

**Alternate Corridor Selection Study for
Florida Power & Light's West Preferred and
West Secondary Corridors in the Vicinity of the
East Everglades Expansion Area of
the Everglades National Park**

Prepared for:



**National Park
Service**

Prepared by:



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January 4, 2013

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9.1 MAPS

Maps showing the Preferred Alternate Corridor are shown in Appendix A as Map Sheets A-1 through A-7. The Preferred Alternate Corridor is 15.0 miles long.

9.2 PROJECT DESCRIPTION

In June, 2009, Florida Power & Light (FPL) filed a Site Certification Application (SCA) to construct two new nuclear generating units (Turkey Point Units 6 & 7) and supporting facilities at the Turkey Point Nuclear Generating Station near Homestead, Florida (Order No. PSC-08-0237-FOF-EI). The filing included transmission facilities to interconnect and integrate the new generation to the transmission grid, including FPL's West Preferred Corridor (West Preferred Corridor), which crosses approximately 6.3 miles of the eastern edge of the East Everglades Expansion Area of the Everglades National Park (Everglades National Park) and an alternate corridor, FPL's West Secondary Corridor (West Secondary Corridor), which crosses approximately 7.3 miles through Everglades National Park within an existing FPL right-of-way (ROW). The West Preferred and West Secondary Corridors would both contain two 500 kilovolt (kV) single-circuit transmission lines and one 230 kV single-circuit transmission line. The 500 kV lines would connect the Clear Sky Substation located at the Turkey Point nuclear power plant to the existing Levee Substation in northern Miami-Dade County (approximately 43.6 miles in the West Preferred Corridor and 42.6 miles in the West Secondary Corridor). The 230 kV line would connect the Clear Sky Substation to the existing Pennsuco Substation in northern Miami-Dade County, but would not connect to Levee (52 miles or 51 miles for the West Preferred and West Secondary, respectively).

The Louis Berger Group, Inc. (LBG) was retained to conduct a transmission siting study to identify an alternate corridor (the Preferred Alternate Corridor) to FPL's West Preferred Corridor that would avoid or minimize impacts on Everglades National Park. The Preferred Alternate Corridor is located outside of the Everglades National Park boundary, but still connects the FPL West Preferred Corridor south of Everglades National Park, to the Levee Substation north of Everglades National Park. Specifically, the Preferred Alternate Corridor deviates from the West Preferred Corridor near the intersection of the hypothetical SW 120th Street and hypothetical SW 204th Avenue in Miami-Dade County just south of Everglades National Park and reconnects with the West Preferred Corridor approximately 2,550 feet west of Levee Substation. South and north of this alternate corridor, the West Preferred Corridor would remain unchanged.

Detailed engineering was not conducted for this application, as the Preferred Alternate Corridor would not require changes to any transmission line engineering or design components of the West Preferred Corridor, but instead reroutes 15 miles of it. All design information presented in this application is based on FPL's original engineering design presented in the previous SCA filing (contained within W9.2 of FPL's filing). As stated by FPL, the proposed ROW would be 330 feet wide and would contain two 500 kV and one 230 kV guy wired structures and associated access roads. An example of a possible ROW configuration is shown in **Figure 9-1**. The 500 kV guyed single pole steel structures have an average height ranging from 135 to 150 feet. The 230 kV guyed single pole steel structures have an average height ranging from 80 to 105 feet. The 500 kV structures have a typical span of 1,000 feet and the 230 kV structures have an average span of 500 feet. The typical cross sections are shown below in **Figure 9-2** and **Figure 9-3**. Further design information, cross sections, and profile drawings can be found in FPL's SCA filing (FPL W9.2).

Figure 9-1. Example ROW Configuration (FPL SCA W9.2.0-13)

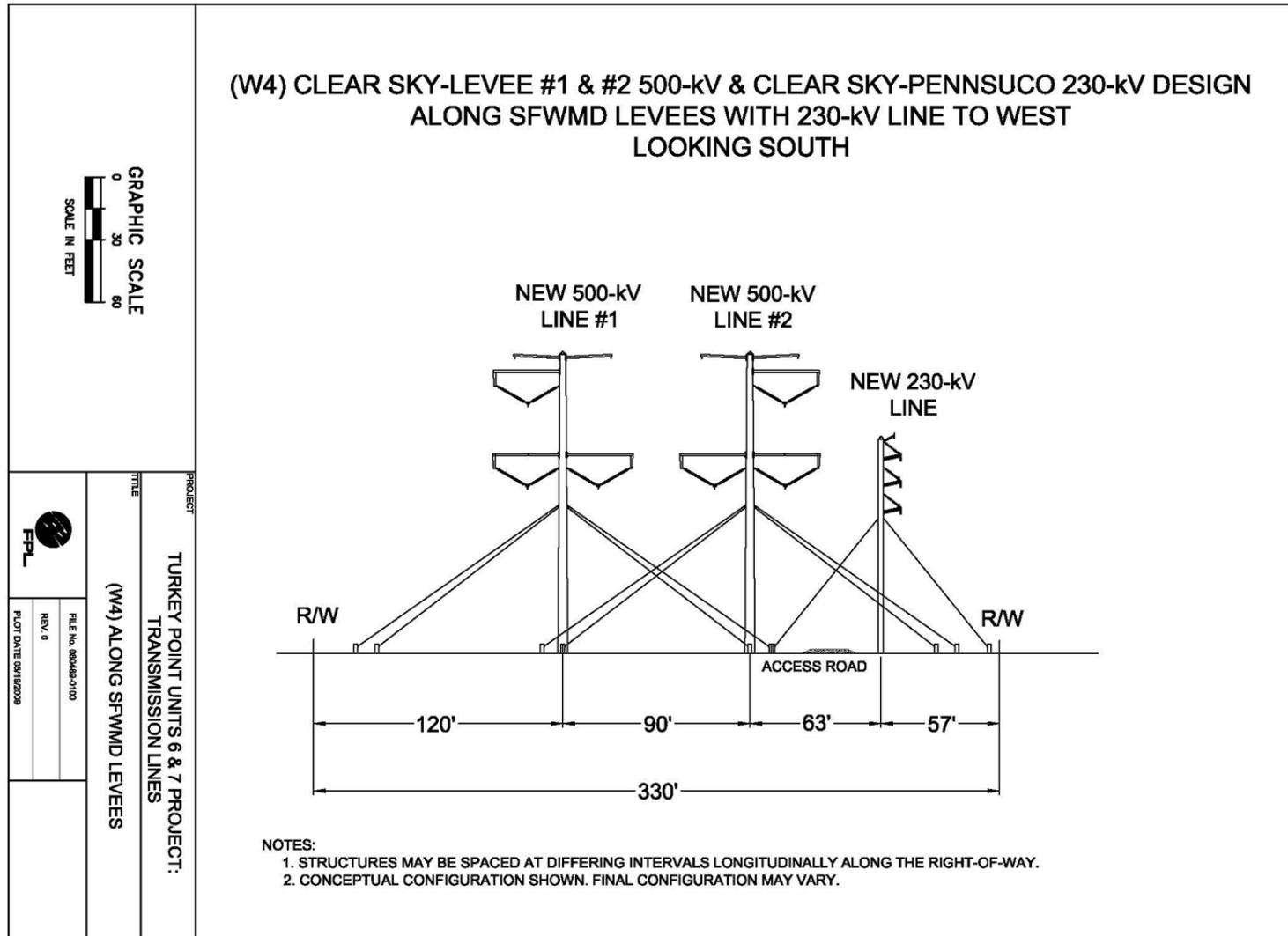


Figure 9-2. Typical Single Pole Guyed 500-kV Structure (FPL SCA W9.2.0-2)

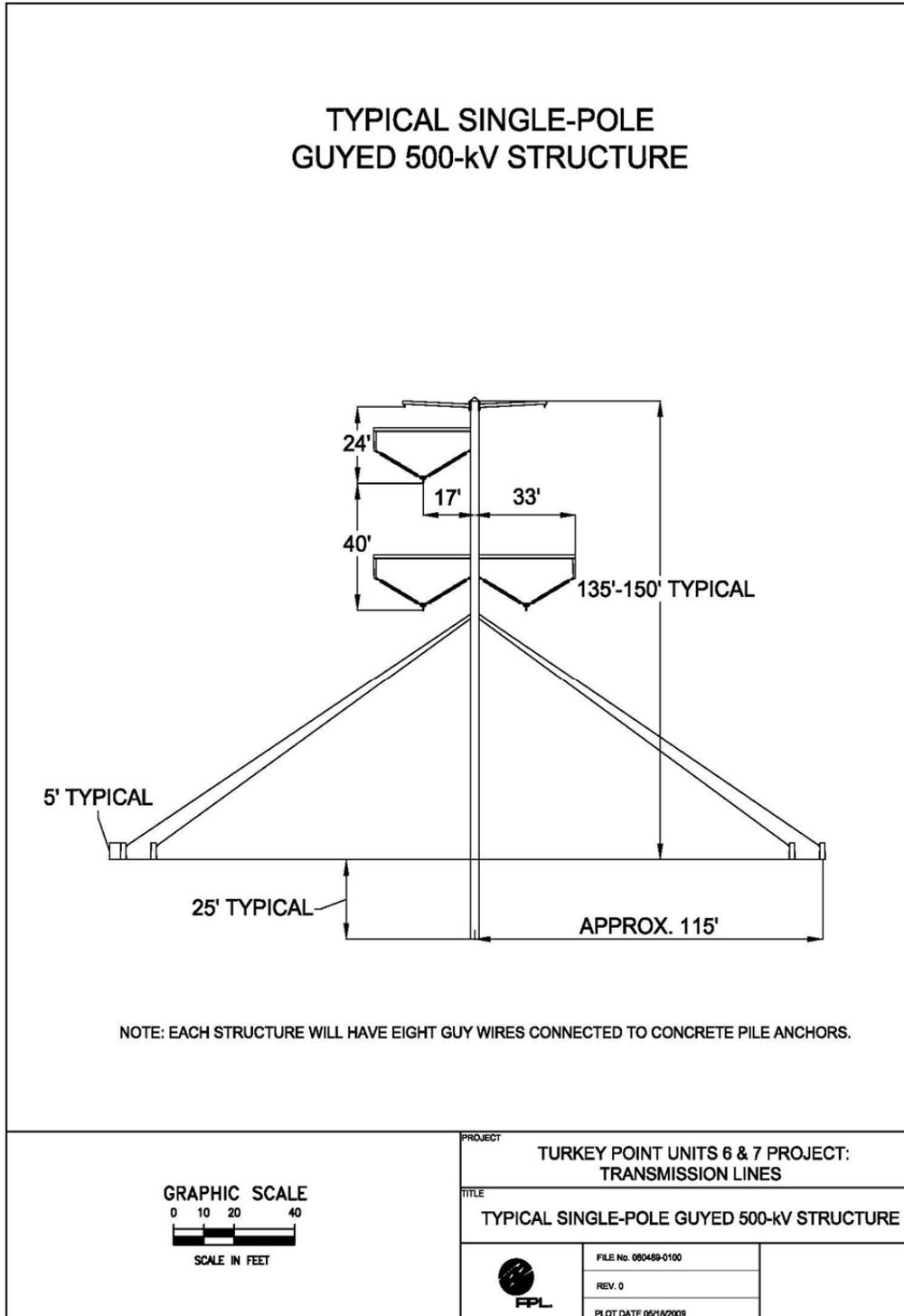
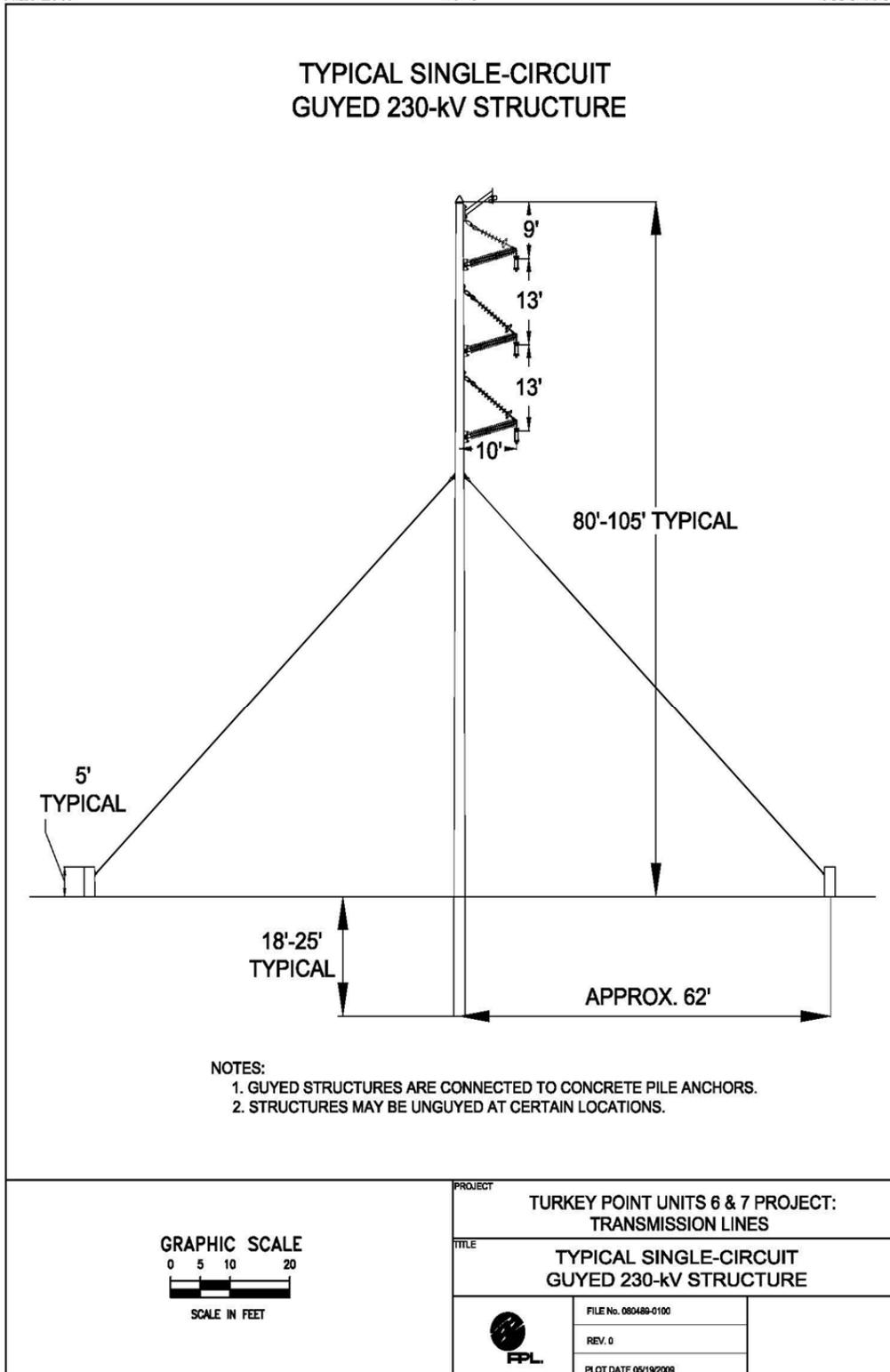


Figure 9-3. Typical Single-Circuit Guyed 230-kV Structure (FPL SCA W9.2.0-3)



9.3 CORRIDOR

The Routing Team, in consultation with stakeholders and consultants, (defined in section 9.3.1) conducted a Corridor Selection Study to identify an alternative corridor to FPL's West Preferred and West Secondary Corridors that could accommodate two 500 kV transmission lines and one 230 kV transmission line. The following sections describe the Alternate Corridor development process and the Preferred Alternate Corridor.

9.3.1 Corridor Selection

The goal of the Corridor Selection Study was to select a permitable and constructible Alternate Corridor that minimizes impacts on Everglades National Park, environmental resources, and human resources. The Preferred Alternate Corridor is defined as the corridor that minimizes the effect of the transmission line on the natural and human environment, while avoiding unreasonable and circuitous routes, extreme costs, and non-standard design requirements.

Preparers and Consultants. A multi-disciplinary Routing Team performed the Corridor Selection Study in consultation with stakeholders including representatives from FPL, National Parks Conservation Association, Miami Dade Limestone Products Association, the National Park Service (NPS), and resource and permitting agencies. LBG staff was selected to bring experience to the study to achieve a thorough review of all aspects of developing the Preferred Alternate Corridor. LBG members of the Routing Team have experience in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, and construction management. A list of preparers and consultants follows below.

The Routing Team's objective was to identify a route that provided a reasonable balance between impacts on local communities and the natural environment, as determined through application of appropriate siting criteria and subject to technical guidelines, as addressed in detail below. In two meetings held in August 2012, the Routing Team worked with the stakeholders to define the study area, develop routing criteria, identify routing constraints and opportunities, collect and analyze environmental and design data, solicit input and concerns from stakeholders, develop and revise the siting alternatives, and analyze and report on the selection of a Preferred Alternate Corridor.

A list of preparers and consultants is provided below.

Louis Berger Group Preparers

- Susan Davis, Project Manager, Senior Scientist
- Jay Puckett, Environmental Scientist/GIS Specialist
- Colleen Cunningham, Environmental Scientist
- Jack Halpern, Vice President, Energy Services

Consultants included the following:

Florida Power and Light Co.

- Florette Braun, Manager, Environmental Services
- David Weda, Project Manager, Transmission Power Delivery
- Steven Scroggs, Senior Director for Project Development

National Parks Conservation Association

- Dawn Shirreffs, Everglades Restoration Program Manager
- John Adornato, Sun Coast Regional Director

Miami-Dade Limestone Products Association

- Thomas MacVicar, President, MacVicar Consulting Inc.
- Kerri Barsch, Attorney, Greenberg Traurig, P.A.

Florida Department of Environmental Protection

- Chad Kennedy, Program Administrator, Restoration Planning and Project Management

South Florida Water Management District (SFWMD)

- Rod Braun, Office of Intergovernmental Programs
- Tom Teets, Office of Federal Policy and Coordination

Miami-Dade County

- Lee Hefty, Director, Department of Regulatory and Economic Resources
- Craig Grossenbacher, Chief, Natural Resources Planning Section

National Park Service

- Dan Kimball, Superintendent, Everglades National Park
- Brien Culhane, Chief, Planning and Compliance, Everglades National Park

Department of the Interior

- Joan Lawrence, Everglades Restoration Initiatives

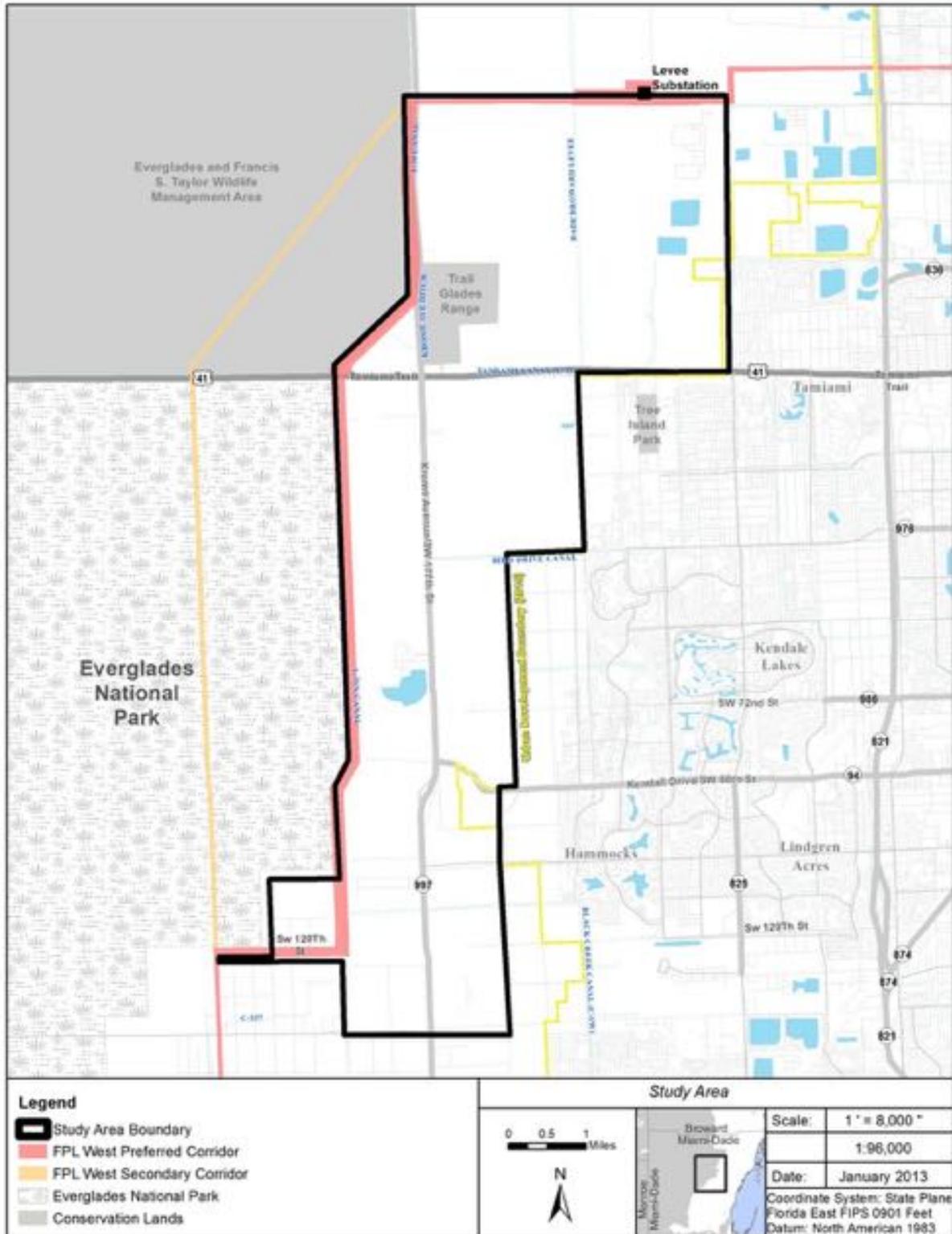
In addition, additional groups, such as the Miccosukee Tribe, were invited to participate in the Routing Team meetings, but did not attend.

