

Project Development and Environment Study

WETLAND EVALUATION REPORT

SR 826/Palmetto Expressway Express Lanes

**From South of SR 836/Dolphin Expressway
to SR 932/NW 103rd Street**

FM No. 418423-3-22-01

ETDM No. 11560

Miami-Dade County, Florida



FLORIDA DEPARTMENT OF TRANSPORTATION

District Six

1000 NW 111th Avenue

Miami, Florida 33172

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 (Relevant Sections)





ACRONYMS

CS	Cumulative (WATER) Score
DEP	Florida Department of Environmental Protection
EMB	Everglades Mitigation Bank
ERP	Environmental Resource Permit
ETDM	Efficient Transportation Decision Making
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FP&L	Florida Power and Light
FS	(WATER) Functional Score
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
MPS	Maximum Possible (WATER) Score
NMFS	National Marine Fisheries Service
PD&E	Project Development and Environment
SFWMD	South Florida Water Management District
SR	State Road
SSM	(WATER) Site Suitability Multiplier
TWC	Total WATER Credits
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WATER	Wetland Assessment Technique for Environmental Review
WS	WATER Score





1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for roadway improvements along State Road (SR) 826/Palmetto Expressway (SR 826) from south of SR 836/Dolphin Expressway (SR 836) to SR 932/NW 103rd Street in Miami-Dade County, Florida (see *Figure 1.1*).

The objective of this PD&E study is to provide documented environmental and engineering analyses that will assist the FDOT and the Federal Highway Administration in reaching a decision on the conceptual design for the roadway improvements to SR 826. This PD&E study complies with the requirements of the National Environmental Policy Act, which requires the evaluation of the potential impacts (both positive and negative) that a project has on its physical, natural, social, and cultural environment.

The purpose of this *Wetland Evaluation Report* is to document and describe existing wetland and surface water communities found within the study corridor and to assess any potential impacts to these communities that may occur as a result of the construction and operation of the SR 826 roadway improvements. This report presents the findings of a wetland evaluation needed to fulfill the requirements outlined in Part 2, Chapter 18 (dated November 20, 2009) of the FDOT *PD&E Manual*.



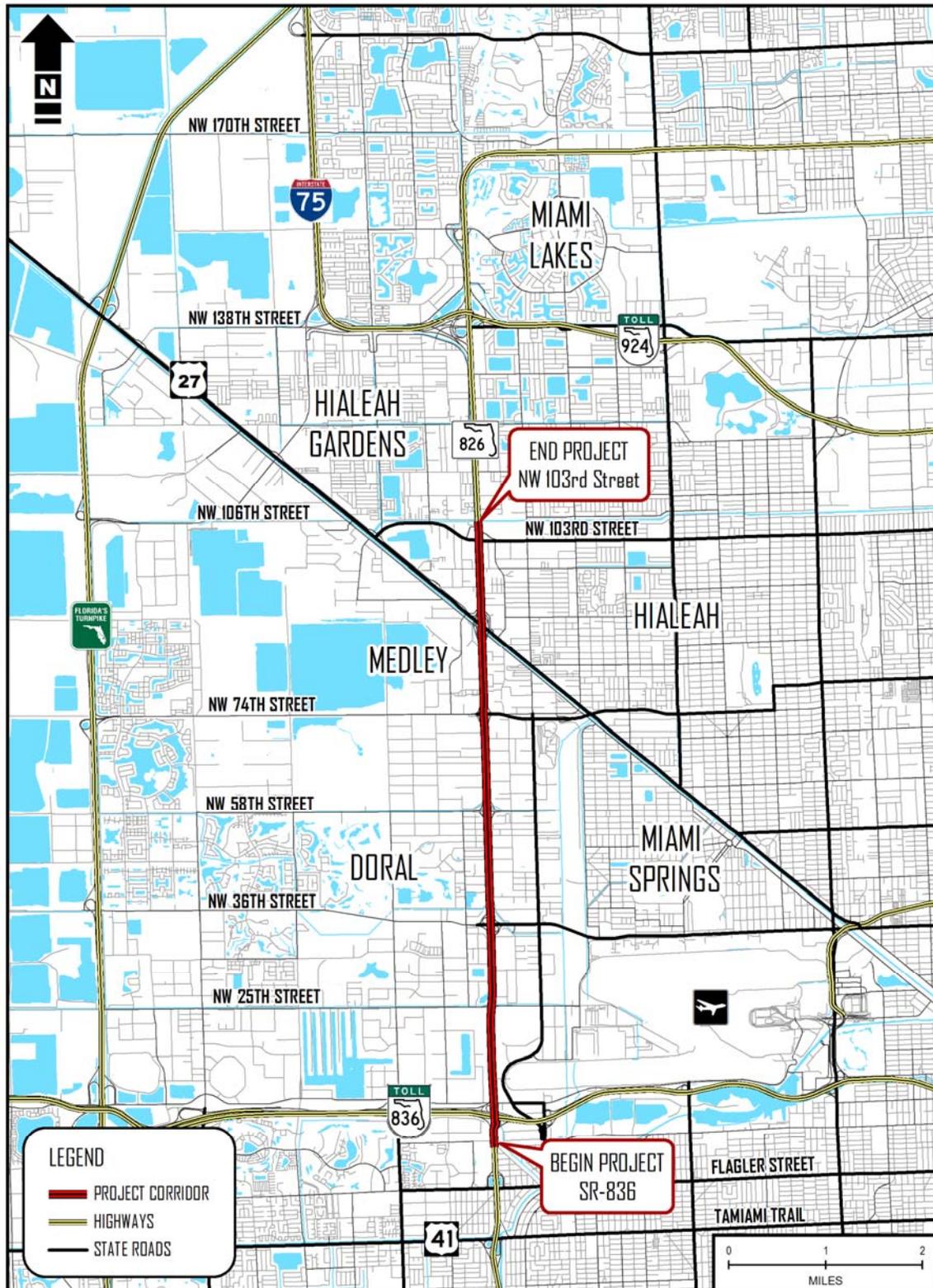


Figure 1.1 – Project Location Map



2.0 PROJECT DESCRIPTION

2.1 Background

SR 826 is one of the most traveled transportation corridors in Miami-Dade County. This multi-lane expressway extends north-south from US-1 to the Golden Glades Interchange for a distance of approximately 25 miles. SR 826 connects southern Miami-Dade County to northern Miami-Dade County and serves as a feeder route to the county's busiest east-west corridor, SR 836. SR 826 also provides system-level connections to Interstate 75 (I-75), Florida's Turnpike, SR 924/Gratigny Parkway, SR 874/Don Shula Expressway and SR 9/I-95. SR 826 is part of the Strategic Intermodal System, Florida Intrastate Highway System, and National Highway System. SR 826 is listed as a local evacuation route in Miami-Dade County.

The project study area, as shown in *Figure 1.1*, is located in northwestern Miami-Dade County and is approximately 5.9 miles in length. The project limits extend along SR 826 from south of SR 836/Dolphin Expressway to SR 932/NW 103rd Street in Miami-Dade County. Within the study limits, SR 826 is an eight-lane divided limited access facility from south of SR 836 to NW 25th Street and a ten-lane divided limited access facility from NW 25th Street to NW 103rd Street. The existing speed limit along SR 826 is posted at 55 miles per hour (MPH). The SR 826 access management classification is Class 1.2, Freeway in an existing urbanized area with limited access. The project area traverses three municipalities: City of Hialeah, City of Doral, and the Town of Medley. In addition, the project runs along unincorporated Miami-Dade County.

The improvements will consist of the addition of two express lanes (also known as managed lanes) in each direction along the SR 826 corridor within the project limits. These improvements are needed to address future vehicular growth projected in the area, improve highway safety, enhance hurricane and other emergency evacuations and improve system connectivity between SR 836, SR 924, and I-75 within the project limits.

This SR 826 PD&E study will evaluate traffic capacity throughput to mitigate existing traffic congestion and to accommodate both future traffic demand and emergency evacuation needs. Operational and safety improvements, which could include Active Traffic Management and Intelligent Transportation System strategies, as well as lane, ramp, and interchange modifications, will also be evaluated. Additional considerations along the facility, including aesthetic treatments and bus rapid transit operational improvements, may also be included throughout the study process. The study will determine the number and type of travel lanes and interchange modifications required to accommodate anticipated traffic volumes and improve safety conditions throughout the project limits. It is through this study process that various alternatives for minimizing impacts to the environment and surrounding communities will be addressed.





2.2 Purpose and Need

The purpose of this PD&E study is to identify improvements to address the implementation of an express lanes system that will link SR 826 to the managed lanes network currently under development by FDOT Districts Four and Six, Miami-Dade Expressway Authority, and the Florida's Turnpike Enterprise. Please reference the *Preliminary Engineering Report* developed as a part of this PD&E study for additional information relating to the proposed managed lanes network currently under development.

Projections of future population and employment in the project area indicate that travel demand will continue to increase for years to come. The purpose of this project is to add two express lanes in each direction along the SR 826 corridor from south of SR 836 to NW 103rd Street, with the objective of improving mobility, relieving congestion, and providing additional travel options. Constrained right-of-way, coupled with the development intensity along the corridor, present a challenge for accommodating future traffic growth by widening the SR 826 mainline. However, two express lanes could be incorporated along the corridor with moderate widening of the mainline or by restriping existing general purpose lanes. The project is anticipated to take place within the existing public right-of-way. As part of the I-75 PD&E Study, completed in early 2012, managed lanes are being evaluated with a direct connection to/from SR 826. In addition, the entire SR 826 corridor is designated as a viable managed lanes facility in the 2009 FDOT District Six report, "*A Managed Lanes Vision for Southeast Florida.*"

Improvements to this section of SR 826 are needed in order to relieve congestion and increase capacity between SR 836 and I-75. This project will provide continuity with the proposed managed lanes on I-75 as envisioned in the emerging South Florida Managed Lanes network, as well as provide bus rapid transit service and connectivity to the existing Palmetto Metrorail Station at NW 74th Street.

The documentation for this PD&E Study will be limited to the SR 826 Express Lanes PD&E corridor. A separate PD&E Study is being conducted for the SR 826 East-West corridor from I-75 to the Golden Glades Interchange.





2.3 Land Use

The SR 826 project corridor encounters a myriad of land use categories on record with the Miami-Dade County Department of Planning and Zoning, the City of Doral Planning Department, the City of Hialeah Gardens Planning and Zoning Department, and the City of Hialeah Planning and Zoning Department. **Figure 2.1** illustrates the existing land use within the study limits in Miami-Dade County. The land use classifications identified within the study include the following: Airports, Communications/Utilities, Expressway Right-of-Way, Industrial, Institutional, Low Density – Multi Family, Mobile Home Park, Multi Family – Migrant Camp, Office, Parks, Shopping Centers, Roadways, Townhouses, Transient Residential, Vacant Unprotected, Vacant Government-Owned, and Water.

The land use along the SR 826 corridor between the SR 826/NW 36th Street interchange and the SR 826/SR 836 interchange is classified as water along the west side in multiple places and as office use along the east side. However, the most common land use is industrial on both sides of the corridor. These lands are mostly associated with the nearby Miami International Airport. The corridor also crosses over the CSX rail line that runs parallel to SR 836.

The land use along the SR 826 corridor between Okeechobee Road and NW 36th Street is classified as mostly industrial/office and communications. This area also consists of a few commercial shopping centers and institutional uses. The land near the SR 826/NW 58th Street interchange is currently vacant/unprotected and undeveloped.

The land use north of the SR 826/Okeechobee Road interchange is mainly comprised of commercial shopping complexes and industrial use properties. There are also a few institutional uses and one small residential area.

Along SR 826, between SR 836 and NW 103rd Street, the adjacent land use is a mix of residential types, primarily low density residential. Both sides of SR 826 also have commercial business/office areas with a mixture of various industrial/office land uses, predominantly light industry. Industrial use is the most dominant land use throughout the corridor.



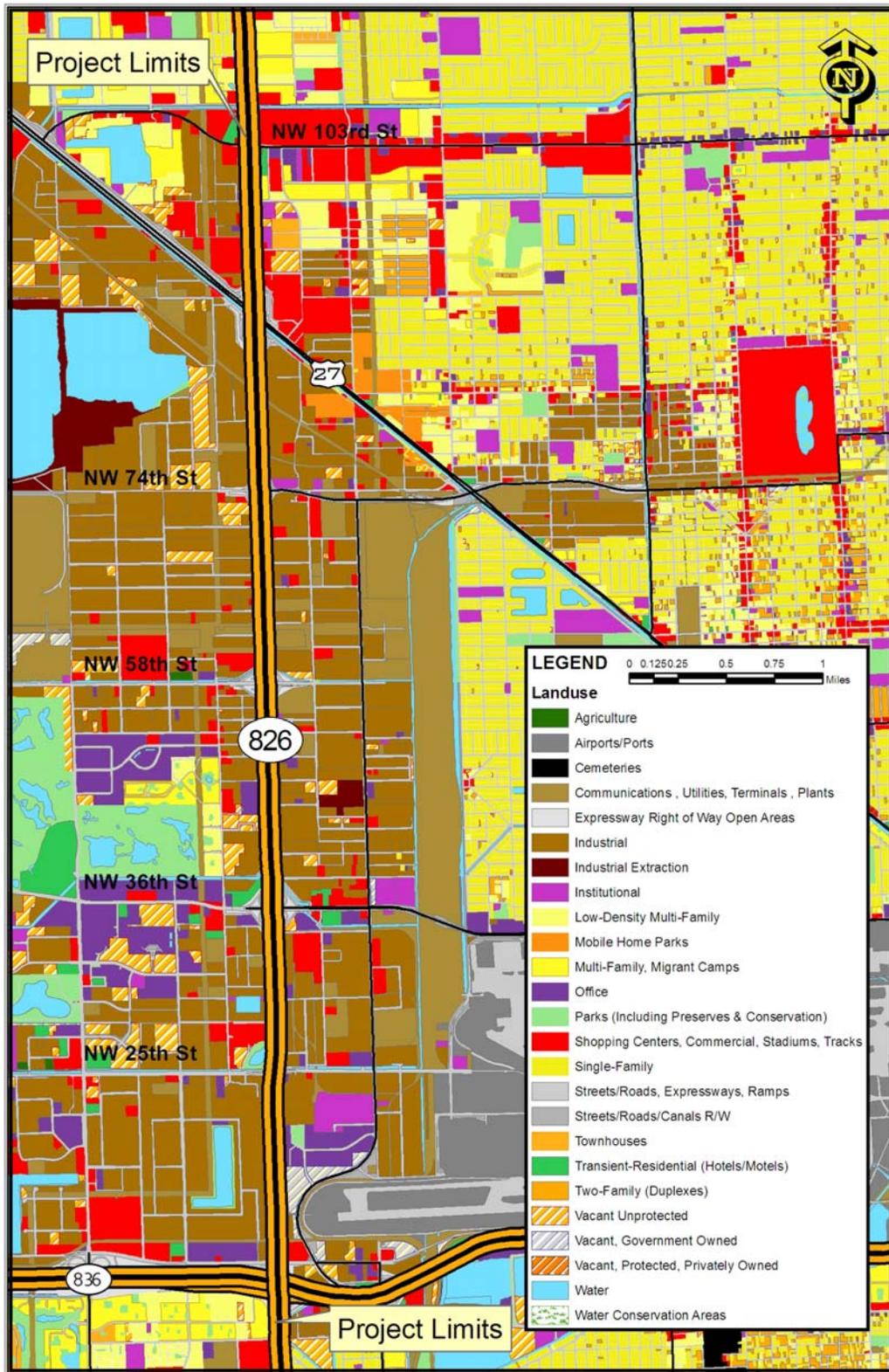


Figure 2.1 – Existing Land Use Map



2.4 Floodplains

According to the revised 2012 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community Panels 12086C0277L, 12086C0279L, 12086C0287L, and 12086C0289L, and the Flood Zone Geographic Information System (GIS) mapping data provided by Miami-Dade County, the areas surrounding the SR 826 project corridor contain four distinct flood zones: AE, AH, X and Zone 0.2% Annual Chance Flood Hazard. These areas are represented in *Figure 2.2*.

Zone AE are areas that have a one percent probability of flooding every year (also known as the “100-year floodplain”) and where base flood elevations above mean sea level have been established. Areas containing this characterization exist mainly west of the corridor and at most of the interchanges (infield areas) along SR 826. This designation includes most of the established waterways along the project corridor (canals, lakes, etc.). Zone AH is a special flood hazard area inundated by a 100-year flood event, with flood depths of one to three feet and characterized by areas of ponding. The base flood elevations have been determined. Properties in Zone AE and AH are considered to be at high risk of flooding under the National Flood Insurance Program. Construction in these areas must meet local floodplain zoning ordinance requirements.

Areas classified as Zone X are outside the one percent annual chance floodplain, which are not prone to usual flooding. Areas containing this characterization exist intermittently along the entire project corridor on both the east and west sides. These areas are typically outside of the 100-year floodplain areas of 100-year sheet flow flooding where average depths are less than one foot, areas of 100-year stream flooding where the contributing drainage area is less than one square mile, or areas protected from the 100-year flood by levees.

Areas that fall within Zone 0.2% Annual Chance Flood Hazard are located just east of the project corridor between NW 36th Street and NW 74th Street. Areas designated as Zone 0.2% Annual Chance Flood Hazard are characterized as inundated by 0.2% annual chance flooding. No base flood elevations or depths are shown in the data collected within this zone for the project corridor.

The FEMA, in implementing the National Flood Insurance Program, established a system of building guidelines. All local and state building ordinances are based upon these guidelines. This project will comply with all applicable federal, state, and local ordinances relating to floodplains. In accordance with the FDOT’s latest edition of *Standard Specifications for Road and Bridge Construction*, best management practices will be utilized during the construction phase of the project for erosion control and water quality considerations. The project alternatives are not expected to cause changes in flood stage and flood limits. Any minor changes, if any, resulting from this project will not result in any adverse impacts on the natural and beneficial floodplain values or any changes in flood risk or damage.





It has been determined, through consultation with federal, state, and local water resource and floodplain management agencies that there is no regulatory floodway involvement on the proposed project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.

2.4.1 Floodplain Compensation Storage

According to the FEMA Flood Insurance Rate Maps, a large portion of the project area is located in Zone AH with base flood elevations determined. Since a large portion of the existing stormwater retention areas is being impacted/eliminated by the proposed improvements, the lost storage volume between the base flood elevation and the existing ground must be replaced. However, due to the low elevation of the existing ground surrounding these drainage basins, it is not possible to acquire right-of-way in order to provide for the 100-year storage compensation. Any additional offsite areas that can be used for the 100-year storage compensation are already being used for storage of the 100-year base flood and thus would not result in a net increase of storage no matter how much additional area is acquired. The best that can be accomplished under the constraints of the existing topography is to design the stormwater system so that offsite discharge rates and volumes for design storms up to and including the 100-year – 72 hour storm do not exceed pre-development values.

Replacement drainage structures for this project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. An alternative encroachment location is not considered in this category since it defeats the project purpose or is economically unfeasible. Since flooding conditions in the project area are inherent in the topography or are a result of other outside contributing sources, and there is no practical alternative to totally eradicate flood impacts or even reduce them in any significant amount, existing flooding will continue, but not be increased. The proposed structure will be hydraulically equivalent to or greater than the existing structure, and backwater surface elevations are not expected to increase. As a result, the project will not affect existing flood heights or floodplain limits. This project will not result in any new or increased adverse environmental impacts. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.



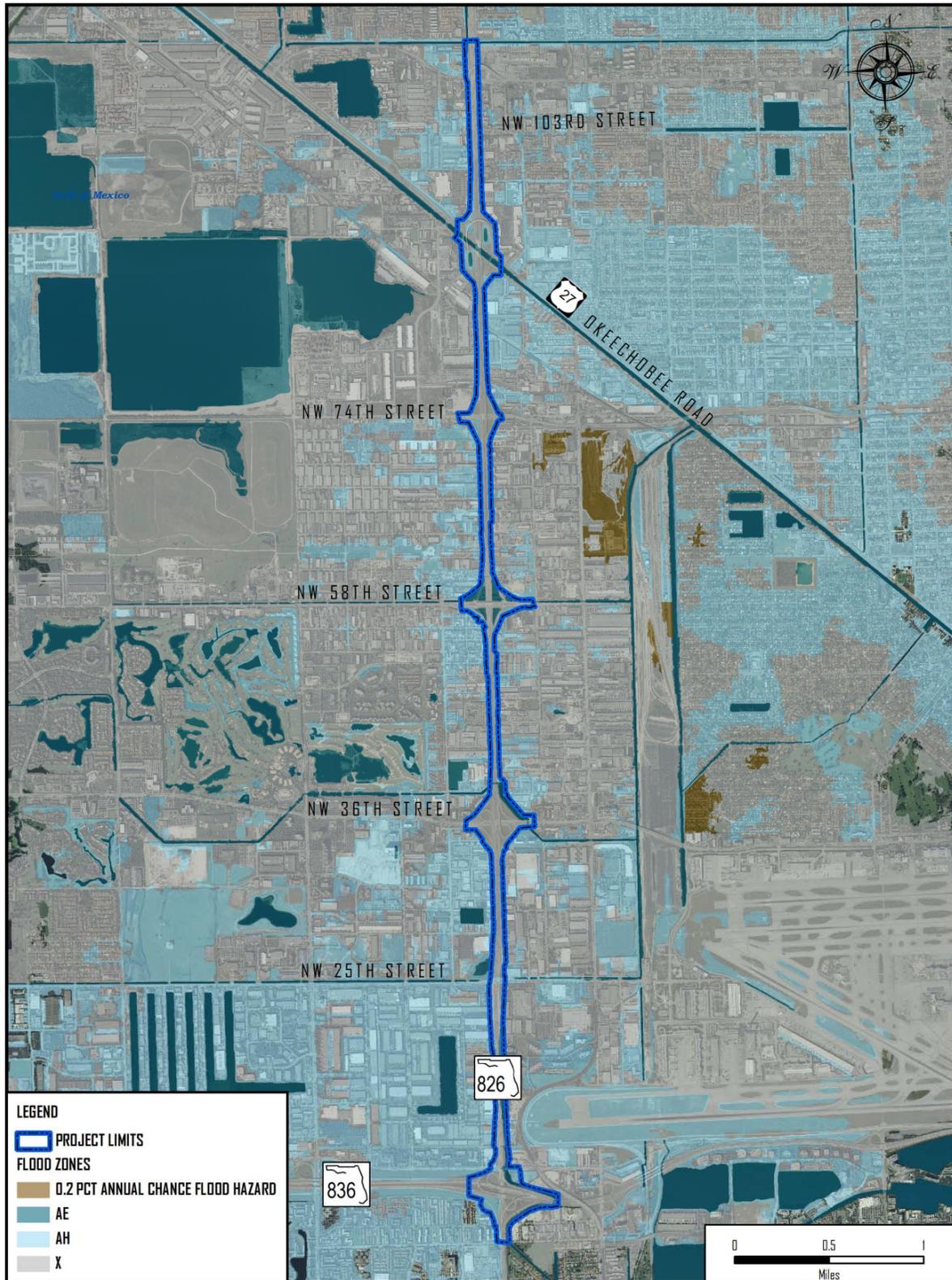


Figure 2.2 – Floodplains Map



2.5 Stormwater Management

The project corridor has been divided into 17 existing drainage basins. Each basin utilizes a combination of either French drain and/or retention areas for water quality treatment and attenuation prior to discharge into an adjacent surface water body. The proposed drainage scheme will maintain the existing drainage basins and their outfall locations. However, in order to account for the widening along SR 826, additional French drains will be added, and the existing weirs will be modified in order to be able to meet the applicable permitting criteria presented in this report.

The proposed project is not anticipated to have negative impacts to the Biscayne Aquifer system, which is the sole source of potable water for most of southeastern Florida. All necessary precautions and best management practices pertaining to construction will be followed to prevent adverse impacts to the underlying sole source aquifer. A concurrence letter from the U.S. Environmental Protection Agency (USEPA) was issued on July 26, 2012 (see *Appendix A*).

The Miami-Dade County Wellfield Protection Program protects the aquifer by restricting land uses within the vicinity of the public wellfield. The section of the project corridor between NW 36th Street and NW 74th Street borders the maximum protection zone of Miami Springs Upper Wellfield protection zone. No other part of the study area is located within the wellfield protection zone. Additionally, as the project corridor exists between the Northwest Wellfield and Miami Springs/Preston/Hialeah Wellfields, the local groundwater flow may be influenced by the groundwater recovery schedules of the above-referenced wellfields. All phases of work will comply with the requirements of Section 24-12.1 of the Miami-Dade County Code. All necessary precautions and best management practices pertaining to construction will be followed to prevent adverse impacts to potable water quality.

The project corridor lies within the jurisdiction of the South Florida Water Management District (SFWMD), specifically within the C-6 and Area B drainage basins. The SFWMD and the FDOT require that the pre-development offsite discharge rates not be exceeded by the proposed design for the SFWMD's 25 year – 72 hour storm, as well as the greater of the 100 year – one hour, 100 year – eight hour, or the 100 year – 24 hour events. The proposed project corridor's stormwater facility design will include, at a minimum, the water quantity requirements for the water quality impacts as required by Chapter 24, Section 24-58 of the Miami-Dade County Code. The Miami-Dade County requirements meet or exceed the SFWMD water quality and water quantity requirements. Therefore, it is anticipated that water quality within the proposed project area will improve due to the proposed stormwater treatment features.

