsh located on both sides of Cobb Road at each end of a culvert that crosses under the road. This wetland is approximately 0.5 mile north of Youth Drive. The dominant vegetation consists of pickerel weed (*Pontedaria cordata*) and water primrose (*Ludwigia* sp.). The USFWS classifies this wetland as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Freshwater Marsh (641). The *Soil Survey of Hernando County, Florida*

lists the soil type as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 17 is a forested floodplain wetland located on the east and west side of Cobb Road, connected via a culvert, approximately 3000 feet south of the Cobb Road/US 98 intersection. On the west side of Cobb Road, there is some standing water and a dominant canopy of red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*), and sweet gum (*Liquidambar styraciflua*). The mid-story has persimmon (*Diospyros virginiana*), American holly (*Ilex opaca*), ironwood (*Carpinus caroliniana*), and cabbage palm (*Sabal palmetto*). At the culvert on the west side of the road, fire flag (*Thalia geniculata*) is the dominant species. In the open water component on the west side of the road, three wood storks (*Mycteria americana*) and a great egret (*Ardea alba*) were observed feeding. This open water is outside of the impact area. To the east, the dominant canopy vegetation is virtually the same as to the west; however, patches of pennywort (*Hydrocotyl* sp.) were observed covering the ground. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Gum Swamp (613). The *Soil Survey of Hernando County, Florida* lists the soil type as Flemington fine sandy loam (2 to 5 percent slopes). This is a gently sloping, poorly drained soil found on the uplands. In most years, under natural conditions, the water table is perched in the upper 5 inches for one to four months during the wet season. The hydrology is controlled by seasonal rainfall.

Wetland 18 is a small, ephemeral, isolated, depression, freshwater marsh. This wetland shows signs of grazing by cattle. This wetland is on the east side of Cobb Road approximately 2100 feet south of the Campground Road/Cobb Road intersection. The dominant plant species consist of spike rush (*Eleocharis* sp.), and pasture grasses. The USFWS classifies this wetland as a palustrine, emergent, persistent, temporarily flooded system (PEM1A). According to the *FLUCFCS*, this wetland is a Freshwater Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type for this wetland as

Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 19 is a small, ephemeral, isolated, depression, freshwater marsh. This wetland shows signs of grazing by cattle. This wetland is on the east side of Cobb Road approximately 1200 feet south of the Campground Road/Cobb Road intersection. The dominant plant species consist of smartweed (*Polygonum* sp.), duck potato (*Sagittaria* sp.), and pasture grasses. The USFWS classifies this wetland as a palustrine, emergent, persistent, temporarily flooded system (PEM1A). According to the *FLUCFCS*, this wetland is a Freshwater Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type for this wetland as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 20 is a forested floodplain wetland with some standing water. It is located in the southwest quadrant of the intersection of Cobb Road with US 98 and is hydrologically isolated from the channel in Wetland 22. The dominant vegetation consists of red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), swamp chestnut oak (*Quercus michauxii*), water oak (*Quercus nigra*), and ironwood (*Carpinus caroliniana*). The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type for this wetland as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 21 has several components, including forested floodplain, creek, ditch, and freshwater marsh. There is a distinct channel that exists on both sides of US 98, just north of the Cobb Road intersection. On the northeast side of US 98, there is standing water in and above the channel. The dominant vegetation consists of sweet gum (*Liquidambar styraciflua*), buttonbush (*Cephalanthus occidentalis*), willow (*Salix* sp.), arrowhead (*Sagittaria* sp.), smartweed (*Polygonum* sp.), and alligator weed (*Alternanthera philoxeroides*). On the southwest side of US 98, the channel proceeds south and crosses under Campground Road via a culvert. Just before it crosses under this road, the wetland spreads out suggesting water pools here before going through the culvert. There was no water in the channel at the time of observation on the southwest side of US 98. Red maple (*Acer rubrum*) and sweet gum are the dominant vegetation in the dry portions of the channel at this point. After the channel crosses under Campground Road, it proceeds south and empties into a small freshwater marsh. The dominant vegetation in the marsh consists of willow, fire flag (*Thalia geniculata*), buttonbush, and water hyacinth (*Eichornia crassipes*). Box elder (*Acer negundo*) and smartweed (*Polygonum* sp.) were evident above the water line. There is a swale that runs through a pasture on the west side of Cobb Road that is also attached to this marsh. The swale has pasture grasses in it. This swale originates at a culvert that crosses under Cobb Road. On the other side of this culvert, an excavated ditch is present and continues to the southeast and out of the project area. The USFWS classifies the forested floodplain component as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C); the creek component as a riverine, intermittent streambed, seasonally flooded system (R4SBC); the marsh component as a palustrine, emergent, persistent, semi-permanently flooded system (PEM1F); and the ditch as a riverine, intermittent, stream, seasonally flooded, excavated system (R4SBCx). According to the *FLUCFCS*, the forested floodplain component is a Wetland Hardwood Forest with greater than 70% crown closure (610); the creek component as a Stream (510); the marsh component as a Freshwater Marsh with Shrubs, Bushes and Vines (641); and the ditch as a Waterway/ditch (510). The *Soil Survey of Hernando County, Florida* lists two soil types for this wetland system. The first is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found on small areas in the uplands. The water table is at a depth of

less than 10 inches for cumulative periods of one to four months during most years. The second soil type found here is Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 22 is a small, depression forested wetland that is hydrologically isolated. This wetland is located on the northeast side of US 98 just south of Wetland 24. The dominant canopy vegetation consists of red maple (*Acer rubrum*), and sweet gum (*Liquidambar styraciflua*). Other species include arrowhead (*Sagittaria* sp.), water-primrose (*Ludwigia* sp.), musky mint (*Hyptis alata*) and saltbush (*Baccharis halimifolia*). The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with 10 to 30% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil on the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The hydrology is controlled by seasonal rainfall.

Wetland 23 is a forested floodplain wetland that is located just south of the CSX right-of-way on the southwest side of US 98. A very small portion of this wetland is within 200 feet of the right-of-way. The dominant vegetation in this wetland consists of red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), swamp chestnut oak (*Quercus michauxii*), and water oak (*Quercus nigra*). The mid-story consists of young of the canopy and ironwood (*Carpinus caroliniana*). Groundcover consists of scattered saw palmetto (*Serenoa repens*). The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with Greater than 70% Crown Closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained

soil that is commonly found on small areas in the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 24 is a large forested floodplain wetland with standing water on the northeast side of US 98 just south of the CSX right-of-way. This wetland is hydrologically connected (via a culvert that crosses under US 98) to swales on the other side of the road. Dominant canopy species are red maple (*Acer rubrum*), and black gum (*Nyssa sylvatica*). Midstory species include cabbage palm (*Sabal palmetto*), red bay (*Persea borbonia*), dahoon holly (*Ilex cassine*) and young of the canopy trees. Ground cover is scattered saw palmetto. In the standing water area right near the road, there was some duckweed (*Lemna minor*), cattail (*Typha* sp.) and sweet gum (*Liquidambar styraciflua*). The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Gum Swamp (613). The *Soil Survey of Hernando County, Florida* lists two soil types for this wetland. The first soil type is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found on small areas in uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The second soil type is Wauchula fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, poorly drained soil on broad, low areas in the flatwoods and on hillsides in the uplands. In most years, under natural conditions, the water table is at a depth of less than 10 inches for one to four months each year.

Wetland 25 is a series of excavated swales/ditches that have forested wetland characteristics. These ditches exist on the east and west side of US 98, north and south of the CSX right-of-way. The ditch was dry at the time of the survey. The dominant canopy vegetation consists of red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*). Red maple and sweet gum can also be found in the mid-story along with ironwood (*Carpinus caroliniana*). Some smartweed (*Polygonum* sp.) groundcover was also observed. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, temporarily flooded, excavated system (PFO1Ax). According to the

FLUCFCS, this wetland is a Waterway/ditch (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. In the drier season, it recedes to a depth of 40 inches or more. The hydrology is controlled by seasonal rainfall.

Wetland 25A Is a freshwater marsh located approximately 70 feet northwest of US 98 just north of the CSX right-of-way located along the weigh station area. The dominant vegetation consists of a sweetgum (*Liquidambar styraciflua*) fringe, button bush (*Cephalanthus occidentalis*), and water hyacinth (*Eichornia crassipes*). The USFWS classifies this wetland as a palustrine, emergent, persistent, permanently flooded system (PEM1H). According to *FLUCFCS* this wetland is a Freshwater Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type for this wetland as Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 26 is a lake that is located on the northeast side of US 98 just north of the CSX right-of-way. Wetland 26 is called Tank Lake by the *Soil Survey of Hernando County, Florida*. The soil survey does not identify the lake bed in its soil descriptions. This lake is within 200 feet of the US 98 right-of-way in two locations. This lake has a red maple (*Acer rubrum*) and willow (*Salix* sp.) fringe. Some duckweed (*Lemna minor*) and water spangles (*Salvinia* sp.) were observed around the bases of the red maple. The USFWS classifies this wetland as a lacustrine, littoral, aquatic bed, rooted vascular/floating vascular, permanently flooded system (L2AB3/4H). According to the *FLUCFCS*, this wetland is a Lake greater than 100 acres (522). This lake also has portions that are seasonally flooded and rarely flooded depending on the rainfall. The hydrology is controlled by seasonal rainfall.