Study Area Definition. The study area used to develop the Preferred Alternate Corridor is similar to the one developed by Miami-Dade as part of its Alternative West Corridor Route Study. The study area extends from where FPL's West Preferred Corridor intersects near the intersection of SW 120th Street and SW 204th Avenue north about 15 miles to the Levee Substation. This study area varies between 2 and 4 miles wide, from the eastern edge of Everglades National Park east to about SW 157 Avenue/Dade-Broward Levee. However, the Routing Team considered the presence and extent of certain relevant resources within the study area while delineating the study area boundary. Existing linear corridors, particularly transmission lines, roads, and canals were used to aid in the delineation of the study area. Siting new lines parallel to existing transmission lines is an accepted practice in transmission line siting, and incorporating the location and orientation of existing transmission and other linear facilities in the delineation of the study area ensures routes that parallel existing lines are considered in the study.

In addition, constraint areas also are considered in the development of the study area boundary, although not all constraints are eliminated from the study area. Constraints include Everglades National Park, residential development, federal or Tribal lands, recreation and/or conservation areas, and airports. Constraints are further explained below.

Although the term "study area boundary" suggests that the study area is initially established and subsequently maintained throughout the study as a fixed boundary, in practice this is not usually the case. As a Corridor Selection Study progresses, more opportunities and constraints may be identified, and the study area boundary modified to incorporate these variables into the decision-making process. The study area boundary for this project, for instance, was changed to include the area near SW 120th Street to avoid impacts to Miami-Dade County East Everglades Area of Critical Environmental Concern Management Areas. The study area boundary shown in **Figure 9-4** shows the total study area, inclusive of all areas considered in the corridor selection effort.

Figure 9-4. Study Area



Geographic Information Systems Data Sources. The Corridor Selection Study made extensive use of information in existing geographic information systems (GIS) data sets, which was obtained from many sources, including federal, state, and county governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and some was created by the Routing Team by either digitizing information from paper-based maps or through aerial photo interpretation.

The use of GIS data allows for the consideration and efficient use of a wide variety of information that would otherwise be unavailable or impractical to consider for a planning effort of this scope and schedule. GIS information is a highly effective tool when used for broad-level planning studies, identifying and characterizing study area constraints and features, and developing environmental inventory information useful for comparisons among planning alternatives.

However, GIS data sources vary widely with respect to accuracy and precision. Presentation, analysis, and calculations derived from these data sources require careful consideration when used for planning purposes. For this reason, GIS-based calculations and maps presented throughout this study should be considered reasonable approximations of the resource or geographic feature they represent and not absolute measures or counts. They are presented in this study to allow for relative comparisons among alternative corridors, with the assumption that any inherent error or inaccuracies would be generally equal across all corridors. GIS data sources used in this study are presented in **Table 9-1**.

Corridor reconnaissance — Routing Team members conducted field inspections throughout the study area on August 20 and 21, 2012. The team members examined potential corridors by automobile from points of public access and correlated observed features to information shown on aerial photography, USGS 7.5 minute topographic maps, road maps, and other information. Relevant features were viewed, verified, and recorded on laptop computers displaying aerial photography using GIS software supported by real-time Global Positioning System (GPS) tracking for positional information in each vehicle.

Table 9-1. Data Sources

Category	Definition	Units	Data Source
Aerial Photography			
National Agricultural Imagery	State of Florida National Agricultural Imagery Program (NAIP) 2010		The NAIP obtains aerial imagery during agricultural growing seasons. The most current imagery for the state of Florida is from 2010. Imagery is collected at the spatial resolution of 1 square meter and with the spectral resolution as natural color.
Sensitive Species and Habitat			
Florida Natural Areas Inventory (FNAI) Element Occurrence Data for Miami-Dade County	Occurrences within 0.5 mile of the corridor	Miles to Site	The Florida Natural Areas Inventory (FNAI 2012a) provided a point data layer locating the occurrences of endangered or rare plants and animals, high quality natural communities and other occurrences of natural resource interest. The database includes any exemplary or rare component of the natural environment, such as a species, plant community, bird rookery, spring, sinkhole, cave or other ecological feature.
Snail Kite Nesting Locations	Distance to known snail kite nesting locations	Miles to Site	Snail kite nesting location data were provided by the Biological Resources Branch Chief of Everglades National Park (Everglades National Park 2011a). Data from seven different sources were combined. The sources included 2008, 2009, 2010, and 2011 survey summary data, snail kite nesting data from 1986 through 2007, two snail kite nest locations provided in a map by Dial Cordy and Associates, and nesting data in Water Conservation Area 2B located in a report entitled, Numbers, Distribution, and Success of Nesting Snail Kites in Water Conservation Area 2B, 1995 Final Report prepared for SFWMD.
Wood Stork Nesting Locations	Distance to known wood stork nesting locations	Miles to Site	The USFWS North Ecological Services Office website includes location data for wood stork nesting colonies in south Florida. Herring and Gawlik (2007) provided data on both breeding colonies and foraging sites for wood storks in 2006 and 2007 that they obtained using following flights.

Category	Definition	Units	Data Source
Wading Bird Colonies	Distance to known wading bird nesting locations	Miles to Site	The nesting colony database (Everglades National Park 2011b) included GIS coordinates of nesting locations (including number of birds nesting at each location) from 1985 through 2011 for the following species: brown pelican, cattle egret, great egret, little blue heron, snowy egret, tri-colored heron, white ibis, wood stork, roseate spoonbill, cormorant, black-crowned night heron, great blue heron, glossy ibis, great white heron, anhinga, sacred ibis, and flamingo. The data spans from 1936 through 2011; however, only data with actual GPS locations were utilized, and that ranged from 1985 through 2011, and included 3,140 useable data points.
Wood Stork Core Foraging Habitat	Length of the line within wood stork core foraging habitat	Miles Crossed	Herring and Gawlik (2007) provided data on both breeding colonies and foraging sites for wood storks in 2006 and 2007 that they obtained using following flights. Borkhateria (2009) provided foraging locations for wood storks in 2004 and 2005 as part of her dissertation, based on satellite telemetry data.
Wetlands	Wetlands categories crossed by a route centerline	Miles Crossed	The SFWMD Land Cover Land Use data layer was used to determine the wetland miles crossed by each route. The 2011 data layer was created by review of 2008-2009 aerial photography and serves as an update to the 2004 data layer. The data is classified using the Florida Land Use, Land Cover Classification System (FDOT 1999).
Wetlands of International Importance	Length of the line within designated Wetlands of International Importance	Miles Crossed	Everglades National Park is a designated Wetland of International Importance under the Ramsar Convention on Wetlands (site number 374). Data for the designation boundary was obtained from USFWS. The boundary for the park was provided by NPS (2011).
Miami-Dade County Area of Critical Environmental Concern	Length of the line within Miami-Dade County Area of Critical Environmental Concern	Miles Crossed	Areas of Critical Environmental Concern are designated by Miami-Dade County as those having significant environmental and natural resource value to the Metropolitan Miami-Dade County area. Data for the designation boundaries were obtained through Miami-Dade County (2012).
Public Lands			
NPS, US Army Corps of Engineers, State of Florida, Miami-Dade County, Miccosukee Tribe lands	Length of the line within each category	Miles Crossed	Parcel boundaries and ownership information provided by Miami-Dade County (2012) was used to determine land ownership by public and private land holders.

Category	Definition	Units	Data Source
Infrastructure			
Residences	Residences within 500 feet and 0.25 mile of the routes	Counts	Residences are digitized using high resolution aerial image interpretation as well as field reconnaissance. Aerial imagery provided by the NAIP (2010).
Schools, Churches, and Cemeteries	Within 500 feet and 0.25 mile of the routes	Counts	The locations of churches, schools, and cemeteries were derived from the US Geological Survey's Geographic Names Information System (GNIS) (2012) and augmented through high resolution aerial photo interpretation, field reconnaissance, and public outreach efforts. This database serves as the federal government's repository of information regarding feature name spellings and applications for features in United States and its Territories. The names listed in the inventory are often published on federal maps, charts, and in other documents and have been used in emergency preparedness planning, site-selection and analysis, genealogical and historical research, and transportation routing. Through field reconnaissance the Routing Team recorded local schools, churches, and cemeteries to augment and verify this data layer.
Road Crossings	Roads crossed by the routes	Counts	Roads data was prepared by the Environmental Systems Research Institute, (2012) Redlands, California.
Electric Transmission Crossings	Transmission lines crossed by the routes	Counts	Existing transmission line infrastructure mapping information provided by FPL, aerial imagery review, and field reconnaissance (2012).
Canal Crossings	Canals crossed by the routes	Counts	Existing canal infrastructure mapping information provided by Miami-Dade County (2012).

Category	Definition	Units	Data Source
Historic Resources			
Architectural Resources— National historic landmarks (NHL) National Register of Historic Places (NRHP) Listed Sites, NRHP Eligible and Surveyed/not eligible sites.	Properties listed on the NRHP within 0.5 mile and 1 mile of the route corridor Non-NRHP listed sites within 0.5 mile and 1 mile of the route corridor	Counts	The locations of historic architectural sites were provided by Miami-Dade County in polygon format (2009). The purpose of this data set is to provide a geographic representation of the location of each documented architectural resources in the state of Florida.
Archaeological Resources— Within 0.5 mile	Identified archaeological sites within 0.5 mile of the route corridor	Counts	The locations of historic architectural sites were provided by Miami-Dade County in polygon format (2009). The purpose of this data set is to provide a geographic representation of the location of documented archaeological resources in the state of Florida.
Rights-of-Way			
Parallel Alignments— Electric Transmission	Length of line paralleling an existing 230 kV transmission line	Length in miles	Existing transmission line infrastructure mapping information provided by FPL, aerial imagery review, and field reconnaissance (2012).
Parallel Alignments—Canals	Length of line paralleling an existing canal corridor	Length in miles	Existing canal infrastructure mapping information provided by Miami-Dade County (2012).

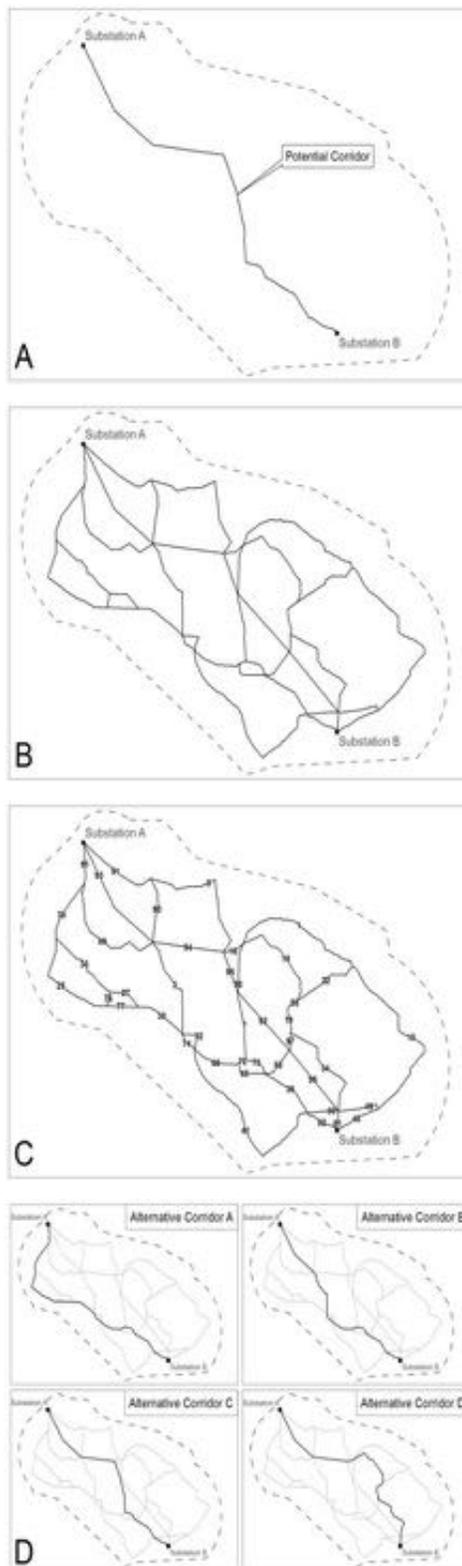
Corridor Development Process. The corridor development process is inherently iterative, with frequent modifications made throughout the study as a result of the identification of new constraints and opportunities, input from agencies, landowners, and other stakeholders, periodic re-assessments of routes with respect to the routing criteria, and adjustments to the overall route network. As a result of the evolving nature of the corridor development process, the Routing Team uses specific vocabulary to describe the routes at different stages in the process. Corridors that are first identified and investigated by the Routing Team are referred to as “potential corridors” (**Figure A**).

Where potential corridors intersect, links are formed as the segment of the route between two intersections (**Figure B**). Together, the potential corridors and their intersecting links are referred to as the Potential Corridor Network (**Figure C**).

As the corridor development process progresses, the Routing Team continues to evaluate new data and modifies, if necessary, the links of the Potential Corridor Network. Eventually, formal Potential Alternative Corridors are developed by assembling the links that best meet the routing criteria into individual routes for analysis (**Figure D**). The Routing Team then identifies a “Preferred Alternate Corridor.”

Routing Guidelines and Criteria. In the case of this Alternate Corridor selection process, the key first step was identifying starting and ending points where our Alternate Corridor would diverge from FPL's West Preferred Corridor. The Routing Team identified these starting and ending points based upon the siting goals: to avoid and minimize impacts on Everglades National Park, environmental resources, and human resources. Once these starting and ending points were identified, the Routing Team identified potential alternate corridors and evaluated the potential environmental and human impacts associated with each potential corridor.

Identifying a corridor that optimizes all constraints and opportunities requires balancing and prioritizing many factors and can therefore be challenging. For example, a corridor with minimal impacts on wildlife habitat may have significant impacts on residential resources when compared with other alternatives, and vice versa. In addition, federal and state laws and input from federal, state, and sometimes local regulatory agencies may impact siting decisions.



Routing Criteria. Once the study area was defined, the Routing Team developed basic corridor selection criteria that would be used to select and analyze potential Alternate Corridors. The recommendations for project siting contained in this report are based on the primary routing objective stated previously and the following criteria and technical guidelines (the listed criteria are not in order of importance or weight). The Routing Team and consultants developed basic corridor selection criteria to select and analyze Potential Alternative Corridors during the routing study. The Routing Team attempted to minimize the following.

- Corridor length, circuitry, and costs to the extent practicable.
- Deviating from the general line design parameters specified by FPL and/or the North American Electric Reliability Corporation.
- Removal or substantial interference with the use of existing residences and commercial and industrial buildings.
- Removal of existing barns, garages, commercial buildings, and other nonresidential structures.
- Substantial interference with the use and operation of existing schools; existing and recognized places of worship; existing cemeteries; Native American reservations; and existing facilities used for cultural, historical, and recreational purposes.
- Substantial interference with economic activities.
- New crossings of designated natural resource lands such as Everglades National Park, state forests, state parks, Miami-Dade County East Everglades Area of Critical Environmental Concern Management Areas, wildlife management areas, designated game lands and wildlife area, and conservation areas.
- Impacts to operations of existing government and law enforcement facilities (Krome Detention Center);
- Crossing large lakes, large wetland complexes, critical habitat, and other scarce or distinct natural resources whenever possible.
- Impacts on wood stork colonies and travel corridors.
- Substantial visual impact on parks, conservation areas, and residential areas.

Identifying routing constraints — The Routing Team, with input from consultants, identified and mapped routing constraints in the study area. Constraints were defined as specific areas that should be avoided to the extent feasible during the corridor selection process. Constraints are generally divided into two groups based on the size of the geographic area encompassed by the constraint: large area constraints and small area constraints. The first group (large area constraints) includes constraints that cover large areas of land in the study area. Large area constraints are avoided to the extent possible and were considered unfavorable by the Routing Team for developing potential corridors.

The list of large area constraints consisted of:

- urban areas;
- designated National Parks (transmission lines are identified as an incompatible use in the East Everglades Expansion Area based on the park's 1991 Land Protection Plan for the area), state forests, state parks, state game lands, wildlife management areas, natural and conservation areas;
- Miami-Dade County East Everglades Area of Critical Environmental Concern Management Areas (with the exception of Management Area 1, which is characterized as being permanently altered by human activity);
- National Register Historic Districts and adjacent areas;
- large developed recreational sites (e.g., campgrounds, parks);
- critical habitat areas;
- large waterbodies;
- Miccosukee Tribal lands;
- Miami-Dade County's 2015 Urban Development Boundaries;
- airports; and
- active mine sites.

After the potential corridors were developed to avoid large area constraints, the alignments were adjusted to the extent possible to avoid small area constraints. Small area constraints encompass other feature types that are found within smaller geographic areas, or site-specific locations. Small area constraints generally include:

- individual residences (including houses, anchored mobile homes, and multi-family buildings);
- commercial and industrial buildings;
- cemeteries;
- churches;
- schools;
- hospitals;
- designated historic buildings and sites, including any specified buffer zone around each site;
- specific recreational sites, facilities, and trails;
- recorded threatened, endangered, or other rare species sites or unique natural areas, including any specified buffer zone around each site;

- communications towers;
- incompatible land use areas such as the eastern portion of SFWMD's L-31N Canal ROW; and
- designated scenic areas.

The Routing Team attempted to identify a Preferred Alternate Corridor that could result in a ROW that would avoid or minimize these small area constraints to the extent practicable.

Identifying routing opportunities — The Routing Team defined routing opportunities as locations where the proposed transmission line might be located with no impact or the least impact possible. Routing opportunities were identified and evaluated by:

- field investigation of the study area;
- reviews of aerial photography and other available mapping data, including GIS data layers;
- consultant/stakeholder input; and
- Routing Team experience with similar projects.