In accordance with the FDOT PD&E Manual, Part 2, Chapter 20 – Water Quality (dated February 25, 2004), a Water Quality Impact Evaluation has been conducted for this project. A Water Quality Impact Evaluation Checklist has been prepared and a copy is provided in *Appendix B*.

Water quality impacts resulting from erosion and sedimentation during construction activities will be controlled in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction* and through the use of best management practices, including temporary erosion control measures.





2.6 Existing Roadway Characteristics

SR 826, within the study limits, is classified as an urban principal arterial-other freeways and expressways. The SR 826 speed limit is posted at 55 MPH (design speed of 60 MPH) and the access management classification is Class 1.2, Freeway. SR 826 is an integral part of the Strategic Intermodal System, Florida Intrastate Highway System, and National Highway System networks. This facility provides connectivity with several major thoroughfares in South Florida – South Dixie Highway (US 1/SR 5), SR 874/Don Shula Expressway, SR 90/US 41/Tamiami Trail, SR 836/Dolphin Expressway, SR 25/US 27/Okeechobee Road, I-75, SR 924, the Homestead Extension of Florida’s Turnpike, and I-95.

The existing roadway typical section along SR 826, within the study limits, varies slightly and consists primarily of:

- Ten to twelve 12-foot to 14-foot (12’-14’) wide travel lanes
- 10.5-foot (10.5’) wide paved inside shoulders
- Ten-foot (10’) wide paved outside shoulders
- Center barrier wall

One auxiliary lane, varying from ten feet (10’) to twelve feet (12’), is provided in each direction between the interchanges. The North Line Canal is located adjacent to the northbound lanes between SR 836 and NW 25th Street. Frontage roads are located along both sides of the corridor between NW 25th Street to NW 103rd Street. The existing SR 826 typical sections are depicted in **Figure 2.3**.

The existing limited access right-of-way varies slightly within the study limits. The right-of-way is typical throughout the corridor except at the interchanges, where it varies to accommodate entrance and exit ramps. **Table 2.1** summarizes the available right-of-way along the corridor.

Table 2.1 – Summary of Existing Limited Access Right-of-Way

	Roadway Section	R/W Width (feet) ¹
SR 826	South of SR 836 Interchange – NW 25 th Street	298
	NW 25 th Street – NW 103 rd Street	220

Source: FDOT ROW Survey

¹ Maximum Limited Access Right-of-Way Width

Border width on limited access facilities is measured from the edge of the outside traffic lane to the right-of-way line. The criteria shown in the FDOT *Plans Preparation Manual* (Table 2.5.3, Volume I, Chapter 2, Section 2.5.1) for freeways including interchange ramps indicates a required border width of 94 feet. Along SR 826, within the study limits, the recoverable terrain and border width requirements are not met for the mainline or the ramps due to the constrained right-of-way along the corridor. The corridor is protected by a concrete barrier wall placed along the edge of the shoulders, which mitigates for this horizontal clearance deficiency.





Also, the existing shoulders along SR 826 consist of 10.5 feet (10.5') wide paved inside shoulders, ten feet (10') wide paved outside shoulders and a median barrier wall. As per the criteria shown in the FDOT *Plans Preparation Manual* (Table 2.3.1, Volume I, Chapter 2, Section 2.3), the shoulder width criteria for this type of facility is twelve feet (12'). Therefore, the shoulder width requirement is not met for most of SR 826 within the study limits. However, the facility still meets the minimum shoulder width requirement of ten feet (10') under the American Association of State Highway and Transportation Officials criteria.

Please reference the *Preliminary Engineering Report* developed as a part of this PD&E study for additional information relating to existing roadway characteristics.



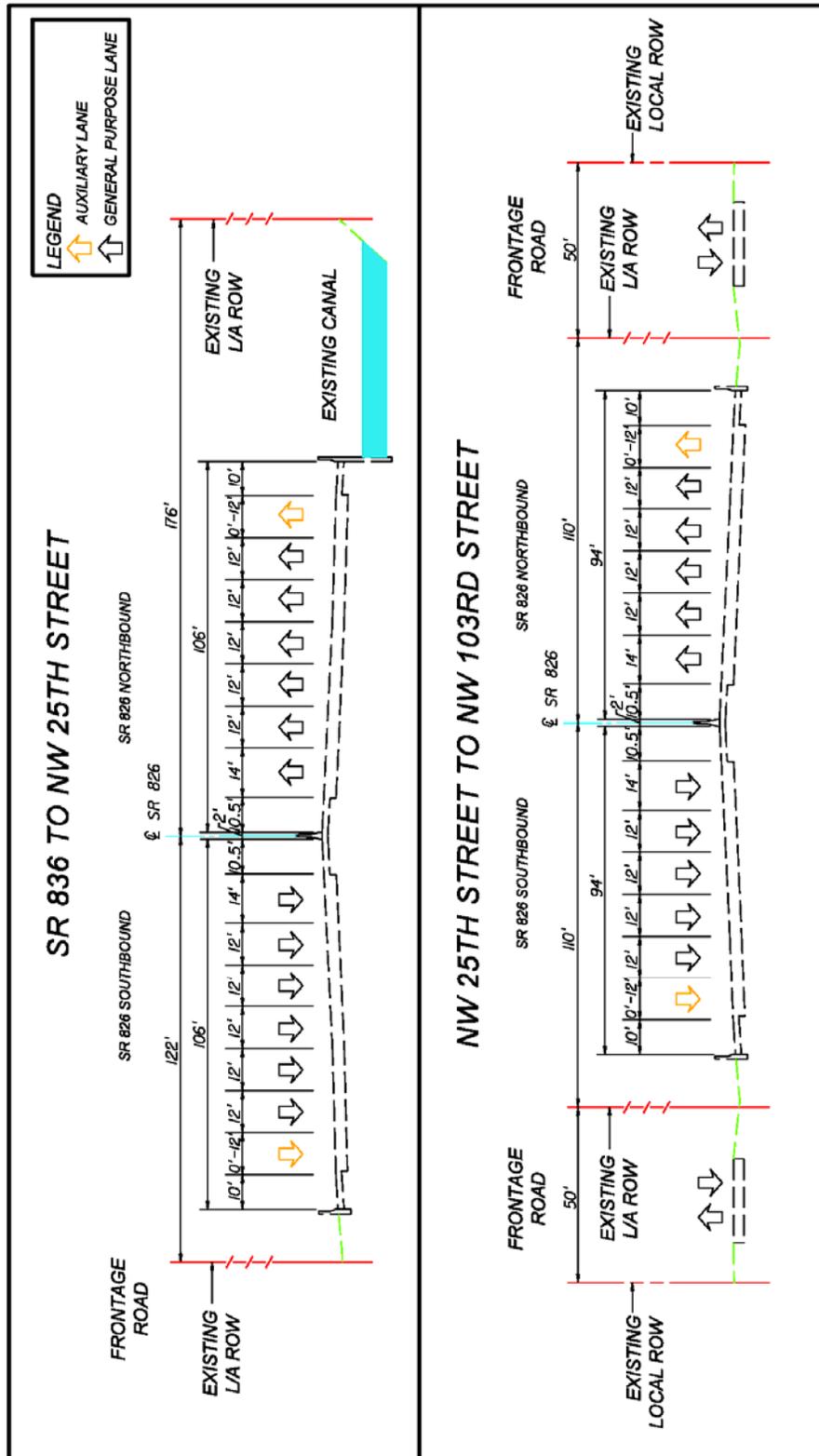


Figure 2.3 – SR 826 Existing Ten and Twelve-Lane Divided Typical Sections



3.0 PROPOSED ALTERNATIVES

This PD&E study was initiated by the FDOT to add two express lanes in each direction along the SR 826 corridor from south of SR 836 to NW 103rd Street, with the objective of improving mobility, relieving congestion, and providing additional travel options, including bus rapid transit. Constrained right-of-way, coupled with the development intensity along the corridor, present a challenge for accommodating future traffic growth by widening the SR 826 mainline. However, two express lanes could be incorporated along the corridor with moderate widening of the mainline or by restriping existing general purpose lanes. As part of the I-75 PD&E Study completed in early 2012, managed lanes were evaluated and recommended with a direct connection to/from SR 826. In addition, the entire SR 826 corridor is designated as a viable managed lanes facility in the 2009 FDOT District Six report, *"A Managed Lanes Vision for Southeast Florida."* All concepts were evaluated and analyzed in order to select a recommended alternative. Concepts were developed and refined with the objective of avoidance and minimization of impacts to natural, physical, social, and cultural resources. The engineering decisions to achieve this objective are thoroughly documented in the *Preliminary Engineering Report*, a companion document to this PD&E study. The alternatives considered to be viable for further assessment are defined below.

3.1 No-Build Alternative

The No-Build Alternative proposes to keep the existing roadways and interchange configurations into the future without improvements. No traffic capacity, operation, or safety improvements would be implemented throughout the corridor. The effect associated with this alternative includes the acceptance of existing highly congested traffic conditions. Also, travel demand will increase substantially over the next 20 years, given the continued growth expected in Miami-Dade County. This alternative is considered to be a viable alternative during the public hearing and final selection phase to serve as a comparison to the study proposed alternatives.

The No-Build Alternative has a number of positive aspects, since it would not require expenditure of public funds for design, right-of-way acquisition, construction, or utility relocation. Traffic would not be disrupted due to construction, thereby avoiding inconveniences to local residents and businesses. Also, there would be no direct or secondary impacts to the environment, the socio-economic characteristics, community cohesion, or system linkage of the area.

However, the No-Build Alternative fails to fulfill the needs of this project. If no long-term improvements are made, SR 826 and the surrounding crossroads will experience heavy congestion during the peak hours and will operate at undesirable levels of service. The congestion within the area will cause additional impacts to these roadways. Such impacts may include excessive delays in travel time, a large reduction of average travel speeds, excess fuel consumption from idling vehicles, increased air pollutants (particularly hydrocarbons and carbon monoxide), and a potential increase in rear-end and sideswipe collisions.





3.2 Build Alternatives

The development and evaluation of the Build Alternatives were based on established design controls for the various elements of the project such as roadway width, median width, shoulder width, design speed, horizontal alignment, vertical alignment, drainage considerations, environmental impacts, and intersecting roads. Selection of the appropriate criteria and standards was influenced by safety features, traffic volumes and composition, levels of service, functional classification, environmental considerations, and community issues.

The two Build Alternatives described below propose corridor improvements to accommodate two express lanes in each direction from south of SR 836 to NW 103rd Street. The proposed alternatives will improve the current traffic congestion along SR 826 within the project limits. The two alternatives are similar in design. The main difference is that from NW 25th Street to NW 103rd Street, Alternative 1A proposes two at-grade express lanes plus four general purpose lanes in each direction, while Alternative 2A proposes two at-grade express lanes plus five general purpose lanes in each direction.



Alternative 1A – At-Grade Express Lanes with Four General Purpose Lanes

From south of SR 836 to NW 25th Street, this alternative will consist of the following elements:

- Northbound Mainline
 - One eleven-foot (11') wide express lane
 - Six eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers (also known as tubular delineators) separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to five-and-a-half-foot (5.5') wide inside shoulder
 - A ten-foot (10') wide outside shoulder
 - One twelve-foot (12') wide auxiliary lane between the interchanges

- Southbound Mainline
 - One eleven-foot (11') wide express lane
 - Six eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to five-and-a-half-foot (5.5') wide inside shoulder
 - A ten-foot (10') wide outside shoulder
 - One twelve-foot (12') wide auxiliary lane between the interchanges

From NW 25th Street to NW 103rd Street, this alternative will consist of the following elements:

- Northbound Mainline
 - Two eleven-foot (11') wide express lanes
 - Four eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to twelve-foot (12') wide inside shoulder
 - A variable, six-foot (6') to twelve-foot (12') wide outside shoulder
 - One eleven-foot (11') wide auxiliary lane between the interchanges

- Southbound Mainline
 - Two eleven-foot (11') wide express lanes
 - Four eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, three-and-a-half-foot (3.5') to twelve-foot (12') wide inside shoulder
 - A variable, ten-foot (10') to twelve-foot (12') wide outside shoulder
 - One eleven-foot (11') wide auxiliary lane between the interchanges

Figure 3.1 depicts the typical sections for Alternative 1A. Please reference the *Preliminary Engineering Report* developed as a part of this PD&E study for additional information relating to Alternative 1A.

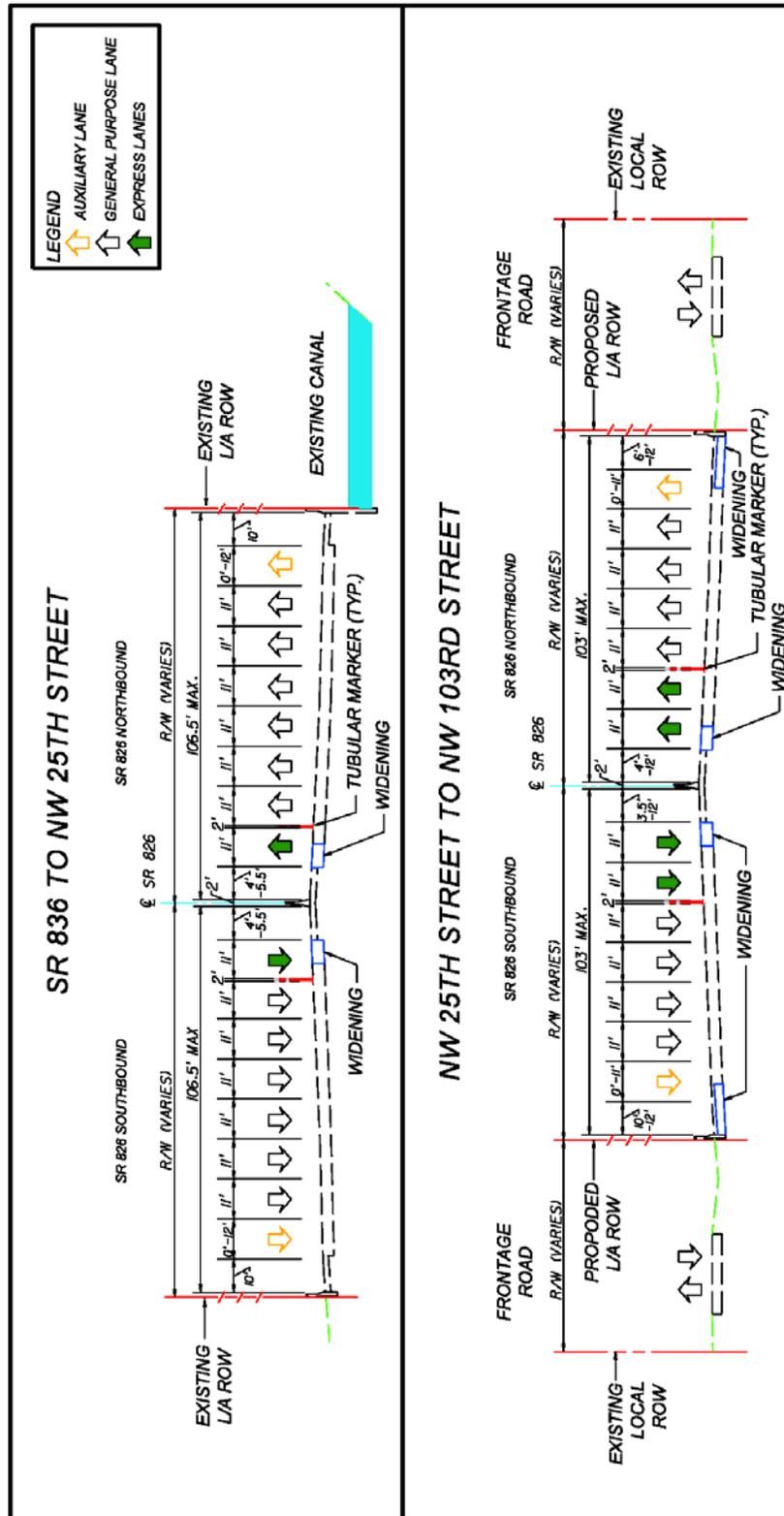


Figure 3.1 – Alternative 1A Typical Sections

Alternative 2A – At-Grade Express Lanes with Five General Purpose Lanes

From south of SR 836 to NW 25th Street, this alternative will consist of the following elements:

- Northbound Mainline
 - One eleven-foot (11') wide express lane
 - Six eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to five-and-a-half-foot (5.5') wide inside shoulder
 - A ten-foot (10') wide outside shoulder
 - One twelve-foot (12') wide auxiliary lane between the interchanges

- Southbound Mainline
 - One eleven-foot (11') wide express lane
 - Six eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to five-and-a-half foot (5.5') wide inside shoulder
 - A ten-foot (10') wide outside shoulder
 - One twelve-foot (12') wide auxiliary lane between the interchanges

From NW 25th Street to NW 103rd Street, this alternative will consist of the following elements:

- Northbound Mainline
 - Two eleven-foot (11') wide express lanes
 - Five eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, four-foot (4') to twelve-foot (12') wide inside shoulder
 - A variable, ten-foot (10') to twelve-foot (12') wide outside shoulder
 - One eleven-foot (11') wide auxiliary lane between the interchanges

- Southbound Mainline
 - Two eleven-foot (11') wide express lanes
 - Five eleven-foot (11') wide general purpose lanes
 - A two-foot (2') wide buffer area with tubular markers separating the general purpose lanes from the express lanes
 - A variable, three-and-a-half-foot (3.5') to twelve-foot (12') wide inside shoulder
 - A variable, ten-foot (10') to twelve-foot (12') wide outside shoulder
 - One eleven-foot (11') wide auxiliary lane between the interchanges

Figure 3.2 depicts the typical sections for Alternative 2A. Please reference the *Preliminary Engineering Report* developed as a part of this PD&E study for additional information relating to Alternative 2A.

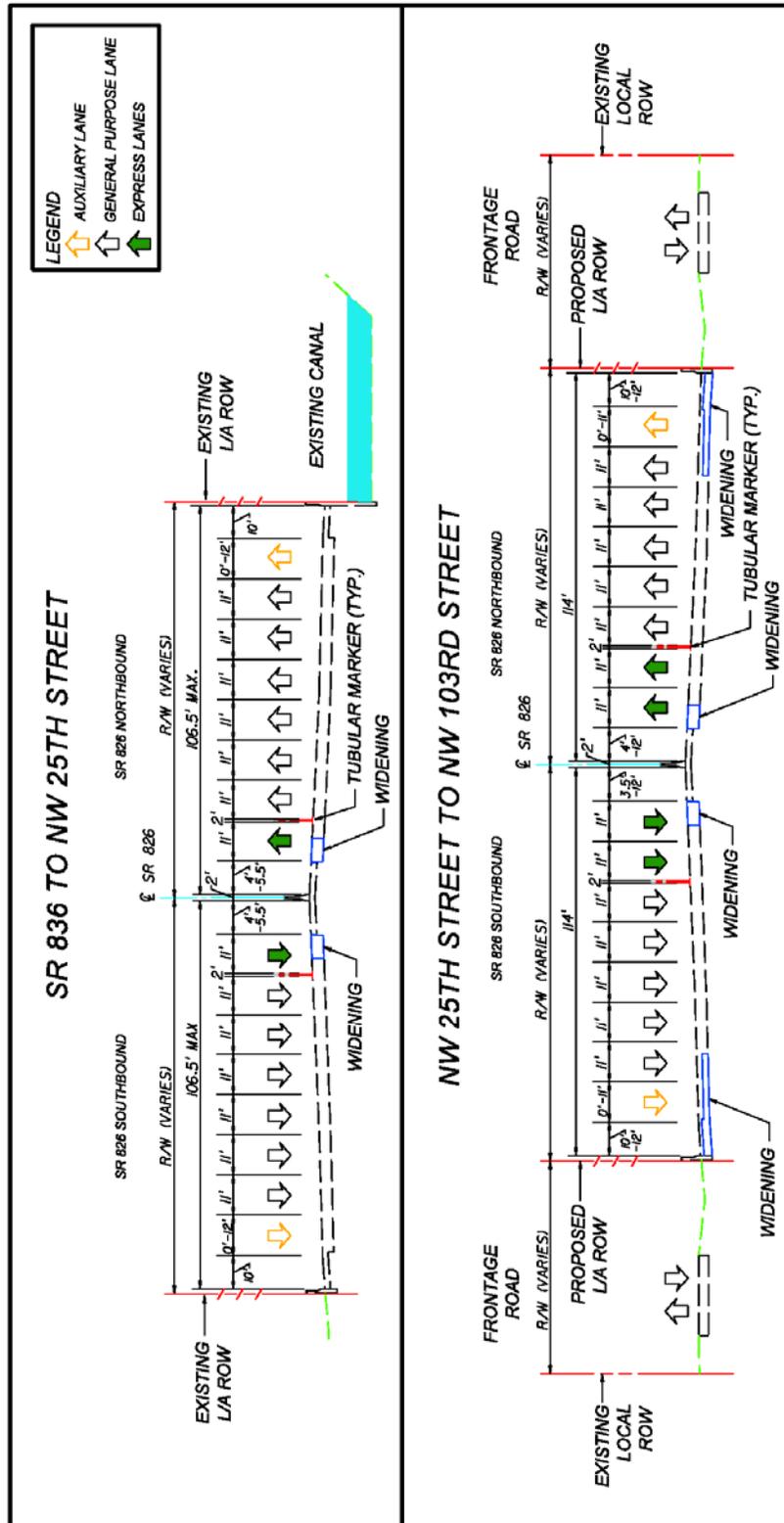


Figure 3.2 – Alternative 2A Typical Sections



4.0 WETLAND AND SURFACE WATER INVENTORY

The project area was reviewed to identify, map, and assess wetlands, surface water communities, and stormwater retention/conveyance features that are located within or adjacent to the SR 826 Express Lanes PD&E study corridor.

Pursuant to Presidential Executive Order 11990 entitled “Protection of Wetlands,” the U.S. Department of Transportation (USDOT) has developed a policy (USDOT Order 5660.1A), Preservation of the Nation’s Wetlands (dated August 24, 1978), which requires all federally funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, the project has been evaluated to determine which alternatives would impact wetlands, surface waters, or stormwater conveyance features; the extent to which those potential impacts would affect wetland functions and values; and mitigative measures that could be taken to minimize impacts, if necessary.

4.1 Methodology

In order to determine preliminary locations and boundaries of the existing wetlands, surface water communities, and stormwater retention/conveyance features within and adjacent to the project area, available site-specific data was collected and reviewed. Published site-specific data reviewed included the following:

- U.S. Department of Agriculture, Natural Resources Conservation Service, Interactive Web Soil Survey of the project area (2012)
- U.S. Geological Survey, Hialeah 7.5-Minute Series Topographic Quadrangle Map (1988)
- FDOT, Florida Land Use, Cover and Forms Classification System (FLUCFCS), 3rd edition (1999)
- U.S. Fish and Wildlife Service (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (1979)
- Aerial photographs of the project area at 1 inch = 100 feet, 1 inch = 300 feet, and 1 inch = 1000 feet scales (2006 - 2012)
- Miami-Dade County GIS data (2008 - 2012)

Using the above-referenced information, the approximate boundaries of existing wetlands, surface water communities, and stormwater retention/conveyance features were mapped in GIS on aerial photography.

Project biologists familiar with South Florida wetland community types conducted field investigations of the study area from February 2012 through May 2012. The purpose of the field investigations was to locate and delineate the boundaries of the existing wetlands, surface water communities, and stormwater retention/conveyance features identified during the in-house data review and well as areas not previously identified. The extent of jurisdictional wetlands and/or surface waters for the study corridor were determined using the approaches outlined in the U.S. Army Corps of Engineers (USACE) Atlantic and Gulf Coast Regional Supplement to the





Wetlands Delineation Manual (Environmental Laboratory, 1987) and Chapter 62-340 Florida Administrative Code, Delineation of the Landward Extent of Wetlands and Surface Waters. During the field investigation, attention was given to identifying plant species composition for each wetland, surface water community, and stormwater retention/conveyance feature area delineated as well as its adjacent upland habitats. Exotic plant infestations, shifts in historical communities, and any other disturbances were noted. Wildlife observations and signs of wildlife usage at each wetland, surface water community, and stormwater retention/conveyance feature and adjacent upland habitats were also noted.

Following delineation activities, each wetland, surface water community, and stormwater retention/conveyance feature was classified using the FLUCFCS Manual (FDOT, 1999) and the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). Each identified wetland/surface water community was also evaluated using the Wetland Assessment Technique for Environmental Reviews (WATER) methodology. The assessment methods were determined based on the mitigation options available to compensate for proposed impacts to existing wetlands, surface waters, and stormwater retention/conveyance features. The locations of the natural communities observed within the limits of the SR 826 Express Lanes PD&E study area are depicted with FLUCFCS coding in *Appendix C*.

4.1.1 Wetland Assessment Technique for Environmental Review (WATER)

The WATER was created to provide a tool for evaluating the restoration potential of the Everglades Mitigation Bank (EMB), owned and administered by Florida Power and Light (FP&L). The EMB consists of approximately 13,455 acres of freshwater and brackish wetlands, with small interspersed upland areas, in southeastern Miami-Dade County. The WATER methodology has been assembled from wetland evaluation techniques developed in the past, incorporating attributes from some of the most sophisticated and modern techniques to form a comprehensive ecological evaluation procedure.