Wetland 27 is a forested floodplain wetland that is bisected by US 98. Each side is connected via a culvert under the road. This wetland is located approximately 1800 feet south of Wetland 28. On the southwest side of US 98, the wetland is an upland cut, dry (at time of observation) creek channel which seems to flow to the northeast. On the northeast side of US 98, the channelization continues and appears to empty into Tank Lake. The dominant vegetation in this channel consists of sweet gum (*Liquidambar styraciflua*), persimmon (*Diospyros virginiana*) and ironwood (*Carpinus caroliniana*). The USFWS classifies this wetland as a riverine, intermittent streambed, seasonally flooded system (R4SBC). According to the *FLUCFCS*, this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Micanopy loamy fine sand (2 to 5 percent slopes). This is a gently sloping, somewhat poorly drained soil on the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months and below a depth of 60 inches during dry periods. The hydrology is controlled by seasonal rainfall.

Wetland 28 is a forested floodplain wetland that is bisected by US 98. Small, eroded channels are present in the wetland. This wetland may be hydrologically connected to the northwestern, dry portion of Tank Lake which is well outside the project limits to the northeast. This wetland is located approximately 1000 feet south of Lake Lindsey Road adjacent to an abandoned railroad corridor. The dominant canopy vegetation consists of sweet gum (*Liquidambar styraciflua*) and red maple (*Acer rubrum*). Ironwood (*Carpinus caroliniana*), cabbage palm (*Sabal palmetto*), and young of the canopy can be found in the mid-story. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Wauchula fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, poorly drained soil on broad, low areas in the flatwoods and on hillsides in the uplands. In most years, under natural conditions, the water table is at a depth of less than 10 inches for one to four months each year. The hydrology is controlled by seasonal rainfall.

Wetland 28A is a freshwater marsh located approximately 120 feet west of US 98 across from the northern end of Tank Lake. The dominant vegetation includes a sweetgum (*Liquidambar styraciflua*) fringe, arrowhead (*Sagittaria* sp.), and water hyacinth (*Eichornia crassipes*). The USFWS classifies this wetland as a palustrine, emergent, persistent, permanently flooded system (PEM1H). According to *FLUCFCS* this wetland is a Freshwater Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type for this wetland as Wauchula fine sand (0 to 5 percent slopes). This is a nearly level to gently sloping, poorly drained soil on broad, low areas in the flatwoods and on hillsides in the uplands. In most years, under natural conditions, the water table is at a depth of less than 10 inches for one to four months each year and at a depth of 10 to 40 inches for the remainder of the year. The hydrology is controlled by seasonal rainfall.

Wetland 29 is a very distinct drainage channel (creek) bisected by US 98, and connected via culvert. This wetland is found approximately 750 feet north of Brittle Road. The channel travels through an upland mesic hammock community within the project limits. At the time of inspection, this channel was dry. The channel empties into an ephemeral depressional wetland approximately 1400 feet southwest of the right-of-way. This channel merges with another dry channel approximately 250 feet southwest of the culvert. The dominant vegetation in the channel is ironwood (*Carpinus caroliniana*), hackberry (*Celtis laevigata*), and cabbage palm (*Sabal palmetto*). Southern magnolia (*Magnolia grandiflora*) was also seen growing in the channel. The upland adjacent to the channel harbors a variety of hardwood species that include live oak (*Quercus virginiana*), cabbage palm, magnolia, red maple (*Acer rubrum*) and ironwood. The USFWS classifies this wetland as a riverine, intermittent streambed, seasonally flooded system (R4SBC). According to the *FLUCFCS*, this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Blichton loamy fine sand (5 to 8 percent slopes). This is a sloping, poorly drained soil that is saturated during wet seasons. The hydrology is controlled by seasonal rainfall.

Wetland 30 is a forested floodplain wetland along the southwest side of US 98 approximately 1900 feet southeast of the High Point Tower Site. A distinct channel

originates at a culvert and runs through this forested strip and out into the upland pasture on the other side. It likely terminates at a large pond southwest of the project area. There is some evidence of hydrology on the other side of the culvert, inside the tree line, but the area lacks hydric soil and a predominance of wetland vegetation. The dominant canopy vegetation consists of sweet gum (*Liquidambar styraciflua*), with hackberry (*Celtis laevigata*) and cabbage palm (*Sabal palmetto*) in the mid-story. *Smilax* sp. and skunk vine (*Paederia foetida*) are the predominant groundcovers. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, temporarily flooded system (PFO1A). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Flemington fine sandy loam (8 to 12 percent slopes). This is a strongly sloping, poorly drained soil on the uplands. Under natural conditions, this soil is saturated for one to four months during most years. Seepage water comes to the surface during the wet season. The hydrology is controlled by seasonal rainfall.

Wetland 31 has two components. The first is a forested floodplain wetland located on the northeast side of US 98. The second is an upland cut creek channel, located on the southwest side of US 98, which is connected to the first via a culvert. This system is located just south of the CR 491/US 98 intersection. On the northeast side of US 98, the dominant vegetation in the forested floodplain is sweet gum (*Liquidambar styraciflua*), persimmon (*Diospyros virginiana*), and saltbush (*Baccharis halimifolia*). The ground cover consists of smartweed (*Polygonum* sp.) and water primrose (*Ludwigia octovalvis*). On the southwest side, the dominant vegetation growing in the channel is sweet gum, persimmon, water oak (*Quercus nigra*), willow (*Salix* sp.), saltbush, cogon grass (*Imperata cylindrica*), and skunk vine (*Paederia foetida*). The USFWS classifies the forested floodplain component as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The USFWS classifies the creek channel as a riverine, intermittent, stream bed, seasonally flooded system (R4SBC). According to the *FLUCFCS*, the creek component of this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists two types of soil found at this site. On the

northeast portion and part of the southwest portion, the soils are classified as Flemington fine sandy loam (0 to 2 percent slopes). This is a poorly drained soil on the uplands. In most years, under natural conditions, the water table is perched in the upper 5 inches for one to four months during the wet season. Also found on the southwest portion of this wetland is Blichton loamy fine sand (2 to 5 percent slopes). This is a gently sloping, poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. A gopher tortoise was walking on the road near this wetland in early October. The hydrology is controlled by seasonal rainfall.

Wetland 32 is a small freshwater marsh located on the northeast side of US 98 approximately 1300 feet southeast of the CR 491 intersection. The dominant plant species consist of button bush (*Cephalanthus occidentalis*), smartweed (*Polygonum* sp.), and sedge (*Carex* sp.). There is also a persimmon (*Diospyros virginiana*) fringe. This is a former site for the Federally-listed Cooley's water willow (*Justicia cooleyi*). This plant seems to be extirpated from this site as a search turned up no plants. The USFWS classifies this wetland as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Freshwater Marsh with Shrubs, Bushes, and Vines (641). The *Soil Survey of Hernando County, Florida* lists the soil as Flemington fine sandy loam (2 to 5 percent slopes). This is a gently sloping, poorly drained soil found on the uplands. In most years, under natural conditions, the water table is perched in the upper 5 inches for one to four months during the wet season. The hydrology is controlled by seasonal rainfall.

Wetland 33 is a deeply scoured creek channel (dry streambed) running through uplands to the south from US 98. The channel is 15 feet deep in some places. This creek begins at a culvert that is fed by a swale on the northeast side of US 98. Wetland 33 is located on the southwest side of US 98 approximately 1000 feet northwest of the CR 491/US 98 intersection. Scattered ironwood (*Carpinus caroliniana*), sweet gum (*Liquidambar styraciflua*) and water oak (*Quercus nigra*) are growing out of the channel. The USFWS classifies this creek as a riverine, intermittent stream bed, seasonally flooded system

(R4SBC). According to the *FLUCFCS*, this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists the soil as Micanopy loamy fine sand (2 to 5 percent slopes). This is a somewhat poorly drained soil found throughout the uplands. This soil has a water table at a depth of 20 to 30 inches for one to three months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 34 is a creek running through an upland pasture that is connected to the southern edge of Skinner Lake. Pasture grasses are the dominant vegetation in the creek. The pasture is actively grazed by cattle. A portion of this channel is within the impact area of this project. The USFWS classifies this wetland as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Stream (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). Nobleton fine sand is a somewhat poorly drained soil on broad areas in the uplands. This soil has a perched water table at a depth of from 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 35 is a forested floodplain wetland on the northern edge of Skinner Lake. Open water areas of Skinner Lake appear to be outside the impact area during most of the year. The wetland is bisected by US 98 and is connected on both sides via a culvert. On the northeast side of the highway, there is a distinct channel that conveys water through the culvert. This channel emerges from the Wetland 36. Where the culvert exits on the southwest side of the highway is a wet ditch with fire flag (*Thalia geniculata*) and willow (*Salix* sp). The willow gives way to a dominant canopy which consists of water oak (*Quercus nigra*) and sweet gum (*Liquidambar styraciflua*). The mid-story has wax myrtle (*Myrica cerifera*) and young from the canopy trees. *Smilax* sp. and skunk vine (*Paederia foetida*) are the dominant groundcovers. On the northeast side of US 98, the vegetation in the channel is sweet gum and water oak. The USFWS classifies this wetland as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists two

types of soil within the confines of this wetland. One is Nobleton fine sand (0 to 5 percent slopes). Nobleton fine sand is a somewhat poorly drained soil on broad areas in the uplands. This soil has a perched water table at a depth of from 20 to 40 inches for one to four months during the summer rainy season in most years. In the wetter spots, there is Wauchula fine sand (0 to 5 percent slopes). This is a poorly drained soil on broad low areas in the flatwoods and on hillsides in the uplands. In most years, under natural conditions, the water table is at a depth of less than 10 inches for one to four months each year and at a depth of 10 to 40 inches for the remainder of the year. The hydrology is controlled by seasonal rainfall.