Co-location opportunities considered in the study area were found to be limited to sharing and/or paralleling existing ROW features, including:

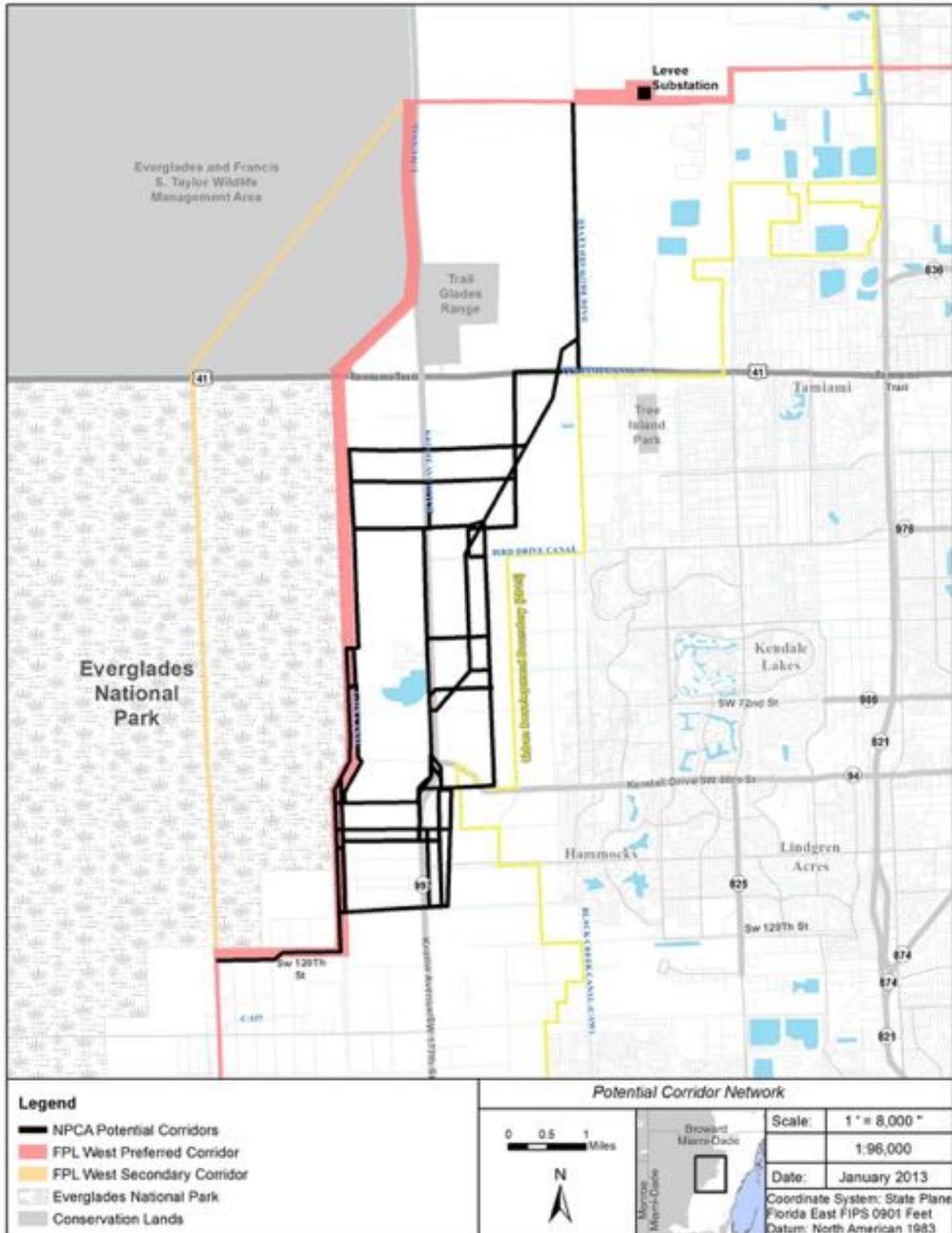
- transmission lines;
- distribution lines;
- roads; and
- canals.

Practical routing opportunities considered in the study area included the following:

- alignments parallel to the east and west sides of Krome Avenue;
- alignments parallel to existing FPL 230 kV transmission lines;
- alignments parallel to the L-31N and C-1W canals and the Dade Broward Levee; and
- alignments using state, county, and SFWMD lands within Bird Drive Basin that were identified during siting meetings as potentially being open for ROW development.

Potential Corridor Development. The Routing Team developed an array of potential corridors. Potential corridors are an early iteration of the routing process that involve the development of conceptually based corridors and general consideration of these corridors with respect to constraints and opportunity features in the study area. **Figure 9-5** shows the Potential Corridor Network that was analyzed.

Figure 9-5. Potential Corridor Network



Several potential corridors were developed using the parallel or collocating opportunities identified under routing opportunities in an effort to connect to FPL's West Preferred Corridor south of Everglades National Park and to the Levee Substation north of Everglades National Park.

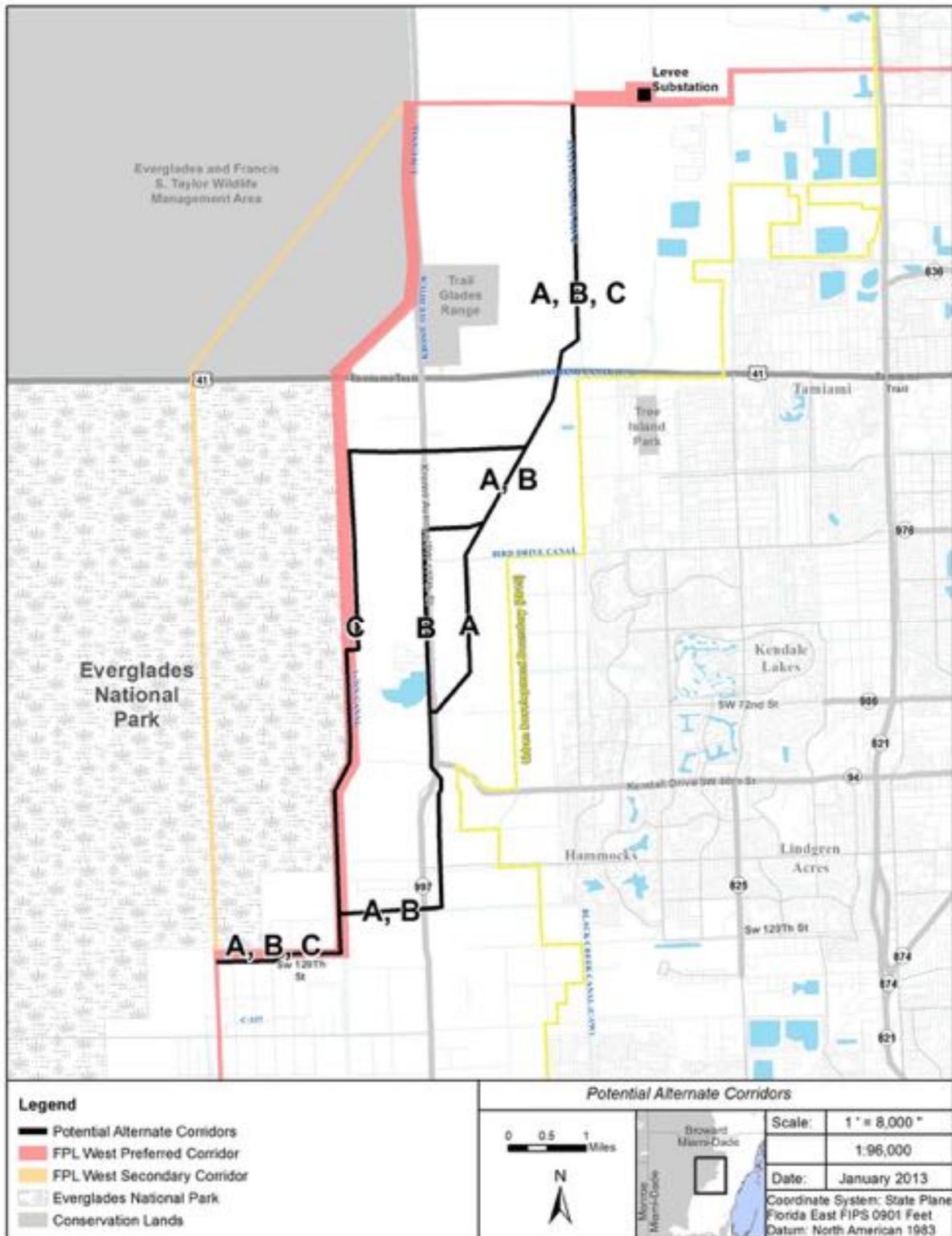
Once the initial Potential Corridor Network was developed, LBG reviewed each corridor in the field on August 21 and 22, 2012. After the field review, LBG presented the Potential Corridor Network to stakeholders and consultants (identified in section 9.3.1) on August 22, 2012, at the National Parks Conservation Association Office in Hollywood, Florida. The group discussed constraints, and the Potential Corridor Network was modified with corridor adjustments, and link additions and removals.

Potential Alternate Corridor Development. Following the August 22, 2012 meeting, the Routing Team incorporated stakeholder input, field review, and additional data to focus on refining the more preferable links to establish the Potential Alternate Corridors while eliminating corridor links that had deficiencies. In some cases, the elimination of corridor links was based on likely impacts on residential developments, natural resources, or other developed infrastructure or significant resources. The Routing Team identified three Potential Alternate Corridors: Potential Alternate Corridor A, Potential Alternate Corridor B, and Potential Alternate Corridor C. See **Figure 9-6**.

All three Potential Alternate Corridors begin at FPL's West Preferred Corridor near the intersection of the hypothetical SW 120th Street and hypothetical SW 204th Avenue in Miami-Dade County just south of Everglades National Park. Upon turning north adjacent to the L-31N Canal, Potential Alternate Corridors A and B diverge from Potential Alternate Corridor C. Potential Alternate Corridors A and B turn east across Krome Avenue before turning north and travelling generally parallel to Krome Avenue. Potential Alternate Corridors A and B turn west across Krome Avenue south of the intersection of North Kendall Drive/SW 88th Street and continue north on the west side of Krome Avenue. Just south of SW 72nd Street, Potential Alternate Corridors A and B diverge, with Potential Alternate Corridor B continuing north, paralleling Krome Avenue on the western side, within a narrow area between Krome Avenue and a mining lake. Potential Alternate Corridor A crosses east across Krome Avenue just south of SW 72nd Street, traveling northeast of the Miccosukee Tribal lands that are east of Krome Avenue before continuing north/northeast across Bird Drive Basin to the Tamiami Trail. Potential Alternate Corridor B turns due east and rejoins Potential Alternate Corridor A north of the SW 42nd Street/Bird Drive Canal. From there, both Potential Alternate Corridors A and B cross the Tamiami Trail and travel north approximately 3.5 miles before terminating at the intersection of the West Preferred Corridor approximately 4,950 feet west of the Levee Substation.

Potential Alternate Corridor C, after diverging from Potential Alternate Corridors A and B, continues on FPL's West Preferred Corridor within Everglades National Park for 2.8 miles paralleling the west side of the L-31N Canal, before crossing east across the canal and continuing north to the east of the L-31N Canal ROW. In order to avoid several other constraints that would be impactful on homeowners or would result in a corridor with insufficient space for the FPL-proposed right-of-way, Potential Alternate Corridor C would need to be within Everglades National Park for these 2.8 miles. The first is a residential area that abuts the L-31N Canal ROW in the vicinity of SW 100th Street, SW 104th Street, and SW 106th Street. In this area, there are only 345 feet from the edge of the L-31N Canal to the closest residences. Assuming the transmission ROW could be placed within SFWMD's ROW, the transmission ROW would be only 15 feet from the nearest house. SFWMD indicated during the routing meetings that a transmission line would not be able to be placed within its ROW because it would interfere with SFWMD operations. If Potential Alternate Corridor C was moved east of the SFWMD ROW in this area, it would require the taking of two residences and a horse farm; therefore, Potential Alternate Corridor C needs to remain within Everglades National Park in this area. Just north of this area, Potential Alternate Corridor C needs to remain in Everglades National Park for an additional distance because there is not sufficient space to place a corridor east of the L-31N Canal between the Canal and the SFWMD ROW and a radio tower, mining railroad, and rail car loading equipment.

Figure 9-6. Potential Alternate Corridors



Once Potential Alternate Corridor C crosses to the east of the L-31N Canal, it continues north before turning due east in the northern portion of the La Primera mining property. It continues traveling due east until it rejoins Potential Alternate Corridors A and B in Bird Drive Basin.

Preferred Alternate Corridor Development. The Routing Team conducted calculations of environmental, human use, and engineering factors to compare three Potential Alternate Corridors. **Table 9-2** shows the results of these calculations, which LBG created using the centerline of the Potential Alternate Corridors, or, in the case of the rare species calculations, the distance from both sides of the corridors. Using these calculations and professional judgment, Routing Team members selected Potential Alternate Corridor A as the Preferred Alternate Corridor as described below.

Potential Alternate Corridors B and C were eliminated for the following reasons:

- traverse 2.8 miles of Everglades National Park;
- traverse 1.8 miles of Miami-Dade County East Everglades Area of Critical Environmental Concern Management Area 3B;
- cross the most wetlands and Wetlands of International Importance; and,
- are closer to snail kite nests, wood stork colonies, and wading bird colonies than Potential Alternate Corridor A.

Potential Alternate Corridors A and B are collocated for a portion of their lengths and are therefore similar in many ways. However, Potential Alternate Corridor B was ultimately eliminated because it would likely be incompatible with existing mining and industrial activities on the CEMEX and Kendall Mining properties located on the west side of Krome Avenue. In this segment there is an existing FPL 230 kV transmission line located west of Krome Avenue and a mining lake and mining road west of Potential Alternate Corridor B. From the edge of water to the centerline of the 230 kV transmission line, there are only 350 feet at the narrowest point, making placement of a 330 foot ROW difficult without altering the engineering and ROW configuration proposed by FPL. This placement is further complicated by the existing mining road within 350 feet. In addition, Potential Alternate Corridor B would be slightly closer to snail kite nests, wood stork colonies, and wading bird colonies than Potential Alternate Corridor A.

The Routing Team ultimately selected Potential Alternate Corridor A as the Preferred Alternate Corridor because it would avoid several of the constraints mentioned above, including:

- Everglades National Park;
- the L-31N Canal ROW (except for one crossing);
- the Miami-Dade County Area of Critical Environmental Concern Management Area 3B; and,
- Wetlands of International Importance.

In addition, Potential Alternate Corridor A is the farthest of the Potential Alternate Corridors from snail kite nests, wood stork colonies, and wading bird colonies, minimizes potential conflicts with active mining lands, avoids Miccosukee Tribal lands, and is also the shortest route.

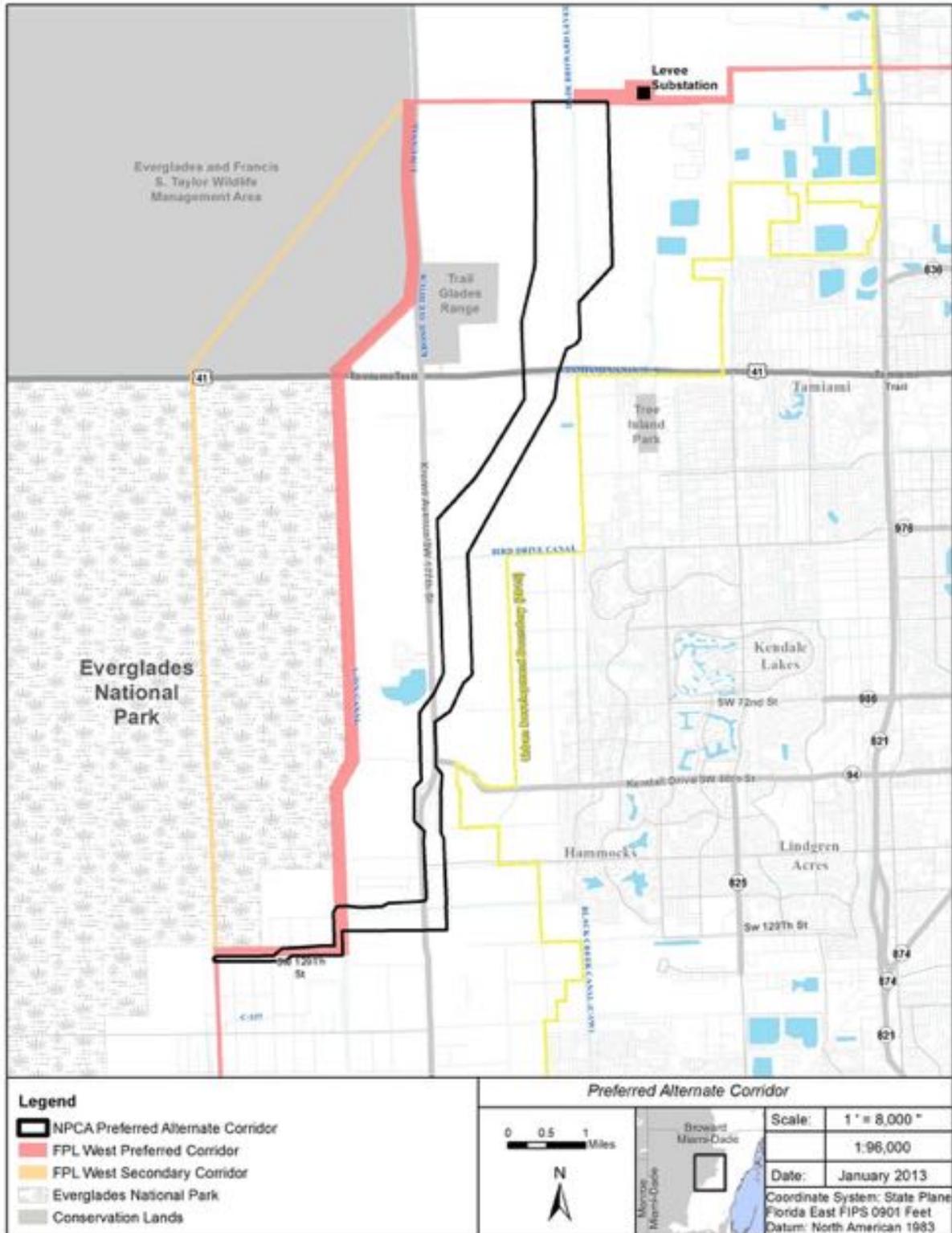
During a teleconference on August 31, 2012, the Routing Team presented the results of the Corridor Selection Study to the stakeholders and consultants, and proposed Potential Alternate Corridor A as the Preferred Alternate Corridor. After this conference call and further discussion with stakeholders, LBG widened the Preferred Alternate Corridor to vary between about 330 feet wide to almost 1 mile wide to provide greater siting flexibility (see **Figure 9-7**).

Table 9-2. Potential Alternate Corridors Comparison Factors

Route	Route A	Route B	Route C
Length Total (miles)	15.0	15.4	15.7
Wetland Categories (miles)			
Native Dominated Wetlands			
Freshwater Marshes	1.3	1.3	3.7
Mixed Wetland Hardwoods	1.2	1.2	1.7
Wet Prairies	2.5	2.0	4.4
Exotic Dominated Wetlands			
Exotic Wetland Hardwoods	3.1	2.8	3.2
Percent in Wetlands	54%	47%	82%
Sensitive Species and Habitat (miles)			
Distance to Snail Kite Nest	1.85 to 2.49	1.74 to 1.80	0.21 to 0.53
Distance to Wood Stork Nest	2.47 to 3.11	2.37 to 2.43	0.84 to 1.16
Distance to Wading Bird Colony	2.47 to 3.11	2.36 to 2.69	0.95 to 1.27
Wood Stork Core Foraging	15.0	15.4	15.7
Wetlands of International Importance	0.0	0.0	2.8
Miami-Dade County Area of Critical Environmental Concern (miles)			
Management Area 2A	0.0	0.0	0.0
Management Area 3A	0.0	0.0	0.0
Management Area 3B	0.0	0.0	1.8
Management Area 3C	0.0	0.0	1.3
Public Lands (miles)			
Everglades National Park	0.0	0.0	2.8
Other NPS Land	0.2	0.2	0.3
U.S. Army Corps of Engineers	1.3	1.3	1.9
State of Florida	1.3	1.3	1.1
Miami-Dade County	1.3	0.0	0.0
Native American Lands	0.0	0.0	0.0
SFWMD	2.3	1.9	1.9
Private Lands			
Private Property (miles)	8.0	10.0	7.3
Private Property Owners Crossed	43	43	28
Total Parcels Crossed	113	96	108
2015 Urban Development Zone Crossed	0.0	0.0	0.0

Route	Route A	Route B	Route C
Infrastructure			
Residences within 500 feet	3	3	3
Residences within 0.25 mile	15	17	15
Schools within 500 feet	0	0	0
Schools within 0.25 mile	0	0	0
Churches within 500 feet	0	0	0
Churches within 0.25 mile	0	0	0
Cemeteries within 500 feet	0	0	0
Road Crossings	13	8	12
Existing 230 kV Transmission Crossings	4	0	2
Canal Crossings	6	3	5
Parallel Alignments (miles)			
Existing 230 kV Transmission	2.6	4.5	0
Canal	4.9	5.3	3.7
Total Parallel Alignment	7.5	9.8	3.7
Percentage parallel	50%	64%	24%
Land Use (miles)			
Agriculture	5.9	5.4	2.0
Barren Land	0.1	0.1	0.1
Rangeland	0.5	0.5	0.5
Transportation, Communication and Utilities	0.03	0.03	0.03
Upland Forests	0.2	0.1	0
Urban and Built-Up	0.1	2.0	0.1
Water	0.03	0.03	0.03
Wetlands	8.2	7.2	13.0

Figure 9-7. Preferred Alternate Corridor



9.3.2 Corridor Description

This section provides a detailed description of the corridor ultimately identified by the Routing Team as the Preferred Alternate Corridor (Corridor A), during the Corridor Selection Study described above. The Preferred Alternate Corridor is 15.0 miles long, as shown in **Figure 9-8**. Detailed maps of the Preferred Alternate Corridor are found in Appendix A.