The assessment technique consists of two separate and distinct procedures. The first is a *Site Suitability* and *Value Evaluation*, which reflects the assessment area's site suitability (in relation to the EMB), as measured by criteria rating the social significance provided by the area in question, such as:

- Adjacent lands or waters of regional ecological importance
- Property information (ownership, state/local acquisition programs, conservation areas, etc.)
- Ecological and geological features
- Restoration efforts associated with the site
- Threatened and endangered species utilization
- Threat of loss or destruction due to development
- Federal and state regulations



The second evaluation procedure is a *Functional Evaluation* and is purely ecological in nature, consisting of functional assessments for:

- Fish and wildlife
- Vegetation and habitat quality
- Hydrology and water quality
- Topography
- Soils

4.2 Existing Wetlands, Surface Waters, and Stormwater Retention/Conveyance Features

The existing wetlands, surface waters, and stormwater retention/conveyance features within the study area vary in terms of habitat value, quality, level of intrusion by exotic/invasive (undesirable) vegetative species, and degree of geographical isolation. A preliminary wetland/surface water jurisdictional delineation, performed from February through May 2012, identified 34 individual wet retention areas, which exhibit marginal wetland characteristics (see *Table 4.1*). These wetlands/retention features were comprised of two distinct FLUCFCS community types: FLUCFCS Code 640 – Vegetated Non-forested wetland and FLUCFCS Code 6411 – Freshwater Cattail Marsh. One surface water community type was also present: FLUCFCS Code 510 – Streams and Waterways. Descriptions of these wetland/surface water communities are provided below. The locations of these features have been depicted on aerial photographs enclosed as *Appendix D*.

Table 4.1 – Existing Wetland/Surface Water Communities

ID #	Type	FLUCFCS Code	FLUCFCS Description	USFWS Code	USFWS Description
Wetlands					
W-1	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-2	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A-C	Palustrine, Emergent, Persistent, Temporarily Flooded and Seasonally Flooded
W-3	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-4	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-5	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-6	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-7	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-8	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-9	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded

Table 4.1 – Existing Wetland/Surface Water Communities

ID #	Type	FLUCFCS Code	FLUCFCS Description	USFWS Code	USFWS Description
W-10	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-11	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-12	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A-C	Palustrine, Emergent, Persistent, Temporarily Flooded and Seasonally Flooded
W-13	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-14	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-15	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-16	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-17	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-18	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-19	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-20	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-21	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-22	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-23	Surface Water Retention Feature	6411	Vegetated Non-Forested Freshwater Cattail Marsh	PEM	Palustrine, Emergent
W-24	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-25	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-26	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-27	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-28	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-29	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-30	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-31	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-32	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded

Table 4.1 – Existing Wetland/Surface Water Communities

ID #	Type	FLUCFCS Code	FLUCFCS Description	USFWS Code	USFWS Description
W-33	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
W-34	Wet Retention Area	640	Vegetated Non-Forested Wetlands	PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded
Surface Waters					
SW-1 SW-2 SW-3	Canals/Linear Waterways	510	Streams and Waterways	R2UBH	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded

4.2.1 Wetlands / Stormwater Retention Areas

W-1 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between northbound SR 826, Okeechobee Road, and the northbound on-ramp from Okeechobee Road. The basin consisted primarily of regularly-mowed opportunistic and ruderal hydrophytic herbaceous species. The dominant species were torpedo grass (*Panicum repens*), creeping primrose willow (*Ludwigia repens*), smallfruit primrose willow (*Ludwigia microcarpa*), Baldwin's spikerush (*Eleocharis baldwinii*), and Canada spikerush (*Eleocharis geniculata*). Other common species included bull-tongue arrowhead (*Sagittaria lancifolia*), marsh pennywort (*Hydrocotyle* sp.), Mexican primrose willow (*Ludwigia octovalvis*), pink redstem (*Ammannia latifolia*), herb-of-grace (*Bacopa monnieri*), and spadeleaf (*Centella asiatica*). A small area with periodically-mowed herbaceous vegetation dominated by torpedo grass, Mexican primrose willow, and knotted spikerush (*Eleocharis interstincta*) was located in the east-central portion of the assessment area. Other important components included marsh pennywort, creeping primrose willow, bull-tongue arrowhead, herb-of-grace, and saltmarsh umbrella-sedge (*Fuirena breviseta*). A portion of the infield drainage basin was landscaped by FDOT and planted with native species such as bald-cypress (*Taxodium distichum*), Everglades palm (*Acoelorrhaphe wrightii*), royal palm (*Roystonea* sp.), wild coffee (*Psychotria nervosa*), Fakahatchee grass (*Tripsacum dactyloides*), and giant leather fern (*Acrostichum danaeifolium*). Sections of the basin side slopes were landscaped and planted with various native tree and shrub species. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to two inches deep. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange in a developed urban location.



W-2 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEMIA-C (Palustrine, Emergent, Persistent, Temporarily Flooded and Seasonally Flooded)

This assessment area is an infield stormwater retention feature between southbound SR 826, Okeechobee Road, and the southbound off-ramp to Okeechobee Road. The infield basin consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by knotted spikerush with torpedo grass. Other common species included southern cattail (*Typha domingensis*), Mexican primrose willow, pickerelweed (*Pontederia cordata*), bull-tongue arrowhead, and marsh pennywort. The torpedo grass/knotted spikerush community transitions northward to an area shaded by an overpass that is characterized by bare soil interspersed with scattered widely spaced individuals of torpedo grass, bull-tongue arrowhead, and knotted spikerush. Desiccated algal mats and American waterfern (*Azolla filiculoides*) were prevalent in the shaded area. Recently planted landscaping with native plant species occupied the northern portion of the infield drainage basin. Plantings consisted of bald-cypress, royal palm, dahoon holly (*Ilex cassine*), coco plum (*Chrysobalanus icaco*), Fakahatchee grass, and giant leather fern. Sections of the basin side slopes were also landscaped and planted with various native tree and shrub species. Hydrology is driven primarily by stormwater runoff from adjacent roadway impervious surfaces. The basin substrate is comprised of roadfill consisting of fine sand with numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to two inches deep. Functions provided by this infield drainage basin area are primarily stormwater retention and water quality treatment. Although one snake, an Eastern racer (*Coluber constrictor*) was observed, the overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange in a developed urban location.

W-3 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEMIA (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a stormwater retention feature between NW 77th Avenue and the southbound off-ramp from SR 826 to west-bound Okeechobee Road. This stormwater drainage basin consisted of regularly-mowed areas with ruderal and opportunistic hydrophytic herbaceous vegetation intermixed with landscaped areas planted with native species by the FDOT. The regularly-mowed herbaceous vegetation was dominated by torpedo grass with common species including bull-tongue arrowhead, knotted spikerush, marsh pennywort, creeping primrose willow, smallfruit primrose willow, Mexican primrose willow, and Canada spikerush. Landscaped areas consisted of planted bald-cypress, Everglades palm, royal palm, Fakahatchee grass, and giant leather fern. Hydrology appears to be driven by stormwater run-off from adjacent impervious surfaces. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to four inches deep. Functions provided by this infield drainage basin area are primarily stormwater retention and water quality treatment. The overall





wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange in a developed urban location.

W-4 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a stormwater retention feature adjacent to NW South River Drive and the northbound off-ramp from SR 826. The assessment area is bordered on the southeast by an office building and paved parking areas. The stormwater drainage basin consisted primarily of regularly- to irregularly-mowed opportunistic and ruderal hydrophytic herbaceous species with native landscaping planted by the FDOT. The herbaceous community was dominated by torpedo grass and knotted spikerush. Other common components included bull-tongue arrowhead, pickerelweed, Mexican primrose willow, creeping primrose willow, smallfruit primrose willow, herb-of-grace, marsh pennywort, southern cattail, and elephant grass (*Pennisetum purpureum*). Landscape plantings in the wetter areas consisted of native species such as bald-cypress, Everglades palm, royal palm, Fakahatchee grass, and giant leather fern. Portions of the basin side slopes were planted with less hydric native trees and shrubs. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to four inches deep. Hydrology appears to be driven by stormwater run-off from adjacent impervious surfaces. Functions provided by this infield drainage basin area are primarily stormwater retention and water quality treatment. Several unidentified warblers (*Parulidae*) were observed foraging in planted bald-cypress in the western portion of the assessment area. Mourning doves (*Zenaida macroura*) were observed foraging within the mowed basin and one six-lined racerunner (*Aspidoscelis sexlineata*) was observed on the landscaped side slope adjacent to the basin. However, the assessment area generally offers low quality habitat for native wildlife due to its location within a developed urban environment at a major roadway interchange.

W-5 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention basin between NW South River Drive, northbound SR 826, and the northbound off-ramp from SR 826. The basin area is vegetated with a regularly-mowed herbaceous community comprised of opportunistic and ruderal species. Common species include torpedo grass, bull-tongue arrowhead, creeping primrose willow, herb-of-grace, Canada spikerush, many-flower marsh pennywort (*Hydrocotyle umbellata*), and pink redstem. Starrush whitetop (*Rhynchospora colorata*), Mexican primrose willow, knotted spikerush, and sweetscent (*Pluchea odorata*) were also present. The landscaped portion of the basin was planted with bald-cypress, Everglades palm, royal palm, wild coffee, Fakahatchee grass, and giant leather fern. Portions of the basin side slopes were planted with less hydric native trees and shrubs. Hydrology is dependent on stormwater run-off from the adjacent roadways and the primary utility of the basin consists of stormwater treatment and retention functions. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and





numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to four inches deep. The overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-6 - Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention basin south of NW South River Drive between southbound SR 826 and the southbound on-ramp from Okeechobee Road. This basin was comprised of an irregularly-mowed herbaceous community transitioning to regularly-mowed vegetation to the north and south. The irregularly-mowed community was dominated by knotted spikerush and torpedo grass. Other common species present included creeping primrose willow, many-flower marsh pennywort, Mexican primrose willow, pink redstem, herb-of-grace, saltmarsh umbrella sedge, sweetscent, southern cattail, and Bahaman aster (*Symphotrichum bahamense*). The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer varying from negligible to two inches deep with muck inclusions. Hydrology is dependent on stormwater run-off from the adjacent roadways and the main functions of the basin are stormwater treatment and stormwater retention. The overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-7 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is located within an extremely small stormwater retention basin between NW South River Road and the southbound on-ramps from Okeechobee Road and NW South River Road. The basin consisted of marginal wetland habitat dominated by opportunistic wetland species typical of recent disturbances such as torpedo grass, herb-of-grace, many-flower marsh pennywort, and Canada spikerush. Other common species included starrush whitetop, spadeleaf, smallfruit primrose willow, Mexican primrose willow, and common dayflower (*Commelina diffusa*). The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments. Desiccated algal mats were present in bare soil areas. Hydrology is dependent on stormwater run-off from the adjacent roadways and the main functions of the basin are stormwater treatment and stormwater retention. Due to its location within a heavily traveled roadway interchange this assessment area offers negligible wildlife habitat functions.





W-8 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a relatively large stormwater retention feature adjacent to Emmett Chaffin Boulevard to the west and the southbound on-ramp to SR 826 from NW South River Drive. This stormwater drainage basin is bordered on the southwest by a transportation industry facility with extensive impervious surfaces. The stormwater drainage basin consisted primarily of regularly-mowed opportunistic and ruderal hydrophytic herbaceous species with some landscaped areas planted with native species by the FDOT. The herbaceous community was dominated by torpedo grass. Other important components included many-flower marsh pennywort, herb-of-grace, Baldwin's spikerush, Canada spikerush, bull-tongue arrowhead, and Mexican primrose willow. Spadeleaf, knotted spikerush, saltmarsh umbrella sedge, pink redstem, creeping primrose willow, smallfruit primrose willow, starrush whitetop, mock bishopweed (*Ptilimnium capillaceum*), flatsedge (*Cyperus* sp.), and southern cattail were present in varying densities at various locations. The FDOT-landscaped areas within the basin included planted native species such as bald-cypress, dahoon holly, Everglades palm, royal palm, Fakahatchee grass, and giant leather fern. Portions of the basin side slopes were landscaped with various tree and shrub species. The substrate in the basin consists of roadfill comprised of fine sand with various-sized limerock fragments. A mucky fine sand matrix varied from a negligible surface layer to 16 inches. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. Although raccoon (*Procyon lotor*) tracks were observed within a drainage culvert, overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-9 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is located within a linear low-lying stormwater drainage conveyance feature at the toe of the roadway slope within the SR 826 right-of-way. This feature did not have an apparent surficial connection via overland flow or hydrophytic vegetation to other systems. The assessment area consisted of semi regularly-mowed opportunistic hydrophytes dominated by torpedo grass, bull-tongue arrowhead, and many-flower marsh pennywort. Other important components included knotted spikerush, Mexican primrose willow, and creeping primrose willow. The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer of mucky fine sand varied from negligible to three inches. Hydrology is provided by considerable stormwater runoff from adjacent impervious surfaces and the primary function is stormwater conveyance and retention. The assessment area offers low quality wildlife habitat due to its location within a heavily traveled expressway right-of-way in a developed urban environment.



W-10 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a linear drainage feature with regularly-mowed opportunistic and ruderal herbaceous vegetation located at the toe of slope of the northbound on-ramp from NW 74th Street. This feature did not have an apparent surficial connection via overland flow or hydrophytic vegetation to other systems. Prevalent vegetation consisted of torpedo grass, bulltongue arrowhead, many-flower marsh pennywort, creeping primrose willow, and herb-of-grace. Other important components included Baldwin's spikerush, knotted spikerush, smallfruit primrose willow, aster (*Symphotrichum* sp.), mock bishopweed, and dotted smartweed (*Polygonum punctatum*). The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer of sandy silt/muck varied from negligible to five inches. Hydrology is provided by considerable stormwater runoff from adjacent impervious surfaces and the primary function is stormwater conveyance and retention. Although no water was present within the assessment area, an invasive non-native fish, the Asian swamp eel (*Monopterus albus*), was encountered buried in substrate. The assessment area offers low quality wildlife habitat due to its location within a heavily traveled expressway right-of-way in a developed urban environment.

W-11 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a shallow depressional area in the northwest portion of an infield stormwater retention basin between northbound SR 826 and the northbound off-ramp south of NW 74th Street. The infield basin consisted primarily of regularly-mowed vegetation dominated by shrubby false buttonweed (*Spermacoce verticillata*) and smut grass (*Sporobolus indicus*) along with other ruderal forbs and grasses. The regularly-mowed vegetation within the assessment area occupying a portion of the basin near two stormwater drainage outfalls was dominated by torpedo grass, creeping primrose willow, and marsh pennywort. Other important components included herb-of-grace, dotted smartweed, bull-tongue arrowhead, knotted spikerush, mock bishopweed, starrush whitetop, common dayflower, many-spike flatsedge (*Cyperus polystachyos*), and narrowleaf blue-eyed grass (*Sisyrinchium angustifolium*). The substrate within the assessment area consisted of roadfill comprised of a matrix of fine sand with a low chroma surface layer and numerous various-sized limerock fragments. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

**W-12 – Wet Retention Area****FLUCFCS – 640 (Vegetated Non-Forested Wetlands)****USFWS – PEMIA-C (Palustrine, Emergent, Persistent, Temporarily Flooded and Seasonally Flooded)**

This assessment area is a depressional area occupying a portion of an infield stormwater retention basin between southbound SR 826 and the southbound off-ramp north of NW 74th Street. The assessment area consisted of regularly- and irregularly-mowed herbaceous vegetation in low-lying portions of the drainage basin receiving direct stormwater input from adjacent roadways. The irregularly-mowed portion of the assessment area was dominated by torpedo grass, Mexican primrose willow, and many-flower marsh pennywort with a knotted spikerush inclusion. Other common species included pink redstem, smallfruit primrose willow, Virginia buttonweed (*Diodia virginiana*), herb-of-grace, many-spike flatsedge, Bahaman aster, false daisy (*Eclipta prostrata*), and Long's sedge (*Carex longii*). Important components of the regularly-mowed portion of the assessment area included torpedo grass, mock bishopweed, many-flower marsh pennywort, herb-of-grace, smallfruit primrose willow, creeping primrose willow, starrush whitetop, shrubby false buttonweed, bay lobelia (*Lobelia feayana*), and lax hornpod (*Mitreola petiolata*). The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer comprised of low chroma fine sand or mucky sand varied from negligible to a few inches. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces. Hydrology was evidenced by desiccated algal mats and oxidized rhizospheres. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. Unidentified small fish were observed in standing water within a concrete drainage structure at the northern extreme of the assessment area. A great egret (*Ardea alba*) was observed foraging in the southern portion of the assessment area for a short period. However, the overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-13 – Wet Retention Area**FLUCFCS – 640 (Vegetated Non-Forested Wetlands)****USFWS – PEMIA (Palustrine, Emergent, Persistent, Temporarily Flooded)**

This assessment area is within an infield stormwater retention feature between southbound SR 826 and the southbound off-ramp to NW 58th Street. The assessment area is bordered on the south by the NW 58th Street Canal. The stormwater drainage basin consisted primarily of regularly-mowed opportunistic and ruderal hydrophytic herbaceous species interspersed with landscaping comprised of native species planted by the FDOT. The herbaceous community was dominated by torpedo grass, many-flower marsh pennywort, and mock bishopweed. Other common species were Virginia buttonweed, knotted spikerush, bull-tongue arrowhead, many-spike flatsedge, starrush whitetop, creeping primrose willow, and sweetscent. Landscaped areas were planted with Fakahatchee grass, golden dewdrop (*Duranta erecta*), and trumpet-tree (*Tabebuia* sp.). Much of the adjacent side slopes were landscaped with various trees, palms, and shrubs. The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer of mucky fine sand with limerock fragments varied from negligible to two inches. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces. The





assessment area is separated from the adjacent NW 58th Street Canal by a raised berm. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-14 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area, similar to W-13, is within an infield stormwater retention feature between southbound SR 826 and the southbound off-ramp to NW 58th Street. The assessment area is bordered on the north by the NW 58th Street Canal. The stormwater drainage basin consisted primarily of regularly-mowed opportunistic and ruderal hydrophytic herbaceous species interspersed with landscaping comprised of native species planted by the FDOT. The regularly-mowed vegetation comprising the assessment area is similar to W-13. Landscaped areas were planted with Fakahatchee grass, golden dewdrop, trumpet-trees, silver buttonwood (*Conocarpus erectus*), Everglades palm, royal palm, and Washington fan palm (*Washingtonia robusta*). Transgressive Carolina willow (*Salix caroliniana*) was present in portions of the landscaped areas. Bald-cypress was planted as a grove in the center of the basin. Much of the adjacent side slopes were landscaped with various trees, palms, and shrubs. The substrate was roadfill consisting of low chroma fine sand with numerous limerock fragments. A surface layer of mucky fine sand with limerock fragments varied from negligible to one inch. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces. The assessment area is separated from the adjacent NW 58th Street Canal by a raised berm. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-15 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a depressional area occupying a portion of an infield stormwater retention basin between southbound SR 826 and the southbound ramp from NW 74th Street. The assessment area consisted of regularly-mowed herbaceous vegetation in a low-lying portion of the drainage basin receiving direct stormwater input from adjacent roadways. The assessment area was dominated by hydrophytic species such as torpedo grass, marsh pennywort, creeping primrose willow, and common dayflower. Other common species included bull-tongue arrowhead, shrubby false buttonweed, Virginia buttonweed, oakleaf fleabane (*Erigeron quercifolius*), many-spike flatsedge, Mexican primrose willow, and mock bishopweed. The central portion of the stormwater drainage basin was planted with several bald-cypress. The periphery of the drainage basin was landscaped with various trees, palms, and shrubs. The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer of mucky fine sand with limerock fragments varied from negligible to two inches. The assessment area was located adjacent to a culvert that appeared to allow exchange with a



stormwater drainage basin to the west of the SR 826 on-ramp. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-16 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a small depressional area occupying a portion of a stormwater drainage retention basin between NW 74th Street, the southbound off-ramp from SR 826, and the NW 58th Street Canal. The assessment area consisted of regularly-mowed herbaceous vegetation in a low-lying area in the southwest portion of the drainage basin receiving direct stormwater input from adjacent roadways. This assessment area is vegetated primarily with knotted spikerush, bull-tongue arrowhead, and Mexican primrose willow interspersed with Bahia grass (*Paspalum notatum*). The regularly-mowed herbaceous vegetation in the majority of the stormwater drainage basin is dominated by Bahia grass. Bald-cypress was planted as a grove in the center of the stormwater drainage basin. The periphery of the drainage basin was landscaped with a variety of trees, palms, and shrubs. The substrate was roadfill consisting of fine sand with numerous limerock fragments. A surface layer of low chroma fine sand with limerock fragments varied from negligible to ten inches. Hydrology is driven by stormwater runoff from adjacent roadway impervious surfaces via several nearby stormwater outfalls. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. Due to its location within a heavily traveled roadway interchange this assessment area offers negligible wildlife habitat functions.

W-17 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a linear depressional feature extending westward from a culverted headwall within a stormwater drainage retention basin adjacent to the SR 826 southbound on-ramp and NW 58th Street. The retention basin consisted of regularly-mowed ruderal and opportunistic native herbaceous vegetation intermixed with FDOT-landscaped areas planted with royal palm, cabbage palm, coco plum, Simpson's stopper (*Myrcianthes fragrans*), and Fakahatchee grass. A portion of the basin's side slopes were also landscaped with recently planted trees, palms, and shrubs. The assessment area consisted of irregularly-mowed herbaceous vegetation dominated by opportunistic hydrophytic species. Prevalent vegetation within the assessment area included torpedo grass, knotted spikerush, bull-tongue arrowhead, dotted smartweed, many-flower marsh pennywort, creeping primrose willow, Virginia buttonweed, shrubby false button weed, and wedelia (*Sphagneticola trilobata*). Portions of the assessment area retained remnant planted Bahia grass sod. The substrate was roadfill consisting of sandy muck and fine sand with a few limerock fragments. A culvert is located at the east end of the assessment area that appears to allow exchange with a stormwater drainage basin to the east of

the SR 826 southbound on-ramp. Hydrology was driven by stormwater runoff as the basin receives considerable stormwater runoff via culverted outfalls and direct runoff from adjacent areas. The primary functions provided by the assessment area are stormwater conveyance and retention. The assessment area offers low quality wildlife habitat due to its location within a heavily traveled expressway right-of-way in a developed urban environment.

W-18 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a depressional area occupying the eastern portion of an infield stormwater retention basin between northbound SR 826 and the northbound on-ramp from NW 58th Street. The regularly-mowed drainage basin is bordered on the north by the NW 58th Street Canal and is connected to a drainage basin north of the canal by an elevated concrete ramp. An elevated berm separates the canal from the stormwater drainage basin. The assessment area consisted of regularly mowed herbaceous vegetation in a low-lying portion of the drainage basin in the vicinity of the on-ramp receiving direct stormwater input from adjacent roadways. The assessment area consisted of a more hydric area comprised of occasionally-mowed herbaceous vegetation with adjacent regularly-mowed opportunistic herbaceous vegetation. The occasionally-mowed portion of the assessment area was dominated by knotted spikerush with dotted smartweed, bull-tongue arrowhead, Virginia buttonweed, Mexican primrose willow, and Peruvian primrose willow (*Ludwigia peruviana*). Prevalent species in the regularly-mowed portion were torpedo grass, creeping primrose willow, marsh pennywort, bull-tongue arrowhead, spadeleaf, Virginia buttonweed, and smallfruit primrose willow. Landscaping within the drainage basin included a small grove of planted bald-cypress in the center and planted Everglades palm, royal palm, buttonwood (silver and green), golden dewdrop, and Fakahatchee grass along the periphery. The substrate was roadfill consisting of low chroma fine sand with small organic inclusions and numerous various-sized limerock fragments. Desiccated algal mats were present. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-19 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a depressional area in the western portion of an infield stormwater retention basin between northbound SR 826 and the northbound on-ramp from NW 58th Street (same basin as W-18). The regularly-mowed drainage basin is bordered on the north by the NW 58th Street Canal and is connected to a drainage basin north of the canal by an elevated concrete ramp. An elevated berm separates the canal from the stormwater drainage basin. The assessment area was comprised of regularly-mowed opportunistic hydrophytic vegetation including torpedo grass, knotted spikerush, bull-tongue arrowhead, creeping primrose willow, small-fruit primrose willow, herb-of-grace, marsh pennywort, Canada spikerush, and spadeleaf. Landscaping in the

vicinity was comprised of planted Fakahatchee grass, royal palm, Simpson's stopper, buttonwood, and coco plum. Desiccated algal mats were also present. The substrate in the basin consists of roadfill comprised of low chroma fine sand with numerous various-sized limerock fragments. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-20 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a depressional area in the southeastern portion of an infield stormwater retention basin north of the NW 58th Street Canal between northbound SR 826 and the northbound on-ramp from NW 58th Street. The regularly mowed stormwater basin is separated from the canal by an elevated berm. This basin is connected to a similar stormwater drainage basin south of the canal by an elevated concrete ramp. The assessment area was comprised of regularly-mowed opportunistic hydrophytic vegetation. Dominant species were torpedo grass, creeping primrose willow, and knotted spikerush. Other common species included marsh pennywort, bull-tongue arrowhead, and herb-of-grace. Several planted bald-cypress, part of a small grove that were planted for landscaping, were present in the western portion of the assessment area. Other trees, palms, shrubs, and grasses planted for landscaping in this stormwater drainage basin included Everglades palm, royal palm, buttonwood, and Fakahatchee grass. The substrate in the basin consists of roadfill comprised of fine sand with numerous various-sized limerock fragments. A mucky fine sand surface layer with limerock fragments varied from negligible to two inches. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-21 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a depressional area in the northeastern portion of an infield stormwater retention basin north of the NW 58th Street Canal between northbound SR 826 and the northbound on-ramp from NW 58th Street. The regularly mowed stormwater basin is separated from the canal by an elevated berm. This basin is connected to a similar stormwater drainage basin south of the canal by an elevated concrete ramp. The assessment area consisted of regularly-mowed opportunistic and ruderal herbaceous vegetation dominated by torpedo grass, creeping primrose willow, knotted spikerush, and Canada spikerush. Other common species included bulltongue arrowhead, spadeleaf, Virginia buttonweed, marsh pennywort, shrubby false buttonweed, Mexican primrose willow, many-spike flatsedge, and bluestem (*Andropogon* sp.). Landscaping in portions of the basin and the peripheral side slopes was similar to W-20. The

substrate in the basin consists of roadfill comprised of fine sand with numerous various-sized limerock fragments. A low chroma or mucky fine sand surface layer varied from negligible to less than two inches. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-22 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a linear stormwater conveyance and retention feature within the SR 826 right-of-way east of the northbound off-ramp to NW 25th Avenue. This feature is bordered on the east by urban development resulting in substantial impervious surfaces in the form of buildings and parking areas. This stormwater drainage feature consisted primarily of occasionally-mowed opportunistic and ruderal hydrophytic herbaceous species. The dominant species were knotted spikerush and torpedo grass. Other common components of this herbaceous vegetation community included Mexican primrose willow, bull-tongue arrowhead, marsh pennywort, false daisy, small-fruit primrose willow, saltmarsh umbrella sedge, southern cattail, Canada spikerush, and creeping primrose willow. The substrate at the assessment area consisted of roadfill comprised of a matrix of low chroma fine sand with numerous various-sized limerock fragments. Hydrology is provided by substantial stormwater input from the adjacent impervious surfaces. The primary functions provided by this stormwater drainage basin are stormwater conveyance, retention, and water quality enhancement. Evidence was observed to be consistent with use by rodents such as the hispid cotton rat (*Sigmodon hispidus*) or the marsh rice rat (*Oryzomys palustris*) in the form of runways under the dense ground cover of herbaceous vegetation present within this system. However, the overall wildlife habitat quality of this assessment area is poor due to its location adjacent to a heavily utilized major roadway and urban development.