Wetland 36 is a large freshwater marsh across US 98 from Skinner Lake. The dominant vegetation on the fringe of this marsh is sedge (*Carex* sp.), willow (*Salix* sp.), and red maple (*Acer rubrum*). The *Soil Survey of Hernando County, Florida* calls this marsh Horse Lake. There is an open water component to this marsh/lake, but it is far outside the impact area. This marsh is overgrown due to lack of proper fire management. The USFWS classifies this wetland as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Freshwater Marsh with Shrubs, Bushes and Vines (641). The *Soil Survey of Hernando County, Florida* lists the soil type as Blichton loamy fine sand (2 to 5 percent slopes). This is a poorly drained soil that is commonly found in small areas on the uplands. The water table is at a depth of less than 10 inches for cumulative periods of one to four months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 37 is an ephemeral, depressional freshwater marsh that is isolated. There is a berm surrounding a portion of it. This marsh is approximately 150 feet northeast of the US 98 right-of-way and north of Wetland 36. The dominant vegetation consists of smartweed (*Polygonum* sp.), saltbush (*Baccharis halimifolia*), and cattail (*Typha* sp.). The USFWS classification for this wetland is a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is a Freshwater Cattail Marsh (641). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). This is a nearly level to gently

sloping, somewhat poorly drained soil found on broad areas on the uplands. This soil has a perched water table at a depth of 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 38 is a forested floodplain wetland with a flooded component. It is located on the southwest side of US 98 northwest of Skinner Lake. The dominant canopy vegetation in the forested floodplain consists of cabbage palm (*Sabal palmetto*), red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*). Mid-story vegetation includes black cherry (*Prunus serotina*), and young of the canopy trees. Ground cover includes greenbriar (*smilax* sp.), young cabbage palm and grape vine (*Vitis* sp). In the flooded portion of Wetland 38, buttonbush (*Cephalanthus occidentalis*) and black gum (*Nyssa sylvatica*) are the dominant species present. The USFWS classifies the forested floodplain component as a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, the forested floodplain component is classified as a Wetland Hardwood Forest with greater than 70% crown closure (610). The open water component's USFWS classification is palustrine, aquatic bed, floating vascular, permanently flooded system (PAB4H). According to the *FLUCFCS*, the open water component is classified as Emergent Aquatic Vegetation (644). The *Soil Survey of Hernando County, Florida* lists the soil type as Nobleton fine sand (0 to 5 percent slopes). Nobleton fine sand is a somewhat poorly drained soil on broad areas in the uplands. This soil has a perched water table at a depth of from 20 to 40 inches for one to four months during the summer rainy season in most years. The hydrology is controlled by seasonal rainfall.

Wetland 39 is a pond with a forested floodplain wetland component. The wetland bisected by US 98 just south of Norris Bishop Loop Road and both sides are connected via a culvert. This pond is also connected to Wetland 40 via a culvert under Norris Bishop Loop Road. On the southwest side of US 98 the wetland is a small pond. Buttonbush (*Cephalanthus occidentalis*) and salt bush (*Bacopa* sp.) are standing in water in the pond. The forested floodplain component is located on the northeast side of US 98, in between the road and a spatterdock (*Nuphar luteum*), pickerelweed (*Pontedaria*

cordata) marsh. There is red maple (*Acer Rubrum*) on the fringe of the marsh. The dominant vegetation in the forested floodplain strip consists of water oak (*Quercus nigra*), sweet gum (*Liquidambar styraciflua*), ironwood (*Carpinus caroliniana*), black gum (*Nyssa sylvatica*) and cabbage palm (*Sabal palmetto*). Frogs bit (*Limnobium* sp.), skunk vine (*Paederia foetida*) and *smilax* sp. are the predominant groundcovers. The USFWS classification for the pond component is a palustrine, emergent, persistent, semi-permanently flooded system (PEM1F). According to the *FLUCFCS*, this wetland's pond component is classified as an inland pond (616). The USFWS classification for the forested wetland component is a palustrine, forested, broad-leaved deciduous, seasonally flooded system (PFO1C). According to the *FLUCFCS*, the forested floodplain component is classified as a Wetland Hardwood Forest with greater than 70% crown closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Sparr fine sand (0 to 5 percent slopes). This is a somewhat poorly drained soil on seasonally wet, sandy areas on uplands. This soil has a water table perched on the loamy materials for 1 to 4 months during most years. The hydrology is controlled by seasonal rainfall.

Wetland 40 is a pond with a forested floodplain component. The pond is mostly outside the impact zone. At the time of observation, the water was staged up and under live oaks (*Quercus virginiana*) which cannot tolerate long periods of inundation. This wetland is located on the southwest side of US 98 just south of Landfill Road. The dominant vegetation in the forested floodplain is sweet gum (*Liquidambar styraciflua*) and grape vine (*Vitis* sp.). The USFWS classification for this wetland is palustrine, forested, broad-leaved deciduous, temporarily flooded system (PFO1A). According to the *FLUCFCS*, this wetland is a Wetland Hardwood Forest with 10 to 30% Crown Closure (610). The *Soil Survey of Hernando County, Florida* lists the soil type as Kendric Fine Sand (0 to 5 percent slopes). This is a well drained, nearly level to gently sloping soil in large to small areas on uplands. In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall.

Wetland 41 is a maintained retention pond with planted grasses as the dominant vegetation. This pond is located on Landfill Road approximately 100 feet from its

intersection with US 98. The USFWS classifies this wetland as a palustrine, unconsolidated bottom, seasonally flooded, excavated system (PUBCx). According to the *FLUCFCS*, this wetland is classified as a Borrow Area (510). The *Soil Survey of Hernando County, Florida* lists the soil as Kendric Fine Sand (0 to 5 percent slopes). This is a well drained, nearly level to gently sloping soil in large to small areas on uplands. In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall and stormwater runoff from the adjacent roadway and uplands.

Wetland 42 is a man-made retention area (ditch) in an area where a creek (Wetland 43) conveys stormwater under US 98 from the north via a culvert under US 98. The stormwater then passes through another culvert which crosses under Landfill Road. This culvert is positioned in a northwest to southeast alignment and runs parallel to US 98. Wetland 42 is located on each side of the culvert. Planted grasses are the dominant vegetation. The USFWS classifies Wetland 42 as a palustrine, emergent, persistent, temporarily flooded, excavated system (PEM1Ax). According to the *FLUCFCS*, this wetland is classified as a Borrow Area (742). The *Soil Survey of Hernando County, Florida* lists the soil type as Kendric Fine Sand (0 to 5 percent slopes). This is a well drained, nearly level to gently sloping soil in large to small areas on uplands. In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall with culverts directing the flow.

Wetland 43 is an intermittent creek that is located on the northeast side of US 98 and travels north to south through upland. This channel crosses under US 98 via a culvert and proceeds under Landfill Road (creating Wetland 42) where it eventually empties into Wetland 40. The creek channel's dominant canopy vegetation, which grows directly in the channel, is laurel oak (*Quercus laurifolia*) and water oak (*Quercus nigra*) at the sampling point. Dayflower (*Commelina* sp.), frog-fruit (*Phyla nodiflora*), and musky mint (*Hyptis alata*) were noted at the mouth of the culvert which is periodically mowed. The USFWS classifies Wetland 43 as a palustrine, emergent, persistent, seasonally flooded system (PEM1C). According to the *FLUCFCS*, this wetland is classified as a

Stream (510). The *Soil Survey of Hernando County, Florida* lists the soil type as Kendrick Fine Sand (0 to 5 percent slopes). This is a well drained, nearly level to gently sloping soil in large to small areas on uplands. In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall.

Wetland 44 is a man-made retention pond approximately 4 acres in size. This pond is located on the northeast side of US 98 just south of the Suncoast Parkway at the entrance to the World Woods Golf Community (subdivision). Aerial coverage of herbaceous species is absent. Algal mats are visible under live oaks landward of the pond which indicates that water levels are higher at times. This pond was probably created as a stormwater treatment facility. Wetland 44 is fed by a culvert under US 98. On the opposite side of the culvert is a wet ditch/swale that conveys stormwater from the road to the pond. Planted field grasses are the dominant vegetation in the ditch area which is occasionally mowed. The USFWS classifies Wetland 44 as palustrine, unconsolidated bottom, permanently flooded, excavated system (PUBHx). According to the *FLUCFCS*, this wetland is classified as a Reservoir, less than 10 acres (534). The *Soil Survey of Hernando County, Florida* lists the soil type as Kendrick Fine Sand (0 to 5 percent slopes). This is a well drained, nearly level to gently sloping soil in large to small areas on uplands. In most years, under natural conditions, the water table is below a depth of 72 inches. The hydrology is controlled by seasonal rainfall.

5.3 Results of WRAP Analysis

Final determination of jurisdictional areas, proposed wetland impacts, and mitigation requirements will occur through coordination between FDOT and natural resource regulatory agencies during the final design and permitting phase of the project.

Wetland Rapid Assessment Procedure (WRAP) analyses were conducted to assess wetland function and values for representative wetlands within the study area, using Technical Publication REG-001 as a guide. WRAP incorporates concepts from the USFWS *Habitat Evaluation Procedures* (HEP, 1980) and the South Florida Water

Management District (SWFWMD) *Save Our Rivers Project*, Evaluation Matrix (SOR, 1992). The WRAP assessment utilizes a holistic approach to evaluate ecological communities based on the following variables: wildlife utilization, wetland overstory/shrub canopy of desirable species, wetland vegetative groundcover of desirable species, adjacent wetland/upland buffer, field indicators of wetland hydrology, and water quality input and treatment systems. The WRAP field data sheets are shown in Appendix B and the results are summarized in Table 5-1.