Preferred Alternate Corridor

The Preferred Alternate Corridor begins next to FPL's West Preferred Corridor near the intersection of the hypothetical SW 120th Street and hypothetical SW 204th Avenue in Miami-Dade County just south of Everglades National Park. From there, the corridor is approximately 330 feet wide as it heads due east parallel to the south side of the West Preferred Corridor for approximately 3,950 feet, before widening to between 500 and 650 feet as it turns northeast to temporarily rejoin the West Preferred Corridor between SW 197th Avenue and SW 194th Avenue and continue east along SW 120th Street for 3,950 feet. This initial deviation from the West Preferred Corridor is intended to avoid impacts on Miami-Dade County East Everglades Area of Critical Environmental Concern Management Area 3B, which is incompatible with transmission lines. In the portion of the corridor that first deviates from FPL's West Preferred Corridor, the Preferred Alternate Corridor could be widened to 660 feet wide, if necessary for construction, although that is not a part of the Preferred Alternate Corridor at this time. (See Map Sheet A-1.)

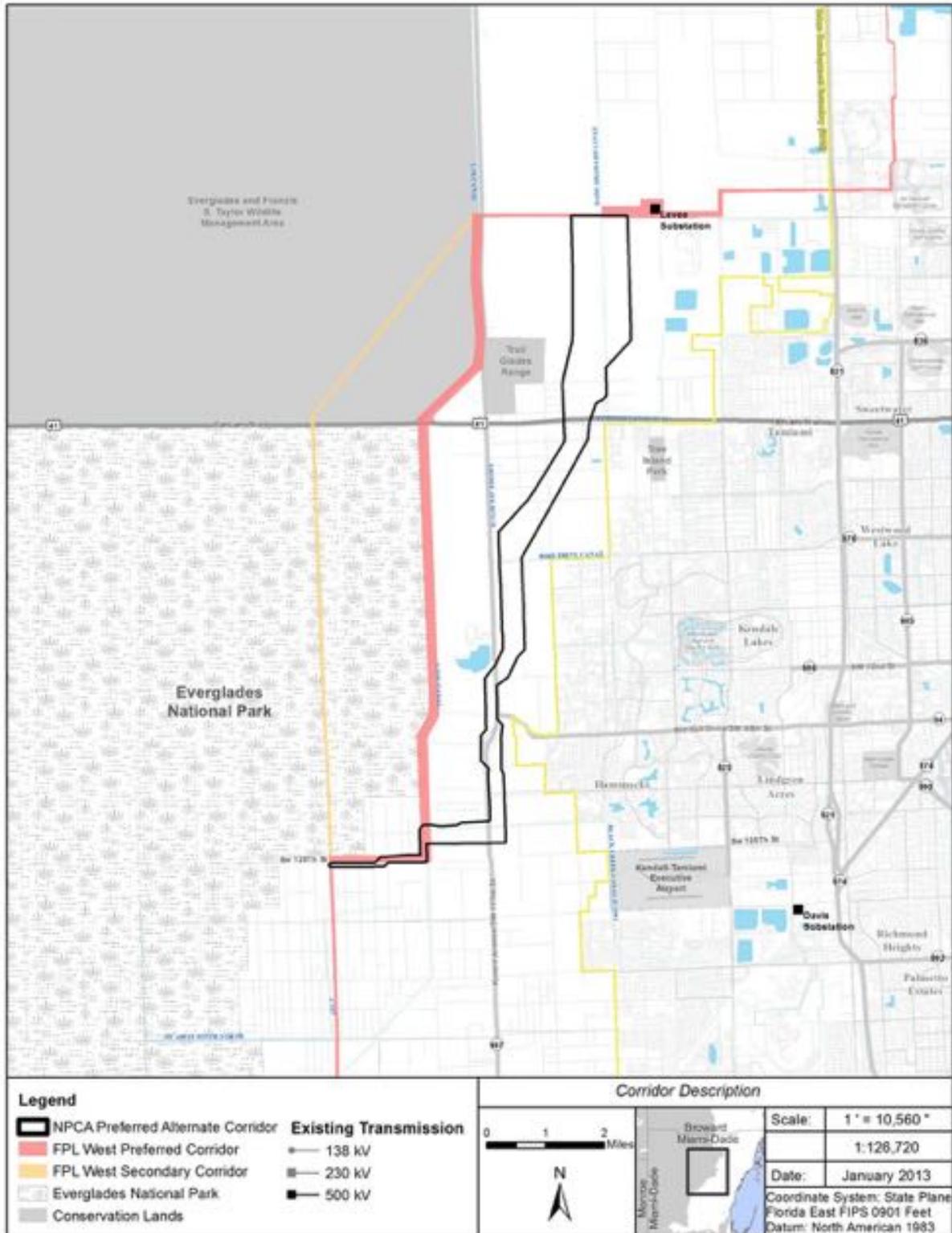
The Preferred Alternate Corridor then turns due north on the west side of the L-31N Canal for 2,700 feet. In this section, the Preferred Alternate Corridor is only 550 feet wide, as opposed to the West Preferred Corridor's 930 feet in order to minimize impacts on residences on the east side of the L-31N Canal. (See Map Sheet A-1.)

The Preferred Alternate Corridor then deviates from the West Preferred Corridor in order to minimize impacts on Everglades National Park, the Miami-Dade County East Everglades Area of Critical Environmental Concern Management Area 3B, Wetlands of International Importance, and ultimately wood stork colonies. In addition, the deviation from the West Preferred Corridor avoids potential conflicts with the SFWMD L-31N Canal ROW. The Preferred Alternate Corridor turns due east from the West Preferred Corridor for 1.3 miles with a corridor width varying between 1,550 and 1,990 feet. In this location the corridor occurs on both the north and south sides of the C-1W Canal, remaining 500 feet from a residential area associated with SW 100th Street, SW 104th Street, and SW 106th Street to the north. (See Map Sheet A-2.)

The Preferred Alternate Corridor then turns north on the east side of Krome Avenue, paralleling Krome Avenue and varying in width between 1,150 and 1,350 feet for nearly a mile, before widening to 1,800 feet to include lands both to the west and east of Krome Avenue, including an existing FPL 230 kV line east of Krome Avenue. The Preferred Alternate Corridor then heads north on both sides of Krome Avenue for 3,500 feet, remaining more than ¼ mile to the west of a planned community within the 2015 Urban Development Zone boundary and east of active mining areas. (See Map Sheet A-2.)

Just south of North Kendall Drive/SW 88th Street, the Preferred Alternate Corridor narrows to 1,000 feet wide, existing entirely on the west side of Krome Avenue in order to avoid the large intersection of Krome Avenue and Kendall Drive. The Preferred Alternate Corridor then travels north for 3,750 feet on the west side of Krome Avenue before turning northeast for approximately 3,900 feet, crossing Krome Avenue north of the Miccosukee Tribal lands. (See Map Sheet A-3.)

Figure 9-8. Corridor Description



From this point, the Preferred Alternate Corridor turns due north and widens to 1,950 feet, travelling approximately 1.5 miles due north before turning northeast north of SW 42nd Street/Bird Drive Canal through an area known as Bird Drive Basin, which is composed of primarily state, county, and SFWMD owned lands. (See Map Sheets A-4 and A-5.) The corridor is situated to allow maximum siting flexibility while also providing at least a sufficient set back from Krome Avenue and at least a ¼ mile setback from the developed residential area to the east, including a child care center near the intersection of Tamiami Trail and SW 157th Avenue. The Preferred Alternate Corridor in this section is between approximately 2,000 and 2,950 feet wide and travels northeast 2.7 miles from SW 42nd Street/Bird Drive Canal until crossing the Tamiami Trail/US Highway 41/SW 8th Street.

North of the Tamiami Trail, the Preferred Alternate Corridor widens to between 2,550 and 5,100 feet and travels for approximately 3.5 miles before terminating at the intersection of the West Preferred Corridor approximately 4,950 feet west of the Levee Substation. (See Map Sheets A-6 and A-7.)

9.3.3 Alternate Corridors

The Preferred Alternate Corridor described above is an alternate corridor to FPL's West Preferred and West Secondary Corridors. **Table 9-3** presents a comparison of these three corridors. Compared to FPL's West Preferred and West Secondary Corridors, the Preferred Alternate Corridor has less impact on wetlands, snail kite nests, wood stork nests, wading bird colonies, Wetlands of International Importance, and Miami-Dade County Area of Critical Environmental Concern. Although the Preferred Alternate Corridor does cross within 500 feet of three more residences than FPL's corridors (which do not cross any), this corridor selection study was designed to minimize impacts on residences. Overall, the Preferred Alternate Corridor would have the least impact on environmental and human resources of any corridor considered, while still being constructible and feasible.

Table 9-3. Comparison of the FPL's Corridors and the Preferred Alternate Corridor

Route	Preferred Alternate Corridor	FPL West Preferred	FPL West Secondary
Length Total (miles)	15.0	15.7	14.7
Wetland Categories (miles)			
Native Dominated Wetlands			
Freshwater Marshes	1.3	12.2	13.4
Mixed Wetland Hardwoods	1.2	0.6	0.4
Wet Prairies	2.5	0.2	0.03
Exotic Dominated Wetlands			
Exotic Wetland Hardwoods	3.1	0.7	0.7
Percent in Wetlands	54%	87%	99%
Sensitive Species and Habitat (miles)			
Distance to Snail Kite Nest	1.85 to 2.49	Found within Corridor	Found within Corridor
Distance to Wood Stork Nest	2.47 to 3.11	0.05	0.21
Distance to Wading Bird Colony	2.47 to 3.11	0.25	0.59
Wood Stork Core Foraging	15.0	15.7	14.7

Route	Preferred Alternate Corridor	FPL West Preferred	FPL West Secondary
Wetlands of International Importance	0.0	6.3	7.3
Miami-Dade County Area of Critical Environmental Concern (miles)			
Management Area 2A	0.0	1.2	2.7
Management Area 3A	0.0	1.3	1.2
Management Area 3B	0.0	2.6	1.1
Management Area 3C	0.0	2.2	2.5
Public Lands (miles)			
Everglades National Park	0.0	6.3	7.3
Other NPS Land	0.2	1.0	0.0
U.S. Army Corps of Engineers	1.3	1.4	0.0
State of Florida	1.3	3.2	3.1
Miami-Dade County	1.3	0.0	0.0
Native American Lands	0.0	0.0	0.0
SFWMD	2.3	1.4	1.9
Private Property	8.0	2.4	9.3
Private Property Owners Crossed	43	13	14
Total Parcels Crossed	113	88	25
2015 Urban Development Zone Crossed	0.0	0.0	0.0
Infrastructure			
Residences within 500 feet	3	0	0
Residences within 0.25 mile	15	0	12
Schools within 500 feet	0	0	0
Schools within 0.25 mile	0	0	0
Churches within 500 feet	0	0	0
Churches within 0.25 mile	0	0	0
Cemeteries within 500 feet	0	0	0
Road Crossings	13	7	4
Existing 230kV Transmission Crossings	4	0	0
Canal Crossings	6	3	3
Parallel Alignments (miles)			
Existing 230kV Transmission	2.6	0.0	0.0
Canal	4.9	11.4	0.0
Total Parallel Alignment	7.5	11.4	0.0
Percentage parallel	50%	73%	0%
Land Use (acres within estimated 330' ROW)			
Agriculture	5.9	1.8	0.0
Barren Land	0.1	0.1	0.05
Rangeland	0.5	0.1	0.1
Transportation, Communication and Utilities	0.03	0.0	0.0

Route	Preferred Alternate Corridor	FPL West Preferred	FPL West Secondary
Upland Forests	0.2	0.0	0.0
Urban and Built-Up	0.1	0.0	0.0
Water	0.03	0.04	0.05
Wetlands	8.2	13.7	14.5

9.3.4 Access Roads

It is anticipated that access roads for the Preferred Alternate Corridor would be constructed entirely or almost entirely within the proposed ROW, using the same specifications described by FPL for the West Preferred Corridor. According to FPL (SCA Chapter 9, W9.3.4), a single access road would be needed to access the structure pads for the two 500 kV and one 230 kV transmission lines along the length of the ROW. Access roads would be used for initial line construction and remain for routine maintenance and emergency access. FPL would evaluate existing access roads (e.g., agricultural roads, public roadways, and SFWMD levees) for possible use of these existing facilities. In some cases, these existing access roads may need to be improved to accommodate construction and maintenance equipment. Where access roads are currently not available or where existing roads need to be enhanced, the construction or enhancement of these roads would be completed with clean fill and the roads would be unpaved permanent roads.

Construction of access roads in uplands would be accomplished by first completing the clearing and grubbing of the road footprint and then placing, spreading, shaping, and compacting hauled clean fill to the design elevation.

Construction of access roads through wetlands would be accomplished by first installing silt fences or hay bales along the perimeter of the work area of the ROW, followed by selective clearing of the ROW to remove vegetation whose mature height could exceed 14 feet. Then an additional silt fence would be installed along both sides of the proposed access road footprint, followed by a final clearing and grubbing of the areas to be filled. After clearing and grubbing is complete, a geotextile liner may be laid and staked before road construction commences. The final grade of access roads is typically set to be 12 inches above the expected seasonal high water (or controlled high water) elevation. The typical top-width of an unpaved access road is 18 feet. Specific locations and design of access roads through wetlands would be part of the final design of the transmission line to be submitted to agencies as a post-certification submittal in compliance with the conditions of certification. Transmission line construction stormwater discharges released into waters of the state would be addressed through compliance with Rule 62-621.300(4) (Generic Permit for Stormwater from Large and Small Construction Activities).

Culverts are installed under access roads in wetlands to maintain channel flow and/or overland flow. Typically a minimum of 2 feet of cover is installed over culverts to ensure they are not crushed by vehicle loads. The culverts are installed so that their invert elevations match the wetland floor elevation. A combination of 18-, 24-, 30-, and 36-inch culverts is expected to be used on the transmission line access roads and structure pads where required to maintain existing surface water flows. Smaller diameter culverts are preferred, as practicable, to limit the depth of fill to be installed. However, larger diameter culverts may be required in some locations.

Culverts and access roads would be designed based on best available information and good engineering practice to equalize the water volume created from a small rainfall event. Culvert sizing for the access roads and structure pads in extensive wetland areas would be based on appropriate hydrological studies and comply with applicable codes and requirements. Where construction of

access roads and structure pads is required in wetlands, turbidity screens and erosion control devices would be used to minimize construction impacts on wetlands and waterbodies and ensure that state water quality standards for turbidity are met.

9.3.5 Cost Projections

It is expected that on a per-mile basis the construction and engineering costs for this Preferred Alternate Corridor would be the same or similar to the costs of FPL's West Preferred or West Secondary Corridors. The Preferred Alternate Corridor is approximately 1.2 miles shorter than the West Preferred Corridor. Therefore, it is expected that the construction and engineering costs would be the same or slightly less than those for the West Preferred Corridor.

However, the Preferred Alternate Corridor would cross more private, county, and state lands than the West Preferred or West Secondary Corridors. As such, FPL would need to obtain ROW easements from more landowners. The Preferred Alternate Corridor is expected to have greater land acquisition costs than FPL's two proposed corridors; however, these costs would not be outside the typical expected cost of ROW acquisition for typical transmission line projects within new ROWs.

According to FPL's response to the NPS Request for Additional Information as part of the Environmental Impact Statement for Acquisition of FPL Lands in the East Everglades Expansion Area, FPL estimated that ROW acquisitions costs for an Alternate Route outside the park would be in excess of \$100 million. According to FPL, this estimate is based on a ROW estimate prepared as part of the Miami-Dade Expressway Authority Draft Project Concept Report for the SR 836 Southwest Extension Project (MDX, May 2008, revised in August 2009). The SR 836 Southwest Extension Project is a proposed new expressway that would extend SR 836 west and south to SW 136th Street in West Kendall. According to the Draft Project Concept Report, the project is "envisioned as a multimodal corridor, including a limited access highway with limited interchanges and buffered protected areas."

The SR 836 Southwest Extension Project is located in the vicinity of the study area for the proposed FPL transmission lines. Specifically, SR 836 Alternate 1 is similar in length to the Preferred Alternate Corridor (approximately 14 miles long), and is located in a similar study area. According to the Draft Project Concept Report, the ROW cost estimate for SR 836 Alternate 1 was prepared based on specific parcel information and also included litigation support and settlement costs, site improvements, and modification allowances for business damages. The cost estimate for Alternate 1, which is 14 miles in total length and 120 to 200 feet wide (a total estimated area of 237.2 acres), is \$171,161,000. This conceptual cost estimate was prepared in May 2008 (HDR, May 2008). FPL indicated that it based its estimate of in excess of \$100 million for ROW acquisition on the ROW cost estimating report prepared for the SR 836 project.

While the SR 836 project is located in a similar study area and of comparable length, LBG does not believe that ROW acquisition costs for a road expressway are directly comparable to ROW acquisition costs for a transmission ROW. Specifically:

- Construction of a new roadway generally requires the purchase of the land in fee that is required for the ROW. Although the ROW report prepared for SR 836 indicates that easements may be obtained for properties aerially spanned by the elevated expressway, the pier foundations and at-grade areas would be purchased in fee and 13 of the 76 total parcels crossed (based on the 2009 report) are estimated to be fee purchases. Transmission lines, however, generally consist of purchasing a perpetual easement.
- When easements are purchased, the landowner still owns and can generally utilize the portion of his/her property traversed by the ROW. However, the utility may restrict certain

uses of the ROW including the construction of buildings, presence of trees that have the potential to interfere with the transmission line, and other potentially incompatible uses based on applicable regulations and utility policies. Road construction results in a physical barrier through a property that reduces the total usable land. Even if easements are obtained for portions of the road ROW, the elevated roadway is a greater encumbrance on a property than a transmission ROW.

- Property and business damages resulting from transmission line construction would be more limited when compared to those associated with road construction. Road construction results in a physical barrier through a property that may impact a property by altering or minimizing road frontage (in the case of businesses), site access, and the overall total usable square footage. For example, the Miami-Dade Expressway Authority assessment assumes higher severance damage costs for properties where the new road construction results in landlocked parcels.

LBG conducted a real estate acquisition assessment for the Preferred Alternate Corridor discussed in this document. This assessment is based on analysis of 2011 parcel market values, total parcel size, parcel use, and total acreage of ROW required. Although the Preferred Alternate Corridor varies in width between 330 feet and almost 1 mile, the Preferred Alternate Corridor transmission ROW is anticipated to be 330 feet wide by 15 miles long (approximately 600 total acres) when constructed. Therefore, LBG identified an example 330-foot ROW within the Preferred Alternate Corridor. LBG obtained parcel data information from Miami-Dade County, which included property assessment values from 2011. Based on review of the online property appraiser, property assessment values within the identified area were found to be equivalent to the market assessed values. Based on the example ROW, a total of 165 parcels would be crossed. However, 11 of these parcels are owned by FPL and were therefore excluded from the real estate acquisition analysis. **Table 9-4** identifies the total parcels crossed by property owner and size.

Table 9-4. Estimated Number of Parcels Crossed

Parcel Ownership	No. Parcels Crossed	Parcels < 1 Acre	Parcels 1 - 5 Acres	Parcels > 5 Acres
Federally Owned				
Everglades	5	0	5	0
U.S. Army Corps of Engineers	32	3	27	2
State Owned				
SFWMD	30	0	8	22
TIITF ¹	2	0	0	2
TRS II FUND ²	18	2	5	11
County Owned				
County	14	0	4	10
Privately Owned				
Private	53	1	21	31
Total without FPL	154	6	70	78

¹ Trustees of the Internal Improvement Trust Fund

² Telecommunications Relay Services (TRS) II Fund

In accordance with state law, Miami-Dade County reassesses property values each year. Based on information from the county assessor's website, the assessor determines an assessed value for

taxation purposes as well as a market value for every property. As described by the county assessor, "market value is the most probable sales price [a] property should bring in a competitive and open market without any undue influence." The assessor determines a market value based on one or a combination of the following three approaches:

1. analysis of recent sales of similar properties;
2. the cost to reproduce the property; and,
3. the ability of the property to earn income.