W-23 – Surface Water Retention Feature

FLUCFCS – 6411 (Vegetated Non-Forested Freshwater Cattail Marsh)

USFWS – PEM (Palustrine, Emergent)

The onsite stormwater retention pond, locally known as Blue Heron Lake, is an isolated wetland/surface water comprised of native and non-native wetland vegetation, primarily dense stands of cattail (*Typha* spp.). This dense stand of cattail is located between the bulkhead on the east and the narrow vegetated fringe dominated by Carolina willow and castorbean (*Ricinus communis*), with wax myrtle (*Myrica cerifera*) present just before the shoreline on the north, west, and south sides of the lake area. The littoral fringe also includes Peruvian primrose willow, elephant grass, and pond apple (*Annona glabra*) in the understory with a lesser component of maiden fern (*Thelypteris* spp.) and giant leather fern. Brazilian-pepper (*Schinus terebinthifolius*) and dogfennel (*Eupatorium capillifolium*) are also present along the southern fringe. The width of the shoreline fringe varies in width from approximately five feet to 40 feet. Within the dense stand of cattail, small areas of deeper water habitat exist in the center of the assessment area. Inundation varies from zero to more than four feet in depth. In general, the assessment area is very flat with negligible slopes observed throughout the site. According to the U.S. Department

of Agriculture, Natural Resources Conservation Service *Web Soil Survey* (2012), the soil type within the onsite wetland area is characterized as Udorthents - Water Complex which is comprised of typically well-drained gravelly loam material not considered a hydric soil by the Florida Association of Environmental Soil Scientists, although organic soils were observed during the field assessment which are typically described as hydric.

W-24 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between the northbound SR 826 on-ramp from eastbound NW 36th Street and Dressel's Dairy Canal. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by Bahia grass and torpedo grass. Species present included beggarticks (*Bidens* sp.), tropical flatsedge (*Cyperus surinamensis*), pink redstem, marsh pennywort, Mexican primrose willow, royal flatsedge (*Cyperus elegans*), Leconte's flatsedge (*Cyperus lecontei*), yellow nutgrass (*Cyperus esculentus*), variable flatsedge (*Cyperus difformis*), and turkey tangle fogfruit (*Phyla nodiflora*). The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality within this stormwater retention feature is poor due to its location within a major roadway interchange.

W-25 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between northbound SR 826 and the northbound on-ramp from westbound NW 36th Street. The regularly-mowed drainage basin is bordered on the north and east by the elevated northbound SR 826 on-ramp, NW 36th Street to the south, and SR 826 to the west. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by bahia grass and torpedo grass. Species present within the assessment area included pink redstem, marsh pennywort, Mexican primrose willow, royal flatsedge, Leconte's flatsedge, yellow nutgrass, and variable flatsedge. Landscaping within the assessment area included a small grove of planted bald-cypress and saw palmetto (*Serenoa repens*) near the center of the basin. The substrate was roadfill consisting of low chroma fine sand with small organic inclusions and numerous various-sized limerock fragments. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The primary functions provided by this stormwater drainage basin are retention and water quality treatment. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.



W-26 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is a linear wetland feature located within the SR 826 right-of-way east of the northbound SR 826 on-ramp from westbound NW 36th Street. This wet retention/conveyance area has developed along the bank of the Dressel’s Dairy Canal, and is separated by a raised berm and W-24 to the west. The assessment area is dominated by starrush whitetop and bahia grass. Other species present include rosy camphorweed (*Pluchea rosea*), creeping primrose willow, bluestem (*Andropogon* sp.), smut grass, spadeleaf, Bahia grass, and marsh fimbry (*Fimbristylis spadicea*). The substrate at the assessment area consisted of roadfill comprised of a matrix of low chroma fine sand with numerous various-sized limerock fragments. Saturated soils were present throughout the area. Hydrology is dependent on water levels within the Dressel’s Dairy Canal. The primary functions provided by this stormwater drainage feature are stormwater conveyance, retention, and water quality enhancement. The overall wildlife habitat quality of this assessment area is poor due to its location within a major roadway interchange in an urban environment.

W-27 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between southbound SR 826 and the southbound on-ramp traveling from westbound NW 36th Street. The regularly-mowed drainage basin is bordered on all sides by the elevated southbound SR 826 on-ramp. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by Bahia grass and torpedo grass. Other species present include tropical flatsedge, fourangle flatsedge (*Cyperus tetragonus*), yellow nutgrass, marsh pennywort, turkey tangle fogfruit, spadeleaf, and starrush whitetop. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-28 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature within the SR 826 right-of-way west of the southbound SR 826 off-ramp to NW 36th Street. This feature is bordered on the east by the southbound SR 826 off-ramp, NW 36th Street to the south, and by urban development in the form of buildings and parking areas to the north and west. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation including Bahia





grass, turkey tangle fogfruit, beggarticks, and starrush whitetop. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-29 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between southbound SR 826 and the southbound on-ramp traveling from eastbound NW 36th Street. The regularly-mowed drainage basin is bordered on the north by NW 36th Street, southbound SR 826 on the east, and the southbound SR 826 on-ramp on the south and west. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation including Bahia grass, turkey tangle fogfruit, torpedo grass, tropical flatsedge, marsh pennywort, and spadeleaf. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-30 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature within the SR 826 right-of-way west of the southbound SR 826 on-ramp from NW 36th Street. This feature is bordered on the north and east by the southbound SR 826 on-ramp and by urban development in the form of buildings and parking areas to the south and west. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation including Bahia grass and consists of two areas that have been landscaped by the FDOT and planted with native species such as bald-cypress, Fakahatchee grass, and saw palmetto. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.





W-31 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature within the SR 826 right-of-way west of the northbound SR 826 off-ramp to NW 36th Street. This feature is bordered on the north by the northbound SR 826 on-ramp from westbound NW 36th Street, northbound SR 826 to the west, and the northbound SR 826 off-ramp to NW 36th Street on the south and east. The infield basin consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by Bahia grass. Other species present include pink redstem, yellow nutgrass, tropical flatsedge, ricefield flatsedge (*Cyperus iria*), southern cattail, beggarticks, Mexican primrose willow, and creeping primrose willow. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality within this stormwater retention feature is poor due to its location within a major roadway interchange.

W-32 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature between northbound SR 826 and the northbound on-ramp from westbound NW 36th Street. The regularly-mowed drainage basin is bordered on all sides by the elevated northbound SR 826 on-ramp. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by Bahia grass and torpedo grass. Other species present include Leconte's flatsedge, royal flatsedge, yellow nutgrass, starrush whitetop, beggarticks, bull-tongue arrowhead, creeping primrose willow, Mexican primrose willow, Bahia grass, torpedo grass, and many-spike flatsedge. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.





W-33 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is an infield stormwater retention feature within the SR 826 right-of-way east of the northbound SR 826 off-ramp to NW 36th Street. This feature is bordered on the north by NW 36th Street, the northbound off-ramp for eastbound NW 36th Street to the west, and Dressel's Dairy Canal to the east. The infield assessment area consisted primarily of irregularly-mowed opportunistic herbaceous vegetation dominated by Bahia grass and torpedo grass. Other species present include beggarticks, many-spike flatsedge, bluestem, spadeleaf, starrush whitetop, wedelia, yellow bristle grass (*Setaria parviflora*) and dogfennel. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality of this stormwater retention feature is poor due to its location within a major roadway interchange.

W-34 – Wet Retention Area

FLUCFCS – 640 (Vegetated Non-Forested Wetlands)

USFWS – PEM1A (Palustrine, Emergent, Persistent, Temporarily Flooded)

This assessment area is located within a linear low-lying stormwater drainage conveyance feature at the toe of the roadway slope within the SR 826 right-of-way. This feature did not have an apparent surficial connection via overland flow or hydrophytic vegetation to other systems. The assessment area consisted of semi regularly-mowed opportunistic hydrophytes including torpedo grass and many-flower marsh pennywort. Other important components included knotted spikerush, Mexican primrose willow, and creeping primrose willow. The substrate in the basin consisted of roadfill comprised of a matrix of fine sand and numerous various-sized limerock fragments with a shallow mucky sand surface layer. Inundated/saturated soils were present throughout the area. Hydrology is provided by substantial stormwater input from the surrounding impervious surfaces. The main functions provided by this infield drainage basin area are stormwater retention and water quality treatment. Overall wildlife habitat quality within this stormwater retention feature is poor due to its location within a major roadway interchange.



4.2.2 Surface Waters

SW-1, SW-2, and SW-3 – Canals/Linear Waterways

FLUCFCS – 510 (Streams and Waterways)

USFWS – R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded)

This category includes rivers, creeks, canals and other linear water bodies. The water bodies that fall into this category for this study include the Miami River/SFWMD C-6 Canal (SW-1), Little River Canal/SFWMD C-7 Canal, Miami-Dade County NW 58th Street Canal (SW-2), Miami-Dade County Dressel's Dairy Canal (SW-3), Miami-Dade County North Line Canal, Miami-Dade County Peter's Pike Canal, and several smaller unnamed Miami-Dade County-owned canals, which are maintained linear water bodies adjacent to or near the project. All of these surface waters consist of typically muddy unconsolidated or exposed bedrock substrate. According to the Miami-Dade County Department of Regulatory and Economic Resources Environmental Monitoring and Restoration Division, these canals are accessible by the federal and state-listed West Indian manatee (*Trichechus manatus*). There is the potential for marginal wading bird foraging habitat, but this is unlikely due to the steepness of the side slopes and/or armament of these canals.

4.3 WATER Results

As previously mentioned, the WATER methodology provides a tool for evaluating project impacts proposed to be mitigated through the FP&L EMB. Since the proposed wetland impacts will occur within the limits of the approved service area of the EMB, and since sufficient mitigation credits at the EMB were determined to be available to the FDOT for this project, a functional assessment using WATER was conducted for each of the wetland communities within the right-of-way limits of the proposed project. A WATER assessment was not conducted for areas characterized as surface waters since the presence of native wetland vegetation is limited in these surface waters and mitigation for impacts to surface waters is typically not required.

The WATER analysis indicates that all 34 of the wet retention/wetland areas identified have a score of less than 0.50, with 33 of the scores ranging from 0.059 to 0.314 (and the remaining area scoring 0.451). Wetland areas with a score of less than 0.50 are considered low quality. Wetlands assigned WATER scores of less than 0.50 are typically highly disturbed and have limited wetland functions.

A summary of the results of the WATER assessment for each of the assessed wet retention/wetland areas within the right-of-way limits of the proposed project is provided in **Table 4.2**. Copies of the WATER worksheets are also provided in **Appendix E**. Please note that these calculations are only estimates and are based on existing conditions. The WATER scores are subject to review and change during the federal and state permitting process in the final design phase.

Table 4.2 – WATER Results

ID #	Approx. Area (acres)	Birds	Fish	Mammals	Aquatic Macroinvertebrates, Amphibians	Aquatic Reptiles	Overstory/Shrub Canopy	Vegetative Ground Cover	Periphyton Mat Coverage	Category 1 and 2 Exotic Plants	Habitat Diversity within 3000 Feet	Biological Diversity	Surface Water Hydrology / Sheet Flow	Hydroperiod	Hydropattern	Water Quality	Intactness of Historic Topography	Soils	Cumulative Score (CS)	Maximum Possible Score (MPS)	WATER Functional Score (FS)
W-1	1.4900	0	0	0	1	0	0	1	0	1	1	1	1	1	0	2	0	1	10	51	0.196
W-2	0.9360	0	0	0	1	1	0	1	0	1	1	1	1	1	0	2	0	1	11	51	0.216
W-3	0.3530	0	0	0	1	0	0	1	0	1	0	1	1	1	0	2	0	1	9	51	0.176
W-4	1.1960	0	0	0	0	1	0	1	0	1	1	1	1	1	0	2	0	1	10	51	0.196
W-5	0.2110	0	0	0	0	0	0	1	0	1	0	1	1	1	0	2	0	1	8	51	0.157
W-6	0.4150	1	0	0	1	0	0	2	0	1	0	1	1	1	0	2	0	1	11	51	0.216
W-7	0.0580	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	3	51	0.059
W-8	1.8950	0	0	2	1	1	0	1	0	1	1	1	1	1	0	0	0	1	11	51	0.216
W-9	0.0400	0	0	0	0	0	0	1	0	1	1	1	0	0	1	0	0	1	6	51	0.118
W-10	0.1400	0	1	0	1	0	0	1	0	1	1	1	0	0	1	0	0	1	8	51	0.157
W-11	0.3620	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	1	9	51	0.176
W-12	0.6900	1	1	0	1	0	0	1	0	1	1	1	1	1	1	0	0	0	10	51	0.196
W-13	0.1140	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	1	9	51	0.176
W-14	0.2390	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	1	9	51	0.176
W-15	0.0510	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	1	9	51	0.176
W-16	0.0210	0	0	2	0	0	0	1	0	1	1	1	1	1	1	0	0	1	10	51	0.196
W-17	0.0190	1	0	2	1	0	0	0	0	0	0	1	1	1	1	0	0	1	9	51	0.176
W-18	0.0980	1	0	1	1	0	0	1	0	1	1	2	1	1	1	1	0	0	12	51	0.235
W-19	0.0570	0	0	0	1	0	0	1	0	1	1	1	1	1	0	0	0	0	7	51	0.137
W-20	0.0490	0	0	0	1	0	0	1	0	1	1	1	1	1	0	0	0	0	7	51	0.137
W-21	0.0540	0	0	0	1	0	0	1	0	1	1	1	1	1	0	0	0	0	7	51	0.137
W-22	0.2700	1	0	2	1	1	0	1	0	1	2	2	1	1	0	1	0	1	15	51	0.294
W-23	3.3760	1	1	1	1	1	1	1	0	1	2	2	1	3	3	1	1	2	23	51	0.451
W-24	1.2000	0	0	0	0	0	0	2	0	2	3	1	1	1	0	1	0	1	12	51	0.235
W-25	0.2806	0	0	0	0	0	0	2	0	2	3	1	1	1	0	1	0	1	12	51	0.235
W-26	0.1070	0	0	0	0	0	0	2	0	3	3	2	3	1	0	1	0	1	16	51	0.314
W-27	0.8445	0	0	0	0	0	0	2	0	3	3	1	1	1	0	1	0	1	13	51	0.255
W-28	0.0510	0	0	1	0	0	0	2	0	3	3	1	1	1	0	1	0	1	14	51	0.275
W-29	0.2397	0	0	0	0	0	0	2	0	1	3	1	1	1	0	1	0	1	11	51	0.216
W-30	1.4018	0	0	0	0	0	3	3	0	3	3	1	1	1	0	0	0	1	16	51	0.314
W-31	0.1435	0	0	0	0	0	0	3	0	3	3	1	1	1	0	0	0	1	13	51	0.255
W-32	0.8169	0	0	0	0	0	0	3	0	1	3	1	1	1	0	0	0	1	11	51	0.216
W-33	0.2408	0	0	0	0	0	0	3	0	3	3	1	1	1	0	0	0	1	13	51	0.255
W-34	0.1090	0	0	0	0	0	0	1	0	1	3	1	1	1	0	0	0	1	9	51	0.176
Total	17.569																				



5.0 ENVIRONMENTAL CONSEQUENCES

Presidential Executive Order 11990 entitled "Protection of Wetlands," dated May 23, 1977, establishes a national policy to "avoid to the extent possible the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or [secondary] indirect support of new construction in wetlands wherever there is a practicable alternative." The USDOT in implementing Executive Order 11990 set forth its policy on wetlands in USDOT Order 5660.1A, "Preservation of the Nation's Wetlands," dated August 24, 1978, which is "to assure the protection, preservation, and enhancement of the Nation's wetlands to the fullest extent practicable during the planning, construction, and operation of transportation facilities and projects." In accordance with this policy, the FDOT has evaluated the SR 826 Express Lanes project to determine the extent of impacts to wetland functions and values. If wetland impacts were determined to be unavoidable, the evaluation included a determination of mitigative measures to compensate for impacts to wetlands.

5.1 Impact Analysis (Direct and Secondary)

The proposed viable alternatives for the SR 826 Express Lanes project were evaluated for potential impacts to wetlands and surface waters. Direct impacts were calculated based on the aerial extent of wet retention areas/wetlands/surface waters within the proposed construction limits of each alternative. Alternative 1A would result in 0.569 acres of direct impacts to wet retention areas/wetlands and 0.085 acres of direct impacts to surface waters. Alternative 2A would result in 2.142 acres of direct impacts to wet retention areas/wetlands and 0.193 acres of direct impacts to surface waters. Please note that all impact acreages are approximations based on the best available information at the time of this PD&E study. Final impact acreages are dependent upon final engineering design.

For those wet retention areas/wetlands with direct impacts, secondary impacts are anticipated because a suitable upland buffer with an average width of 25 feet does not exist between the remaining portion of the wet retention area/wetland and the proposed roadway improvements. Therefore, secondary impacts were calculated to an average distance of 25 feet beyond the direct impact. This 25-foot distance was determined using the assessors' best scientific judgment in analyzing what type of secondary impacts will be expected during and following construction and how far into a wet retention area/wetland those affects will be experienced per agency criteria. Items considered include construction activities, sedimentation resulting from increased turbidity associated with soil disturbance (water quality impacts), interruption to surface water flow, alterations to vegetative communities outside the final roadway footprint, and effects to wildlife in the vicinity of the corridor.

Not all wet retention areas/wetlands were determined to have secondary impacts outside of the directly impacted areas. Of the 34 total wet retention areas/wetlands assessed, secondary impacts were determined to potentially occur within 13 wet retention areas/wetlands totaling 1.761 acres for Alternative 1A and 21 wet retention areas/wetlands totaling 3.445 acres for Alternative 2A.



Table 5.1 provides a summary of the wet retention area/wetland direct and secondary impacts and surface water direct impacts within the proposed construction limits of each alternative.

Table 5.1 – Wetland/Surface Water Impacts (Direct and Secondary)

Identification #	Direct Impacts ¹		Secondary Impacts	
	Alternative 1A (acres)	Alternative 2A (acres)	Alternative 1A (acres)	Alternative 2A (acres)
Wet Retention Areas/Wetlands				
W-1	0.077	0.188	0.255	0.271
W-2	0.135	0.289	0.264	0.232
W-3	N/A	N/A	0.230	0.083
W-4	N/A	0.133	N/A	0.229
W-5	0.068	0.120	0.095	0.075
W-6	0.102	0.225	0.226	0.187
W-8	N/A	0.343	N/A	0.449
W-9	N/A	0.040	N/A	N/A
W-10	N/A	0.140	N/A	N/A
W-11	0.014	0.033	0.039	0.033
W-12	0.075	0.114	0.131	0.106
W-13	N/A	0.027	N/A	0.065
W-14	N/A	0.006	N/A	0.045
W-19	N/A	0.004	N/A	0.039
W-23	N/A	0.119	N/A	0.368
W-24	N/A	0.005	N/A	0.253
W-25	0.013	0.047	0.073	0.075
W-27	0.036	N/A	0.127	0.127
W-29	0.019	0.057	0.082	0.076
W-30	N/A	0.122	N/A	0.504
W-31	0.001	0.025	0.054	0.054
W-32	0.023	0.079	0.119	0.129
W-34	0.006	0.026	0.066	0.045
Wet Retention Areas/ Wetlands Total	0.569	2.142	1.761	3.445
Surface Waters				
SW-1 (Miami River/C-6 Canal)	N/A	N/A	N/A	N/A
SW-2 (NW 58th Street Canal)	0.085	0.185	N/A	N/A
SW-3 (Dressel's Dairy Canal)	N/A	0.008	N/A	N/A
Surface Waters Total	0.085	0.193	0.000	0.000

5.2 WATER Assessment

A functional analysis using the WATER methodology was conducted in order to determine the functional loss resulting from the proposed direct and secondary impacts. The results of the WATER assessment show that 0.207 WATER credits would be required for Alternative 1A and 0.688 WATER credits would be required for Alternative 2A to offset the proposed direct and secondary impacts to wet retention areas/wetlands. The WATER assessment was not conducted

¹ Please note that all impact acreages are approximations based on the best available information at the time of this PD&E study. Final impact acreages are dependent upon final engineering design.

for areas characterized as surface waters since the presence of native wetland vegetation is limited in these surface waters and mitigation for impacts to surface waters is typically not required. A summary of the results of the WATER assessment for each alternative is provided in *Table 5.2*. Copies of the WATER worksheets are provided in *Appendix E*.

Table 5.2 – WATER Credit Analysis

Identification #	WATER Functional Score (FS)	Site Suitability Multiplier (SSM)	Alternative 1A					Alternative 2A				
			Direct Impacts (acres)	Direct Impacts WATER Score (WS)	Secondary Impacts (acres)	Secondary Impacts Water Score (WS) (x 25%) ¹	Total WATER Credits (TWC) ²	Direct Impacts (acres)	Direct Impacts WATER Score (WS)	Secondary Impacts (acres)	Secondary Impacts Water Score (WS) (x 25%) ¹	Total WATER Credits (TWC) ²
W-1	0.196	N/A	0.077	0.015	0.255	0.012	0.028	0.188	0.037	0.271	0.013	0.050
W-2	0.216	N/A	0.135	0.029	0.264	0.014	0.043	0.289	0.062	0.232	0.013	0.075
W-3	0.176	N/A	N/A	N/A	0.23	0.010	0.010	N/A	N/A	0.083	0.004	0.004
W-4	0.196	N/A	N/A	N/A	N/A	N/A	0.000	0.133	0.026	0.229	0.011	0.037
W-5	0.157	N/A	0.068	0.011	0.095	0.004	0.014	0.12	0.019	0.075	0.003	0.022
W-6	0.216	N/A	0.102	0.022	0.226	0.012	0.034	0.225	0.049	0.187	0.010	0.059
W-8	0.216	N/A	N/A	N/A	N/A	N/A	0.000	0.343	0.074	0.449	0.024	0.098
W-9	0.118	N/A	N/A	N/A	N/A	N/A	0.000	0.04	0.005	N/A	N/A	0.005
W-10	0.157	N/A	N/A	N/A	N/A	N/A	0.000	0.14	0.022	N/A	N/A	0.022
W-11	0.176	N/A	0.014	0.002	0.039	0.002	0.004	0.033	0.006	0.033	0.001	0.007
W-12	0.196	N/A	0.075	0.015	0.131	0.006	0.021	0.114	0.022	0.106	0.005	0.028
W-13	0.176	N/A	N/A	N/A	N/A	N/A	0.000	0.027	0.005	0.065	0.003	0.008
W-14	0.176	N/A	N/A	N/A	N/A	N/A	0.000	0.006	0.001	0.045	0.002	0.003
W-19	0.137	N/A	N/A	N/A	N/A	N/A	0.000	0.004	0.001	0.039	0.001	0.002
W-23	0.451	N/A	N/A	N/A	N/A	N/A	0.000	0.119	0.054	0.368	0.041	0.095
W-24	0.235	N/A	N/A	N/A	N/A	N/A	0.000	0.005	0.001	0.253	0.015	0.016
W-25	0.235	N/A	0.013	0.003	0.073	0.004	0.007	0.047	0.011	0.075	0.004	0.015
W-27	0.255	N/A	0.036	0.009	0.127	0.008	0.017	N/A	N/A	0.127	0.008	0.008
W-29	0.216	N/A	0.019	0.004	0.082	0.004	0.009	0.057	0.012	0.076	0.004	0.016
W-30	0.314	N/A	N/A	N/A	N/A	N/A	0.000	0.122	0.038	0.504	0.040	0.078
W-31	0.255	N/A	0.001	0.000	0.054	0.003	0.004	0.025	0.006	0.054	0.003	0.010
W-32	0.216	N/A	0.023	0.005	0.119	0.006	0.011	0.079	0.017	0.129	0.007	0.024
W-34	0.176	N/A	0.006	0.001	0.066	0.003	0.004	0.026	0.005	0.045	0.002	0.007
Wet Retention Areas/Wetlands Total			0.569		1.761		0.207	2.142		3.445		0.688

¹ Secondary impacts are multiplied by a factor of 25% to calculate the Total Water Credits (TWC), per FP&L EMB criteria.