The *wildlife utilization* variable is a measure of observations and other indicators (i.e. scat, tracks, etc.) of wildlife, primarily wetland dependant species. The *wetland overstory/shrub canopy* variable is a functional assessment of the canopy strata. It is evaluated based on food resources, cover, nesting potential, and appropriateness of the vegetative community. The *wetland vegetative groundcover* variable is a measure of presence, abundance, and appropriateness and condition of vegetative groundcover within the wetland. Undesirable plant species include exotic and nuisance plant species (i.e. Brazilian pepper, Australian pine, etc.). The *adjacent upland support/wetland buffer* variable is a measure of the area adjacent to the subject wetland and the landscape setting of the wetland. This variable is evaluated based on the adjacent buffer size and the ecological attributes (i.e. cover, food sources, and roosting areas for wildlife) that this area is providing in association with the wetland that is being assessed. The *field indicators of wetland hydrology* measures the hydrologic regime based on observed field indicators for the subject wetland including hydroperiod duration and magnitude. Both vegetative and hydrologic indicators are utilized to assess the hydrology of a wetland system. The final criterion, *water quality input and treatment systems*, is a measure of the quality of the surface water flowing into the subject wetland from adjacent land uses. Surrounding land uses and any on-site pretreatment of surface waters prior to discharge into wetlands are considered.

Forty-six (46) wetlands were identified within the project study area. Each wetland type was evaluated based upon its own attributes and was not compared to a different type of system (i.e. scrub-shrub vs. emergent swale). The highest score an individual wetland can

receive for any one variable is a 3.0 and the lowest is a 0.0. The WRAP score is the sum of the scores for the rated variables, divided by the sum of maximum possible scores for the rated variables. The final rating score is expressed numerically with a number between 0 and 1, with 1 representing the highest quality wetland, and can be calculated as follows:

$$\text{WRAP score} = \frac{\sum \text{scores for rated variable}}{\sum \text{maximum possible scores for rated variables}}$$

Table 5-1 – WRAP Summary Table: Results of Representative WRAP Analysis

Wetland No.	Wildlife Utilization Score	Wetland Canopy Score	Wetland Ground Cover Score	Habitat Support Buffer Score	Field Hydrology Score	Water Quality & Treatment Score	Overall Score
10	3.0	n/a	2.0	2.75	2.0	2.825	.838
20	1.5	2.5	1.5	1.5	2.0	2.0	.567
33	1.5	3.0	3.0	2.25	1.5	2.5	.717
37	2.0	n/a	2.0	2.25	2.0	2.0	.683
41	0.0	n/a	0.0	.50	1.0	1.25	.183

5.4 Analysis of Potential Wetland Impacts

The wetlands in the project area have been severely degraded over the years through construction of drainage canals and ditches to drain and convey water from what were considered “unusable” parcels. Today, some of the existing wetlands are themselves drainage conveyances.

All twelve wetlands described and analyzed have been impacted previously, as a result of either anthropogenic or ecological factors. Four of the twelve project wetlands are man-made ditches, swales or borrow pits. These four wetlands were designed to assist in draining, treating, moving or holding water. The remaining eight wetlands are natural wetlands that have been impacted through draining, filling, exotic vegetation, and clearing in preparation for development or agricultural use.

The WRAP analysis scores range from 0.000 to 1.000 with 1.000 representing the highest quality wetland. The WRAP scores for five representative wetlands range from between 0.183 (Wetland 41) and .838 (Wetland 10).

The following table summarizes the potential wetland impacts associated with the various alternatives under consideration.

**TABLE 5-2
WETLAND IMPACTS BY ALTERNATIVES**

ALTERNATIVE	WETLAND ID #	USFWS CODE	FLUCFCS CODE	WETLAND TYPE	IMPACTS (acres)	TOTAL IMPACTS (acres)
SEGMENT 1A						
Suburban Center	3	PFO1C	610	Forested Floodplain Wetland	0.186	0.369
	4	PEM1F	641	Freshwater Marsh	0.183	
Suburban Left*	4	PEM1F	641	Freshwater Marsh	0.361	0.361
Suburban Save-the-Pavement*	4	PEM1F	641	Freshwater Marsh	0.388	0.388
Urban Center	3	PFO1C	610	Forested Floodplain Wetland	0.084	0.164
	4	PEM1F	641	Freshwater Marsh	0.080	
Urban Left*	4	PEM1F	641	Freshwater Marsh	0.164	0.164
Urban Right	3	PFO1C	610	Forested Floodplain Wetland	0.166	0.166
Urban Fit within Existing R/W						0.000
SEGMENT 1B						
Rural Realign	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.000	0.000
Suburban Center	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.026	0.186
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.118	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.009	
	6	PFO1C	610	Forested Floodplain Wetland	0.016	
	6	PFO1C	610	Forested Floodplain Wetland	0.003	
Suburban Left*	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.013	0.079
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.026	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.040	
Suburban Right	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.013	0.412
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.252	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.007	
Suburban Save-the-Pavement*	6	PFO1C	610	Forested Floodplain Wetland	0.154	0.091
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.026	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.052	
Urban Center	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.013	0.164
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.026	
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.118	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.011	
	6	PFO1C	610	Forested Floodplain Wetland	0.003	
Urban Left*	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.006	0.063
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.026	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.024	
Urban Right	5	PEM1Ax	742	Man-Made Retention Area(Ditch)	0.013	0.267
	9	PEM1A/PFO1A	641/610	Freshwater Marsh/Forested Floodplain Wetland	0.252	
	7	PEM1Ax/PFO1Ax	742	Man-Made Retention Area(Ditch)	0.002	
	6	PFO1C	610	Forested Floodplain Wetland	0.013	
	6	PFO1C	610	Forested Floodplain Wetland	0.000	

**TABLE 5-2
WETLAND IMPACTS BY ALTERNATIVES**

ALTERNATIVE	WETLAND ID #	USFWS CODE	FLUCFCS CODE	WETLAND TYPE	IMPACTS (acres)	TOTAL IMPACTS (acres)
SEGMENT 2A						
Rural Best-Fit*	19	PEM1A	641	Freshwater Marsh	0.010	2.762
	18	PEM1A	641	Freshwater Marsh	0.004	
	17	PFO1C	613	Forested Floodplain Wetland	2.383	
	15	R4SBC	510	Creek	0.106	
	16	PEM1C	641	Freshwater Marsh	0.039	
	16	PEM1C	641	Freshwater Marsh	0.191	
	14	PEM1Cx	510D	Man-Made Retention Area(Ditch)	0.011	
	13	PUBF	610	Forested Floodplain Wetland	0.006	
	13	PUBF	610	Forested Floodplain Wetland	0.010	
	10	PFO1C/PUBH	610/523	Forested Floodplain Wetland/Pond	0.002	
Rural Center	17	PFO1C	613	Forested Floodplain Wetland	1.369	3.066
	17	PFO1C	613	Forested Floodplain Wetland	1.314	
	15	R4SBC	510	Creek	0.003	
	15	R4SBC	510	Creek	0.006	
	16	PEM1C	641	Freshwater Marsh	0.070	
	16	PEM1C	641	Freshwater Marsh	0.148	
	14	PEM1Cx	510D	Man-Made Retention Area(Ditch)	0.037	
	15	R4SBC	510	Creek	0.113	
	13	PUBF	610	Forested Floodplain Wetland	0.004	
Rural Left*	17	PFO1C	613	Forested Floodplain Wetland	2.672	2.919
	16	PEM1C	641	Freshwater Marsh	0.085	
	13	PUBF	610	Forested Floodplain Wetland	0.001	
	13	PUBF	610	Forested Floodplain Wetland	0.010	
	10	PFO1C/PUBH	610/523	Forested Floodplain Wetland/Pond	0.004	
	10	PFO1C/PUBH	610/523	Forested Floodplain Wetland/Pond	0.147	
Rural Right	19	PEM1A	641	Freshwater Marsh	0.010	3.216
	18	PEM1A	641	Freshwater Marsh	0.004	
	17	PFO1C	613	Forested Floodplain Wetland	2.383	
	15	R4SBC	510	Creek	0.106	
	16	PEM1C	641	Freshwater Marsh	0.222	
	14	PEM1Cx	510D	Man-Made Retention Area(Ditch)	0.043	
	15	R4SBC	510	Creek	0.337	
	12	PFO1F	6102	Forested Floodplain Wetland	0.111	
Rural Save-the-Pavement*	17	PFO1C	613	Forested Floodplain Wetland	2.139	2.797
	17	PFO1C	613	Forested Floodplain Wetland	0.556	
	16	PEM1C	641	Freshwater Marsh	0.085	
	13	PUBF	610	Forested Floodplain Wetland	0.006	
	13	PUBF	610	Forested Floodplain Wetland	0.010	
	10	PFO1C/PUBH	610/523	Forested Floodplain Wetland/Pond	0.002	
Suburban Left Transitioning to Rural Left	13	PUBF	610	Forested Floodplain Wetland	0.013	2.770
	16	PEM1C	641	Freshwater Marsh	0.085	
	17	PFO1C	613	Forested Floodplain Wetland	2.672	
SEGMENT 2B						
Rural Realign*	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.163	0.175
	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.001	
	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.011	
Rural Left*	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.017	0.079
	20	PFO1C	610	Forested Floodplain Wetland	0.048	
	20	PFO1C	610	Forested Floodplain Wetland	0.004	
	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.011	
Rural Right	24	PFO1C	613	Forested Floodplain Wetland	0.023	0.072
	22	PFO1C	610	Forested Floodplain Wetland	0.001	
	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.048	