These approaches are described in more detail on the Miami-Dade County assessor's website (http://www.miamidade.gov/pa/property_value.asp).

Using the electronic parcel data and estimated transmission ROW location within the Preferred Alternate Corridor, LBG estimated the number and type of parcels traversed. Based on information provided from FPL, it is assumed that FPL would purchase perpetual easements from each affected property owner. While easement agreements are less restrictive than property purchase, many utilities offer market value for easements. LBG assumed that all access roads would consist of existing roads or new access roads located within the acquired transmission ROW. Therefore, no additional real estate costs were estimated for access roads.

LBG estimated a property acquisition cost per parcel based on the property market value, an encumbrance multiplier (1.5 to 2.0) based on the property type and the total parcel size (< 1 acre, 1 to 5 acres, and > 5 acres), and the total ROW acreage required. For example, construction of a new transmission line on properties less than 1 acre in size is expected to result in a greater impact than larger properties. As shown in **Table 9-4**, the majority of properties crossed by the ROW are greater than 1 acre. LBG believes that the fair market value represents a reasonable estimate for ROW acquisition, especially since FPL would only purchase easements and the area is largely undeveloped. The encumbrance multiplier was added to account for the potential for FPL to pay more than the market value of the property and differences between the 2011 market value and the actual market value as determined by an appraiser during the ROW acquisition process. Finally, an additional 20 percent was added to the final cost to account for the land acquisition process. **Table 9-5** presents the estimated real estate acquisition costs.

Table 9-5. Estimated Real Estate Acquisition Costs

Land Use	Total
Agricultural	\$10,240,355
Private/Government	\$9,229,767
Total	\$19,470,122
Total with 20% Markup	\$23,364,146

Real estate costs present significant cost and schedule uncertainties due to a number of unknown variables, including the state of the local real estate market at time of purchase, resistance from property owners, and potential litigation. For example, property values in south Florida in 2011/2012 have declined from 2008/2009, which is when the Miami-Dade Expressway Authority study was conducted. In some cases, a project proponent may choose to pay a higher price for the ROW easement to avoid costly litigation. If properties are appropriated through exercising the power of eminent domain, then a jury would determine the amount of compensation paid to the property owner. The compensation would include the reproduction cost of the property sought to be appropriated minus depreciation, together with going concern value, and, when less than the entire property is sought to be appropriated, any damages to the remainder of the property caused by the

taking. The eminent domain process is governed by procedures set forth in Chapters 73 and 74, F.S. Based on LBG's experience with other projects, it is not anticipated that a high percentage of properties would require litigation through eminent domain, especially considering the number of properties that are owned by federal, state, or county entities.

FPL has stated that it would cost in excess of \$100 million dollars to acquire ROW outside of Everglades National Park if the land swap did not occur (FPL 2011). As previously stated, this cost was based on estimates developed in a study by the Miami-Dade Expressway Authority for the SR 836 extension in the Krome Avenue/Tamiami Trail area (Miami-Dade Expressway Authority 2009). LBG believes this is an overestimate of land acquisition costs for the reasons presented previously, and suggests that \$23,364,146 is a more reasonable estimate for ROW acquisition costs. Appendix B provides a detailed breakdown of the ROW acquisition costs.

Since FPL estimates that construction would begin 3 to 5 years from this application, the impact on final costs due to market variations in materials, equipment, and labor is difficult to predict. The costs to integrate and interconnect the new generation are the result of a series of transmission studies that would continue to be reviewed by FPL and revised closer to the time of construction. The detailed location and design of the transmission lines, including the technological option to be used in each location and the number and types of structures necessary to complete those transmission lines, would be determined by FPL following corridor certification and, where necessary, selection of the ROW within the corridor.

9.3.6 Socio-Political Environment of the Corridor Area

9.3.6.1 Governmental Jurisdictions

The Preferred Alternate Corridor is located entirely within Miami-Dade County and crosses no municipal jurisdictions. **Figure 9-9** depicts the jurisdictions, as well as lands owned, managed, or specially designated by governmental jurisdictions located in or within a 0.5 mile of the Preferred Alternate Corridor. **Table 9-6** provides a list of these governmental lands within 0.5 mile of the Preferred Alternate Corridor.

Figure 9-9. Government Management

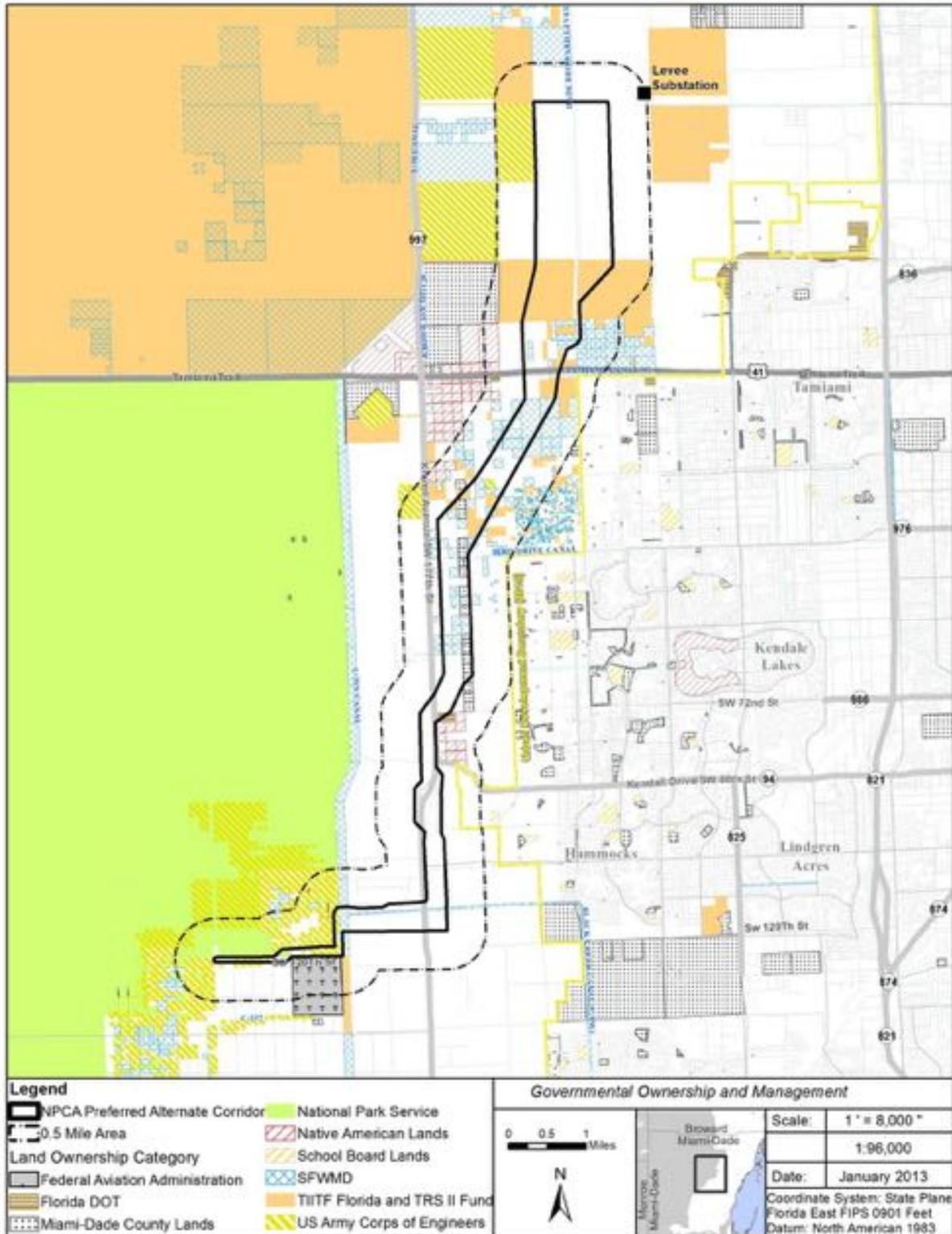


Table 9-6. Government Ownership and Management within 0.5 Mile of Preferred Alternate Corridor

Property Type	Property Owner
Federal and Tribal Lands	
Everglades National Park	U.S. Department of Interior, NPS
Native American Properties	Miccosukee Tribe of Indians of Florida
Various Properties	U.S. Army Corps of Engineers, Federal Aviation Authority, Florida Department of Transportation, National Park Service
State	
East Coast Buffer SOR	SFWMD
Bird Drive Recharge Area	SFWMD
8.5 Square Mile Area	National Park Service, SFWMD, U.S. Army Corps of Engineers
County	
Trail Glades Range	Miami-Dade County
Bird Basin Park	Miami-Dade County

9.3.6.2 Zoning and Land Use Plans

The Power Plant Siting Act (PPSA), comprising Sections 403.501 through .518, F.S., is the process for licensing of certain electrical generating power plants and associated facilities such as transmission lines. While most large-scale developments typically require permits and approvals from local, regional, and state agencies, certain power plants and associated facilities receive all necessary regulatory approvals through the PPSA process. All procedures for the issuance of local, regional, and state permits and/or approvals are preempted by the PPSA, and only a certification is issued. Unless a variance, exemption, or exception is approved through the PPSA process, all applicable nonprocedural requirements of the agencies and local governments are applied to the transmission line certified corridor through the agency and governmental review and any appropriate conditions of certification.

Florida law excludes electrical transmission lines and certain other linear utility facilities from the definition of development that is subject to local government comprehensive plans, zoning ordinances, and land development regulations (see Section 163.3164[6], F.S.). Therefore, under Florida law, the Preferred Alternate Corridor described herein is not subject to future land use planning or zoning regulations. (See also Section 403.50665, F.S.)

To assist in characterizing the areas through which the Preferred Alternate Corridor is located, the following subsections describe the various future land use categories and zoning districts crossed by the corridor. Also described are potentially applicable regulations from the codes of ordinances of the local governmental jurisdictions in which the Preferred Alternate Corridor is located. The procedures of the PPSA supersede many otherwise applicable procedural provisions of comprehensive plans, zoning ordinances, and land development regulations. Any references to such non-applicable procedures in the following paragraphs are provided only for the purpose of a thorough review of the contents of the land use provisions of the various governmental entities.

Comprehensive plans — Appendix C (Map Sheets C-1 through C-7) shows the location of the Preferred Alternate Corridor in relation to the adopted Miami-Dade future land use maps (FLUMs).

The Preferred Alternate Corridor crosses unincorporated areas of Miami-Dade County and no incorporated municipalities. The Local Government Comprehensive Planning and Land Development Regulation Act of 1985 (Chapter 163, F.S.) requires all counties and municipalities within the state to prepare comprehensive plans. The Preferred Alternate Corridor crosses four future land use categories, as identified in the Adopted 2015 and 2025 Miami-Dade County Comprehensive Development Master Plan: Institutions, Utilities, and Communications, Agriculture, Open Land, Environmental Protection. Descriptions of these future land use categories are provided in the following subsections.

Institutions, utilities, and communications — The Miami-Dade FLUMs depict the location of large-scale public facilities, institutional and communication uses, and utilities in Miami-Dade County. In this specific instance, the land use designation is a linear corridor between SW 72nd Street and SW 26th Street. The Preferred Alternate Corridor is included in this area.

Agriculture — This category designates the best agricultural land remaining in the county and is intended for agriculture and uses ancillary to and directly supportive of agriculture and farm residences. Also included in this land use category are enclaves of estate density residential use approved and grandfathered by zoning, ownership patterns, and platting activities that predate the comprehensive plan. Residential development is allowed at a density of no more than one unit per 5 acres. The Preferred Alternative Corridor is located within a designated subarea, the Agricultural Subarea 1 (East Everglades Agricultural Area). Use in this subarea is limited to: (1) lawful agricultural uses; (2) rural residences at a maximum density of one dwelling unit per 40 acres, or one dwelling unit per 20 acres if ancillary to a lawfully established agricultural use; and (3) uses permitted under the vested rights provisions of Section 33B-29, Code of Miami-Dade County, Florida.

Open land — This category is not intended for urban uses until 2015, and has been set aside for uses other than urban development. It includes land intended to serve one or more of the following functions: production such as agriculture, limestone extraction or other resource-based activities such as development of potable water supplies; rural residential development at a maximum density indicated for the specific Open Land subarea, but no greater than one unit per 5 acres; recreation; commercial vehicle storage as indicated for the specific Open Land Subarea; compatible utility and public facilities as indicated for the specific Open Land Subarea; and conservation, maintenance, or enhancement of environmental character. Also included are some existing agricultural activities and some enclaves of estate density residential uses. The Preferred Alternate Corridor is located within land designated as Open Land in the area south of the Tamiami Trail and north of SW 56th Street.

Environmental protection — This category applies to areas in the county most environmentally significant, most susceptible to environmental degradation and where such degradation would adversely affect the supply of potable fresh water, or environmental systems of county, regional, state or national importance. These lands are characteristically high-quality marshes, swamps and wet prairies, and are not suited for urban or agricultural development. The Preferred Alternate Corridor is located in this category directly north of the Tamiami Trail and within the Environmental Protection Subarea C (Miami-Dade-Broward Levee Basin). Until the lands are acquired by SFWMD, they may be considered for approval to include rural residences at a maximum density of one dwelling unit per 5 acres, communications facilities with limited ground coverage, recreational facilities, and necessary, compatible public facilities including water management facilities.

The Miami-Dade County Comprehensive Development Master Plan (future land use section) states, electric power transmission line corridors are permitted in every land use category when located in established ROWs or certified under the Florida Electrical Power Plant Siting Act (Sections 403.501-403.518, F.S.) as an ancillary use to a new power plant or the Transmission Line Siting Act (Sections 403.52-403.5365 F.S.). If it does not meet the above criteria, electrical transmission lines may be located in land designated as Institutions, Utilities and Communications; Industrial and

Office; Business and Office; or Parks and Recreation. This is consistent with the allowance for electric transmission lines in every land use category under Florida law, as previously referenced.

Zoning and land use restrictions — Zoning within the Preferred Alternate Corridor is shown in Map Sheets D-1 through D-7 in Appendix D. The Preferred Alternate Corridor crosses two zoning districts in Miami-Dade County, including Agricultural District (AU-30) and Interim District (GU-30).

9.3.6.3 Easements, Title, Agency Works

Easements, approvals, and various other authorizations would be required to cross certain lands under federal, state, regional, or local governmental jurisdictions. Road crossings in the Preferred Alternate Corridor would require Florida Department of Transportation (FDOT) (including U.S. 41/Tamiami Trail, and Krome Avenue), Miami-Dade County, or local government approvals or easements for crossing or collocating within those facilities. All crossings of state roadways would conform to the applicable specifications in FDOT's Utility Accommodation Manual (2007).

Additionally, the Preferred Alternate Corridor crosses several canals/waterways under the jurisdiction of SFWMD, the U.S. Army Corps of Engineers (USACE), or the Miami-Dade County Public Works Department. Those would require crossing approvals or easements and are addressed in Section 9.3.7.2. Other lands or facilities requiring special approvals are listed in **Table 9-7**.

Table 9-7. Easement Requirements

Governmental Jurisdiction	Affected Agency	Type of Approval
Various Canals: SW 42 St Ditch, Dade Broward Levee, Black Creek Canal (C-1W), Tamiami Canal (C-4), L-31N Canal, Krome Avenue Ditch East	SFWMD, Miami-Dade County Public Works, Miami-Dade County FDOT	Works of the District approval, crossing permit, easement
State Road (SR) 997 (Krome Avenue)	FDOT	Utility
U.S. 41 (Tamiami Trail)	FDOT	Utility
Various county roads	Miami-Dade County Public Works	Utility
County lands	Miami-Dade County	Permit/easement
SOR lands	SFWMD	Works approval/easement

9.3.6.4 Vicinity Scenic, Cultural, and Natural Landmarks

Everglades National Park — the park is the largest notable scenic, cultural, or natural landmark within 5 miles of the Preferred Alternate Corridor. The park was authorized by Congress in 1934. A fundamental purpose for the park's establishment was provided in the enabling legislation:

"The said area or areas shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in this area."

Because park lands could be acquired only through public or private donation, land acquisition proceeded slowly over the ensuing years. Through the sustained efforts of many supporters, and critical funding provided by the state of Florida, the park was eventually established 13 years later. President Harry S. Truman dedicated the park on December 6, 1947.

Everglades National Park was the first national park in the United States set aside solely for its biological resources rather than its scenic or historic values. The park was established as a permanent wilderness, preserving essential primitive conditions, including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna. More than 60 years later, protection of the park's natural resources and ecosystem remains a primary focus of park management.

From the original 460,000 acres at the time of the park's establishment in 1947, boundary changes expanded the park to 1.4 million acres by 1958. The Everglades National Park Protection and Expansion Act of 1989 (Public Law 101-229) (Expansion Act) added the East Everglades expansion area (EEEA) (109,506 acres) to the park, bringing the Northeast Shark River Slough (NESRS) within the park boundaries. The EEEA is just south of the Tamiami Trail in Miami-Dade County. Everglades National Park contains the largest federally-designated wilderness area east of the Rocky Mountains (1,296,000 acres) and the EEEA is currently being evaluated for its wilderness eligibility as part of the park's General Management Plan process (the draft plan is scheduled for public review in early 2013). Both the FPL West Preferred and West Secondary corridors are within the EEEA.

Save Our Rivers lands — In 1981, the Florida Legislature created the Water Management Lands Trust Fund, also funded from documentary stamp tax revenues from real estate transactions, for the acquisition and restoration of water resources. The funds for this Save Our Rivers (SOR) Program were distributed among the five Water Management Districts based roughly on relative population within the districts: 30 percent to the SFWMD, 25 percent to Southwest Florida WMD, 25 percent to St. Johns River WMD, 10 percent to Suwannee River WMD, and 10 percent to Northwest Florida WMD. Funding for the SOR program has been significantly increased since 1990 (see below), with the result that the five districts have now purchased more than 1.7 million acres of land through this program. Land acquisition for the much-publicized restoration of the Florida Everglades has been funded to a great extent from the SOR program of the SFWMD. Title to lands purchased with SOR funds is held by the districts, not the state (FDEP 2011).

Everglades and Francis S. Taylor Wildlife Management Area — The state-owned and managed Everglades and Francis S. Taylor Wildlife Management Area is part of what remains of the largest freshwater marsh ecosystem in the United States. Today the 671,831-acre Everglades and Francis S. Taylor Wildlife Management Area is the northern and central core of the Everglades, buffering Everglades National Park and Big Cypress National Preserve from extensive agricultural fields to the north and residential development to the east. Although airboats and tracked vehicles are necessary to reach the interior, the extensive network of levees and canals constructed for flood control and water supply provide opportunities for fishing, frogging, hiking, biking, and wildlife viewing (FWC 2012). SFWMD Water Conservation Areas (WCAs) 2A, 3A, and 3B are located within the Everglades and Francis S. Taylor Wildlife Management Area (SFWMD no date).

9.3.6.5 Archeological and Historic Sites

A cultural resources survey of the Preferred Alternate Corridor has not been conducted. Such a survey would be conducted if the corridor is certified and the ROW is acquired by FPL. However, findings of some recent studies in the vicinity of the Preferred Alternate Corridor are included below.

New South Associates (NSA) conducted a cultural resources survey on FPL's West Preferred Corridor on behalf of FPL (2009). Based on results of aerial photograph analysis, shovel testing, and pedestrian inspection, NSA concluded that the West Preferred Corridor would have no effect on properties eligible or potentially eligible for listing in the National Register of Historic Places (NRHP). During its research, NSA identified 14 cultural resources sites on the Florida Master Site Files (FMSF) within 1 mile of FPL's West Preferred Corridor. Although none of these sites are within 1 mile of the Preferred Alternate Corridor, they are within 5 miles. **Table 9-8** presents these sites.