² The Total WATER Credits (TWC) are equal to the sum of the Direct Impacts Water Score (WS) and the Secondary Impacts Water Score (WS) (x 25%) since the Site Suitability Multiplier is N/A.

5.3 Cumulative Impacts Analysis

From a regional watershed perspective, the potential wet retention area/wetland impacts within the study area limits are considered typical of both urban and roadway stormwater management systems. The study limits lay within three distinct drainage basins in Miami-Dade County – the C-4, C-6 and C-7 – as defined by the USFWS in 2010 and provided to the public in GIS shapefile format. Per the USFWS database, approximately 47,195 acres of similar wetland habitats exist within these three drainage basins. Of this total, the proposed project impacts consist of approximately 0.569-acre of direct impacts and 1.761 acres of secondary impacts for Alternative 1A and 2.142 acres of direct impacts and 3.445 acres of secondary impacts for Alternative 2A. All of these potential impacts fall within the C-6 basin. For Alternative 1A, these total potential impacts equate to 0.02% of the total wetland areas within the C-6 basin and <0.01% of the total wetland areas within the C-4, C-6, and C-7 basins. For Alternative 2A, these total potential impacts equate to 0.04% of the total wetland areas within the C-6 basin and 0.01% of the total wetland areas within the C-4, C-6, and C-7 basins. **Table 5.3** shows a summary of the potential cumulative impacts associated with each alternative for this project.

Table 5.3 – Cumulative Wetland Assessment Summary

Basin ID	Wetlands Within Basin (Acres)	Direct and Secondary Impacts (Acres)		Cumulative Impact	
		Alternative 1A	Alternative 2A	Alternative 1A	Alternative 2A
C-4 Basin	33,099	0.000	0.000	0.00%	0.00%
C-6 Basin	13,231	2.330	5.587	0.02%	0.04%
C-7 Basin	865	0.000	0.000	0.00%	0.00%
Total	47,195	2.330	5.587	<0.01%	0.01%

The unimpacted wetland areas within the three drainage basin areas include a total of 47,193 acres of similar wetland habitats for Alternative 1A (>99.99% of the total wetlands) and 47,189 (99.99% of the total wetlands) for Alternative 1B. The wetlands within the three distinct drainage basins are a mixture of primarily urban lands with isolated wetlands and habitats which are associated with roadway and residential/commercial development stormwater drainage systems, which are considered altered wetland systems. Therefore, the cumulative wetland impacts resulting from the proposed project are expected to be considered negligible within each basin and within the greater C-100 regional watershed.

In addition to the above, please note that since the proposed project will be designed to meet the SFWMD's current water quality criteria, the stormwater system associated with the project proposed roadway improvements is anticipated to provide a net positive effect on the quality of water entering receiving waters and wetlands downstream of the project. Thus, it is also anticipated that the proposed project will not cause unacceptable cumulative impacts to the regional water quality within each respective drainage basin or the greater C-100 regional watershed.

Furthermore, compensation for proposed unavoidable impacts to wetlands will be mitigated within the same regional watershed (C-100 Watershed) where the impacts will occur. Therefore,



no net loss of wetland functions and values is expected to occur within the C-100 Watershed (refer to mitigation discussion below for details).

5.4 Elimination and Reduction of Impacts

No impacts to wetlands or surface waters are anticipated with the No-Build Alternative; however, due to the projected demand for roadway capacity within the study area, traffic congestion, delays, and other operational and access deficiencies would remain, making this alternative impractical.

As wet retention areas/wetlands exist within and directly adjacent to the project corridor, the complete elimination of impacts is not compatible with any roadway safety or capacity improvements, and there is a sufficient transportation demand to justify the proposed improvements along this corridor.

The build alternatives were developed with consideration of reducing or eliminating impacts to wet retention areas/wetlands and surface waters within the limits of the proposed project. All factors relating to the design and location of the facility, as well as information and issues relevant to the project decision-making process were considered, including socio-economic, environmental, and engineering issues. The following controls which may influence alternative design were considered:

- Available physical envelope through which an improvement providing acceptable service could be routed
- Cultural features, including public and private development, which could be impacted by the project alternatives
- Natural features (wetlands, protected wildlife, surface waters, etc.), which could be impacted by the project alternatives
- Logical termini, giving consideration to directness, length, and service

Each proposed alternative was analyzed and evaluated to a point of rejection or selection as a viable alternative. The impacts of each alternative were identified and expressed in a form suitable for comparison to other alternatives, through the use of an evaluation matrix. Based on the results of the evaluation of alternatives, a locally preferred concept was developed for the corridor. The recommended alternative incorporates the construction of dual express lanes along the median of SR 826 as described in Alternative 1A. This alternative best meets the needs for the project and minimizes impacts to wetlands and surface waters to the greatest extent practicable, while maintaining safe and sound engineering practices, when compared to the other alternatives evaluated.

The proposed alternative was further refined by consideration of the proposed roadway profile and associated typical section in order to reduce the proposed impacts to wetlands and surface waters as much as possible while meeting the transportation needs of the project. In addition, further efforts to reduce impacts will be implemented as detailed construction plans are





developed during the permitting and final design phase of the project including the use of best management practices in accordance with the latest edition of FDOT's *Standard Specifications for Road and Bridge Construction*.

5.5 Conceptual Mitigation

Although the project limits have been refined to reduce impacts to wetlands to the greatest extent practicable, unavoidable impacts (direct and secondary) to wetlands/stormwater retention areas are anticipated to occur. Per the proposed construction limits of each alternative, Alternative 1A would result in 0.569-acre of direct impacts to wetlands/stormwater retention areas and 1.761 acres of secondary impacts to wetlands/stormwater retention areas, while Alternative 2A would result in 2.142 acres of direct impacts to wetlands/stormwater retention areas and 3.445 acres of secondary impacts to wetlands/stormwater retention areas.

Two mitigation banks exist within the service area of the proposed project impacts, but for the purposes of this PD&E study, only the FP&L EMB, located in southern Miami-Dade County, is being considered for this project (per the direction from the FDOT). Coordination with the FP&L EMB was conducted to determine if sufficient mitigation credits were determined to be available to the FDOT for this project and it was determined that credits are currently available. Additional mitigation options may also be available to the FDOT in the form of restoration projects on state and/or federal lands. These additional options can be reconsidered during the final design and permitting phase of the project if mitigation credits/acres become unavailable at the FP&L EMB.

The FP&L EMB utilizes the WATER assessment methodology in order to determine the quantity of mitigation credits needed to be purchased to compensate for unavoidable wetland impacts. Utilizing WATER, the Total WATER Credits (TWCs) required to offset the potential direct and secondary wetland/stormwater retention area impacts associated with Alternative 1A and Alternative 2A are 0.207 TWCs and 0.688 TWCs, respectively. Wetland credits at the EMB currently cost \$85,000 per credit, making the estimated cost for compensatory wetland mitigation for Alternative 1A and Alternative 2A equal to \$17,595 and \$58,480, respectively. Refinements of these calculations are expected to occur during the final design and permitting phase of the project. The type and level of mitigation for wetland impacts will be based on the final impact acreages (direct, secondary, and cumulative), the nature of disturbance (temporary/permanent), and the overall quality of the systems.



6.0 AGENCY COORDINATION AND PERMITTING

Agency coordination for this project occurred through the Efficient Transportation Decision Making (ETDM) Planning and Program Screening (ETDM #11560), the Advance Notification process, and individual conversations with staff at USFWS, Florida Fish and Wildlife Conservation Commission (FWC), and the Miami-Dade County Department of Regulatory and Economic Resources Environmental Monitoring and Restoration Division . The Advance Notification for this project was published on December 21, 2012. The ETDM Review occurred between December 21, 2011 and February 4, 2012, and the latest ETDM Programming Screening Summary Report was published on June 22, 2012. A summary of the wetland and water quality-related comments received from the Environmental Technical Advisory Team resource agencies charged with commenting on project specific effects to the wetlands is provided in **Table 6.1**. The ETDM Programming Screening Summary Degree of Effect was listed as ‘Minimal’ for wetlands, ‘Minimal’ for water quality and quantity, ‘Minimal’ for floodplains, and ‘Minimal’ for special designations (for the Biscayne Sole Source Aquifer). The relevant sections of the ETDM Programming Screening Summary Report pertaining to wetlands and water quality can be found in **Appendix F**.

Table 6.1 – Summary of ETDM Programming Screening ETAT Wetland and Water Quality-Related Comments

Agency	Issue	Degree of Effect	Comments
USACE	Wetlands	Minimal	The project should be designed to avoid filling wetlands and waters to the extent practical. The unavoidable loss of waters may require compensatory mitigation. The Corps recommends purchasing credits at a federally authorized mitigation bank whose service area overlaps the impacts.
USEPA	Wetlands	Minimal	Degree of Effect on Water quality and wetland is given at minimal.
	Water Quality and Quantity	Minimal	Impact on water quality and flow should also be minimized if the final scope includes additional impervious surfaces.
	Floodplains	None	No comments.
	Special Designations	None	No comments.
USFWS	Wetlands	Minimal	We recommend that the project be designed to avoid and minimize impacts to wetland resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.
NMFS	Wetlands	None	The proposed work would not directly impact wetlands areas that support NOAA trust fishery resources.
DEP	Wetlands	Minimal	If expressway widening is proposed, the project may require an Environmental Resource Permit (ERP) from the SFWMD. The ERP applicant would be required to eliminate or reduce the proposed wetland resource impacts of highway widening to the greatest extent practicable
	Water Quality and Quantity	Minimal	Every effort should be made to maximize the treatment of stormwater runoff from the proposed expressway lane management project to prevent ground and surface water contamination.

**Table 6.1 – Summary of ETDM Programming Screening
ETAT Wetland and Water Quality-Related Comments**

Agency	Issue	Degree of Effect	Comments
SFWMD	Water Quality and Quantity (including Wetlands comments)	Minimal	An ERP will be required if widening and new impervious surface is proposed or if filling of surface waters is proposed. The ERP application needs to address water quality treatment and water quantity from the construction of additional impervious areas, work in wetlands and/or other surface waters including any impacts to wetlands/other surface waters, and mitigation to offset those impacts. Based on a review of the project corridor, it does not appear that the project will impact wetlands.

Both the USACE and SFWMD regulate impacts to wetlands (including wet retention areas) within the project area. Other agencies, including the USEPA, National Marine Fisheries Service (NMFS), USFWS, Florida Department of Environmental Protection (DEP), and FWC, typically review and comment on permit applications. A list of the permits that are anticipated to be required for this project is provided in **Table 6.2**. The complexity of the permitting process will depend greatly on the size of the project and/or the extent of impacts to jurisdictional wetland areas as determined during the final design phase of the proposed project.

Table 6.2 – Anticipated Permits

Permit Type	Issuing Agency
Environmental Resource Permit	SFWMD
Section 404 Dredge and Fill Permit	USACE
Right-of-Way Occupancy Permit	SFWMD
Water Use Permit (Construction Dewatering)	SFWMD
National Pollutant Discharge Elimination System	DEP

The SFWMD requires an ERP when construction of any project results in the modification or creation of a water management system or results in impacts to wetlands or waters of the state. It should be noted that most wet retention area impacts associated with this project will not require compensatory mitigation through the SFWMD due to the fact that these areas are engineered stormwater management facilities. It is anticipated that a Noticed General or Standard General ERP will be required for this project.

The USACE will require an Individual Section 404 Dredge and Fill Permit. An individual permit will require compliance with the 404(b)(1) guidelines, including verification that all impacts have first been eliminated to the greatest extent practicable, that unavoidable impacts have been reduced to the greatest extent practicable, and lastly that unavoidable impacts have been mitigated in the form of wetlands creation, restoration, and/or enhancement. It should be noted that if it is determined that impacts to federal flood control systems (canals) are anticipated, a Section 408 Review Process for Locally Funded and Constructed Improvements to Federal Flood Control Projects will also be required.



It is also anticipated that separate Right-of-Way Occupancy Permits will be required for work within the SFWMD's right-of-way associated with the Miami River/SFWMD C-6 Canal and the Little River Canal/SFWMD C-7 Canal. Furthermore, if hydraulic capacity or conveyance impacts are anticipated, SFWMD Right-of-Way Division must coordinate with the USACE to implement the Section 408 Review Process. Lastly, if it is determined that dewatering is required during construction, a Water Use Permit for construction dewatering will be required from the SFWMD.

Under the DEP's delegated authority to administer the National Pollutant Discharge Elimination System program, construction sites that will result in greater than one acre of disturbance must file for and obtain either coverage under an appropriate generic permit or an individual permit for point source discharges of stormwater to waters of the United States. A major component of the National Pollutant Discharge Elimination System permit is the development of a Stormwater Pollution Prevention Plan. The Stormwater Pollution Prevention Plan identifies potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site and discusses good engineering practices (i.e., best management practices) that will be used to reduce the pollutants.

It should be noted that there are existing permits associated with the overlapping SR 826/SR 836 Interchange project, which is currently under construction to the south of NW 25th Street along the SR 826 mainline. For the SR 826/SR 836 Interchange project, the original USACE Permit #SAJ-2008-1139 (IP-AAZ) and SFWMD ERP #13-04284-P authorizes impacts to wetlands south of NW 25th Street. As such, although there is overlap between the two projects south of NW 25th Street, wetland and surface water impacts within this overlap have been mitigated and accounted for through previous permitting efforts.





7.0 REFERENCES

Aerial photographs of the project area at 1 inch = 100 feet, 1 inch = 300 feet, and 1 inch = 1000 feet scales (2006/2007/2008/2010)

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services. Technical Publication FWS/OBS-79/31. 131 pp.

Florida Department of Transportation. 1999. Florida Land Use, Cover and Forms Classification System, Second Edition.

Florida Natural Areas Inventory. 1997. Matrix of Habitats and Distribution by County of Rare/Endangered Species in Florida. 97 pp.

Hurt 2007. Hydric Soils of Florida Handbook. Florida Association of Professional Soil Classifiers, Fourth Edition. Gainesville, Florida. 223 pp.

U.S. Army Corps of Engineers 2008. Interim Regional Supplement to the USACE Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region. ERDC/EL TR-08-30.

U.S. Code of Federal Regulations, Title 50, Parts 17.11 and 17.12. October 1, 1997. Endangered and Threatened Wildlife and Plants. 37 pp.

U.S. Geological Survey (USGS), Hialeah 1988 and Opa-Locka 1988 Topographic Quadrangle Maps

U.S. Department of Agriculture, Natural Resources Conservation Service. 2012. *Web Soil Survey*. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>





APPENDIX A
*U.S. Environmental Protection Agency Sole Source
Aquifer Letter*





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

July 26, 2012

Steven James
FDOT, District 6
Planning and Env. Management Office, Room 6111A
1000 NW 111th Avenue
Miami, Florida 33172

Subject: Sole Source Aquifer Review for Miami, FL; Palmetto Expressway SR 826

Dear Mr. James:

The U.S. Environmental Protection Agency (EPA), Region 4, received your June 11, 2012 request to assess the above referenced project and we reviewed it pursuant to Section 1424(e) of the Safe Drinking Water Act. The assessment is to determine if the project lies within the boundaries (recharge and streamflow source zones) of an EPA designated Sole Source Aquifer (SSA); and to determine if the project poses potential, adverse health or environmental impacts. A sole source aquifer is the sole or principal water source for a designated area. If the aquifer is contaminated, there would be a significant hazard to public health and an economic burden for those using the aquifer to tap into and deliver drinking water from another water source.

The project has been determined to lie **inside** the designated boundaries of the Biscayne Aquifer. Regulatory groups within the EPA responsible for administering other programs may, at their own discretion and under separate cover, provide additional comments

Based on the information provided, the project is not expected to cause a significant impact to the aquifer system. However, it is requested that all debris from any demolition of the existing structures are properly contained and removed from the site prior to construction of the new structure. If applicable, contractors should follow all county flood plain management's plans and public notification processes. During construction, it is EPA's understanding and expectation that those responsible for the project will strictly adhere to all Federal, State and local government permits, ordinances, planning designs, construction codes, operation & maintenance requirements, and engineering. All best management practices for erosion and sedimentation control should be followed. State and County environmental offices should be contacted to address proper drainage and storm water designs. Additionally, the project manager should contact State and local environmental officials to obtain a copy of any local Wellhead Protection Plans. <http://www.dep.state.fl.us/swapp/Default.htm>

If proper protection measures are followed, this project is not expected to cause significant adverse impacts to the aquifer. All findings of "no significant impact" are based on EPA's understanding and expectation that those responsible for the project will strictly adhere to all federal, state and local government permits, ordinances, best management practices, planning designs, construction and maintenance requirements, monitoring requirements and engineering recommendations to protect the integrity of the surrounding ground water recharge zones. It is requested that you contact the EPA Region 4 office should there be any major project changes.

Thank you for your concern with the environmental impacts of this project. If you have any questions, please contact me at 404-562-9423.

Sincerely,

A handwritten signature in cursive script that reads "Robert S. Olive". The signature is written in dark ink and is positioned above the typed name and title.

Robert S. Olive
Environmental Scientist
Ground Water and SDWA Enforcement Sec.



APPENDIX B
Water Quality Impact Evaluation Checklist



Exhibit A

WQIE CHECK LIST

Project Name: State Road (SR) 826 / Palmetto Expressway PD&E Study

County: Miami-Dade County

FIN (Financial Number): _____

Federal Aid Project No: _____

Short project description: FDOT PD&E Study for roadway improvements along SR 826/
Palmetto Expressway from NW 12th Street to NW 103rd Street.

PART 1: DETERMINATION OF WQIE SCOPE

Does project increase impervious surface area? Yes No

Does project alter the drainage system? Yes No

If the answer to both questions is no, complete the WQIE by checking Box A in Part 4.

Do environmental regulatory requirements apply? Yes No

PART 2: PROJECT CHARACTERISTICS

20-year design ADT: 294,400 (Max volume) Expected speed limit: 55 - 70 mi/hr

Drainage area: _____ acres 46.43 % Impervious 53.57 % Pervious

Land Use: 25 % Residential 15 % Commercial 10 % Industrial

0 % Agricultural 15 % Wetlands 40 % Other Natural

Potential large sources of pollution (identify): No large sources of pollution were identified
within the project footprint, please see the CSER for details.

Groundwater receptor (name of aquifer or N/A): Biscayne Aquifer

Designated well head protection area? Yes No Name: _____

Sole source aquifer Yes No Name: Biscayne Aquifer

Groundwater recharge mechanism:

The proposed groundwater recharge mechanism consists of isolated
self-contained French drain systems, or french drains located within
the proposed dry retention areas in order to aid in the pond recovery
following a storm event.

(Notify District Drainage Engineer if karst conditions expected)

WQIE CHECK LIST (Contd.)

Surface water receptor (name or N/A): N/A
 Classification I II III IV V

Special designation (check all that apply):
 ONRW OFW Aquatic Preserve Wild & Scenic River
 Special Water SWIM Area Local Comp Plan MS4 Area
 Other (specify): _____

Conceptual storm water conveyances & system (check all that apply):
 Swales x Curb and Gutter Scuppers x Pipe x French Drains
 Retention/Detention Ponds Other _____

PART 3: ENVIRONMENTAL REGULATORY REQUIREMENTS

Regulatory Agency (Check all that apply)	Reference citation for regulatory criteria (attach copy of pertinent pages)	Most stringent criteria (Check all that apply)
USEPA <input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
FDEP <input checked="" type="checkbox"/>	Section 402 of the Clean Water Act (NPDES Program)	<input checked="" type="checkbox"/>
WMD <input checked="" type="checkbox"/> (Specify) SFWMD	Chapter 40E-40, F.A.C. and ERP Basis of Review	<input checked="" type="checkbox"/>
OTHER <input checked="" type="checkbox"/> (Specify) U.S. Army Corps of Engineers	Section 404 of the Clean Water Act	<input checked="" type="checkbox"/>

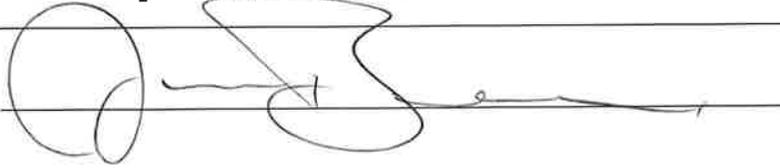
Proceed to Part 4 and check Box C.

PART 4: WQIE DOCUMENTATION

- Water quality is not an issue.
- No regulatory requirements apply to water quality issues
(Document by checking the "none" box for water quality in Section 6.C.3 of the *Environmental Determination Form* or Section 5.C.3 of the SEIR.)
- Regulatory requirements apply to water quality issues. Water quality issues will be mitigated through compliance with the quantity design requirements placed by South Florida Water Management District, an authorized regulatory agency.
(Document by checking the "none" box for water quality in Section 6.C.3 of the Environmental Determination Form or Section 5.C.3 of the SEIR.)

Evaluator Name (print): Julio Bouclé, P.E

Office: URS Corporation - Miami, Florida

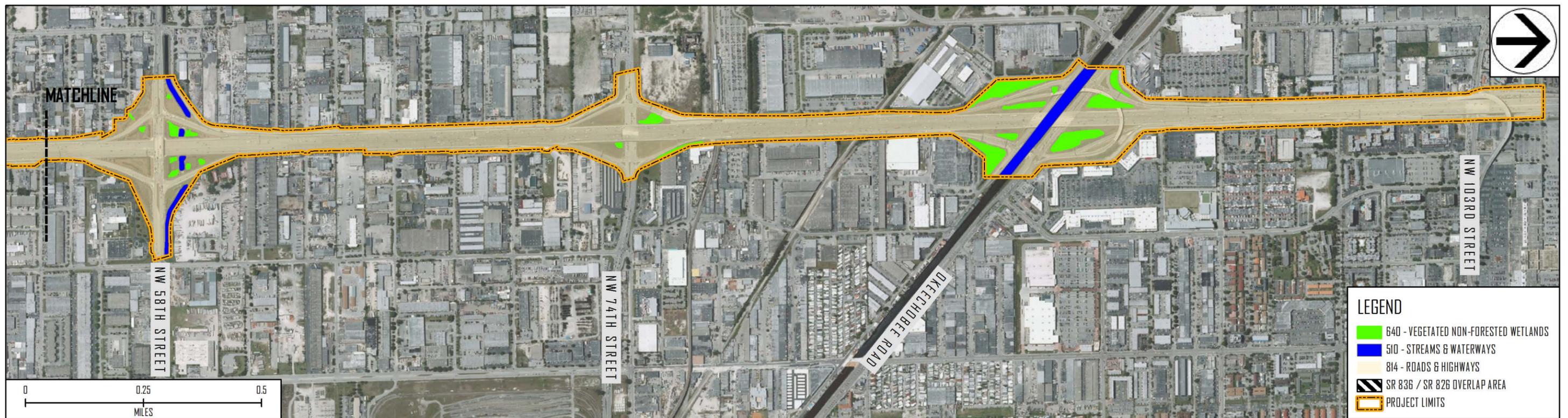
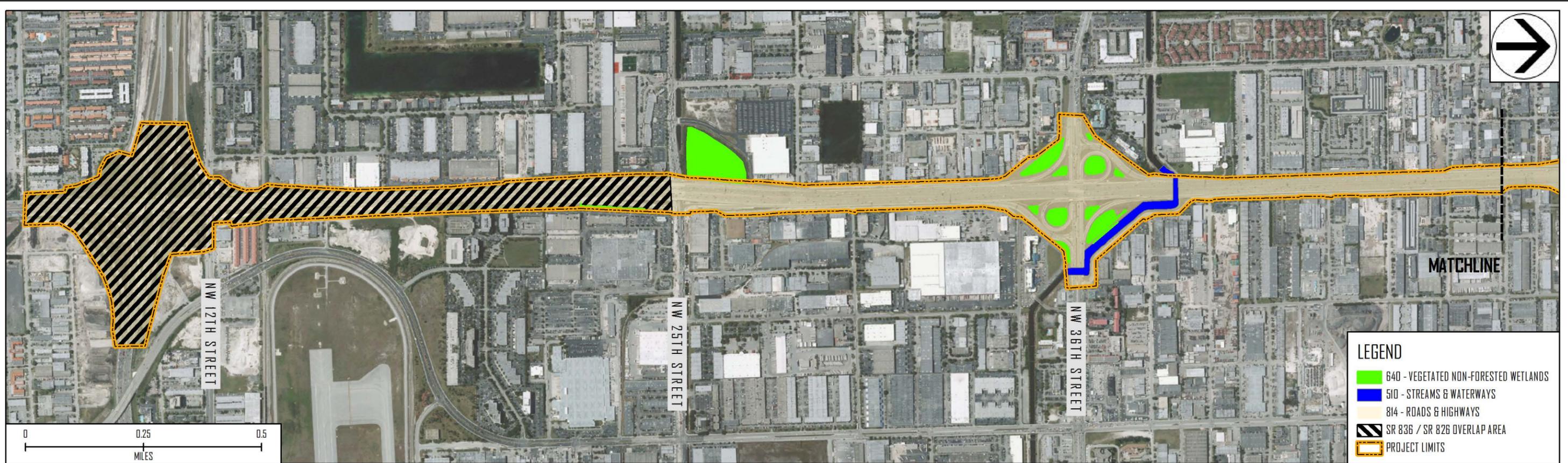
Signature:  Date: 10/10/12