**TABLE 5-2
WETLAND IMPACTS BY ALTERNATIVES**

ALTERNATIVE	WETLAND ID #	USFWS CODE	FLUCFCS CODE	WETLAND TYPE	IMPACTS (acres)	TOTAL IMPACTS (acres)
Rural Save-the-Pavement*	21	PFO1C/R4SBC/PE M1F/R4SBCx	610/510/641/510D	Forested Floodplain Wetland/Creek/Freshwater Marsh/Ditch	0.009	0.009
SEGMENT 3						
Rural Center	31	PEM1C/R4SBC	610/510	Forested Floodplain Wetland/Creek	0.002	0.083
	30	PFO1A	610	Forested Floodplain Wetland	0.041	
	29	R4SBC	510	Creek	0.006	
	29	R4SBC	510	Creek	0.003	
	28	PFO1C	610	Forested Floodplain Wetland	0.003	
	28	PFO1C	610	Forested Floodplain Wetland	0.008	
	27	R4SBC	510	Creek	0.003	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.006	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.004	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.005	
25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.003		
Rural Left*	31	PEM1C/R4SBC	610/510	Forested Floodplain Wetland/Creek	0.005	0.138
	30	PFO1A	610	Forested Floodplain Wetland	0.056	
	30	PFO1A	610	Forested Floodplain Wetland	0.002	
	29	R4SBC	510	Creek	0.009	
	27a	PFO1Ax	510D	Forested Floodplain Wetland	0.005	
	25a	R4SBC	510	Man-Made Retention Area(Ditch)	0.002	
	28	PFO1C	610	Forested Floodplain Wetland	0.041	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.011	
25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.007		
Rural Right	29	R4SBC	510	Creek	0.011	0.060
	28	PFO1C	610	Forested Floodplain Wetland	0.005	
	27	R4SBC	510	Creek	0.005	
	26	L1AB4H	522	Pond/Lake	0.022	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.010	
25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.007		
Rural Save-the-Pavement	31	PEM1C/R4SBC	610/510	Forested Floodplain Wetland/Creek	0.005	0.132
	30	PFO1A	610	Forested Floodplain Wetland	0.056	
	30	PFO1A	610	Forested Floodplain Wetland	0.002	
	29	R4SBC	510	Creek	0.009	
	28	PFO1C	610	Forested Floodplain Wetland	0.041	
	25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.011	
25	PFO1Ax	510D	Man-Made Retention Area(Ditch)	0.007		
SEGMENT 4						
Rural Center	43	PEMIC	510	Creek	0.003	0.311
	42	PEMIAx	742	Man-Made Retention Area(Ditch)	0.076	
	41	PUBCx	510	Man-Made Retention Area(Pond)	0.002	
	39	PEM1F/PFO1C	616/610	Pond/Forested Floodplain Wetland	0.136	
	39	PEM1F/PFO1C	616/610	Pond/Forested Floodplain Wetland	0.022	
	38	PFO1C/PAB4H	610/613	Forested Floodplain Wetland	0.004	
	36	PEM1C	641	Freshwater Marsh	0.003	
	35	PFO1C	610	Forested Floodplain Wetland	0.061	
	33	R4SBC	510	Creek	0.004	
Rural Left*	42	PEMIAx	742	Man-Made Retention Area(Ditch)	0.167	0.560
	42	PEMIAx	742	Man-Made retention Area(Ditch)	0.001	
	41	PUBCx	510	Man-Made Retention Area(Pond)	0.014	
	39	PEM1F/PFO1C	616/610	Pond/Forested Floodplain Wetland	0.116	
	38	PFO1C/PAB4H	610/613	Forested Floodplain Wetland	0.120	
	35	PFO1C	610	Forested Floodplain Wetland	0.133	
Rural Right	43	PEMIC	510	Creek	0.004	0.255
	39	PEM1F/PFO1C	616/610	Pond/Forested Floodplain Wetland	0.247	
	36	PEM1C	641	Freshwater Marsh	0.005	
Rural Save-the-Pavement	42	PEMIAx	742	Man-Made Retention Area(Ditch)	0.167	0.561
	42	PEMIAx	742	Man-Made retention Area(Ditch)	0.001	
	41	PUBCx	510	Man-Made Retention Area(Pond)	0.014	
	39	PEM1F/PFO1C	616/610	Pond/Forested Floodplain Wetland	0.116	
	38	PFO1C/PAB4H	610/613	Forested Floodplain Wetland	0.120	
	35	PFO1C	610	Forested Floodplain Wetland	0.133	
33	R4SBC	510	Creek	0.009		

Table 5-3 - Wetland Impacts Associated With the Recommended Alternative

Wetland ID	USFWS/FLUCFCS CLASSIFICATION	Project Segment	Wetland Impacts (acres)
5	PEM1Ax/742	1B	0.013
7	PEM1Ax/742	1B	0.040
9	PEM1A/641	1B	0.026
13	PUBF/610	2A	0.013
16	PEM1C/641	2A	0.085
17	PFO1C/613	2A	2.672
21	R4SBC/510	2B	0.175
25	PF01Ax	3	0.018
25a	R4SBC	3	0.002
27a	PF01Ax	3	0.005
28	PFO1E	3	0.041
29	R4SBC	3	0.009
30	PFO1A/610	3	0.058
31	PEM1C/R4SBC	3	0.005
33	R4SBC	4	0.009
35	PFO1C/610	4	0.133
38	PFO1C/610	4	0.120
39	PEM1F/616	4	0.116
41	PUBDx	4	0.014
42	PEM1Ax	4	0.168
TOTAL			3.72

6.0 CONCEPTUAL MITIGATION ALTERNATIVES

Executive Order 11990 requires action to be taken to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. If there is no practicable alternative to construction in wetlands, and all practicable measures to minimize harm to wetlands have been taken, compensation of wetland impacts is required. In accordance with FHWA policy, as contained in 23 CFR 777.11, the full complement of mitigation alternatives have been considered in the study of this project, including avoidance, minimization, compensation, and creation.

Efforts to avoid and minimize wetland impacts were made during the initial alternative analysis phase. Where impacts could not be avoided, they were minimized to the greatest

possible extent. Unavoidable impacts to project wetlands are addressed in the following discussion on mitigation.

6.1 Mitigation

Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate minimization efforts have been made.

Mitigation of wetlands will be decided on a site-by-site basis. It is expected that wetland impacts will be compensated through the process described in Chapter 373 Florida Statutes (FS 373.4137) and 33 USC 1344. Present mitigation policies call for in-kind replacement within the project area. Compensation efforts necessary to minimize net impacts to wetland values will be determined, based on the importance and significance of the wetlands affected. Other mitigation options may include enhancement of existing wetlands, creation of new wetlands, erosion control, providing mitigation at regional wetland mitigation bank, or the acquisition of privately held wetlands for preservation purposes.

Several of the project wetlands impacted are drainage conveyances. These could be replaced during project implementation on-site and continue their current drainage function. These include Wetlands 1, 2, 5, and 10. However, this issue must be addressed through coordination between the FDOT and the Southwest Florida Water Management District (SWFWMD) during the design and permitting phase of the project.

The Federal Highway Administration (FHWA) policy and procedures for evaluation and mitigation of adverse environmental impacts to privately owned wetlands are contained in 23 CFR 777. Development of specific project mitigation measures must be in accordance with these regulations. Mitigation and compensation for unavoidable wetland impacts will be determined during the processing of the USACOE and Environmental Resources Permits (ERPs).

7.0 PERMITTING REQUIREMENTS AND COORDINATION

Several regulatory agencies have jurisdiction over wetlands in the project study area. These include the Southwest Florida Water Management District (SWFWMD), the Florida Department of Environmental Protection (FDEP), U.S Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACOE). A joint Environmental Resource Permit (between SWFWMD and FDEP) will be required for the project. A dewatering permit for construction activities will be required as well as an NPDES permit from the FDEP.

As noted in Section 5.4, wetland impacts resulting from the construction of this project will be analyzed, and all potential wetland mitigation alternatives will be planned and developed, as per the requirements of Florida Statute 373.4137. Wetlands that serve as drainage structures could be replaced on-site without requiring off-site mitigation. This approach, however, must be agreed upon through coordination between the FDOT and the SWFWMD.

Project coordination was initiated during the Advance Notification (AN) process. This coordination process will continue throughout the life of the study. Additional coordination will be handled by submittal of this Wetland Evaluation Report to the relevant regulatory agencies. Their concurrence with the proposed conceptual mitigation will be requested.

Best management practices will be used in design and during construction to control soil erosion and pollutant runoff. These may include the use of the following in accordance with the FDOT Standard Specifications for Road and Bridge Construction: hay bales, staked silt fence, floating turbidity barrier, sediment basins, maintenance of wetland vegetation, and seed or mulch over bare soil areas.

8.0 CONCLUSIONS AND COMMITMENTS

The wetland evaluation conducted for the Cobb Road and US 98 PD&E Study has determined that there are no practical alternatives to impacting project wetlands. Wetland impacts that will result from the construction of this project will be mitigated pursuant to S. 373.4137 to satisfy all mitigation requirements of Part IV, Chapter 373,

Florida Statutes 373.4137 and 33 USCs 1344 state that mitigation of FDOT wetland impacts will be implemented by the appropriate Water Management District where the impacts occur. Each Water Management District will develop a regional wetland mitigation plan on an annual basis to be approved by the Florida State Legislature which addresses the estimated mitigation needs of FDOT. The Water Management District will then provide wetland mitigation for specific FDOT project impacts through a corresponding mitigation project within the overall approved regional mitigation plan. FDOT will provide funding to the Water Management District for implementation of such mitigation projects.