Table 9-8. Cultural Sites Identified in FPL West Preferred Study (2009)

Site #	Location	Site Name	Cultural Affiliation	NRHP Evaluation
8DA0094	Between L-31N Canal and Krome Avenue	Bamboo Mound	Late Archaic, Glades, Seminole	Not Evaluated by SHPO
8DA2102	Between L-31N Canal and Krome Avenue	Refugee Island	Glades IIa	Not Evaluated by SHPO
8DA2103	Between L-31N Canal and Krome Avenue	Dade Corners	Glades	Not Evaluated by SHPO
8DA2104	Between L-31N Canal and Krome Avenue	Levee Cut	Pre-Glades, Glades II and III	Eligible
8DA2110	Between L-31N Canal and Krome Avenue	Voodoo Island	Glades	Not Evaluated by SHPO
8DA2191	West of L-31N in the vicinity of SW 189th Drive	NN	Unknown	Not Evaluated by SHPO
8DA6453	Tamiami Trail west of L31N	Tamiami Canal	Twentieth-Century Resource Group	Eligible
8DA6460	Between L-31N Canal and Krome Avenue	Panther North	Late Archaic	Not Evaluated by SHPO
8DA6461	Between L-31N Canal and Krome Avenue	Panther South	Late Archaic	Not Evaluated by SHPO
8DA6510	Tamiami Trail west of L-31N Canal	Tamiami Trail	Twentieth-Century Resource Group	Potentially Eligible
8DA6907	Between L-31N Canal and Krome Avenue	Target 4	Glades	Not Evaluated by SHPO
8DA6908	Between L-31N Canal and Krome Avenue	Target 17	Glades	Not Evaluated by SHPO
8DA6909	Between L-31N Canal and Krome Avenue	Target 37	Glades	Not Evaluated by SHPO
8DA6910	Between L-31N Canal and Krome Avenue	Target 40N	Glades	Not Evaluated by SHPO

NSA also conducted a study in Miami-Dade County, Florida, in July 2009 to support the Tamiami Trail Modifications “Next Steps” Environmental Impact Statement (EIS) and compliance with Section 106 of the National Historic Preservation Act (January 2010) (NPS 2010a). No sites were identified within a mile of the Preferred Alternate Corridor.

9.3.7 Bio-Physical Environment of the Corridor Area

9.3.7.1 Land Use/Vegetation

LBG identified the existing land use and vegetation cover types for the Preferred Alternate Corridor using SFWMD’s land use and vegetation data published in 2004 and updated by SFWMD in 2011. SFWMD’s minimum mapping units are 5 acres or larger in size for uplands and 2 acres or larger in size for wetlands. SFWMD used FDOT’s Florida Land Use, Cover, and Forms Classification System (FLUCCS) (FDOT 1999) Categories II, III, and IV to identify land uses and vegetation types within

SFWMD's boundaries. The land use and vegetation classifications that occur within the corridor and the 0.5-mile area adjacent to either side as mapped by SFWMD are shown in Appendix E (Map Sheets E-1 through E-7). Descriptions of the land use and vegetation classifications that occur within the Preferred Alternate Corridor are provided in the following subsections and follow those provided in the FLUCCS manual (FDOT 1999). LBG did not field verify the accuracy of the SFWMD FLUCCS data or the FDOT FLUCCS descriptions as applied to the Preferred Alternate Corridor and the 0.5-mile buffer. The vegetation communities actually present within the Preferred Alternate Corridor and the 0.5-mile area to either side may differ from those mapped by SFWMD.

Land use — Urban and built-up land uses (1000 series classifications) consist of lands primarily occupied by manmade structures and associated activities. Low-density residential development, rock quarries, and open lands (undeveloped lands within urban areas) are land uses in this series that occur in the Preferred Alternate Corridor. The agricultural land uses (2000 series classifications) such as field crops and fallow crop land are also present within the Preferred Alternate Corridor.

Barren land (7000 series classifications) has little or no vegetation and limited potential to support vegetative communities. Two such categories, disturbed land and fill areas for highways-railways, are present in the Preferred Alternate Corridor. Transportation, communication, and utilities (8000 series classifications) consist of land primarily occupied by manmade facilities, which are necessary for movement of people and goods, airwave communications, power generating, and water supply and treatment plants. The roads and highways found within the Preferred Alternate Corridor are found within this series.

Vegetation — Although some of the areas within the Preferred Alternate Corridor have been altered by the various human-induced changes, a variety of plant communities of varying quality exist within the Corridor. Table 9-9 identifies the total acreage and percent of each vegetation type within the Preferred Alternate Corridor. Descriptions of the upland communities (3000 and 4000 series classifications), aquatic communities (5000 series classifications), and wetland communities (6000 series classifications) found within the corridor(s) are presented in the following subsections.

Table 9-9. Vegetation within the Preferred Alternate Corridor

FLUCCS Code	Vegetation Type	Acreage	Percent of Corridor
1180 - Herbaceous (Dry Prairie)	Upland NonForested	17.5	0.4%
2150 - Field Crops	Agriculture	816.75	20.7%
3300 - Mixed Rangeland	Upland NonForested	18.2	0.5%
3200 - Upland Shrub and Brushland	Upland NonForested	7.9	0.2%
4240 - Melaleuca	Upland Hardwood Forest	39	1.0%
4240 - Brazilian Pepper	Upland Hardwood Forest	18.5	0.5%
6410 - Graminoid Prairie - Marsh 6411 - Sawgrass marsh	Freshwater Marshes	1,004.3	25.4%
6430 - Wet Prairies	Wet Prairies	503.2	12.7%
6172 - Mixed Shrubs (Wetland)	Mixed Wetland Hardwoods	636.7	16.1%
6191 - Wet Melaleuca	Exotic Wetland Hardwoods	855.8	21.7%
	Total	3,917.85	99.2%
Other*		30.5	0.8%

* Consists of water, developed, or barren land.

Approximately 22 percent of the Preferred Alternate Corridor contains lands that have already been cleared and maintained for agriculture, mining, and development (including roads and railways). Construction associated with the transmission lines should not result in any significant additional adverse changes to vegetation in these areas. Limited permanent alterations would be associated with ROW clearing, access road and structure pad installation, and additional ROW maintenance.

Approximately 39 percent of the Preferred Alternate Corridor crosses forested lands. According to data provided by SFWMD, approximately 59 percent of the forested acreage is dominated by exotic species including upland and wetland melaleuca and Brazilian pepper. The remaining forested acreage within the Preferred Alternate Corridor is classified as mixed shrubs (mixed wetland hardwoods).

Upland Communities — Upland communities found within the corridor(s) range from less disturbed communities to areas vegetated by a variety of exotic plants classified as Category 1 invasive exotic plants by Florida Exotic Pest Plant Council (FLEPPC) exotic species such as Brazilian pepper (*Schinus terebinthifolius*), melaleuca (*Melaleuca quinquenervia*), or Australian pine (*Casuarina equisetifolia*). The upland communities that exist within the Preferred Alternate Corridor are summarized in the following paragraphs.

- Upland Shrub and Brushland-3200: This category includes saw palmettos, gallberry, wax myrtle, coastal scrub and other shrubs and brush. Generally, saw palmetto is the most prevalent plant cover intermixed with a wide variety of other woody scrub plant species as well as various types of short herbs and grasses. Coastal scrub vegetation would include pioneer herbs and shrubs composed of such typical plants as sea purslane, sea grapes, and sea oats without any one of these types being dominant (FDOT 1999).
- Mixed Rangeland-3300: When more than one-third intermixture of either grassland or shrub-brushland range species occurs, the specific classification is changed to Mixed Rangeland. Where the intermixture is less than one-third, it is classified as the dominant type of rangeland, whether Grassland or Shrub and Brushland categories (FDOT 1999).
- Brazilian Pepper- 4220: This exotic, pestilent tree species is found on peninsular Florida from the Tampa Bay area southward. Commonly found on disturbed sites, this native of Brazil is also an aggressive invader of Florida's plant communities. Communities of these small, shrub-like trees are often established along borrow-pits, levees, dikes and in old disturbed fields (FDOT 1999).
- Melaleuca-4240: This exotic tree species occurs in almost pure stands. It is an aggressive competitor, invading and often taking over a site, forming a dense, impenetrable stand. Melaleuca generally is an indicator of a disturbed site (FDOT 1999).

Aquatic and wetland communities — Aquatic communities within the Preferred Alternate Corridor are limited to canals. No natural aquatic communities exist within the corridor. Forested and herbaceous wetlands in the Preferred Alternate Corridor include freshwater marsh, wet prairies, and exotic and mixed wetland hardwoods associations. The quality of the wetlands is indicative of drainage impacts or location within/next to intensive agricultural or developed areas such that the inherent functional values of wildlife habitat, water quality, and flood attenuation have been severely degraded. The extensive drainage system (canals/ditches) that has been constructed in the region has drastically altered the historical hydrology of the wetland communities in the corridor with a concomitant change to structure and functional attributes. This is often manifested by the proliferation of transitional or even upland species, as well as exotics in many wetlands within the region.

- Canals-5120: Several drainage canals are crossed by the Preferred Alternate Corridor. Canals in this area are typically vegetated by a variety of floating and emergent hydrophytes. Most of the linear waterways are periodically maintained by the spraying of herbicides to maintain flow. Much of the vegetation in these canals is considered nuisance species, either native or exotic. The banks (spoil areas) along these linear water bodies are also dominated by weedy, often nuisance, native and exotic plants.

Mixed Shrubs-6172: This category is reserved for those wetland shrub communities that are composed of a variety of species tolerant of hydric conditions yet exhibit an ill-defined mixture of species. These areas are characteristically flooded or saturated for much of the year, drying only for short periods during the dry winter season. Construction of ditches and canals has shortened the hydroperiod of many of these areas.

- Exotic Wetland Hardwoods-6190: This category is a wetland with a dominant exotic species such as Brazilian pepper, melaleuca, or other exotic species (FDOT 1999). Areas of exotic wetland hardwoods in the Preferred Alternate Corridor are classified by SFWMD as dominated by melaleuca (FLUCCS 6191).
- Freshwater Marshes-6410: The communities included in this category are characterized by having one or more of the following species predominate (FDOT 1999):
 - Sawgrass - *Cladium jamaicensis*
 - Cattail - *Typha domingensis*, *Typha latifolia*, or *Typha angustifolia*
 - Arrowhead - *Sagittaria* sp.
 - Maidencane - *Panicum hemitomon*
 - Buttonbush - *Cephalanthus occidentalis*
 - Cordgrass - *Spartina bakeri*
 - Giant cutgrass - *Zizaniopsis miliacea*
 - Switchgrass - *Panicum virgatum*
 - Bulrush - *Scirpus americanus*, *Scirpus validus*, or *Scirpus robustus*
 - Needlerush - *Juncus effusus*
 - Common Reed - *Phragmites communis* or *Phragmites australis*
 - Arrowroot - *Thalia dealbata* or *Thalia geniculata*

If the community is 66 percent or more dominated by a single species by cover, one of the following Level IV classifications will be employed (FDOT 1999):

- 6411: Sawgrass
- 6412: Cattail
- 6413: Spike rush

- 6414: Maidencane
- 6415: Dog fennel and low marsh grasses
- 6416: Arrowroot
- 6417: Freshwater marsh with shrubs, brush, and vines
- 6418: Giant cutgrass

Some freshwater marsh areas within the Preferred Alternate Corridor are dominated by sawgrass and therefore characterized as Sawgrass Marsh (FLUCCS 6411). Many marshes within the Preferred Alternate Corridor have been impacted by drainage and agricultural practices to varying degrees.

- Wet Prairies-6430: This classification is composed predominately of grassy vegetation on hydric soils and is usually distinguished from marshes by having less water and shorter herbage. These communities will be predominated by one or more of the following species (FDOT 1999):
 - Sawgrass - *Cladium jamaicensis*
 - Maidencane - *Panicum hemitomon*
 - Cordgrasses - *Spartina bakeri* or *Spartina patens*
 - Spike rushes - *Eleocharis* sp.
 - Beach rushes - *Rhynchospora* sp.
 - St. Johns Wort - *Hypericum* sp.
 - Spiderlily - *Hymenocallis palmeri*
 - Swampily - *Crinum americanum*
 - Yellow-eyed grass - *Xeric ambigua*
 - Whitetop sedge - *Dichromena colorata*

As with freshwater marshes, wet prairies have been impacted by drainage and agricultural practices to some degree.

9.3.7.2 Affected Waters and Wetlands

LBG identified surface waterways, waterbodies and wetlands that are crossed/included within the Preferred Alternate Corridor using SFWMD land cover mapping (SFWMD 2011), 2010 aerial photographs, and hydrologic information from Miami-Dade County GIS and SFWMD. (See **Table 9-10**). There are no waterbodies or natural surface waterways within the Preferred Alternate Corridor; however, there are several ditches and canals within the Preferred Alternate Corridor.

Table 9-10. Canals Crossed by the Preferred Alternate Corridor

Name	Type	Organization
Black Creek Canal (C-1W)	Primary Canal	SFWMD: Homestead Field Station
Dade Broward Levee	Existing Canal or Ditch Improvement Planned	Miami-Dade County Department of Environmental Resource Management Water Management
Krome Ave Ditch East	Other Waterway	Florida Department of Transportation
L-31N Canal	Primary Canal	SFWMD: Homestead Field Station
SW 42 St Ditch	Other Waterway	Miami-Dade County Public Works & Solid Waste Department
Tamiami Canal (C-4)	Primary Canal	SFWMD: Miami Field Station

Wetlands. Wetlands within 0.5-mile from the Preferred Alternate Corridor as identified by SFWMD (2011) are depicted on Appendix E in Map Sheets E-1 through E-7. Descriptions of the wetland communities are found in Section 9.3.7.1.

9.3.7.3 Ecology

Common Wildlife Species Likely to Occur in the Preferred Alternate Corridor. Common bird species likely to occur in the Preferred Alternate Corridor include a variety of herons and egrets, red-winged blackbirds, common and boat-tailed grackles, common yellow-throat, and birds of prey such as the northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), and sharp-shinned hawk (*Accipiter striatus*). Upland bird species likely to occur in this area include the northern cardinal (*Cardinalis cardinalis*), turkey vulture (*Cathartes aura*), mockingbird (*Mimus polyglottos*), and mourning dove (*Zenaida macroura*).

Common mammals likely to occur in the Preferred Alternate Corridor include the opossum (*Didelphis virginiana*), marsh rabbit (*Sylvilagus palustris*), raccoon (*Procyon lotor*), and the occasional white-tailed deer (*Odocoileus virginianus*). Other mammals that may occur in the area include otters (*Lutra canadensis*), bobcats (*Lynx rufus*), least shrews (*Cryptotis parva*), and cotton rats (*Sigmodon hispidus*).

Amphibians and reptiles strongly associated with wetlands that have been observed in the Bird Drive Basin area (and are likely to occur in other wet habitats within the Preferred Alternate Corridor) include pig frog (*Rana grylio*), leopard frog (*Rana sphenoccephala*), snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon baurii*), banded water snake (*Nerodia fasciata*), Florida chicken turtle (*Deirochelys reticularia*), and alligator (*Alligator mississippiensis*) (Richter 1988). Other amphibians and reptiles likely to occur in the Preferred Alternate Corridor include the southern toad (*Bufo terrestris*), Cuban tree frog (*Osteropilus septentrionalis*), Florida box turtle (*Terrapene carolina bauri*), and racer (*Coluber constrictor*) (Richter 1988).

A variety of domestic and exotic species are to likely occur within the Preferred Alternate Corridor including, but not limited to, feral cats and dogs, marine toads, brown anoles, and pythons.

Threatened and Endangered Species. The USFWS Information, Planning, and Conservation System (IPaC) and the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix (FNAI 2012b) were queried to generate an initial list of species protected under state and federal protected species laws that could potentially be found within the Preferred Alternate Corridor. This list was modified after review of Chapter 9 of the FPL SCA (2009), the 2010 EIS conducted by NPS for the Tamiami Trail Modifications, and discussions with NPS biologists. In addition, the FNAI Element Occurrence Data

for Miami-Dade County (2012a) was reviewed and there were no reported occurrences within 0.5 mile of the Preferred Alternate Corridor. The species were categorized by LBG as follows:

- Dismissed from further analysis – species whose range does not include the Preferred Alternate Corridor (or 0.5-mile buffer area) or whose preferred habitat is not known to occur in the Preferred Alternate Corridor (or 0.5-mile buffer area); species that may only rarely cross the Preferred Alternate Corridor (or 0.5-mile buffer area), but are not known to utilize this area extensively for foraging, breeding, or nesting
- Low – species which may occasionally use the Preferred Alternate Corridor (or 0.5-mile buffer area) for foraging, breeding, or nesting.
- Moderate – species known to occur adjacent to the Preferred Alternate Corridor (or 0.5-mile buffer area) and that may forage within the Preferred Alternate Corridor (or 0.5-mile buffer area).
- High – species known to occur the Preferred Alternate Corridor (or 0.5-mile buffer area) or likely to occur in this area based on habitat present and proximity of known occurrences.

Below is a discussion of the federally and state listed species that may occur in the Preferred Alternate Corridor.

Table 9-11 below presents the federally listed endangered, threatened, and candidate animal species with potential to occur in the Preferred Alternate Corridor.

Table 9-11. Federally Listed Animal Species with the Potential to Occur in the Preferred Alternate Corridor

Common Name	Scientific Name	Federal Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Mammals				
West Indian manatee	<i>Trichechus manatus</i>	Endangered	This large, herbivorous mammal lives in freshwater, brackish, and marine habitats and eats submerged, emergent, and floating vegetation. They do not utilize terrestrial habitats during any life stage. In Florida, manatees are commonly found from the Georgia/Florida border south to Biscayne Bay on the east coast and from Wakulla River south to Cape Sable on the west coast; they are also found throughout the waterways in the Everglades and in the Florida Keys. ¹ For the period of record of over 20 years, there has been one record of a manatee utilizing the L-29 Canal adjacent to Tamiami Trail. ² This species has not been documented in the culvert pools south of Tamiami Trail. ²	Low
Florida panther	<i>Felis concolor coryi</i>	Endangered	The Florida panther appears to prefer large, remote tracts with adequate prey, cover, and reduced levels of disturbance. ¹ Radio-collar data and ground tracking indicate that panthers use the mosaic of habitats available to them with forested cover types, particularly cypress swamp, pinelands, hardwood swamp, and upland hardwood forests being the habitat types most selected by panthers. ³ Dense saw palmetto is preferred for resting and denning.	Moderate

Common Name	Scientific Name	Federal Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Florida bonneted (mastiff) bat	<i>Eumops floridanus</i>	proposed for listing as endangered on October 4, 2012 (77 FR 60749 60776)	Its range encompasses southern Florida, including Charlotte, Collier, and Lee counties on the Gulf Coast and Miami-Dade County on the Atlantic Coast. ⁴ The Florida Bonneted bat occurs in urban, suburban, and forested areas; it roosts in buildings (e.g., in attics, rock or brick chimneys of fireplaces, and especially under Spanish roof tiles, often in buildings dating from about 1920 to 1930), sometimes in tree hollows (including those made by woodpeckers), occasionally in foliage of palm trees (e.g., shafts of royal palm leaves); also has been found under rocks, in fissures in limestone outcrops, and near excavations. ⁴ The Florida bonneted bat was recorded by Park Service personnel during monitoring efforts in the vicinity of the L-31N Canal. ⁵	Moderate
Birds				
Wood stork	<i>Mycteria americana</i>	Endangered	Inhabit freshwater and brackish wetlands, primarily nesting in cypress or mangrove swamps. They feed in freshwater marshes, narrow tidal creeks, or flooded tidal pools, primarily on fish between 0.8 and 9.8 inches (2 and 25 centimeters) long. ¹ Particularly attractive feeding sites are depressions in marshes or swamps where fish become concentrated during periods of falling water levels. Four wood stork rookeries are located to the west of the Preferred Alternate Corridor: Tamiami East 1 and 2, Tamiami West and 3B Mud East. These rookeries are considered active as nesting has been recorded in the last 10 years. ⁶ The nearest known wood stork nest is approximately 2.5 miles from the western edge of the Preferred Alternate Corridor.	Moderate

Common Name	Scientific Name	Federal Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Endangered	Is a raptor that inhabits the freshwater marshes and marl prairies of the Florida peninsula. The Everglade snail kite population is currently estimated at fewer than 1,000 birds. ⁶ The Everglade snail kite feeds almost exclusively on the applesnail (<i>Pomacea paludosa</i>), so the continued existence and availability of this snail primarily decides the fate of the snail kite. There are snail kite management zones located on the northeast side of Everglades National Park expansion area. ⁷ Two pairs of snail kites were observed nesting within the footprint of FPL's West Preferred Corridor during the 2010 nesting season. ⁶ There are no known breeding sites in the Preferred Alternate Corridor, although snail kites may forage within wetland areas in the Corridor. The closest known Everglade snail nest is approximately 1.8 miles to the west of the Preferred Alternate Corridor.	Moderate
Reptiles				
Eastern indigo snake	<i>Drymarchon corais couperi</i>		The eastern indigo snake is known to utilize many habitat types ranging from wetlands to uplands, and including disturbed areas. ⁸ In upland (xeric) areas, eastern indigo snakes are strongly associated with gopher tortoise (<i>Gopherus polyphemus</i>) burrows. ⁸ In south Florida, eastern indigo snakes are known to occupy agricultural sites, such as sugar fields, which were created in former wetland areas. ⁸ USFWS conducted a year-long road kill survey ⁹ along Tamiami Trail and found many reptiles and amphibians but had no documented indigo snakes in the survey.	Low

¹ USFWS 1999

² NPS 2010a

³ USFWS 2008

⁴ Timm and Arroyo-Cabrales 2008

⁵ Tylan Dean, personal communication 2012

⁶ NPS 2010b

⁷ USACE and NPS 2008

⁸ USFWS 2012

⁹ USFWS 2004

Federally Listed Animal Species Dismissed from Further Analysis — Elkhorn coral (*Acropora palmata*), staghorn coral (*Acropora cervicornis*), smalltooth sawfish (*Pistis pectinata*) green sea turtle (*Chelonia midas*), hawksbill sea turtle (*Eretmochelys imbricata*), and the leatherback sea turtle (*Dermochelys coriacea*) are marine species. Since the area of analysis does not include marine waters, these species were dismissed from further analysis. The gulf sturgeon (*Acipenser oxyrinchus desotoi*), another aquatic species, was dismissed because habitat for this species does not exist within the area of analysis.