APPENDIX C

Florida Land Use, Cover, and Forms Classification System Map





FLORIDA DEPARTMENT OF TRANSPORTATION
1000 NW 111th Avenue
Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
MANAGED LANES PD&E STUDY

FLUCFCS

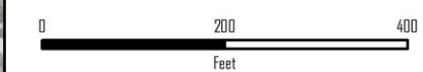


APPENDIX D
Wetland/Surface Water Maps





-  Wetland Impacts ALT 1
-  Wetland Impacts ALT 2
-  Wet Retention Areas



FLORIDA DEPARTMENT OF TRANSPORTATION
 1000 NW 111th Avenue
 Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
 MANAGED LANES PD&E STUDY

WETLAND AND SURFACE WATERS
 LOCATION MAP

SHEET NO.
 1



	Wetland Impacts ALT 1
	Wetland Impacts ALT 2
	Wet Retention Areas



FLORIDA DEPARTMENT OF TRANSPORTATION
 1000 NW 111th Avenue
 Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
 MANAGED LANES PD&E STUDY

WETLAND AND SURFACE WATERS
 LOCATION MAP

SHEET NO.
 2



	Wetland Impacts ALT 1
	Wetland Impacts ALT 2
	Wet Retention Areas



FLORIDA DEPARTMENT OF TRANSPORTATION
 1000 NW 111th Avenue
 Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
 MANAGED LANES PD&E STUDY

WETLAND AND SURFACE WATERS
 LOCATION MAP

SHEET NO.
3



-  Wetland Impacts ALT 1
-  Wetland Impacts ALT 2
-  Wet Retention Areas

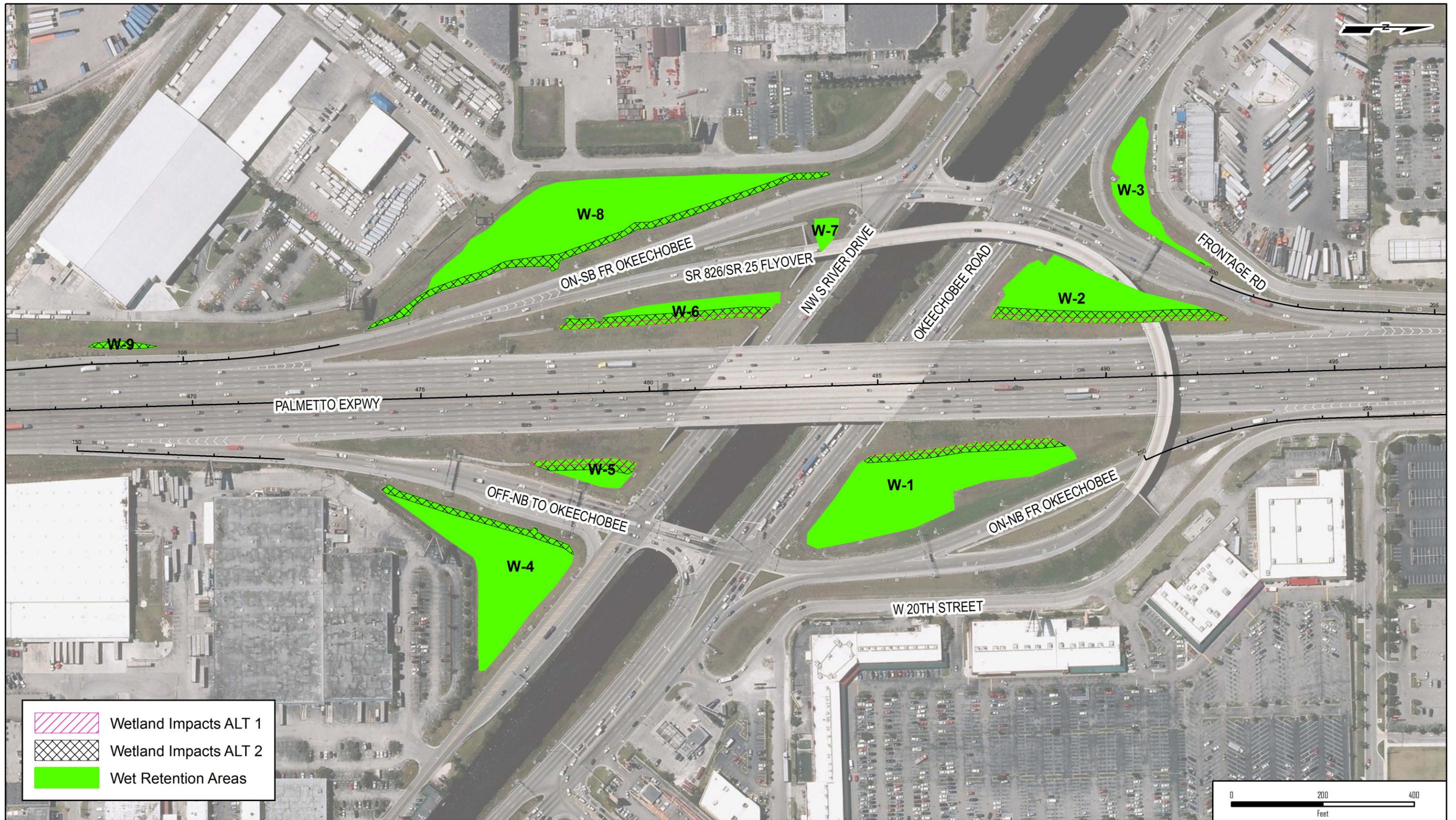


FLORIDA DEPARTMENT OF TRANSPORTATION
 1000 NW 111th Avenue
 Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
 MANAGED LANES PD&E STUDY

WETLAND AND SURFACE WATERS
 LOCATION MAP

SHEET NO.
 4



	Wetland Impacts ALT 1
	Wetland Impacts ALT 2
	Wet Retention Areas



FLORIDA DEPARTMENT OF TRANSPORTATION
 1000 NW 111th Avenue
 Miami, Florida 33172

SR-826 / PALMETTO EXPRESSWAY
 MANAGED LANES PD&E STUDY

WETLAND AND SURFACE WATERS
 LOCATION MAP

SHEET NO.
 5



APPENDIX E
WATER Worksheets



FPL Everglades Mitigation Bank Mitigation Bank Site Suitability Evaluation (MBSE) Matrix

Parameters			
Parameter	Scoring Criteria	Ratings	Score
1. Adjacent to lands or waters of regional importance and results in identifiable ecological benefits to adjacent lands or waters.	State Park, OFW, AP, and including but not limited to Special Waters on at least 1 boundary	1	0
	Adjacent lands contain no special designation or undesignated special value	0	
2. Property is within boundary of an acknowledged state, local or regional acquisition program	Property is within boundary of an acquisition program	1	0
	Property is not within boundary of an acquisition program	0	
3. Property contains ecological or geological features consistently considered by regional Scientist, or federal and state agencies to be unusual, unique or rare in the region and is of sufficient size	Property qualifies	1	0
	Property does not qualify	0	
4. Property designated as being of critical state or federal concern and/or contains special designations,	Property contains at least 1 special designation.	1	0
	Property contains no special designations.	0	
5. Property important to acknowledged restoration efforts	Property is important.	1	0
	Property is not important.	0	
6. Ownership and control of the property.	Property is privately owned.	1	0
	Property is publicly owned.	0	
7. Threatened, Endangered & Species of Special Concern Presence of animal species (faunal) found on site	Documented Presence of Species on site	1	0
	No documented Presence of species on site.	0	
8. Threatened, Endangered & Listed Species Presence of plant species (floral) found on site	Documented Presence of Species on site	1	0
	No documented Presence of species on site.	0	
9. Threat of loss or destruction from development activities. (Development Pressure)	High probability of development.	1	0
	Low probability of development.	0	
10. Extent to which lands are subject to Local, State, and Federal dredge and fill/ ERP Regulations	Property is not regulated.	1	0
	Property is regulated.	0	
Value Cumulative Score (CS)			0

The Mitigation Bank Site Suitability Evaluation Matrix is designed to provide a quantifiable means of determining the number of mitigation credits that should be assigned to a bank for "value" related parameters. Value related parameters are human values determined to be important to society; and therefore are not measurable in a purely functional analysis. Functional analysis will only measure the degree of functional ecological improvement (degree of ecological improvement) resulting from mitigation activities. The SS Evaluation measures and provides credit for societal values that separate one mitigation bank from another as required by Ch. 62-342.470 (a) (b) (e) (f) (g) (h) (i) F.A.C.. The SS evaluation is not to be utilized in conjunction with a functional analysis methodology which also utilizes value related parameters in its analysis.

Site Suitability	Suitability Multiplier
1.0	1.10
.9	1.09
.8	1.08
.7	1.07
.6	1.06
.5	1.05
.4	1.04
.3	1.03
.2	1.02
.1	1.01
0	0

Maximum Possible Score (MPS)		10
Cumulative Score (CS)		0

EPA, USACOE, USF & W, FDEP, NMFS, SFWMD, Dade DERM, FPL, CH
3-Apr-96

After Calculating the Site Suitability Score determine the Site Suitability Multiplier by utilizing the Evaluation Scale to the left. The Site Suitability Multiplier is to be multiplied times the number of the Functional Mitigation Credits, resulting from the (W.A.T.E.R.) Functional Assessment of the Mitigation Bank, to determine the number of Site Suitability Credits to be assigned to the Mitigation Bank.

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	0	0	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0	0
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0	0	0	0	0
	Medium sized mammals , (adult weight > 6 lbs.)	2						
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1						
	0 species present	0						
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	1	1	1	0	0	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	1	0	1	0	0
	Aquatic turtles	2						
	Snakes & lizards	1						
	No evidence of species present	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	0	0	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2						
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1						
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0						
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	1	1	1	1	1	2
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2						
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1						
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0						
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2						
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1						
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0						
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	1	1	1	1	1	1
	>1 % to 10 % exotic plant cover	2						
	>10 % to 65 % exotic plant cover	1						
	> 65 % exotic plant cover	0						
e. Habitat diversity (vegetative) <i>(within assessment area)</i>	>3 native species communities on site within assessment area	3	1	1	0	1	0	1
	2 or 3 native specie communities on site within assessment area	2						
	1 native species community with 75 % to 90 % coverage within assessment area	1						
	1 native species community has > 90 % coverage within assessment area	0						
f. Biological diversity within 3000 feet <i>(approximately 1/2 mile from edge of assessment area)</i>	> 3 alternative habitats available (including upland)	3	1	1	1	1	1	1
	2 to 3 alternative habitats	2						
	1 alternative habitat	1						
	Same habitat type, or inappropriate / impacted	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
3. Hydrologic Functions								
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	1	1	1	1	1
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2						
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1						
	Hydrologically isolated, no net lateral movement	0						
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	1	1	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2						
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1						
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0						
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2						
	>2 weeks but <6 weeks of inundation, including soil saturation	1						
	<2 weeks of continuous inundation	0						
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2						
	Inundated by "extreme high" tides only (biannually)	1						
	Inundated by storm surges only	0						
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2						
	Inundated by high "spring" tides (monthly) and exposed to rain only	1						
	Inundated by >50% high tides and exposed to rain only	0						
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2						
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1						
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advice from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
3. Hydrologic Functions continued								
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	0	0	0
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2						
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1						
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0						
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2						
	< 6 in. water depth , but > than saturated	1						
	Saturated by saline water table only	0						
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2						
	>1 in. to 5 in. water depth on regular basis during growing season	1						
	>0.0 in. to 1 in. water depth sporadically during growing season	0						
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2						
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1						
	<1 ft. water depth, but dry for >4 weeks (dry season)	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
3. Hydrologic Functions continued								
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2						
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1						
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0						
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2						
	Moderately altered soil disturbance, < 25% of assessment area	1						
	Extremely altered soil disturbance, may exceed 50% of assessment area	0						
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	1	1	1	1	1	1
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2						
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1						
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0						
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2						
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1						
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0						
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2						
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1						
	Calcareous loam <1 in. for >50% of surface area	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 17-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-01	W-02	W-03	W-04	W-05	W-06
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1								
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. Apply to freshwater systems within 5 miles of the coast	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2						
	4 to 5 parts per thousand (ppt)	1						
	>5 parts per thousand (ppt)	0						
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. Apply to brackish (tidal) systems only	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2						
	14 to 16 parts per thousand (ppt)	1						
	>16 parts per thousand (ppt)	0						
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. Apply to saline marsh (tidal) systems only	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2						
	23 to 25 parts per thousand (ppt)	1						
	>25 parts per thousand (ppt)	0						
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. Apply to hypersaline (tidal) systems only	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2						
	47 to 51 parts per thousand (ppt)	1						
	>51 parts per thousand (ppt)	0						
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. Apply to riverine systems only	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.							
	upper (top) third between 0 to 4 ppt.							
	bottom (lower) third between 25 to 32 ppt	2						
	middle third between 6 to 24 ppt.							
	upper (top) third between 0 to 5 ppt.							
	bottom (lower) third between 30 to 40 ppt	1						
	middle third between 8 to 29 ppt.							
upper (top) third between 0 to 7 ppt.								
bottom (lower) third between 35 to 50 ppt	0							
middle third between 10 to 34 ppt.								
upper (top) third between 0 to 9 ppt.								

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

Cumulative Score (SC)	12	12	7	8	6	10
Maximum Possible Score (MPS)	51	51	51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score	0.24	0.24	0.14	0.16	0.12	0.20

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	0	0	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	1	0	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	2	0	0	0	0
	Medium sized mammals , (adult weight > 6 lbs.)	2						
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1						
	0 species present	0						
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	1	0	1	1	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	1	0	0	0	0
	Aquatic turtles	2						
	Snakes & lizards	1						
	No evidence of species present	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	0	0	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2						
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1						
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0						
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	1	1	1	1	1	1
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2						
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1						
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0						
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2						
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1						
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0						
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	1	1	1	1	1	1
	>1 % to 10 % exotic plant cover	2						
	>10 % to 65 % exotic plant cover	1						
	> 65 % exotic plant cover	0						
e. Habitat diversity (vegetative) <i>(within assessment area)</i>	>3 native species communities on site within assessment area	3	0	1	1	1	1	1
	2 or 3 native specie communities on site within assessment area	2						
	1 native species community with 75 % to 90 % coverage within assessment area	1						
	1 native species community has > 90 % coverage within assessment area	0						
f. Biological diversity within 3000 feet <i>(approximately 1/2 mile from edge of assessment area)</i>	> 3 alternative habitats available (including upland)	3	1	1	1	1	1	1
	2 to 3 alternative habitats	2						
	1 alternative habitat	1						
	Same habitat type, or inappropriate / impacted	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
3. Hydrologic Functions								
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	0	1	0	0	1	1
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2						
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1						
	Hydrologically isolated, no net lateral movement	0						
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	0	1	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2						
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1						
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0						
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2						
	>2 weeks but <6 weeks of inundation, including soil saturation	1						
	<2 weeks of continuous inundation	0						
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2						
	Inundated by "extreme high" tides only (biannually)	1						
	Inundated by storm surges only	0						
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2						
	Inundated by high "spring" tides (monthly) and exposed to rain only	1						
	Inundated by >50% high tides and exposed to rain only	0						
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2						
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1						
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
3. Hydrologic Functions continued								
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	0	0	0
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2						
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1						
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0						
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2						
	< 6 in. water depth , but > than saturated	1						
	Saturated by saline water table only	0						
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2						
	>1 in. to 5 in. water depth on regular basis during growing season	1						
	>0.0 in. to 1 in. water depth sporadically during growing season	0						
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2						
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1						
	<1 ft. water depth, but dry for >4 weeks (dry season)	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
3. Hydrologic Functions continued								
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2						
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1						
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0						
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2						
	Moderately altered soil disturbance, < 25% of assessment area	1						
	Extremely altered soil disturbance, may exceed 50% of assessment area	0						
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	0	1	1	1	1	0
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2						
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1						
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0						
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2						
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1						
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0						
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2						
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1						
	Calcareous loam <1 in. for >50% of surface area	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 19-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-07	W-08	W-09	W-10	W-11	W-12
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1								
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. Apply to freshwater systems within 5 miles of the coast	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2						
	4 to 5 parts per thousand (ppt)	1						
	>5 parts per thousand (ppt)	0						
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. Apply to brackish (tidal) systems only	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2						
	14 to 16 parts per thousand (ppt)	1						
	>16 parts per thousand (ppt)	0						
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. Apply to saline marsh (tidal) systems only	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2						
	23 to 25 parts per thousand (ppt)	1						
	>25 parts per thousand (ppt)	0						
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. Apply to hypersaline (tidal) systems only	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2						
	47 to 51 parts per thousand (ppt)	1						
	>51 parts per thousand (ppt)	0						
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. Apply to riverine systems only	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.							
	upper (top) third between 0 to 4 ppt.							
	bottom (lower) third between 25 to 32 ppt	2						
	middle third between 6 to 24 ppt.							
	upper (top) third between 0 to 5 ppt.							
	bottom (lower) third between 30 to 40 ppt	1						
	middle third between 8 to 29 ppt.							
upper (top) third between 0 to 7 ppt.								
bottom (lower) third between 35 to 50 ppt	0							
middle third between 10 to 34 ppt.								
upper (top) third between 0 to 9 ppt.								

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

Cumulative Score (SC)	3	11	6	8	8	9
Maximum Possible Score (MPS)	51	51	51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score	0.06	0.22	0.12	0.16	0.16	0.18

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	0	1	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0	0
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0	0	2	2	1
	Medium sized mammals , (adult weight > 6 lbs.)	2						
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1						
	0 species present	0						
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	1	1	1	0	1	1
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	0	0	0	0	0
	Aquatic turtles	2						
	Snakes & lizards	1						
	No evidence of species present	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	0	0	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2						
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1						
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0						
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	1	1	1	1	0	1
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2						
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1						
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0						
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2						
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1						
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0						
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	1	1	1	1	0	1
	>1 % to 10 % exotic plant cover	2						
	>10 % to 65 % exotic plant cover	1						
	> 65 % exotic plant cover	0						
e. Habitat diversity (vegetative) <i>(within assessment area)</i>	>3 native species communities on site within assessment area	3	1	1	1	1	1	2
	2 or 3 native specie communities on site within assessment area	2						
	1 native species community with 75 % to 90 % coverage within assessment area	1						
	1 native species community has > 90 % coverage within assessment area	0						
f. Biological diversity within 3000 feet <i>(approximately 1/2 mile from edge of assessment area)</i>	> 3 alternative habitats available (including upland)	3	1	1	1	1	1	1
	2 to 3 alternative habitats	2						
	1 alternative habitat	1						
	Same habitat type, or inappropriate / impacted	0						

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
3. Hydrologic Functions								
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	1	1	1	1	1
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2						
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1						
	Hydrologically isolated, no net lateral movement	0						
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	1	1	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2						
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1						
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0						
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2						
	>2 weeks but <6 weeks of inundation, including soil saturation	1						
	<2 weeks of continuous inundation	0						
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2						
	Inundated by "extreme high" tides only (biannually)	1						
	Inundated by storm surges only	0						
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2						
	Inundated by high "spring" tides (monthly) and exposed to rain only	1						
	Inundated by >50% high tides and exposed to rain only	0						
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2						
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1						
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0						

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Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
3. Hydrologic Functions continued								
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	0	0	1
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2						
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1						
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0						
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2						
	< 6 in. water depth , but > than saturated	1						
	Saturated by saline water table only	0						
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2						
	>1 in. to 5 in. water depth on regular basis during growing season	1						
	>0.0 in. to 1 in. water depth sporadically during growing season	0						
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2						
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1						
	<1 ft. water depth, but dry for >4 weeks (dry season)	0						

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
3. Hydrologic Functions continued								
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2						
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1						
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0						
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2						
	Moderately altered soil disturbance, < 25% of assessment area	1						
	Extremely altered soil disturbance, may exceed 50% of assessment area	0						
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	1	1	1	1	1	0
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2						
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1						
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0						
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2						
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1						
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0						
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2						
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1						
	Calcareous loam <1 in. for >50% of surface area	0						

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-13	W-14	W-15	W-16	W-17	W-18
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1								
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. Apply to freshwater systems within 5 miles of the coast	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2						
	4 to 5 parts per thousand (ppt)	1						
	>5 parts per thousand (ppt)	0						
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. Apply to brackish (tidal) systems only	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2						
	14 to 16 parts per thousand (ppt)	1						
	>16 parts per thousand (ppt)	0						
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. Apply to saline marsh (tidal) systems only	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2						
	23 to 25 parts per thousand (ppt)	1						
	>25 parts per thousand (ppt)	0						
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. Apply to hypersaline (tidal) systems only	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2						
	47 to 51 parts per thousand (ppt)	1						
	>51 parts per thousand (ppt)	0						
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. Apply to riverine systems only	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.							
	upper (top) third between 0 to 4 ppt.							
	bottom (lower) third between 25 to 32 ppt	2						
	middle third between 6 to 24 ppt.							
	upper (top) third between 0 to 5 ppt.							
	bottom (lower) third between 30 to 40 ppt	1						
	middle third between 8 to 29 ppt.							
upper (top) third between 0 to 7 ppt.								
bottom (lower) third between 35 to 50 ppt	0							
middle third between 10 to 34 ppt.								
upper (top) third between 0 to 9 ppt.								

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

Cumulative Score (SC)	8	8	8	9	9	11
Maximum Possible Score (MPS)	51	51	51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score	0.16	0.16	0.16	0.18	0.18	0.22

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems						
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	1
	3-6 species commonly observed	2				
	1-2 species commonly observed	1				
	0 species commonly observed	0				
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1) Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0
	3-6 species commonly observed	2				
	1-2 species commonly observed	1				
	0 species commonly observed	0				
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1) Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0	0	2
	Medium sized mammals , (adult weight > 6 lbs.)	2				
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1				
	0 species present	0				
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1) Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	1	1	1	1
	3-6 species commonly observed	2				
	1-2 species commonly observed	1				
	0 species commonly observed	0				
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1) Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	0	0	1
	Aquatic turtles	2				
	Snakes & lizards	1				
	No evidence of species present	0				

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems						
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2				
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1				
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0				
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	1	1	1	1
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2				
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1				
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0				
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2				
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1				
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0				
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	1	1	1	1
	>1 % to 10 % exotic plant cover	2				
	>10 % to 65 % exotic plant cover	1				
	> 65 % exotic plant cover	0				
e. Habitat diversity (vegetative) (within assessment area)	>3 native species communities on site within assessment area	3	1	1	1	2
	2 or 3 native specie communities on site within assessment area	2				
	1 native species community with 75 % to 90 % coverage within assessment area	1				
	1 native species community has > 90 % coverage within assessment area	0				
f. Biological diversity within 3000 feet (approximately 1/2 mile from edge of assessment area)	> 3 alternative habitats available (including upland)	3	1	1	1	2
	2 to 3 alternative habitats	2				
	1 alternative habitat	1				
	Same habitat type, or inappropriate / impacted	0				

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
3. Hydrologic Functions						
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	1	1	1
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2				
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1				
	Hydrologically isolated, no net lateral movement	0				
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2				
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1				
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0				
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2				
	>2 weeks but <6 weeks of inundation, including soil saturation	1				
	<2 weeks of continuous inundation	0				
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2				
	Inundated by "extreme high" tides only (biannually)	1				
	Inundated by storm surges only	0				
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2				
	Inundated by high "spring" tides (monthly) and exposed to rain only	1				
	Inundated by >50% high tides and exposed to rain only	0				
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2				
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1				
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0				

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
3. Hydrologic Functions continued						
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	1
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2				
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1				
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0				
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2				
	< 6 in. water depth , but > than saturated	1				
	Saturated by saline water table only	0				
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2				
	>1 in. to 5 in. water depth on regular basis during growing season	1				
	>0.0 in. to 1 in. water depth sporadically during growing season	0				
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2				
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1				
	<1 ft. water depth, but dry for >4 weeks (dry season)	0				

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 26-Jan-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
3. Hydrologic Functions continued						
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2				
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1				
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0				
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2				
	Moderately altered soil disturbance, < 25% of assessment area	1				
	Extremely altered soil disturbance, may exceed 50% of assessment area	0				
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	0	0	0	1
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2				
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1				
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0				
f-1 Alternate to f. for <i>Freshwater, saltwater systems</i>	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2				
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1				
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0				
f-2 Alternate to f. for <i>Freshwater, saltwater, brackish (tidal) systems</i>	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2				
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1				
	Calcareous loam <1 in. for >50% of surface area	0				