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Appendix A - Photographs of Wetland Sites



Wetland 10
Lake
WRAP Score 0.838



Wetland 20
Wetland Hardwood Forest
WRAP Score 0.567



Wetland 33
Stream
WRAP Score 0.717



Wetland 37
Freshwater Cattail Marsh
WRAP Score 0.683



Wetland 41
Borrow Area
WRAP Score 0.183

Appendix B - Representative WRAP Data Sheets

Wetland Rapid Assessment Procedure (WRAP)

Application Number

Project Name

Date

Evaluator

Wetland ID

Wetland Type / FLUCCS CODE

Wetland Acreage

Exist.	w/ Proj.
--------	----------

Wildlife Utilization (WU)

Exist.	3.0
w/ Proj.	

Wetland Canopy (O/S)

Exist.	NA
w/ Proj.	

Wetland Ground Cover (GC)

Exist.	2.0
w/ Proj.	

Habitat Support/Buffer

Exist.	2.750
w/ Proj.	0.000

Field Hydrology (HYD)

Exist.	2.0
w/ Proj.	

WQ Input & Treatment (WQ)

Exist.	2.825
w/ Proj.	0.000

Habitat Support/Buffer (HSB)			
Buffer	(Score)	(% of area)	= Sub Totals
None	0	50%	0
30'-300'	2	50%	1
Exist. HSB TOTAL			1.000
		0%	0
		0%	0
w/ Proj. HSB TOTAL			0.000

Land Use Category (LU)			
Land Use	(Score)	(% of area)	= Sub Totals
Highway	1	50%	0.5
Natural	3	50%	1.5
Exist. LU TOTAL			2.000
		0%	0
		0%	0
w/ Proj. LU TOTAL			0.000

Pretreatment Category (PT)			
Pretreatment	(Score)	(% of area)	= Sub Totals
Natural	3	50%	1.5
No Treat	0	50%	0
Exist. PT TOTAL			1.500
		0%	0
		0%	0
w/ Proj. PT TOTAL			0.000

EXISTING WRAP SCORE

FUNCTIONAL UNITS

WITH PROJECT WRAP SCORE

FUNCTIONAL UNITS

Field Notes:

Wildlife Utilization (WU)	Exist. An alligator was observed. Fish were observed. w/ Proj.
Wetland Canopy (O/S)	Exist. Mostly open water with some buttonbush and willow at the edge. w/ Proj.
Wetland Ground Cover (GC)	Exist. No groundcover as it is an open water pond. No submersed or free floating vegetation was observed. w/ Proj.
Habitat Support/Buffer	Exist. Excellent (>300ft) buffer on two sides. Portions of the other two sides 100 feet from road and RR w/ Proj.
Field Hydrology (HYD)	Exist. Hydrology is adequate. Creek seems to be fed by roadside swales during rain events. W/O swales and culvert not sure there w/ Proj.
WQ Input and Treatment (WQ)	LU Exist. Highway and RR opposite each other come within 100 feet of pond for a very small distance. w/ Proj. PT Exist. Runoff from road enters directed into pond by a culvert, however, water passes through a forested strip first. w/ Proj.

Wetland Rapid Assessment Procedure (WRAP)

Application Number

Project Name

Date

Evaluator

Wetland ID

Wetland Type / FLUCCS CODE

Wetland Acreage

Wildlife Utilization (WU)

Exist.	1.5
w/ Proj.	

Wetland Canopy (O/S)

Exist.	2.5
w/ Proj.	

Wetland Ground Cover (GC)

Exist.	1.5
w/ Proj.	

Habitat Support/Buffer

Exist.	1.500
w/ Proj.	0.000

Field Hydrology (HYD)

Exist.	2.0
w/ Proj.	

WQ Input & Treatment (WQ)

Exist.	2.000
w/ Proj.	0.000

Habitat Support/Buffer (HSB)			
Buffer	(Score)	(% of area)	= Sub Totals
None	0	50%	0
30'-300'	2	50%	1
Exist. HSB TOTAL			1.000
		0%	0
		0%	0
w/ Proj. HSB TOTAL			0.000

Land Use Category (LU)			
Land Use	(Score)	(% of area)	= Sub Totals
Highway	1	50%	0.5
Natural	3	50%	1.5
Exist. LU TOTAL			2.000
		0%	0
		0%	0
w/ Proj. LU TOTAL			0.000

Pretreatment Category (PT)		
Pretreatment	(Score)	(% of area)
Natural	3	50%
No Treat	0	50%
Exist. PT TOTAL		0%
		0%
w/ Proj. PT TOTAL		

EXISTING WRAP SCORE

FUNCTIONAL UNITS

WITH PROJECT WRAP SCORE

FUNCTION

Field Notes:

Wildlife Utilization (WU)	Exist. Little habitat or evidence of wildlife utilization, limited upland food source, located in developed area
Wetland Canopy (O/S)	Exist. N/A
Wetland Ground Cover (GC)	Exist. Minimal desirable cover, routinely managed
Habitat Support/Buffer	Exist. No buffer to south, large buffer to north
Field Hydrology (HYD)	Exist. Hydrology adequate, effected by external features (culverts)
WQ Input and Treatment (WQ)	LU Exist. Highway to south and natural to north
	PT Exist. Runoff from road enters directly to ditch, not pre-treated; natural area to north

Wetland Rapid Assessment Procedure (WRAP)

Application Number

Project Name

Date

Evaluator

Wetland ID

Wetland Type / FLUCCS CODE

Wetland Acreage

Wildlife Utilization (WU)

Exist.	1.5
w/ Proj.	

Wetland Canopy (O/S)

Exist.	3.0
w/ Proj.	

Wetland Ground Cover (GC)

Exist.	3.0
w/ Proj.	

Habitat Support/Buffer

Exist.	2.250
w/ Proj.	0.000

Field Hydrology (HYD)

Exist.	1.5
w/ Proj.	

WQ Input & Treatment (WQ)

Exist.	2.500
w/ Proj.	0.000

Habitat Support/Buffer (HSB)			
Buffer	(Score)	(% of area)	= Sub Totals
None	0	50%	0
30'-300'	2	50%	1
Exist. HSB TOTAL			1.000
			0%
			0
			0%
			0
w/ Proj. HSB TOTAL			0.000

Land Use Category (LU)			
Land Use	(Score)	(% of area)	= Sub Totals
Highway	1	50%	0.5
Natural	3	50%	1.5
Exist. LU TOTAL			2.000
			0%
			0
			0%
			0
w/ Proj. LU TOTAL			0.000

Pretreatment Category (PT)			
Pretreatment	(Score)	(% of area)	= Sub Totals
Natural	3	50%	1.5
No Treat	0	50%	0
Exist. PT TOTAL			1.500
			0%
			0
			0%
			0
w/ Proj. PT TOTAL			0.000

EXISTING WRAP SCORE

FUNCTIONAL UNITS

WITH PROJECT WRAP SCORE

FUNCTIONAL UNITS

Field Notes:

Wildlife Utilization (WU)	Exist. No evidence of wildlife utilization. Dry at observation. Adjacent upland supports good habitat (i.e. lots of food) for wildlife but w/ Proj.
Wetland Canopy (O/S)	Exist. Canopy intact with wetland trees and FACW growing in channel. No exotics or invasives w/ Proj.
Wetland Ground Cover (GC)	Exist. No groundcover. Channel deeply scoured indicating heavy flow, too heavy to support groundcover species. w/ Proj.
Habitat Support/Buffer	Exist. Excellent buffer on three sides. Fourth side is a culvert and roadway so no buffer w/ Proj.
Field Hydrology (HYD)	Exist. Hydrology is adequate. Creek seems to be fed by roadside swales during rain events. W/O swales and culvert not sure there w/ Proj.
WQ Input and Treatment (WQ)	LU Exist. Highway on one side. Natural areas on three sides w/ Proj. PT Exist. Runoff from road enters directly to swales which feed creek. w/ Proj.

Wetland Rapid Assessment Procedure (WRAP)

Application Number

Project Name

Date

Evaluator

Wetland ID

Wetland Type / FLUCCS CODE

Wetland Acreage

Exist.	w/ Proj.
--------	----------

Wildlife Utilization (WU)

Exist.	2.0
w/ Proj.	

Wetland Canopy (O/S)

Exist.	N/A
w/ Proj.	

Wetland Ground Cover (GC)

Exist.	2.0
w/ Proj.	

Habitat Support/Buffer

Exist.	2.250
w/ Proj.	0.000

Field Hydrology (HYD)

Exist.	2.0
w/ Proj.	

WQ Input & Treatment (WQ)

Exist.	2.000
w/ Proj.	0.000

Habitat Support/Buffer (HSB)			
Buffer	(Score)	(% of area)	= Sub Totals
None	0	50%	0
30'-300'	2	50%	1
Exist. HSB TOTAL			1.000
		0%	0
		0%	0
w/ Proj. HSB TOTAL			0.000

Land Use Category (LU)			
Land Use	(Score)	(% of area)	= Sub Totals
Highway	1	50%	0.5
Natural	3	50%	1.5
Exist. LU TOTAL			2.000
		0%	0
		0%	0
w/ Proj. LU TOTAL			0.000

Pretreatment Category (PT)			
Pretreatment	(Score)	(% of area)	= Sub Totals
Natural	3	50%	1.5
No Treat	0	50%	0
Exist. PT TOTAL			1.500
		0%	0
		0%	0
w/ Proj. PT TOTAL			0.000

EXISTING WRAP SCORE

FUNCTIONAL UNITS

WITH PROJECT WRAP SCORE

FUNCTIONAL UNITS

Field Notes:

Wildlife Utilization (WU)	Exist. Good habitat available for all classes of mammals. Some deer scat observed. w/ Proj.
Wetland Canopy (O/S)	Exist. N/A w/ Proj.
Wetland Ground Cover (GC)	Exist. Wetland groundcover intact. Some cattail w/ Proj.
Habitat Support/Buffer	Exist. Bordered on three sides by over 300 ft of buffer in State Forest. Fourth side highway at about 250 feet. w/ Proj.
Field Hydrology (HYD)	Exist. Hydrology adequate. Marsh seems to have a man-made berm on the highway side. w/ Proj.
WQ Input and Treatment (WQ)	LU Exist. Natural on three sides, highway 250 on one side. w/ Proj. PT Exist. Bermed on one side not allowing water in or out w/ Proj.