The American crocodile (*Crocodylus acutus*) is not found within the area of analysis and was dismissed from further analysis. Since the American alligator (*Alligator mississippiensis*) is listed as threatened due to similarity of appearance to the American crocodile and the crocodile is not found within the area of analysis, the American alligator was dismissed from further analysis.

Bartram's hairstreak butterfly (*Strymon acis bartrami*) and Florida leafwing butterfly (*Anaea troglodyta floridaalis*) were dismissed from further analysis since habitat for these species does not exist within the area of analysis. The Miami blue butterfly (*Cyclargus thomasi bethunebakeri*) and the Schaus swallowtail butterfly (*Heraclides aristodemus ponceanus*) do not occur in the study area and were dismissed from further analysis. The Cassius blue butterfly (*Leptotes cassius theonus*) and the ceraunus blue butterfly (*Hemiargus ceraunus antibubastus*) were listed as threatened due to similarity of appearance to the Miami blue butterfly. However, these species are dismissed from further analysis since the Miami blue butterfly does not occur in the area of analysis and the similarity of appearance listing only prohibits collection, possession, and trade (77 FR 20948 20986).

Habitat for the Cape Sable seaside sparrow (*Ammadramus maritimus mirabilis*) does not exist within the area of analysis; therefore, the species was dismissed from further analysis.

Federally Listed Plant Species — Five federally-listed or candidate species have the potential to occur within the area of analysis. Other plant species associated with pineland rocklands could occur on canal levees, although the likelihood of their occurrence is quite low. FPL would perform surveys for listed plant species within the eventual ROW as a post-certification condition (SCA W9.4.4.1). For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on. **Table 9-12** below shows the federally listed endangered, threatened, and candidate plant species with potential to occur in the Preferred Alternate Corridor.

Table 9-12. Federally Listed Endangered, Threatened, and Candidate Plant Species with the Potential to Occur in the Preferred Alternate Corridor

Common Name	Scientific Name	Federal Status	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Blodgett's silverbush	<i>Argythamia blodgettii</i>	Candidate	Endangered	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in coastal rock barren, disturbed upland, pine rockland, and pine hammock habitats ¹ ; one reported occurrence in 2005 in the vicinity of the Preferred Alternate Corridor in pineland and pine rockland habitat. ² However, this location is more than 1 mile from the area of analysis.	Moderate
Garber's spurge	<i>Chamaesyce garberi</i>	Threatened	Endangered	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in beach dune, coastal rock barren, disturbed upland, and pine rockland habitats. ¹	Low
Sand flax	<i>Linum arenicola</i>	Candidate	Endangered	Monroe and Miami-Dade counties ¹ ; found in disturbed uplands, marl prairie, and pine rockland. ¹	Low
Tiny polygala	<i>Polygala smallii</i>	Endangered	Endangered	Broward, Martin, Miami-Dade, and Palm Beach counties ¹ ; found in disturbed upland, pine rockland, sandhill, scrub, and scrubby flatwoods habitats. ¹	Low
Small's flax	<i>Linum carteri</i> var. <i>smallii</i>	Candidate	Endangered	Collier, Hendry, Monroe, and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed upland, disturbed wetland, marl prairie, and pine rockland. ¹	Moderate

¹ IRC 2012

² FNAI 2012b

³ NatureServe

Federally Listed Plant Species Dismissed from Further Analysis — Florida bristle fern (*Trichomanes punctatum* ssp. *floridanum*), Beach jaquemontia (*Jacquemontia reclinata*), Cape Sable thoroughwort (*Chromolaena frustrata*), Carter's mustard (*Warea carteri*), crenulate lead-plant (*Amorpha crenulata*), deltoid spurge (*Chamaesyce deltoidea* ssp. *deltoidea*), hairy deltoid spurge (*Chamaesyce deltoidea* ssp. *adhaerens*), Everglades bully (*Sideroxylon reclinatum* ssp. *austrofloridense*), Florida pineland crabgrass (*Digitaria pauciflora*), Florida semaphore cactus (*Consolea corallicola*), Florida brickell-bush (*Brickellia mosieri*), Florida prairie-clover (*Dalea carthagenensis* var. *floridana*), pineland sandmat (*Chamaesyce deltoidea* ssp. *pinetorum*), Small's milkpea (*Galactia smallii*), and Gulf licaria (*Licaria triandra*) were dismissed from further analysis. Habitat for these species does not occur in the Preferred Alternate Corridor/or the Preferred Alternate Corridor is outside the known ranges of these species. Cape Sable thoroughwort, Everglades bully, and Florida pineland crabgrass are reported from Everglades National Park (IRC 2012); however, habitat for these species is not believed to occur within the Preferred Alternate Corridor.

There is one report of Okeechobee gourd (*Cucurbita okeechobeensis* ssp. *okeechobeensis*) from a canal bank in Miami-Dade County. However, the Preferred Alternate Corridor is outside the primary range of this species and the probability of encountering this species in the Preferred Alternate Corridor is very low; therefore, this species was excluded from further analysis. Johnson's sea grass (*Halophila johnsonii*) is a marine species. Since the area of analysis does not include marine habitats, Johnson's sea grass was excluded from further analysis.

State listed animal species with the potential to occur within the Preferred Alternate Corridor are presented in **Table 9-13** below.

Table 9-13. State-listed Animal Species with the Potential to Occur in the Preferred Alternate Corridor

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Mammals				
Everglades mink	<i>Mustela vision evergladensis</i>	Threatened	The Everglades mink is a subspecies of the southeastern mink. It occurs in southern Florida freshwater marshes in the Everglades and Big Cypress Swamp. ¹ The Everglades mink is difficult to detect and population size and extent of occurrence are poorly known. ¹	Low

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Birds				
Florida sandhill crane	<i>Grus canadensis pratensis</i>	Threatened	The Florida sandhill crane commingles with the greater sandhill crane, which migrates to Florida. Sandhills prefer shallow marshes for nesting and wet prairies and pastures for foraging. Unlike greater sandhill cranes, Florida sandhill cranes are non-migratory. They occur throughout peninsular Florida north to the Okefenokee Swamp in southern Georgia, although they are less common at the northernmost and southernmost portions of this range. ²	Moderate
White-crowned pigeon	<i>Patagioenas leucocephala</i>	Threatened	The white-crowned pigeon forages in fruit-bearing trees in hardwood hammocks in southern Florida. Its breeding range is restricted to Florida Bay, Biscayne Bay, and the Florida Keys, although a few individuals probably nest inland in Monroe and Miami-Dade counties. ³ Nesting in Florida occurs almost exclusively on mangrove islands with nesting birds flying to islands to forage on fruit-bearing trees. ³	Low
Limpkin	<i>Aramus guarana</i>	Special Species of Concern	In the continental U.S., limpkins occur only in the state of Florida, where they are resident breeders. ⁴ They inhabit freshwater wetlands that support an ample supply of their preferred prey, the apple snail. ⁴	Moderate
Little blue heron	<i>Egretta caerulea</i>	Special Species of Concern	The little blue heron is a wading bird found in wetlands throughout Florida. White ibis, little blue herons, snowy egrets, and tricolored herons are known to nest within the 3B Mud, Tamiami, and Grossman Ridge wood stork colonies located to the west of the Preferred Alternate Corridor. ⁵ Little blue herons are known to nest within the 3B Mud, Tamiami, and Grossman Ridge wood stork colonies located to the west of the Preferred Alternate Corridor. ⁵	Moderate

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Snowy egret	<i>Egretta thula</i>	Special Species of Concern	Snowy egrets are widely distributed in Florida in both fresh and salt-water systems. Snowy egrets are known to nest within the 3B Mud, Tamiami, and Grossman Ridge wood stork colonies located to the west of the Preferred Alternate Corridor. ⁵	Moderate
Tricolored heron	<i>Egretta tricolor</i>	Special Species of Concern	The tricolored heron prefers estuarine habitats but can be found foraging in almost any wetland system. Tricolored herons are known to nest within the 3B Mud, Tamiami, and Grossman Ridge wood stork colonies located to the west of the Preferred Alternate Corridor. ⁵	Moderate
White ibis	<i>Eudocimus albus</i>	Special Species of Concern	The white ibis is one of the most common wading birds in Florida. Large flocks of this bird are often seen foraging in shallow marshes or wet pastures. White ibis are known to nest within the 3B Mud, Tamiami, and Grossman Ridge wood stork colonies located to the west of the Preferred Alternate Corridor. ⁵	Moderate
Roseate spoonbill	<i>Platalea ajaja</i>	Special Species of Concern	The roseate spoonbill forages and nests in estuarine systems of south Florida. ⁶ It is occasionally observed foraging in freshwater environments.	Low
Florida burrowing owl	<i>Athene cunicularia floridana</i>	Special Species of Concern	The Florida burrowing owl lives in burrows in dry sandy soils associated with cattle pastures, prairies, sandhills, and ruderal areas. ⁷	Low

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Reptiles				
Gopher tortoise	<i>Gopherus polyphemus</i>	Threatened	The gopher tortoise is a burrowing terrestrial turtle that occurs in parts of all 67 counties in Florida. Gopher tortoises prefer high, dry sandy habitats such as longleaf pine-xeric oak sandhills, but can be found in any dry, sandy habitat. On July 27, 2011, USFWS found that listing of the gopher tortoise was warranted, but precluded (76 FR45130).	Low

- ¹ FWC 2011b
- ² FWC 2011c
- ³ FWC 2011d
- ⁴ FWC 2011e
- ⁵ NPS 2010b
- ⁶ FNAI 2001a
- ⁷ FNAI 2001b

State-listed Animals Dismissed from Further Analysis — The rim-rock crowned snake (*Tantilla ooliticus*) was dismissed from further analysis because the species is not known to occur in the Preferred Alternate Corridor and it is associated with the barnacle area-rock ridge of Florida. Habitat for the Cape Sable seaside sparrow (*Ammadramus maritimus mirabilis*) is not present within the Preferred Alternate Corridor; therefore, the species was eliminated from further analysis. The bald eagle (*Haliaeetus leucocephalus*) and the southeastern American kestrel (*Falco sparverius paulus*) may occasionally forage within the Preferred Alternate Corridor, but are not known to nest in this area and thus dismissed from further analysis. Similarly, the Florida black bear (*Ursus americanus floridanus*) may occasionally pass through the Preferred Alternate Corridor, but is not considered a regular inhabitant and thus was dismissed from further analysis.

State-listed Plant Species — State listed plant species with the potential to occur in the Preferred Alternate Corridor are presented in **Table 9-14** below. Other plant species associated with pineland rocklands could occur on canal levees, although the likelihood of their occurrence is quite low. FPL would perform surveys for listed plant species within the eventual ROW as a post-certification condition (SCA W9.4.4.1). For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with FDACS (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on species.

Table 9-14. State Threatened and Endangered Plant Species with the Potential to Occur in the Preferred Alternate Corridor

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Southern frog-fruit	<i>Phyla stoechadifolia</i>	Endangered	Broward and Miami-Dade counties, including Everglades National Park and the Everglades and Francis S. Taylor Wildlife Management Area ¹ ; found in disturbed wetlands and uplands, marl prairie, pine rockland and swales. ¹	Moderate
Bahama ladder brake	<i>Pteris bahamensis</i>	Threatened	Broward, Collier, Monroe, Palm Beach, and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed uplands, marl prairie, pine rockland, rockland hammock, and sinkhole areas ¹ ; one reported occurrence in 2007 over 1 mile from Preferred Alternate Corridor. ²	Moderate
Pineland Jacquemontia	<i>Jacquemontia curtissii</i>	Threatened	Collier, Hendry, Martin, Monroe, and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed uplands, marl prairie, mesic flatwoods, and pine rockland. ¹	Low
Florida royal palm	<i>Roystonea elata</i>	Endangered	Collier, Martin, Monroe, Palm Beach, and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed wetlands, floodplain forest, rockland hammock, and strand swamp. ¹	Low
Eaton's Spikemoss	<i>Selaginella eatonii</i>	Endangered	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in marl prairie and pine rockland habitats. ¹	Low
Rockland-Painted Leaf	<i>Euphorbia pinetorum</i>	Endangered	Endemic to Monroe and Miami-Dade counties ³ ; associated with herbaceous wetlands, woodlands, and pine rocklands over limestone ³ ; one reported occurrence in 1995 over 1 mile away from the Preferred Alternate Corridor, and the population likely no longer exists due to development. ²	Low
Pineland allamanda	<i>Angadenia berteroi</i>	Endangered	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed uplands, marl prairie, and pine rocklands ¹ ; It has a high likelihood of occurring in the park in the vicinity of FPL's West Secondary and West Preferred Corridors. It has a moderate likelihood of occurring within the Preferred Alternate Corridor.	Moderate

Common Name	Scientific Name	State Status	Habitat/Range	Potential to Occur within the Preferred Alternate Corridor
Everglades (Pinelands) Pencil Flower	<i>Stylosanthes calicicola</i>	Endangered	Miami-Dade, including Everglades National Park, and Monroe counties ¹ ; found in disturbed uplands, marl prairie and pine rocklands ¹ ; two reported occurrences from 2006 within approximately 2 miles north of where FPL's West Secondary and West Preferred corridors join in the Everglades and Francis S. Taylor Wildlife Management Area ² . These locations are reported as being along a roadside ROW ² . Examination of aerial photography indicates that these locations were likely along a dirt access road along a canal.	Moderate
Bahama saschia	<i>Saschia polycephala</i>	Threatened	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed upland and pine rockland. ¹	Moderate
Pineland noseburn	<i>Tragia saxicola</i>	Threatened	Monroe and Miami-Dade counties, including Everglades National Park ¹ ; found in disturbed upland and pine rockland. ¹	Moderate

¹ IRC 2012

² FNAI 2012b

³ NatureServe

State-listed Plant Species Dismissed from Further Analysis — Wright's anemia (*Anemia wrightii*), modest spleenwort (*Asplenium verecundum*), smooth strongbark (*Bouyeria cassinifolia*), Porter's broad-leaved spurge (*Chamaesyce porteriana*), Cuban snake-bark (*Colubrina cubensis* var. *floridana*), coastal vervain (*Glandularia maritima*), giant orchid (*Pteroglossaspis ecristata*), large-flowered rosemary (*Conradina grandiflora*), Christmas berry (*Crossopetalum ilicifolium*), sheathing govenia (*Govenia floridana*), clamshell orchid (*Encyclia cochleata* var. *triandra*), and holly vine fern (*Lomariopsis kunzeana*) were dismissed from further analysis because habitat not exist for these species within the Preferred Alternate Corridor and/or the Preferred Alternate Corridor is outside the known ranges of these species.

9.3.7.4 Other Environmental Features.

We have not identified any other important environmental features not previously discussed.

9.4 EFFECTS OF RIGHT-OF-WAY PREPARATION AND TRANSMISSION LINE CONSTRUCTION

9.4.1 Construction Techniques

Construction techniques for the Preferred Alternate Corridor would be expected to be the same as those described by FPL for its West Preferred Corridor. The information in this section is taken directly from Section 9.4.1 of FPL's SCA filing. Construction phases would typically consist of ROW clearing, access road and structure pad construction (where necessary), line construction, and ROW restoration. Several crews may work simultaneously along the length of the line. During the construction of the transmission line, the duration of a crew's stay in any one area would be relatively short (approximately 1 to 2 weeks per location). Foundation construction (if needed) would take approximately 1 day per structure location. Assembly and erection of a structure would each take a few hours to accomplish. Stringing (installing) the conductors would take 3 to 5 days per location, with stringing locations/wire-pulling equipment approximately 2 to 3 miles apart. Cleanup would likely take a few hours at each location. Crew sizes would vary depending on the task. The largest crew in any one location could consist of 20 to 30 members; however, on the average, crew size would be approximately 10 to 15 members.

ROW Clearing. Vegetation clearing for transmission lines and access roads is described in W9.4.1.1 of FPL's SCA for Turkey Point Units 6 & 7. This information is provided below.

Where vegetation clearing is required, all trees and shrubs within the ROW limits whose mature height could exceed 14 feet and are proximate to the transmission lines would be evaluated for pruning or clearing to ground level consistent with the requirements of American National Standards Institute (ANSI) A300 (part I)-2000 Pruning Standards and ANSI Z133.1-2000 Pruning, Repairing, Maintaining and Removing Trees, and Cutting Brush-Safety Requirements. In addition, exotic vegetation that may present a fire hazard outside the ROW may be removed.

Where trees are cut to ground level, stumps would either be cut or ground down to natural grade and treated with an approved herbicide to prevent regrowth, or the entire stump and root mat would be grubbed to at or below grade. Chipped material would be spread uniformly in uplands along the ROW unless landowner restrictions require disposal in another manner. When chipped material is not spread in uplands along the ROW, vegetation debris may be hauled to landfills or piled and burned within the limits of the ROW consistent with state and local regulations.

Clearing in wetlands and sensitive communities along the ROW would be accomplished using restrictive clearing techniques. Restrictive clearing is performed by hand, usually with chain saws or

with low ground pressure shear or rotary type machines, which reduce soil compaction and vegetation disturbance.

Use of herbicides for vegetation control on the ROW would meet federal, state, and local regulations. Typically, herbicides would be used on exotic and incompatible species. Care would be taken to retain a cover of compatible native species. For the portions of the ROW that would be adjacent to Everglades National Park, herbicide use would be in compliance with NPS' Integrated Pest Management Plan.

Access Road/Structure Pad Construction. Access road needs and construction are described in Section 9.3.4, *Access Roads*, above. Two typical conceptual plan views of structure pads (as contained in FPL's SCA W9.4.1.2) are shown in **Figures 9-10 and 9-11**.

Transmission Line Construction. Transmission line construction is described per FPL's SCA (W9.4.1.3). Transmission structures are generally delivered to the work area using semi-trailer trucks with open trailers. Structure transport would comply with applicable state and local road regulations. Assembly would occur as close as possible to the design location. Typically the structures are framed with the insulator and overhead ground wire assemblies while lying on the ground. Installing the transmission line structures requires an auger truck, which would typically auger a hole approximately 18 to 25 feet deep and approximately 72 inches (6 feet) in diameter on average. Dewatering of the holes during construction, in the unlikely event it is required, may discharge water to catch basins, temporary settling basins, or watercourses if the water is sufficiently free of sediments. The concrete single-pole or hybrid single-pole structures (bottom section of the pole being concrete, top section of the pole being tubular steel) would be embedded directly into the hole and backfilled with crushed rock. (Use of taller, multiple-piece, single-pole concrete or taller hybrid pole structures, localized geography, or poor subsurface conditions may require the selection of additional setting depths.) Multiple-piece structures could be assembled on the ground prior to lifting in place, or they could be installed in the air one section at a time with the use of a crane. Where tubular steel, single-pole, un-guyed structures are used, they would require augering a hole approximately 108 inches (9 feet) in diameter to accommodate the installation of concrete caisson foundations. A caisson foundation is composed of a reinforcing steel cage with poured-in-place concrete. Excess excavated fill material would be spread evenly onto adjacent uplands, preferably onto existing or recently constructed access roads or pads.