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Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon
			W-19	W-20	W-21	W-22
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1						
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. <i>Apply to freshwater systems within 5 miles of the coast</i>	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2				
	4 to 5 parts per thousand (ppt)	1				
	>5 parts per thousand (ppt)	0				
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. <i>Apply to brackish (tidal) systems only</i>	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2				
	14 to 16 parts per thousand (ppt)	1				
	>16 parts per thousand (ppt)	0				
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. <i>Apply to saline marsh (tidal) systems only</i>	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2				
	23 to 25 parts per thousand (ppt)	1				
	>25 parts per thousand (ppt)	0				
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. <i>Apply to hypersaline (tidal) systems only</i>	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2				
	47 to 51 parts per thousand (ppt)	1				
	>51 parts per thousand (ppt)	0				
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. <i>Apply to riverine systems only</i>	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.					
	upper (top) third between 0 to 4 ppt.					
	bottom (lower) third between 25 to 32 ppt	2				
	middle third between 6 to 24 ppt.					
	upper (top) third between 0 to 5 ppt.					
	bottom (lower) third between 30 to 40 ppt	1				
	middle third between 8 to 29 ppt.					
upper (top) third between 0 to 7 ppt.						
bottom (lower) third between 35 to 50 ppt	0					
middle third between 10 to 34 ppt.						
upper (top) third between 0 to 9 ppt.						
Cumulative Score (SC)			7	7	7	15
Maximum Possible Score (MPS)			51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score			0.14	0.14	0.14	0.29

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

W.A.T.E.R. = Cumulative Score/Maximum Possible Score

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-May-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	0	0	0
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0	0
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0	0	0	0	0
	Medium sized mammals , (adult weight > 6 lbs.)	2						
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1						
	0 species present	0						
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0	0
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	0	0	0	0	0
	Aquatic turtles	2						
	Snakes & lizards	1						
	No evidence of species present	0						

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Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	0	0	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2						
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1						
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0						
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	2	2	3	2	2	2
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2						
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1						
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0						
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2						
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1						
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0						
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	2	2	3	3	3	1
	>1 % to 10 % exotic plant cover	2						
	>10 % to 65 % exotic plant cover	1						
	> 65 % exotic plant cover	0						
e. Habitat diversity (vegetative) <i>(within assessment area)</i>	>3 native species communities on site within assessment area	3	3	3	3	3	3	3
	2 or 3 native specie communities on site within assessment area	2						
	1 native species community with 75 % to 90 % coverage within assessment area	1						
	1 native species community has > 90 % coverage within assessment area	0						
f. Biological diversity within 3000 feet <i>(approximately 1/2 mile from edge of assessment area)</i>	> 3 alternative habitats available (including upland)	3	1	1	2	1	1	1
	2 to 3 alternative habitats	2						
	1 alternative habitat	1						
	Same habitat type, or inappropriate / impacted	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
3. Hydrologic Functions								
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	1	3	1	1	1
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2						
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1						
	Hydrologically isolated, no net lateral movement	0						
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	1	1	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2						
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1						
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0						
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2						
	>2 weeks but <6 weeks of inundation, including soil saturation	1						
	<2 weeks of continuous inundation	0						
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2						
	Inundated by "extreme high" tides only (biannually)	1						
	Inundated by storm surges only	0						
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2						
	Inundated by high "spring" tides (monthly) and exposed to rain only	1						
	Inundated by >50% high tides and exposed to rain only	0						
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2						
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1						
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0						

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

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Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
3. Hydrologic Functions continued								
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	0	0	0
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2						
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1						
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0						
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2						
	< 6 in. water depth , but > than saturated	1						
	Saturated by saline water table only	0						
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2						
	>1 in. to 5 in. water depth on regular basis during growing season	1						
	>0.0 in. to 1 in. water depth sporadically during growing season	0						
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2						
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1						
	<1 ft. water depth, but dry for >4 weeks (dry season)	0						

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
3. Hydrologic Functions continued								
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2						
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1						
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0						
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2						
	Moderately altered soil disturbance, < 25% of assessment area	1						
	Extremely altered soil disturbance, may exceed 50% of assessment area	0						
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	1	1	1	1	1	1
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2						
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1						
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0						
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2						
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1						
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0						
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2						
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1						
	Calcareous loam <1 in. for >50% of surface area	0						

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			W-24	W-25	W-26	W-27	W-28	W-29
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1								
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. Apply to freshwater systems within 5 miles of the coast	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2						
	4 to 5 parts per thousand (ppt)	1						
	>5 parts per thousand (ppt)	0						
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. Apply to brackish (tidal) systems only	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2						
	14 to 16 parts per thousand (ppt)	1						
	>16 parts per thousand (ppt)	0						
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. Apply to saline marsh (tidal) systems only	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2						
	23 to 25 parts per thousand (ppt)	1						
	>25 parts per thousand (ppt)	0						
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. Apply to hypersaline (tidal) systems only	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2						
	47 to 51 parts per thousand (ppt)	1						
	>51 parts per thousand (ppt)	0						
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. Apply to riverine systems only	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.							
	upper (top) third between 0 to 4 ppt.							
	bottom (lower) third between 25 to 32 ppt	2						
	middle third between 6 to 24 ppt.							
	upper (top) third between 0 to 5 ppt.							
	bottom (lower) third between 30 to 40 ppt	1						
	middle third between 8 to 29 ppt.							
upper (top) third between 0 to 7 ppt.								
bottom (lower) third between 35 to 50 ppt	0							
middle third between 10 to 34 ppt.								
upper (top) third between 0 to 9 ppt.								

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

Cumulative Score (SC)	11	11	16	12	12	10
Maximum Possible Score (MPS)	51	51	51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score	0.22	0.22	0.31	0.24	0.24	0.20

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems							
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	0	0	0	0	0
	3-6 species commonly observed	2					
	1-2 species commonly observed	1					
	0 species commonly observed	0					
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0
	3-6 species commonly observed	2					
	1-2 species commonly observed	1					
	0 species commonly observed	0					
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0	0	0	0
	Medium sized mammals , (adult weight > 6 lbs.)	2					
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1					
	0 species present	0					
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	0	0	0	0	0
	3-6 species commonly observed	2					
	1-2 species commonly observed	1					
	0 species commonly observed	0					
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	0	0	0	0	0
	Aquatic turtles	2					
	Snakes & lizards	1					
	No evidence of species present	0					

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: **25-May-12**

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advice from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems							
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	3	0	0	0	0
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2					
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1					
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0					
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	3	3	3	3	1
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2					
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1					
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0					
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	0	0	0	0
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2					
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1					
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0					
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	3	3	1	3	1
	>1 % to 10 % exotic plant cover	2					
	>10 % to 65 % exotic plant cover	1					
	> 65 % exotic plant cover	0					
e. Habitat diversity (vegetative) <i>(within assessment area)</i>	>3 native species communities on site within assessment area	3	3	3	3	3	3
	2 or 3 native specie communities on site within assessment area	2					
	1 native species community with 75 % to 90 % coverage within assessment area	1					
	1 native species community has > 90 % coverage within assessment area	0					
f. Biological diversity within 3000 feet <i>(approximately 1/2 mile from edge of assessment area)</i>	> 3 alternative habitats available (including upland)	3	1	1	1	1	1
	2 to 3 alternative habitats	2					
	1 alternative habitat	1					
	Same habitat type, or inappropriate / impacted	0					

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-May-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
3. Hydrologic Functions							
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	1	1	1	0
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2					
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1					
	Hydrologically isolated, no net lateral movement	0					
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	1	1	1	1	1
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2					
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1					
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0					
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3	N/A	N/A	N/A	N/A	N/A
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2					
	>2 weeks but <6 weeks of inundation, including soil saturation	1					
	<2 weeks of continuous inundation	0					
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	N/A	N/A	N/A	N/A	N/A
	Inundated by "spring" high tides (bi-monthly)	2					
	Inundated by "extreme high" tides only (biannually)	1					
	Inundated by storm surges only	0					
b-3 Alternate to b. for High Marsh (<i>Juncus-Distichlis</i>)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3	N/A	N/A	N/A	N/A	N/A
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2					
	Inundated by high "spring" tides (monthly) and exposed to rain only	1					
	Inundated by >50% high tides and exposed to rain only	0					
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or receives and maintains fresh water at least into first half of dry season	3	N/A	N/A	N/A	N/A	N/A
	Inundated by high tides (daily) and/or receives and maintains fresh water during rainy season only	2					
	Inundated by high tides (daily) and/or receives fresh water but does not maintain (reversal) during rainy season	1					
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0					

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-May-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
3. Hydrologic Functions continued							
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	0	0	0	0	0
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2					
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1					
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0					
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	N/A	N/A	N/A	N/A	N/A
	> 6 in. water depth <1 ft. on >50% high tides	2					
	< 6 in. water depth, but > than saturated	1					
	Saturated by saline water table only	0					
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3	N/A	N/A	N/A	N/A	N/A
	>5 in. to 10in. water depth on regular basis during growing season	2					
	>1 in. to 5 in. water depth on regular basis during growing season	1					
	>0.0 in. to 1 in. water depth sporadically during growing season	0					
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3	N/A	N/A	N/A	N/A	N/A
	>2 ft. water depth (main channel) <4 ft. for 6 months	2					
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1					
	<1 ft. water depth, but dry for >4 weeks (dry season)	0					

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: 25-May-12

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
3. Hydrologic Functions continued							
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	N/A	N/A	N/A	N/A	N/A
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2					
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1					
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0					
e. Intactness of historic topography (soil disturbance)	Unaltered	3	0	0	0	0	0
	Slightly altered soil disturbance, < 10% of assessment area	2					
	Moderately altered soil disturbance, < 25% of assessment area	1					
	Extremely altered soil disturbance, may exceed 50% of assessment area	0					
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	1	1	1	1	1
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2					
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1					
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0					
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3	N/A	N/A	N/A	N/A	N/A
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2					
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1					
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0					
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	N/A	N/A	N/A	N/A	N/A
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2					
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1					
	Calcareous loam <1 in. for >50% of surface area	0					

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Scoring conducted by: URS

Mitigation Bank Wetland Function Evaluation & Impact Site Evaluation Matrix

Data collected on: **25-May-12**

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Miami-Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon
			W-30	W-31	W-32	W-33	W-34
4. Salinity Parameters <i>Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1</i>							
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. <i>Apply to freshwater systems within 5 miles of the coast</i>	<2 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A
	2 to 3 parts per thousand (ppt)	2					
	4 to 5 parts per thousand (ppt)	1					
	>5 parts per thousand (ppt)	0					
a-1. <i>Alternate to a.</i> Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. <i>Apply to brackish (tidal) systems only</i>	6 to 8 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A
	9 to 13 parts per thousand (ppt)	2					
	14 to 16 parts per thousand (ppt)	1					
	>16 parts per thousand (ppt)	0					
a-2. <i>Alternate to a.</i> Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. <i>Apply to saline marsh (tidal) systems only</i>	17 to 19 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A
	20 to 22 parts per thousand (ppt)	2					
	23 to 25 parts per thousand (ppt)	1					
	>25 parts per thousand (ppt)	0					
a-3. <i>Alternate to a.</i> Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. <i>Apply to hypersaline (tidal) systems only</i>	26 to 41 parts per thousand (ppt)	3	N/A	N/A	N/A	N/A	N/A
	42 to 46 parts per thousand (ppt)	2					
	47 to 51 parts per thousand (ppt)	1					
	>51 parts per thousand (ppt)	0					
a-4 <i>Alternate to a.</i> Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. <i>Apply to riverine systems only</i>	bottom (lower) third between 12 to 25 ppt	3	N/A	N/A	N/A	N/A	N/A
	middle third between 5 to 11 ppt.						
	upper (top) third between 0 to 4 ppt.						
	bottom (lower) third between 25 to 32 ppt	2					
	middle third between 6 to 24 ppt.						
	upper (top) third between 0 to 5 ppt.						
	bottom (lower) third between 30 to 40 ppt	1					
	middle third between 8 to 29 ppt.						
upper (top) third between 0 to 7 ppt.							
bottom (lower) third between 35 to 50 ppt	0						
middle third between 10 to 34 ppt.							
upper (top) third between 0 to 9 ppt.							

W.A.T.E.R. created by: Bill L. Maus

11/1/1998

Cumulative Score (SC)	16	13	11	13	8
Maximum Possible Score (MPS)	51	51	51	51	51
W.A.T.E.R. = Cumulative Score/Maximum Possible Score	0.31	0.25	0.22	0.25	0.16



APPENDIX F
*Agency Coordination and
ETDM Programming Screening Summary Report
(Relevant Sections)*



**FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT VI INTERAGENCY MEETING MINUTES**

TO: Judy Solaun, P.E.

FROM: Chip Day, URS Corporation

MEETING DATE: December 15, 2011; 9:30 AM – 11:00 AM

LOCATION: South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, FL

SUBJECT: FDOT, District VI Interagency Meeting Minutes

Attendees:

Barbara Conmy	SFWMD	561-682-6937	bconmy@sfwmd.gov
Carlos de Rojas	SFWMD	561-682-6505	cderojas@sfwmd.gov
Jeff Greenfield	SFWMD	561-682-2989	jgreenfi@sfwmd.gov
John Morgan	SFWMD	561-682-2288	jmorganj@sfwmd.gov
Dan Boyar	SFWMD	561-682-6973	dboyar@sfwmd.gov
Vilma Caballero	FDOT	954-777-4440	vilma.caballero@dot.state.fl.us
Robert Bostian	FDOT	954-777-4427	robert.bostain@dot.state.fl.us
Chris Jackson	RS&H	954-236-7375	Chris.Jackson@RSandH.com
Carlos Garcia	URS	305-514-2412	Carlos.Garcia@URS.com
Juan Garcia	URS	305-262-7466	Juan.C.Garcia@URS.com
Chip Day	URS	305-884-8900	Chip.Day@URS.com

Cc:

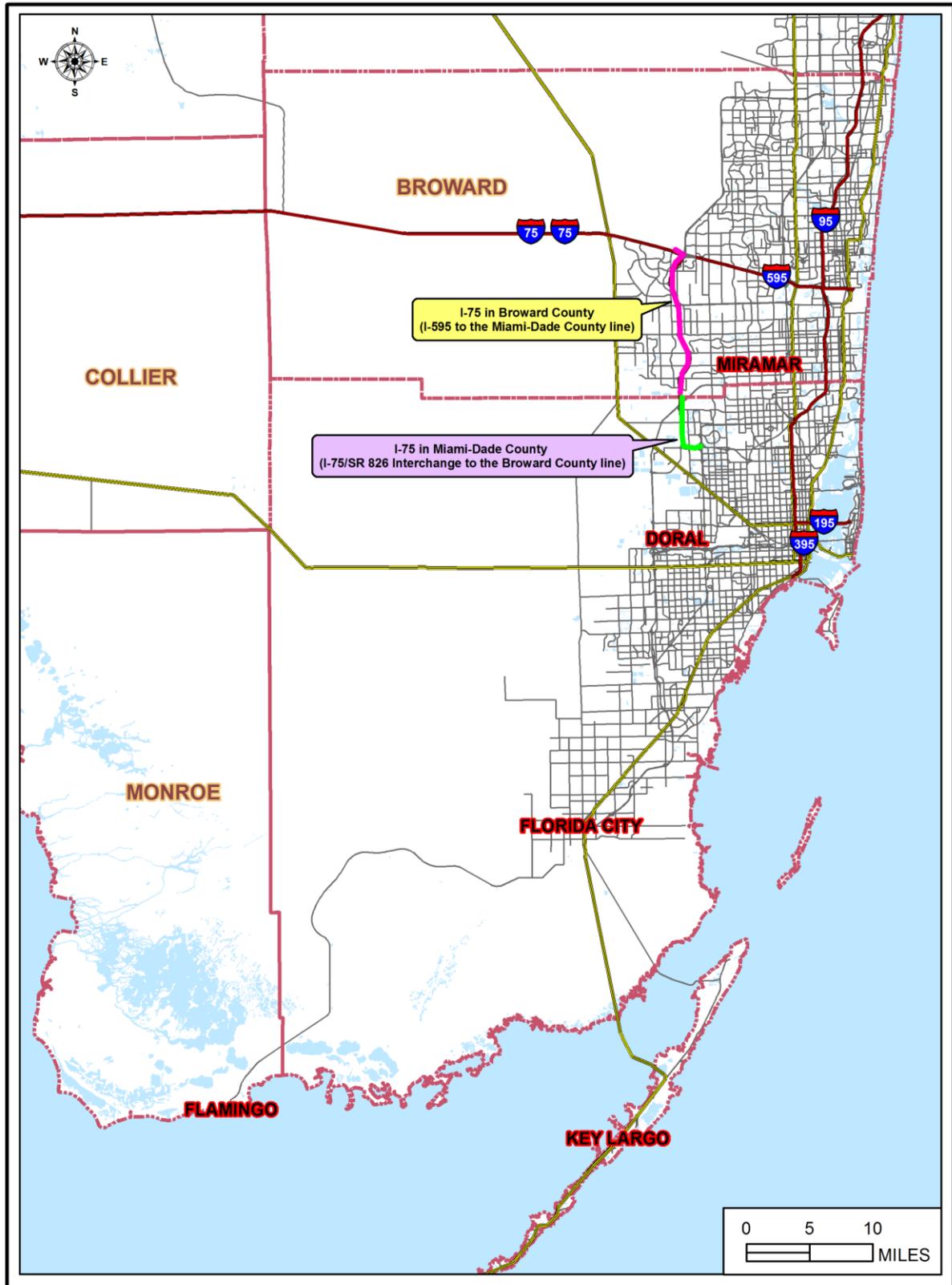
Ann Broadwell	FDOT	954-777-4235	ann.broadwell@dot.state.fl.us
David Bogardus	FDOT	954-777-4339	david.bogardus@dot.state.fl.us
Judy Solaun	FDOT	305-470-5207	judy.solaun@dot.state.fl.us
John Palenchar	FDOT	305-470-5223	john.palenchar@dot.state.fl.us
Garett Lips	USACE	772-219-8418	garett.g.lips@usace.army.mil
Kevin Homrich-Micocci	FDOT	954-777-4266	kevin.homrich-micocci@dot.state.fl.us

DISTRICT VI

FPID No.: 420669-1-22-01 (Miami-Dade County); **FDOT Project Manager:** Judy Solaun, PE; **Consultant/Company Name:** URS Corporation; **SR/Local Name:** SR 93/I-75; **Project Limits:** I-75 from SR 826/Palmetto interchange to the Broward County line; **General Scope:** Addition of managed lanes through the project corridor, connecting to the District VI project to the north. **For project in the permitting phase, please provide the reviewer's name:** The project is not yet in the permitting phase, however, Carlos de Rojas and Eduardo Lopez have represented the SFWMD Surface Water Management group, Barbara Conmy and Robert Hopper have represented the SFWMD Environmental Resources group. Garett Lipps has represented the USACE and John Wrublik has represented the FWS. **Anticipated Permits:** SFWMD Individual Environmental Resource Permit (Conceptual), SFWMD Right-of-Way Occupancy Permit, USACE Dredge/Fill Permit.

- Mr. Carlos Garcia of URS spoke on behalf of FDOT, District VI
 - Mr. Garcia stated that the intent of this meeting was only an introduction to the District VI project and he provided a brief description of the project limits and scope and harmonization with the FDOT District IV project to the north.
 - Mr. Garcia noted that the District VI project is ‘playing catch up’ to the District IV project, which started ahead of the District VI project.

- All permitting will be handled separately from the District IV project and he is anticipating a pre-application meeting prior to the submittal of any application packages to SFWMD and USACE.
- The District VI project includes managed lanes in the median along the I-75 corridor
- Areas along the SR 826/Palmetto Expressway are included
 - At this time, the managed lanes are anticipated to be in the median (resizing the travel lane widths to accommodate – I-95 in Miami-Dade is an example)
 - No right-of-way impacts are anticipated, but if general use lanes are included to this project, minor right-of-way takes will be required
- Currently, the PD&E Study for the ultimate alternative along the project limits is being finalized.
- Drainage:
 - Mr. Juan Garcia stated that the proposed drainage design will be treating any new impervious, while maintaining the existing drainage system.
- Anticipated Permits:
 - SFWMD [Conceptual] ERP for the ultimate design
 - SFWMD Right-of-Way Permit
 - USACE Individual Permit
 - NPDES Permit – to be applied for by the selected contractor
 - Dewatering Permit will be applied for, if required.
 - No local permits are required at this time, but ongoing coordination with Miami-Dade Permitting, Environment and Regulatory Affairs (PERA) is being conducted.



ETDM Summary Report

Project #11560 - SR 826/Palmetto Expressway Managed Lanes

Final Programming Screen - Published on 10/29/2012

Generated by Megan McKinney (on behalf of FDOT District 6)

Printed on: 10/29/2012

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#11560 SR 826/Palmetto Expressway Managed Lanes

District: District 6

County: Miami-Dade

Planning Organization: FDOT District 6

Plan ID: Not Available

Federal Involvement: Maintain Federal Eligibility Federal Action

Contact Information: Name: Dat Huynh, P.E. E-mail: Dat.Huynh@dot.state.fl.us

Snapshot Data From: Programming Screen Summary Report Re-published on 10/29/2012 by Megan McKinney

Issues and Categories are reflective of what was in place at the time of the screening event.

Phase: Programming Screen

From: SR 836/Dolphin Expressway

To: I-75

Financial Management No.: Not Available

	Natural										Cultural			Community				Secondary and Cumulative Effects			
	Air Quality	Coastal and Marine	Contaminated Sites	Farmlands	Floodplains	Infrastructure	Navigation	Special Designations	Water Quality and Quantity	Wetlands	Wildlife and Habitat	Historic and Archaeological Sites	Recreation Areas	Section 4(f) Potential	Aesthetics	Economic	Land Use		Mobility	Relocation	Social
Alternative #1 From: SR 836/Dolphin Expressway To: I-75 Re-Published: 10/29/2012 Reviewed from 12/21/2011 to 02/04/2012)	0	0	3	0	2	2	0	2	2	2	2	2	2	2	2	1	2	1	2	2	2

Alternative #1

Alternative Description

Name	From	To	Type	Status	Total Length	Cost	Modes	SIS
Alternative was not named.	SR 836/Dolphin Expressway	I-75	Widening	ETAT Review Complete	7.952 mi.	\$170,000,000.00	Roadway Transit	Y

Segment Description(s)

Segment No.	Name	Beginning Location	Ending Location	Length (mi.)	Roadway Id	BMP	EMP
Unnamed segment	Unnamed segment	SR 836/Dolphin Expressway	I-75	7.952	Digitized		

Jurisdiction and Class

Segment No.	Jurisdiction	Urban Service Area	Functional Class
Unnamed segment		In/Out	

Base Conditions

Segment No.	Year	AADT	Lanes	Config
Unnamed segment				

Interim Plan

Segment No.	Year	AADT	Lanes	Config
Unnamed segment				

Needs Plan

Segment No.	Year	AADT	Lanes	Config
Unnamed segment				

Cost Feasible Plan

Segment No.	Year	AADT	Lanes	Config
Unnamed segment				

Funding Sources

No funding sources found.

Project Effects Overview for Alternative #1

Issue	Degree of Effect	Organization	Date Reviewed
Natural			
Air Quality	0 None	US Environmental Protection Agency	01/31/2012
Coastal and Marine	0 None	National Marine Fisheries Service	01/12/2012
Contaminated Sites	3 Moderate	Federal Highway Administration	03/19/2012
Contaminated Sites	3 Moderate	FL Department of Environmental Protection	02/03/2012
Contaminated Sites	3 Moderate	US Environmental Protection Agency	01/31/2012
Farmlands	0 None	Natural Resources Conservation Service	01/03/2012
Floodplains	0 None	US Environmental Protection Agency	01/31/2012
Navigation	0 None	US Army Corps of Engineers	01/27/2012
Navigation	N/A N/A / No Involvement	US Coast Guard	12/21/2011
Special Designations	0 None	US Environmental Protection Agency	01/31/2012

Water Quality and Quantity	2	Minimal	FL Department of Environmental Protection	02/03/2012
Water Quality and Quantity	2	Minimal	South Florida Water Management District	02/03/2012
Water Quality and Quantity	2	Minimal	US Environmental Protection Agency	01/31/2012
Wetlands	2	Minimal	FL Department of Environmental Protection	02/03/2012
Wetlands	2	Minimal	US Environmental Protection Agency	01/31/2012
Wetlands	2	Minimal	US Army Corps of Engineers	01/27/2012
Wetlands	0	None	National Marine Fisheries Service	01/12/2012
Wetlands	2	Minimal	US Fish and Wildlife Service	01/11/2012
Wildlife and Habitat	2	Minimal	Federal Highway Administration	03/19/2012
Wildlife and Habitat	2	Minimal	FL Fish and Wildlife Conservation Commission	01/17/2012
Wildlife and Habitat	2	Minimal	US Fish and Wildlife Service	01/11/2012
Cultural				
Historic and Archaeological Sites	2	Minimal	Federal Highway Administration	03/19/2012
Historic and Archaeological Sites	2	Minimal	Seminole Tribe of Florida	01/26/2012
Historic and Archaeological Sites	2	Minimal	FL Department of State	01/24/2012
Recreation Areas	2	Minimal	Federal Highway Administration	03/19/2012
Recreation Areas	0	None	FL Department of Environmental Protection	02/03/2012
Recreation Areas	0	None	US Environmental Protection Agency	01/31/2012
Recreation Areas	N/A	N/A / No Involvement	National Park Service	01/23/2012
Community				
Aesthetics	2	Minimal	FDOT District 6	02/03/2012
Economic	1	Enhanced	FDOT District 6	02/03/2012
Land Use	2	Minimal	FDOT District 6	02/03/2012
Land Use	0	None	FL Department of Economic Opportunity	02/02/2012
Mobility	1	Enhanced	FDOT District 6	02/03/2012
Relocation	2	Minimal	FDOT District 6	02/03/2012
Social	2	Minimal	Federal Highway Administration	03/19/2012
Social	2	Minimal	FDOT District 6	02/03/2012
Social	0	None	FL Department of Economic Opportunity	02/02/2012
Social	0	None	US Environmental Protection Agency	01/31/2012
Secondary and Cumulative				

ETAT Reviews and Coordinator Summary: Natural

Direct Effects

Identified Resources and Level of Importance:

Several Surface water bodies, groundwater and soils.