Wetland Rapid Assessment Procedure (WRAP)

Application Number

Project Name

Date

Evaluator

Wetland ID

Wetland Type / FLUCCS CODE

Wetland Acreage

Wildlife Utilization (WU)

Exist.	0.0
w/ Proj.	

Wetland Canopy (O/S)

Exist.	NA
w/ Proj.	

Wetland Ground Cover (GC)

Exist.	0.0
w/ Proj.	

Habitat Support/Buffer

Exist.	0.500
w/ Proj.	0.000

Field Hydrology (HYD)

Exist.	1.0
w/ Proj.	

WQ Input & Treatment (WQ)

Exist.	1.250
w/ Proj.	0.000

Habitat Support/Buffer (HSB)			
Buffer	(Score)	(% of area)	= Sub Totals
None	0	50%	0
30'-300'	2	50%	1
Exist. HSB TOTAL			1.000
		0%	0
		0%	0
w/ Proj. HSB TOTAL			0.000

Land Use Category (LU)			
Land Use	(Score)	(% of area)	= Sub Totals
Highway	1	50%	0.5
Natural	3	50%	1.5
Exist. LU TOTAL			2.000
		0%	0
		0%	0
w/ Proj. LU TOTAL			0.000

Pretreatment Category (PT)			
Pretreatment	(Score)	(% of area)	= Sub Totals
Natural	3	50%	1.5
No Treat	0	50%	0
Exist. PT TOTAL			1.500
		0%	0
		0%	0
w/ Proj. PT TOTAL			0.000

EXISTING WRAP SCORE

FUNCTIONAL UNITS

WITH PROJECT WRAP SCORE

FUNCTIONAL UNITS

Field Notes:

Wildlife Utilization (WU)	Exist. No wildlife value w/ Proj.
Wetland Canopy (O/S)	Exist. Maintained retention pond with planted grasses w/ Proj.
Wetland Ground Cover (GC)	Exist. Planted and maintained grass (Bahia) w/ Proj.
Habitat Support/Buffer	Exist. Has a small strip of WHF on one side, a road on another and planted grasses on other two sides. w/ Proj.
Field Hydrology (HYD)	Exist. Hydrology is inadequate to support wetland dependent species. Well drained soils w/ Proj.
WQ Input and Treatment (WQ)	LU Exist. Road on one side. Planted grasses all around. Cut out of upland. w/ Proj. PT Exist. Runoff from road enters directed into it then percs out. w/ Proj.

The descriptions of the USFWS Classification codes used to identify the wetland areas within the Cobb Rd./US 98 widening project limits are listed below:

<u>USFWS Classification Code</u>	<u>Description</u>
System - P, R, L	Palustrine, Riverine, Lacustrine
Class - EM, FO, UB, SB, AB	Emergent, Forested, Unconsolidated bottom, Stream bed, Aquatic bed
Subclass - 1,	Persistent, Broad-leaved deciduous
Subclass - 3	Rooted vascular
Subclass - 4	Floating vascular
Water Regime - A	Temporarily flooded
C	Seasonally flooded
E	Seasonally flooded/saturated
F	Semipermanently flooded
H	Permanently flooded
Special Modifier - x	Excavated

The descriptions of the FLUCFCS codes used to identify the wetland areas within the Cobb Rd./US 98 widening project limits are listed below:

510(D)	Streams and Waterways - This category includes creeks and linear ditches.
522	Lakes larger than 100 acres.
534	Reservoirs less than 10 acres which are dominant features.
610	Wetland Hardwood Forests (WHF).
6101	WHF with 10 to 30% crown closure.
6104	WHF with greater than 70% crown closure.
613	Gum swamps - Forested wetlands with a standing water component and a preponderance of blackgum and sweetgum.
616	Inland ponds and sloughs.
641	Freshwater marshes.

- 6412 Cattail marsh.
- 6417 Freshwater marsh with shrubs, bushes and vines.
- 742 Borrow areas - small, non-linear, water retention areas.

**Appendix C - Advance Notification Responses, Correspondence, and
Coordination**



Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

September 17, 2001

Ms. Jasmin Raffington
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RE: FDOT – Advance Notification – Cobb Road & US 98 PD&E Study, Hernando County,
SAI # FL200108140804C

Dear Ms. Raffington:

The Department has reviewed the above referenced Advance Notification from the Florida Department of Transportation (FDOT) and Federal Highway Administration to conduct a study of CR 485 (Cobb Road) & US 98 capacity and truck route traffic improvements. Funding for the Federal aid action and PD&E study is consistent with the Department's authorities in the Florida Coastal Management Program. However, as detailed project information is not yet available, the Department cannot determine the consistency of the road improvements project at this time. Additional information is required concerning the anticipated roadway width, design, impacts, construction, and mitigation for any proposed wetland impacts. Further evaluation(s) of the project will be conducted during the environmental documentation and permitting stages. Future consistency will be based in part on adequate consideration of comments offered in this and subsequent reviews. Department staff offer the following comments and recommendations:

- ◆ As noted on the Advance Notification Fact Sheet, roadway construction activities will require issuance of an Environmental Resource Permit (ERP) by the Southwest Florida Water Management District (SWFWMD), pursuant to Part IV of Chapter 373, *Florida Statutes* (F.S.), and Rules 62-113, 40D-4, and 40D-40, *Florida Administrative Code* (F.A.C.). Early coordination of project plans with the SWFWMD is recommended.
- ◆ The permit applicant will be required to eliminate or reduce any proposed wetland resource impacts to the greatest extent practicable:
 - Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via steep or vertically retained side slopes, and median width reductions within safety limits.
 - Wetlands should not be displaced by the installation of stormwater conveyance and treatment swales; compensatory treatment in adjacent uplands is the preferred alternative.
 - After avoidance and minimization have been exhausted, mitigation must be proposed to offset the adverse impacts of the project to existing wetland functions and values.

"More Protection, Less Process"

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State of Florida Clearinghouse

SEP 21 2001

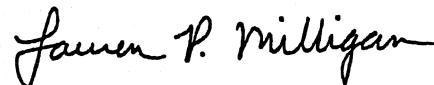
- Significant attention is given to forested wetland systems, which are difficult to mitigate.
- The cumulative impacts of concurrent and future road improvement projects in the vicinity of the subject project should also be addressed.
 - ◆ **Please note:** The proposed project lies within the Brooksville Ridge physiographic region and part of a large hammock belt known historically as the "Big Hammock." The roadways traverse the Annatteliga Hammock – an area of karst topography with high rolling hills, formed valleys, prairie basins, lakes, unique northern hardwood forests, and high-quality longleaf pine sandhills. In addition to the CARL-acquired sites, numerous proposed acquisition sites may be impacted by roadway construction and/or expansion. Much of the region has been targeted for preservation through the Water Management Lands Trust Fund, Save Our Rivers Program, as it is an area of high groundwater recharge to the Upper Floridan aquifer, contains unique and valuable natural systems, and is of significant historical and archaeological importance.

Surface land uses and activities in this area can have direct impacts to groundwater. Per section 62-40.310(1)(h), *F.A.C.*, the Department's review of all programs, rules, and plans seeks to "[p]rotect aquifers from depletion through water conservation and preservation of the functions of high recharge areas." Because the roadway improvements project is located in this critical area, we recommend that the ERP permit applicant consider a full range of planning strategies to utilize Best Management Practices, buffer wetland areas, and treat stormwater to protect groundwater and adjacent surface water resources.

- ◆ The project area is in the vicinity of numerous recorded (and unrecorded, but known to local collectors) archaeological sites. The Department recommends that the proposed cultural resource assessment survey be conducted by a professional archaeologist and coordinated throughout with the Division of Historical Resources.

We appreciate the opportunity to comment on the Advance Notification and would like to request that copies of the Environmental Assessment be sent through the State Clearinghouse for review. Please feel free to call me at (850) 487-2231 if you have any questions or need additional information.

Sincerely,



Lauren P. Milligan
Environmental Specialist
Office of Intergovernmental Programs

/lpm

cc: Lori Collins, DEP, Southwest District



An Equal Opportunity Employer

Southwest Florida Water Management District

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)
SUNCOM 578-2070

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)
SUNCOM 572-6200

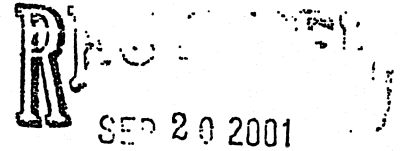
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)
SUNCOM 531-6900

Lecanto Service Office
3600 West Sovereign Path
Suite 226
Lecanto, Florida 34461-8070
(352) 527-8131
SUNCOM 667-3271

September 17, 2001

Jasmin Raffington
Florida State Clearinghouse
Department Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100



State of Florida Clearinghouse

Subject: Florida Department of Transportation (FDOT) - Advance Notification of Project Development and Environmental (PD&E) Study for Cobb Road and U.S. 98 - Federal Project Numbers: 257299 1 22 01 and 405017 1 22 01 - Hernando County
SAI#: FL200108140804C

Dear Ms. Raffington:

The staff of the Southwest Florida Water Management District (District) has conducted a consistency evaluation for the project referenced above. Consistency findings are divided into four categories and are based solely on the information provided in the subject application.