Comments on Effects to Resources:

A large number of waste facilities and sources of contamination exist within 500 feet of the proposed project. With the scope not narrowly defined, it is difficult to determine the potential effect. Moderate effect is selected as it seems that there is limited opportunity for widening, however upgrading the stormwater management system is likely to disturb the subsurface. Potential subsurface contamination from any of the large number of waste management sites is likely to be impacted. Better delineation of degree of effect can be done as the project scope is better defined.

Additional Comments (optional):

None found.

Farmlands

Project Effects

Coordinator Summary Degree of Effect: 0 *None* assigned 05/17/2012 by FDOT District 6

Comments:

According to the NRCS and EST GIS analysis results, there are no Prime, Unique, or Locally Important Farmland soils or agricultural lands within any of the project buffer widths. Therefore, no impacts are anticipated and a Summary DOE of None has been assigned to the Farmlands issue.

Degree of Effect: 0 *None* assigned 01/03/2012 by Rick Allen Robbins, Natural Resources Conservation Service

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

The USDA-NRCS considers soil map units with important soil properties for agricultural uses to be Prime Farmland. In addition, the USDA-NRCS considers any soils with important soil properties and have significant acreages that are used in the production of commodity crops (such as, cotton, citrus, row crops, specialty crops, nuts, etc.) to be considered as Farmlands of Unique Importance or Farmlands of Local Importance. Nationally, there has been a reduction in the overall amount of Prime and Unique Farmlands through conversion to non-farm uses. This trend has the possibility of impacting the nation's food supply and exporting capabilities.

Comments on Effects to Resources:

Conducting GIS analysis of Prime Farmland (using USDA-NRCS data) and Important (Unique) Farmland Analysis (using existing WMD land use data and 2010 SSURGO data) has resulted in the determination that there are no Prime, Unique, or Locally Important Farmland soils or Agricultural Lands within any buffer width within the Project Area. Therefore, no degree of effect to agricultural resources.

Additional Comments (optional):

None found.

Floodplains

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 05/17/2012 by FDOT District 6

Comments:

The EST GIS analysis results identify 13.4 acres (6.76%) of FEMA Flood Zone AE and 28.3 acres (14.31%) of FEMA Flood Zone AH (DFIRM 100-Year Floodplain data) within the 200-foot project buffer. While the extent of the 100-year floodplain within the project study area is notable, the proposed project design will be adjusted so as to avoid or minimize impacts to this resource (including the need for additional right-of-way). Based on the foregoing, a Summary DOE of Minimal has been assigned to the Floodplains issue.

Floodplain impacts will be assessed further during Project Development. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations.

Degree of Effect: 0 *None* assigned 01/31/2012 by Maher Budeir, US Environmental Protection Agency

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

None found.

Comments on Effects to Resources:

None found.

Additional Comments (optional):

None found.

Infrastructure

Additional Comments (optional):

None found.

Water Quality and Quantity**Project Effects****Coordinator Summary Degree of Effect:** 2 *Minimal* assigned 05/17/2012 by FDOT District 6**Comments:**

FDEP commented that stormwater runoff from the proposed project (if widening is proposed) may alter adjacent wetlands and surface waters through increased pollutant loading; every effort should be made to maximize the treatment of stormwater runoff from the project to prevent ground and surface water contamination. SFWMD additionally indicated that an Environmental Resource Permit (ERP) will only be required if widening and new impervious surface is proposed or if filling of surface waters is proposed. SFWMD suggested that FDOT review existing ERPs along the corridor to determine any potential effects as a result of the project and contact the SFWMD Right-of-Way Division regarding permitting requirements for altering/crossing District Canals (C-6 and C-7 Extension). While the proposed stormwater facility design will include the water quantity requirements for the water quality impacts as required by Chapter 24, Section 24-58 of the Miami-Dade County code, a Summary DOE of Minimal has been assigned to the Water Quality and Quantity issue due to agency concerns regarding potential effects to water quality as a result of stormwater runoff.

During Project Development, FDOT District Six will coordinate with the appropriate agencies concerning the necessary studies, documentation and commitments needed to adequately address all identified resources. All necessary permits (including ERP) will be obtained in accordance with federal, state, and local laws and regulations. It should be noted that the Miami-Dade County requirements meet or exceed the State of Florida's water quality and water quantity requirements. Therefore, it is anticipated that water quality within the project area will improve due to the proposed stormwater treatment measures.

Degree of Effect: 2 *Minimal* assigned 02/03/2012 by Lauren P. Milligan, FL Department of Environmental Protection**Coordination Document:** Permit Required**Direct Effects****Identified Resources and Level of Importance:**

If widening is proposed, stormwater runoff from the road surface may alter adjacent wetlands and surface waters through increased pollutant loading. Increased runoff carrying oils, greases, metals, sediment, and other pollutants from the increased impervious surface would be of concern. Natural resource impacts within and adjacent to the proposed highway widening will likely include alteration of the existing surface water hydrology and natural drainage patterns, and reduction in flood attenuation capacity of area creeks, ditches, and sloughs as a result of increased impervious surface within the watershed.

Comments on Effects to Resources:

Every effort should be made to maximize the treatment of stormwater runoff from the proposed expressway lane management project to prevent ground and surface water contamination. Stormwater treatment should be designed to maintain the natural predevelopment hydroperiod and water quality, as well as to protect the natural functions of adjacent wetlands. We recommend that the PD&E study include an evaluation of existing stormwater treatment adequacy and details on the future stormwater treatment facilities. Retro-fitting of stormwater conveyance systems would help reduce impacts to water quality.

Additional Comments (optional):

None found.

Degree of Effect: 2 *Minimal* assigned 02/03/2012 by John Morgan, South Florida Water Management District**Coordination Document:** Permit Required**Direct Effects****Identified Resources and Level of Importance:**

Water quality treatment and water quantity from the construction of additional impervious areas, work in wetlands and/or other surface waters including any impacts to wetlands/other surface waters, and mitigation to offset those impacts.

Comments on Effects to Resources:

The purpose of this project is to add two managed lanes in each direction to the Palmetto Expressway (SR 826) corridor from the Dolphin Expressway (SR 836) to I-75. The project objective is to improve mobility, relieve congestion, and provide additional travel options. Widening the Palmetto Expressway mainline to accommodate future traffic growth presents challenges due to constrained right-of-way, coupled with the intensity of development along the corridor. However, two managed lanes (in each direction) could be incorporated along the corridor with moderate widening of the mainline or by restriping existing general purpose lanes. The project is anticipated to take place within existing public right-of-way.

The South Florida Water Management District (District) offers the following comments:

- An Environmental Resource Permit (ERP) is not needed for re-striping existing impervious surface to create managed lanes.
- An ERP will be required if widening and new impervious surface is proposed or if filling of surface waters is proposed. The ERP application needs to address water quality treatment and water quantity from the construction of additional impervious areas, work in wetlands and/or other surface waters including any impacts to wetlands/other surface waters, and mitigation to offset those impacts. As part of an ERP application, the applicant must demonstrate reasonable assurances the project meets applicable conditions for issuance of an ERP, such as demonstrating the project will not result in adverse direct and/or secondary impacts to wetland functions and values, will not result in unacceptable cumulative impacts to wetlands, will not violate applicable water quality

standards, and will not be contrary to the public interest. Please refer to Rule 40E-4.301 and 40E-4.302, Florida Administrative Code (F.A.C.) and the Basis of Review for ERP applications.

- Based on a review of the project corridor, it does not appear that the project will impact wetlands. The degree of effect would be minimal. If work is proposed in District canals C-6 or C-7 Extension (surface waters), a manatee protection plan will be required as part of the ERP. Review of the plan by the U.S. Fish and Wildlife Service and Florida Fish and Wildlife Conservation Commission will be necessary, as these canals are accessible to manatees.

- The ERP application should include storm water pollution prevention and erosion control plans with appropriate BMPs to prevent water quality violations during construction.

- The FDOT is advised to review existing ERPs issued along the corridor (including permits located at the SR 826/836 interchange, NW 36th Street, NW 58th Street, NW 74th Street, FEC Railroad to W 41 Street, NW 103 Street, and at the I-75 ramp to SR 826) to determine whether the proposed project will affect any of these previously issued permits.

- Construction of the project may require dewatering, which requires a water use permit from the SFWMD.

- The FDOT is advised to contact the SFWMD Right-of-Way Division regarding permitting requirements for altering/crossing District Canals (the C-6 and C-7 Extension intersect the project area).

For further information on District permit requirements, please contact Mindy Parrott, Regulation Division, at (561) 682-6324 or mparrott@sfwmd.gov. If you have any comments or questions, please contact John Morgan, Office of Intergovernmental Programs, at (561) 682-2288 or jmorganj@sfwmd.gov.

Additional Comments (optional):

None found.

Degree of Effect: 2 *Minimal* assigned 01/31/2012 by Maher Budeir, US Environmental Protection Agency

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

groundwater Aquifer

Comments on Effects to Resources:

Degree of Effect on Water quality and wetland is given at minimal. The effect will differ based on the actual scope of the project. The EST defined about 5 acres of wetlands within 200 feet of the project. Impact on water quality and flow should also be minimized if the final scope includes additional impervious surfaces.

Additional Comments (optional):

None found.

Wetlands

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 05/17/2012 by FDOT District 6

Comments:

The National Wetlands Inventory database identifies 2.7 acres (0.71%) of riverine wetlands and 2.7 acres (0.70%) of palustrine wetlands within the 200-foot project buffer. The agencies noted that potential impacts to wetlands and waters of the United States may occur as a result of the project and indicated that compensatory mitigation will be required for unavoidable impacts. The USACE indicated that a Section 408 engineering review will be required if any work is proposed in, under, or over, as well as affects the C-6 and C-7 EXT (canals which are part of the Central and Southern Flood Control Facility - a federal project). The USACE recommended that coordination take place between the FDOT and SFWMD Right-of-Way Division and that the acreage of all waters of the United States be quantified within the corridor; the results should be provided in the Wetlands Evaluation Report. Based on agency concerns, a Summary DOE of Minimal has been assigned to the Wetlands issue.

During Project Development, potential wetland impacts will be evaluated in accordance with Part 2, Chapter 18 of the FDOT PD&E Manual. All necessary measures will be taken to avoid and/or minimize impacts to wetlands to the greatest extent practicable during project design. Should avoidance and/or minimization not be practicable, a Mitigation Plan will be prepared. In addition, the purchasing of credits at a federally authorized mitigation bank (whose service area overlaps potential project impacts) will be considered. Further, all applicable permits (including an Environmental Resource Permit, if required) will be obtained in accordance with federal, state, and local laws and regulations.

Degree of Effect: 2 *Minimal* assigned 02/03/2012 by Lauren P. Milligan, FL Department of Environmental Protection

Coordination Document: Permit Required

Direct Effects

Identified Resources and Level of Importance:

The National Wetlands Inventory GIS report indicates that there are 21 acres of palustrine and 5.9 acres of riverine wetlands within the 500 ft. project buffer zone.

Comments on Effects to Resources:

If expressway widening is proposed, the project may require an environmental resource permit (ERP) from the South Florida Water

Management District. The ERP applicant would be required to eliminate or reduce the proposed wetland resource impacts of highway widening to the greatest extent practicable:

- Minimization should emphasize avoidance-oriented corridor alignments, wetland fill reductions via pile bridging and steep/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. 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.

Additional Comments (optional):

None found.

Degree of Effect: 2 *Minimal* assigned 01/31/2012 by Maher Budeir, US Environmental Protection Agency

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

groundwater Aquifer

Comments on Effects to Resources:

Degree of Effect on Water quality and wetland is given at minimal. The effect will differ based on the actual scope of the project. The EST defined about 5 acres of wetlands within 200 feet of the project. Impact on water quality and flow should also be minimized if the final scope includes additional impervious surfaces.

Additional Comments (optional):

None found.

Degree of Effect: 2 *Minimal* assigned 01/27/2012 by Garrett Lips, US Army Corps of Engineers

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

The EST identified approximately 5 acres of palustrine wetlands within 200 feet of the corridor. There are also adjacent canals, ditches, and swales that may be waters of the United States.

The C-6 and C-7 EXt are part of the Central and Southern Flood Control Facility and are located within the project corridor. The Corps will require a Section 408 engineering review of any work proposed in, under, over, or affecting a federal project. Coordination between the FDOT and SFWMD right of way section is recommended.

The FDOT should quantify the acreage of all waters of the United States within the corridor, and determine which areas, if any, have all three wetland characteristics. The results should be provided in the WER.

Comments on Effects to Resources:

The project should be designed to avoid filling wetlands and waters to the extent practical. The unavoidable loss of waters may require compensatory mitigation. The Corps recommends purchasing credits at a federally authorized mitigation bank whose service area overlaps the impacts.

No CERP projects appear within the EST results; however, FDOT should verify to ensure there will be no conflicts with a federally funded CERP project.

Coordinate as needed for any required Section 408 reviews.

Additional Comments (optional):

None found.

Degree of Effect: 0 *None* assigned 01/12/2012 by Brandon Howard, National Marine Fisheries Service

Coordination Document: No Involvement

Direct Effects

Identified Resources and Level of Importance:

None.

Comments on Effects to Resources:

None.

Additional Comments (optional):

Magnuson-Stevens Act: Comments were provided for the Planning Screen on June 30, 2009. Since the project has not changed, our comments remain the same. This project would likely only require additional stripping but minimal expansion within the right-of way could occur. Canals within the project area are upstream of SFWMD water control structures and are therefore inaccessible to federally managed fishery species. Based on the project location, information provided in the ETDM website, and GIS-based analysis of impacts, NOAA's National Marine Fisheries Service (NMFS) concludes that essential fish habitat (EFH) would not be impacted by the proposed road modifications; accordingly, we offer no comments pursuant to the EFH provisions of the Magnuson-Stevens Act (P.L. 104-297); and this project will not require an EFH Assessment. Further consultation on this matter is not necessary unless future modifications are proposed and you believe that the proposed action may result in adverse impacts to EFH.

Endangered Species Act: We are not aware of any threatened or endangered species or critical habitat under the purview of NMFS

that occur within the project area. However, it should be noted that a "no effect" determination must be made by the action agency and the reasoning underlying the determination should be documented in a project file. Please coordinate closely with the U.S. Fish and Wildlife Service for other species listed under the Endangered Species Act that may require consultation.

Fish and Wildlife Coordination Act: Based on the project location, information provided in the ETDM website, and GIS-based analysis of impacts, NOAA's National Marine Fisheries Service (NMFS) concludes the proposed work would not directly impact wetlands areas that support NOAA trust fishery resources. NMFS has no comments or recommendations to provide pursuant to the Fish and Wildlife Coordination Act (FWCA). However, should expansion into wetland areas occur, NMFS may provide recommendations requiring avoidance, minimization and compensatory mitigation pursuant to the FWCA.

Degree of Effect: 2 *Minimal* assigned 01/11/2012 by John Wrublik, US Fish and Wildlife Service

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

Wetlands

Comments on Effects to Resources:

Wetlands provide important habitat for fish and wildlife. Data in the environmental screening tool indicate that wetlands may occur within the project area. We recommend that the project be designed to avoid and minimize impacts to wetland resources to the greatest extent practicable. If impacts to wetlands are unavoidable, we recommend that the FDOT provides mitigation that fully compensates for the loss of wetland resources.

Additional Comments (optional):

None found.

Wildlife and Habitat

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 05/17/2012 by FDOT District 6

Comments:

According to the EST GIS analysis results, the 200-foot project buffer is located within the South Florida Ecosystem Management Area; USFWS Consultation Areas for American Crocodile and Snail Kite; Critical Habitat for the West Indian Manatee; and Core Foraging Areas of active nesting wood stork colonies. The FWC noted that manatee protection measures (including Standard Manatee Conditions for In-Water Work) may be required during construction since manatees are known to inhabit the various canals and tributaries to these canals that are crossed by or run adjacent to SR 826/Palmetto Expressway. The USFWS additionally indicated that a functional assessment using the Service's Wood Stork Foraging Analysis Methodology is required on foraging habitat to be impacted and foraging habitat to be provided as mitigation for projects that impact 5 or more acres of wood stork foraging habitat. Due to the fact that the corridor is predominantly characterized by industrial and commercial/office uses with low to medium density residential prevalent along the corridor, a Summary DOE of Minimal has been assigned to the Wildlife and Habitat issue.

During Project Development, an Endangered Species Biological Assessment (ESBA) will be prepared in compliance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq) and in accordance with Part 2, Chapter 27 of the FDOT PD&E Manual. The final design of the project will avoid and/or minimize impacts to wetlands/wildlife & habitat to the greatest extent possible and appropriate mitigation will be provided for unavoidable impacts.

Degree of Effect: 2 *Minimal* assigned 03/19/2012 by Cathy Kendall, Federal Highway Administration

Coordination Document: PD&E Support Document As Per PD&E Manual

Direct Effects

Identified Resources and Level of Importance:

The GIS analysis identifies the following species for this area:

Indian Manatee;
American Crocodile;
Snail kite;
Woodstork

Comments on Effects to Resources:

Please conduct the appropriate surveys to determine species location in the area (if any) and coordinate with the appropriate resource agency to ensure that potential impacts to wildlife, habitat, and in particular, listed species, are addressed.

Additional Comments (optional):

None found.

Degree of Effect: 2 *Minimal* assigned 01/17/2012 by Scott Sanders, FL Fish and Wildlife Conservation Commission

Coordination Document: To Be Determined: Further Coordination Required

Direct Effects

Identified Resources and Level of Importance:

The Conservation Planning Services Section of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated an agency review of ETDM #11560, Miami-Dade County, and provides the following comments related to potential effects to fish and

Identified Resources and Level of Importance:

The titles and adoption dates of the comprehensive plans are as follows:

- a. Miami-Dade County - Comprehensive Development Master Plan, April 28, 2010
- b. Hialeah - City of Hialeah Comprehensive Plan, 2003-2015
- c. Medley - Town of Medley Comprehensive Plan, February 2009
- d. Doral - City of Doral Comprehensive Plan, April 26, 2006
- e. Hialeah Gardens - City of Hialeah Gardens, Florida 2025 Comprehensive Plan, May 1, 2007
- f. Miami Lakes - Town of Miami Lakes Adopted Comprehensive Plan, December 19, 2003

Comments on Effects to Resources:

Local Parks:

The Department has not identified any local parks within a quarter mile of the proposed project.

Additional Comments (optional):

None found.

Degree of Effect: 0 *None* assigned 01/31/2012 by Maher Budeir, US Environmental Protection Agency

Coordination Document: No Selection

Direct Effects

Identified Resources and Level of Importance:

None found.

Comments on Effects to Resources:

None found.

Additional Comments (optional):

None found.

ETAT Reviews and Coordinator Summary: Secondary and Cumulative

Secondary and Cumulative Effects

Project Effects

Coordinator Summary Degree of Effect: 2 *Minimal* assigned 05/17/2012 by FDOT District 6

Comments:

No secondary and cumulative effects were identified to date for this project. Therefore, based on agency comments provided for other issues during the screening process and the fact that the project is anticipated to occur within existing public right-of-way, a Summary DOE of Minimal has been assigned to the Secondary and Cumulative Effects issue.

Potential secondary and cumulative effects will be assessed further during Project Development as more information regarding potential right-of-way needs become available.

None found

Project Scope

General Project Commitments

There are no general project commitments identified for this project in the EST.

Required Permits

Permit	Type	Conditions	Review Org	Review Date
FDEP NPDES General Permit	Other		FDOT District 6	09/20/12
Environmental Resource Permit	State		FDOT District 6	09/20/12
SFWMR Right-of-Way Occupancy Permit	State		FDOT District 6	09/20/12
Section 10/Section 404 Department of the Army Permit	USACE		FDOT District 6	09/20/12
Section 408 Engineering Review	USACE		FDOT District 6	09/20/12
Miami-Dade County Class III Permit	County/Municipality - Local		FDOT District 6	09/20/12

Required Technical Studies

Technical Study Name	Type	Conditions	Review Org	Review Date
Design Traffic Technical Memorandum	ENGINEERING		FDOT District 6	09/20/2012
Conceptual Design Roadway Plan Set	ENGINEERING		FDOT District 6	09/20/2012
Geotechnical Report	ENGINEERING		FDOT District 6	09/20/2012
Typical Section Package	ENGINEERING		FDOT District 6	09/20/2012
Value Engineering Information Report	ENGINEERING		FDOT District 6	09/20/2012
Noise Study Report	ENVIRONMENTAL		FDOT District 6	09/20/2012
Contamination Screening Evaluation Report	ENVIRONMENTAL		FDOT District 6	09/20/2012
Endangered Species Biological Assessment	ENVIRONMENTAL		FDOT District 6	09/20/2012
Wetlands Evaluation Report	ENVIRONMENTAL		FDOT District 6	09/20/2012
Sociocultural Effects Evaluation	Other		FDOT District 6	09/20/2012
Preliminary Engineering Report	ENGINEERING	Draft & Final	FDOT District 6	09/20/2012
Air Quality Technical Memorandum	ENVIRONMENTAL		FDOT District 6	09/20/2012
Water Quality Impact Evaluation (WQIE)	ENVIRONMENTAL		FDOT District 6	09/20/2012
Cultural Resource Assessment Survey	ENVIRONMENTAL		FDOT District 6	09/20/2012
Public Involvement Plan	Other		FDOT District 6	09/20/2012
Public Hearing Transcript	Other		FDOT District 6	09/20/2012
Drainage Report	ENGINEERING		FDOT District 6	09/20/2012
Type II Categorical Exclusion	ENVIRONMENTAL		FDOT District 6	09/20/2012
Utility Assessment Package	ENGINEERING		FDOT District 6	09/20/2012
Cost Risk Assessment Report	ENGINEERING		FDOT District 6	09/20/2012

Stormwater Management Report	ENGINEERING		FDOT District 6	09/20/2012
I-75 & Palmetto Expressway Origin-Destination Study	ENGINEERING		FDOT District 6	09/20/2012
Traffic Operations Analysis Report	ENGINEERING		FDOT District 6	09/20/2012
QA/QC Plan	ENGINEERING		FDOT District 6	09/20/2012
Pavement Type Selection Technical Memorandum	ENGINEERING		FDOT District 6	09/20/2012

Class of Action

Class of Action Determination

Class of Action	Other Actions	Lead Agency	Cooperating Agencies	Participating Agencies
Categorical Exclusion	Endangered Species Assessment	Federal Highway Administration	No Cooperating Agencies have been identified.	No Participating Agencies have been identified.

Class of Action Signatures

Name	Agency	Review Status	Date	ETDM Role
Steven Craig James	FDOT District 6	ACCEPTED	09/20/2012	FDOT ETDM Coordinator

Comments:

Of the 21 issues examined for the project, the following Summary Degrees of Effect (DOE) were assigned: Enhanced - 2 issues, None - 4 issues, Minimal - 14 issues, and Moderate - 1 issue. No issue received a Summary DOE greater than Moderate.

Each of these issues will be evaluated in further detail during the Project Development and Environment (PD&E) phase. The one issue assigned a Summary DOE of Moderate is briefly described below. A statement describing how the recommended project Class of Action is supported is also included.

- Contaminated Sites: This issue was assigned a Summary DOE of Moderate based on 1) the identification (based on EST GIS Data) of two brownfields, two Department of Environmental Resources Management (DERM)* contaminated sites, nine hazardous waste facilities, eight onsite sewage facilities, six petroleum contamination monitoring sites, seven storage tank contamination monitoring sites, five Super Act Risk Sources, one Toxic Release Inventory Site, and thirteen Resource Conservation and Recovery Act (RCRA) regulated facilities within 200 feet of the study corridor, 2) proximity of the project corridor to potential groundwater monitoring wells (and possibly water production wells) and 3) the need to conduct a Contamination Screening Evaluation Report (CSER) (similar to a Phase I Audit) to investigate subsurface contamination and determine the potential to encounter contamination during project implementation.

The Florida Department of Transportation (FDOT) District Six will conduct a detailed contamination assessment through preparation of the CSER, which will allow for the optimization of alternatives to minimize and/or avoid potential impacts to identified resources. Preliminary measures will be established to offset any estimated adverse impacts to contaminated sites and documented as commitments to be upheld throughout the project's PD&E, design, permit, and construction phases. Staging areas will be identified and maintained in accordance with FDOT Standard Specifications for Road and Bridge Construction. In addition, "Special Provisions for Unidentified Areas of Contamination" will be included in the project's construction contract documents. These provisions require that in the event any hazardous material or suspected contamination is encountered during construction, or if any spills caused by construction-related materials should occur, the contractor shall be instructed to stop work immediately and notify the appropriate regulatory agencies for assistance.

For these reasons, and due to the fact that the project is anticipated to occur within the existing public right-of-way, the FDOT District Six recommends a Type 2 Categorical Exclusion (Type 2 CE) as the appropriate Class of Action for this project.

*Note that DERM has been replaced by the Department of Regulatory and Economic Resources, which merges the Department of Permitting, Environment and Regulatory Affairs with the Department of Sustainability, Planning and Economic Enhancement.

Cathy Kendall	Federal Highway Administration	ACCEPTED	10/29/2012	Lead Agency ETAT Member
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Comments:

No significant impacts are anticipated as a result of this project, as indicated in the recommendation provided by FDOT, and the comments from the ETAT agencies as part of their ETDM review.

Dispute Resolution Activity Log

There are no dispute actions identified for this project in the EST.