FINDING	CATEGORY
x	Consistent/No Comment
	Consistent/Comments Attached
	Inconsistent/Comments Attached
	Consistency Cannot be Determined Without an Environmental Assessment Report/Comments Attached

This review does not constitute permit approval under Chapter 373, Florida Statutes, or any rules promulgated thereunder, nor does it stand in lieu of normal permitting procedures in accordance with Florida Statutes and District rules.

If you have any questions or if I can be of further assistance, please contact me in the District's Planning Department at extension 4421.

Sincerely,

Joseph P. Quinn, AICP
Government Planning Coordinator

- Ronnie E. Duncan**
Chair, Pinellas
- Thomas G. Dabney, II**
Vice Chair, Sarasota
- Janet D. Kovach**
Secretary, Hillsborough
- Watson L. Haynes, II**
Treasurer, Pinellas
- Edward W. Chance**
Manatee
- Monroe "Al" Coogler**
Citrus
- Maggie N. Dominguez**
Hillsborough
- Pamela L. Fentress**
Highlands
- Ronald C. Johnson**
Polk
- Heidi B. McCree**
Hillsborough
- John K. Renke, III**
Pasco
- E. D. "Sonny" Vergara**
Executive Director
- Gene A. Heath**
Assistant Executive Director
- William S. Bilenky**
General Counsel



GF-FYF
257299 1.

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

JEB BUSH
Governor

STEVEN M. SEIBERT
Secretary

December 7, 2001

Mr. Jeraldo Comellas, Jr., P.E.
District Environmental Management Engineer
Florida Department of Transportation
11201 N. McKinley Drive/MS 7-500
Tampa, Florida 33612-6456

2001 DEC 14 PM 12:45
COMMUNITY PLANNING
DIVISION OFFICE

RE: Florida Department of Transportation - Advance Notification for Project
Development and Environmental Study for Cobb Road and US 98 - FPN(s):
257299 1 22 01/405017 1 22 01 - Hernando County, Florida
SAI: FL 200108140804C

Dear Mr. Comellas:

The Florida State Clearinghouse, pursuant to Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 14 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated the review of the above-referenced project.

The Department of Environmental Protection (DEP) notes that the funding for the Federal Aid action and Project Development and Environmental Study is consistent with the DEP's authorities in the Coastal Management Program. However, detailed project information is not yet available, and therefore, the DEP cannot determine the consistency of the interstate improvements project at this time. In addition, information is required regarding the anticipated roadway width, design, impacts, construction, and mitigation for any proposed wetland impacts. Please refer to the enclosed DEP comments.

2555 SHUMARD OAK BOULEVARD • TALLAHASSEE, FLORIDA 32399-2100
Phone: 850.488.8466/Suncom 278.8466 FAX: 850.921.0781/Suncom 291.0781
Internet address: <http://www.dca.state.fl.us>

Mr. Jeraldo Comellas, Jr., P.E.

December 7, 2001

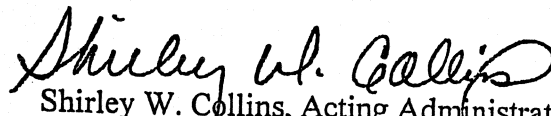
Page Two

Based on the information contained in the referenced application and the enclosed comments provided by our reviewing agencies, the state has determined that, at this stage of project development, the referenced project is consistent with the Florida Coastal Management Program. However, the applicant is required to provide the Florida State Clearinghouse with the detailed project information requested by the DEP as soon as the information becomes available. In addition, the Withlacoochee Regional Planning Council notes the project's consistency with the Strategic Regional Policy Plan.

Please attach a copy of this letter and any enclosures to your application facesheet or cover form and forward to the federal funding agency. (If applicable, enter the State Application Identifier (SAI) number, shown above, in box 3A of Standard Form 424 or where appropriate on other cover form.) This action will assure the federal agency of your compliance with Florida's review requirements and reduce the chance of unnecessary delays in processing your application.

Thank you for the opportunity to review this project. Should questions arise regarding this letter, please call Ms. Jasmin Raffington at (850) 922-5438.

Sincerely,


Shirley W. Collins, Acting Administrator
Florida Coastal Management Program

SWC:jj

Enclosures

cc: Lauren P. Milligan, Department of Environmental Protection
Joseph P. Quinn, Southwest Florida Regional Planning Council
Vivian Whittier, Withlacoochee Regional Planning Council

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VICKI PHILLIPS
SECRETARY

September 6, 2001

Ms. Jasmin Raffington
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, FL 32399-2100

SUBJECT: **SAI #: 200108140804C**
 U. S. Department of Transportation
 Advance Notification - PD&E Study
 WPI Seg. Nos. 257299 1 and 4050187 1
 FAP Nos. 2891 007P and 2891 008P
 CR 485 (Cobb Road) and US 98
 Hernando County, FL
 WRPC ICR #: 43-H8-01-FHwA

Dear Ms. Raffington:

Pursuant to the provisions of Presidential Executive Order 12372, Governor's Executive Order 95-359, and WRPC Rules Chapter 29E-6, *FAC*, the staff of the Withlacoochee Regional Planning Council reviewed the above-referenced project and find it to be consistent with the goals and policies of the WRPC's adopted *Strategic Regional Policy Plan for the Withlacoochee Region* and, in particular, with:

- Policy 2.4.13:** Plan and design transportation facilities that provide maximum access to jobs and markets.
- Policy 2.12.1:** Coordinate with the Florida Department of Transportation (FDOT) in the development of policies that maintain adequate regional transportation facilities for continued economic development.
- Policy 4.10.5:** Confer with the Florida Natural Areas Inventory, the Florida Game and Freshwater Fish Commission [Florida Fish and Wildlife Conservation Commission], and the U. S. Fish and Wildlife Service when revising land use plans that might affect the habitat of threatened or endangered species of plants and animals.

Ms. Jasmin Raffington
September 6, 2001
Page 2.

- Goal 5.5:** Provide transportation facilities to ensure that the regionally significant roadways operate at acceptable levels of service.
- Policy 5.5.2:** Perform timely maintenance, expansion, and repair of roads and bridges to minimize costly reconstruction and to enhance safety.

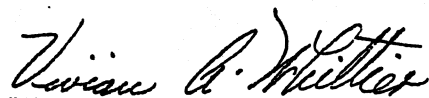
In addition, the applicant should be aware of the followings goals and policies which may be pertinent to this project:

- Policy 4.3.10:** Require protective devices to prevent construction activity from causing increased sediment in surface waters or wetlands.
- Policy 4.4.1:** Utilize natural drainage and floodplain functions in new development and redevelopment; prohibit significant interference of floodplain functions.
- Policy 4.4.11:** Limit dredging to maintenance of existing channels, and retention and detention ponds. Do not dispose of dredged material in wetlands unless it is for the purpose of restoring an altered system, or in sensitive vegetative communities. Require restoration or mitigation where dredge and fill regulations have been violated.
- Policy 4.6.2:** Design and build new local, state, and private roads, bridges, and causeways so as not to interfere with surface water flows, and with appropriate protective measures to avoid degrading water quality.
- Goal 4.8:** Avoid adverse impacts to the natural functions of the region's wetlands or surface water systems from development and redevelopment.
- Policy 4.8.18:** Design new public and private roads so as not to impede the natural flow of water.
- Policy 4.9.2:** Design roads and bridges to incorporate design features that facilitate the free passage of wildlife so as to avoid vehicle and animal collisions.

Hernando County responded with no comments.

We appreciate the opportunity to comment on this proposal.

Sincerely,



Vivian A. Whittier
ICR Procedural Coordinator

/vaw
Encs.

Appendix D - Potential Protected Species In The Study Area

**WETLANDS EVALUATION REPORT
COBB ROAD (CR 485) / US 98 PD&E STUDY**

Potential Protected Species In The Study Area

Common Name	Scientific Name	Status	
		FDA	USFWS
Flora			
Curtiss' Milkweed	<i>Asclepias curtissii</i>	E	--
Sand Butterfly Pea	<i>Centrosema arenicola</i>	E	--
Cooley's Water Willow	<i>Justicia Cooleyi</i>	E	E
Brittle Maiden Hair Fern	<i>Adiantum tenerum</i>	E	--
Fauna		FWC	USFWS
American Alligator	<i>Alligator mississippiensis</i>	SSC	T (S/A)
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T
Florida Black Bear	<i>Ursus americanus floridanus</i>	T	--
Gopher Tortoise	<i>Gopherus polyphemus</i>	SSC	--
Wood Stork	<i>Mycteria americana</i>	E	E
Red-cockaded Woodpecker	<i>Picoides borealis</i>	T	E
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>	SSC	--
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	T	--
Little Blue Heron	<i>Egretta ceulea</i>	SSC	--
Snowy Egret	<i>Egretta thula</i>	SSC	--
White Ibis	<i>Eudocimus albus</i>	SSC	--
Limpkin	<i>Aramus guarauna</i>	SSC	--
Tricolored Heron	<i>Egretta tricolor</i>	SSC	--

LEGEND: E = Endangered
T = Threatened
SSC = Species of Special Concern
S/A = Similarity of Appearance