Guys and anchors may be required at structure locations. Anchors used would typically be either multi-helix screw-in-type anchors or pile-type anchors. Pile anchors provide strength applications by embedding a short reinforced concrete pole section to a required depth with backfill. Multi-helix anchors are installed using truck-mounted equipment to screw the anchor into the ground to the required length or torque to meet design requirements. Guy wires are attached to hardware connected to the pole section extending above the ground.

Construction would be performed so as to minimize disturbance to natural ground cover. Turbidity screens and other erosion control devices (silt fences) would be used where there is erosion potential to minimize any impacts on wetlands and water bodies and ensure that state water quality standards for turbidity are met.

Cranes, bucket trucks, flatbed trucks, semi-trailer trucks, front-end loaders, bulldozers, and other support vehicles are typically used in structure erection and anchor/guying installations. Laydown areas for equipment and materials would be located in uplands to the fullest extent practical. If laydown areas must be located where no uplands exist then they would be permitted as a temporary impact then fully restored. The size of the laydown or staging areas would be dependent on the type and amount of equipment needed in those areas.

Figure 9-10. 500 kV and 230 kV Conceptual Structure Pad (FPL SCA W9.4.1-5)

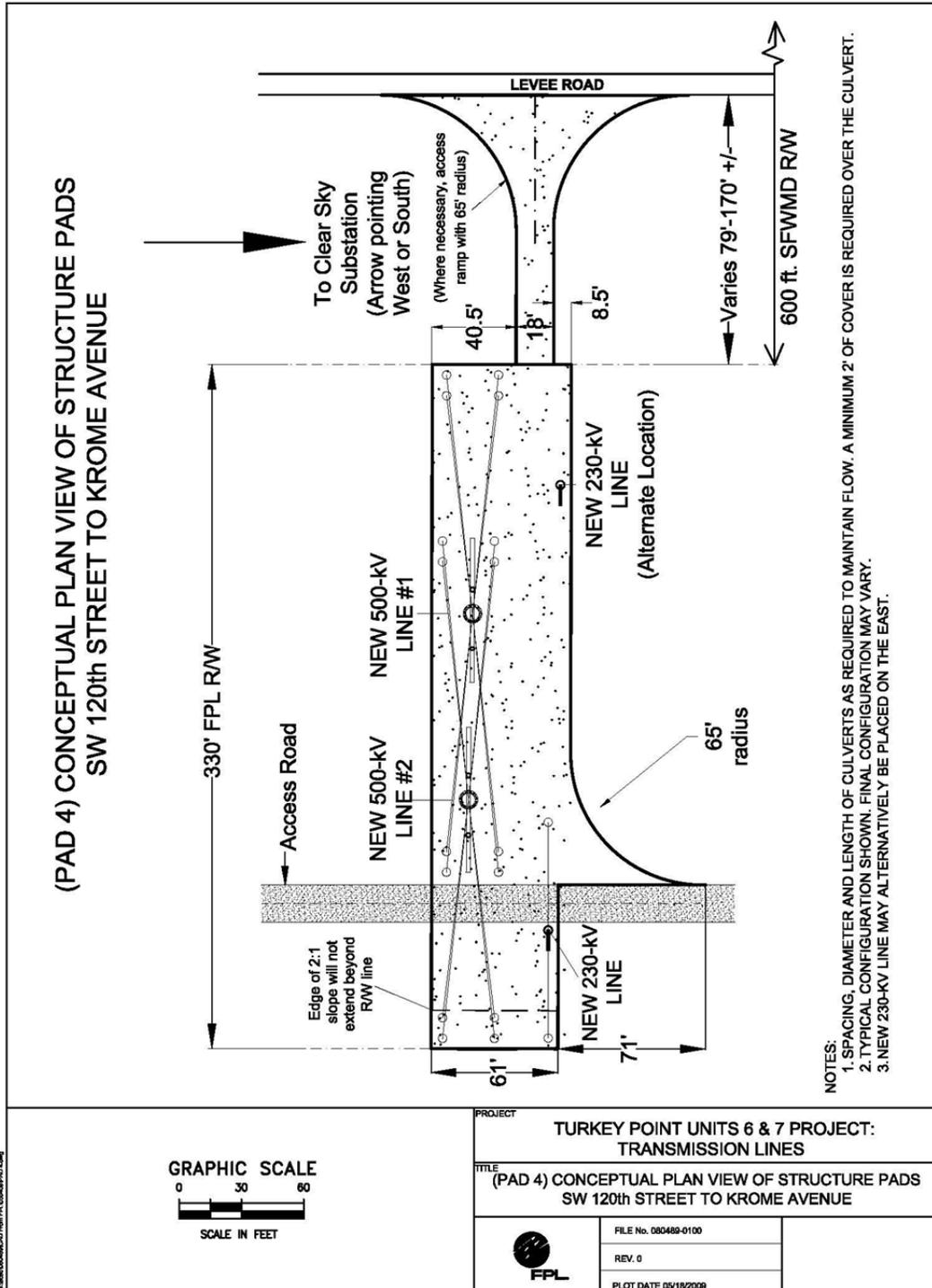
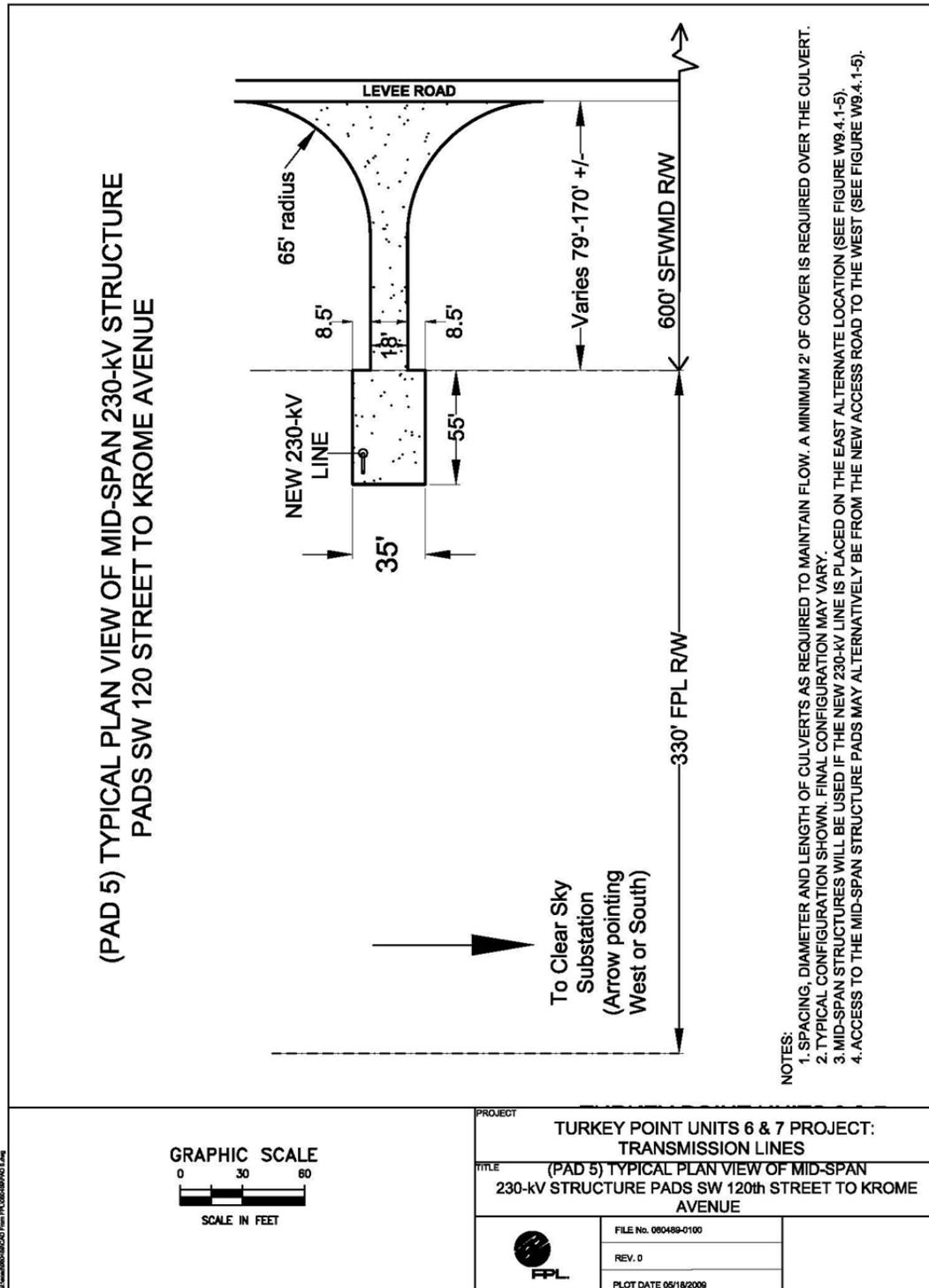


Figure 9-11. 230 kV Conceptual Structure Pad (FPL SCA W9.4.1-6)



Prior to construction, FPL would provide notification to the Federal Aviation Administration via form 7460-1 for appropriate structures and construction equipment and would coordinate with licensed airports as necessary.

Insulator and conductor installation would follow structure erection. Installing conductors between structures requires stringing a lead line between each structure's stringing block to form a continuous connection between end points of a conductor stringing pull. The lead line is used to pull the conductors into position. The conductor is then tensioned to design specifications, transferred to the support clamp at the structure, and then clipped into its final position. This operation is repeated for each of the conductors and overhead ground wires on the transmission line. Bucket trucks, wire-pulling equipment, wire reels, trailers, tensioners, and other support vehicles are typically used in conductor and overhead ground wire installation operations; however, helicopters may also be used. Pulling areas are typically up to 1 acre in size.

ROW Restoration. ROW restoration is described in W9.4.1.4 of FPL's SCA and this information is provided below.

Once construction is completed, construction debris, if any, would be removed, and FPL would employ various methods to restore the ROW. These methods would be specific to each location. Restoration may include stabilizing potentially erodible areas, typically through seeding and mulching. Limited permanent alterations would be associated with the ROW clearing, related to the permanent conversion of forested wetlands to herbaceous or shrub-scrub wetlands through line clearing and maintenance activities.

9.4.2 Environmental Resource Permit (ERP)

As mentioned in FPL's SCA (W9.4.2), the information typically provided in an ERP application would be submitted to reviewing agencies by FPL for post-certification monitoring of compliance with the Conditions of Certification, as authorized by Section 62-17.191, F.A.C. At this time, the final ROW has not been sited within the Preferred Alternate Corridor, nor has the detailed design been completed. Initial conceptual wetland impact numbers for the Preferred Alternate Corridor are presented in 9.4.4, Changes to Vegetation, Wildlife, and Aquatic Life, below. According to FPL, all transmission line impacts are proposed to be mitigated through the purchase of mitigation credits from the Hole-in-the-Donut wetland mitigation bank, which is located in Everglades National Park, using a mitigation ratio of 1:1 (SCA Appendix 10.4). It stated that this would provide significant benefit to regional wetland restoration and conservation efforts and would directly benefit vegetation communities and wildlife habitat in the park (SCA Appendix 10.4).

9.4.3 Solid Wastes

Solid waste generated from transmission line ROW preparation and line construction typically consists of cleared vegetation and construction-related debris. According to FPL, (SCA W9.4.3), solid wastes would be collected and removed for disposal in compliance with state and local landfill regulations, chipped and spread in uplands, or piled and burned within the limits of the ROW in compliance with state and local regulations.

9.4.4 Changes to Vegetation, Wildlife, and Aquatic Life

Impacts from transmission line and access road construction and ROW preparation on terrestrial and aquatic systems and species would vary depending upon the location of the selected ROW with the Preferred Alternate Corridor and, to some extent, required construction techniques. Through the corridor selection process, the Routing Team minimized or avoided the crossing of high quality terrestrial, wetland, and aquatic systems to minimize potential impacts on sensitive habitats and/or

endangered and threatened species. Where the Preferred Alternate Corridor crosses agricultural lands, it is not anticipated that transmission line construction or maintenance would have any significant impact on native vegetation, wildlife, or aquatic life. The remaining areas that could be potentially crossed by the transmission lines include a number of natural and disturbed upland and wetland community types.

An evaluation of potential and expected impacts on vegetation and wildlife components is presented in the following subsections.

Vegetation. Although the Preferred Alternate Corridor varies in width between 330 feet and almost a mile, the transmission ROW is anticipated to be 330 feet wide (approximately 600 total acres) when constructed. Therefore, LBG identified an example 330-foot ROW within the Preferred Alternate Corridor to generate an estimate for forest clearing within the ROW based on the 2011 SFWMD FLUCCS data (see **Table 9-15**).

Table 9-15. Estimated Forest Clearing within the ROW

Forest Type within ROW	Area (Acres)
Brazilian Pepper	13.5
Melaleuca	12.1
Mixed Wetland Hardwoods (mixed shrubs)	48.6
Upland Shrub and Brushland	3.5
Exotic Wetland Hardwoods (wet melaleuca)	131.7
Total	209.4

As shown in **Table 9-15**, approximately 209 acres of forest clearing would be required within the ROW. Of this, approximately 75 percent would consist of forest dominated by exotic species, such as Melaleuca and Brazilian pepper. Within the ROW, forested areas would be cleared, and where necessary, herbicides may be applied to control the regrowth of exotic species, resulting in conversion of forested uplands and wetlands to open field or emergent marsh wetlands.

Based on draft figures of the preliminary design provided by FPL, LBG estimated the acres of filled/disturbed areas within the ROW (see **Table 9-16**). These estimates assume that access roads would be 42 feet wide in wetlands, where a large amount of fill would be needed and about 22 feet wide in non-wetland areas. Estimated pad sizes (with side slopes) were derived from the information provided by FPL. Based on the information provided, LBG assumed that each larger pad would cover 1 acre in wetland areas and about 0.63 acre in non-wetland areas. Similarly, the smaller pad supporting only the 230 kV line (every 500 feet) would cover approximately 0.35 acre in wetland areas and 0.05 acre in non-wetland areas (see **Figures 9-10 and 9-11**). Corner pads (at angles in the lines) were estimated to be 2 acres in wetlands and 1.74 acres in non-wetlands.

The number of pads is dependent on span lengths. Based on the information provided, LBG assumed that the span for the 500 kV lines would be about 1,000 feet and the span for the 230 kV line would be about 500 feet. This would result in a larger pad every 1,000 feet and a smaller pad midway between the larger pads, but also every 1,000 feet.

Table 9-16. Approximate Areas of Disturbance within the Example ROW in the Preferred Alternate Corridor

Area of Disturbance		Approximate Area Disturbed
Pad every 1,000 feet, all 3 lines	Wetlands - Approximately 1 acre	Approximately 39 pads - 39 acres
	Non-wetlands - Approximately 0.63 acre	Approximately 32 pads - 20.1 acres
	Wetlands - angle structure - Approximately 2.0 acres	Approximately 6 pads - 12 acres
	Non-wetlands - angle structure - Approximately 1.74 acres	Approximately 10 pads - 17.4 acres
Pad every 1,000 feet 230 kV line	Wetlands - Approximately 0.35 acres	Approximately 41 pads - 14.4 acres
	Non-wetlands - Approximately 0.05 acre	Approximately 29 pads - 1.5 acres
Access road	Wetlands - 42 feet	41.7 acres
	Non-wetlands - 22 feet	18.3 acres
Total area lost	Wetlands	107.1 acres
	Non-wetlands	57.4 acres
Total ROW acreage	Wetlands	330.8 acres
	Non-wetlands	272 acres

Approximately half of the wetland acreage crossed by the Preferred Alternate Corridor is composed of non-forested (herbaceous) wetlands. Here, the vegetation tends to grow low enough to not require any clearing except at access road and structure pad locations. However, wetland areas would need to be filled for the access road and structure pads. Using the example ROW, the 2011 SFWMD FLUCCS data, and basic engineering information in the FPL SCA, a rough estimate of the acres of wetland impact related to structure pads and access roads was generated. An estimated 107 acres of wetlands would be filled within the example ROW. This would equate to approximately 42 acres of wetland fill for access roads and approximately 65 acres of wetland fill for structure pads. A breakdown of estimated wetland impacts by wetland type is provided in Table 9-17.

Table 9-17. Estimated Wetland Impacts in the Example ROW in Acres

Wetland Type	Structure Impacts	Access Road Impacts
Freshwater Marshes	7.8	6.6
Mixed Wetland Hardwoods (Mixed Shrubs)	12.75	5.9
Exotic Wetland Hardwoods (Wet Melaleuca)	23.9	16.3
Wet Prairies	20.9	12.9

According to FPL (SCA W9.4.4.1), construction practices in wetlands would retain the vegetative root mat in the ROW in areas not filled for road or structure pad construction, thereby minimizing impacts on wetland vegetation. Impacts on wetland vegetation would vary depending on the wetland system through which the transmission line is routed. The shift in wetland composition would vary with the type of original overstory and soil alterations resulting from construction activities. Outside of areas where filling may be necessary for roads or structure pads, freshwater marsh/wet prairie systems crossed by the transmission lines would not be affected by construction activities since no clearing would be required, and proper culverting would maintain the existing hydroperiod. The wetland impact numbers presented above are estimates only. A precise determination of wetland impacts cannot be completed until a delineation of wetlands under the jurisdiction of the USACE and the State of Florida is completed and there is a final design for the lines, which includes structure locations, access roads, construction laydown areas, etc.

FPL would perform surveys for listed plant species within the eventual ROW as a post-certification condition (SCA W9.4.4.1). For any species (plant or animal) documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) or FDACS or FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on species within the respective agencies' jurisdiction.

Wildlife. Construction of access roads and structure pads would result in permanent loss of habitat for some species. These activities may also fragment habitat, making more edge habitat that can be used by habitat generalist species, but is not favored by habitat specialist species. The creation of edge habitat also can allow exotic species to invade an area and further reduce habitat quality. However, a large portion of the Preferred Alternate Corridor is already degraded, fragmented habitat.

Amphibians and Reptiles. Amphibians and reptiles may experience a loss of habitat due to construction of structure pads and access roads. Less mobile species may be killed or injured during construction activities.

Eastern indigo snake — Construction noise and vehicle traffic may result in changes in eastern indigo snake behavior. Indigo snakes may be killed or injured during clearing and construction activities. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Gopher tortoise — Construction noise and vehicle traffic may result in changes in gopher tortoise behavior. Gopher tortoises may be killed or injured during clearing and construction activities. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Birds. The behavior of bird species may be impacted by construction noise and traffic. The greatest impacts on avian species would occur if construction took place during breeding and nesting periods. Construction of structure pads and access roads would also result in a loss of foraging and nesting habitat for avian species. Construction of the transmission line also creates a permanent collision hazard for bird species and could result in injury or death to individuals.

Construction of the transmission line creates a permanent collision hazard for bird species and can result in injury or death to individuals (APLIC and USFWS 2005). While birds from a wide range of taxa and feeding guilds are exposed to these direct risks, wading birds (such as herons, egrets, storks, and cranes) are of particular concern as they make up such a large and important component of the birds found in Everglades region of South Florida. Also, wading birds are behaviorally

predisposed to collision due to their large size, which makes it difficult for them to take evasive action when confronted with flight obstacles. Raptors (especially snail kites, hawks, falcons, vultures, and owls) are also known to experience direct mortality from collision and electrocution (Madders and Whitfield 2006). Specifically, both waders and raptors are morphologically and behaviorally more vulnerable than many other birds and have greater risk of collision from electric utility structures and lines (APLIC 2006; Hunting 2002). In the southeast United States, birds of prey (raptors, eagles, and owls) are especially vulnerable to collision because of their size, relative rarity as top of the food chain predators, and their hunting behavior that can entail soaring while searching for prey at heights above the ground that can correspond to the height of transmission and distribution towers and lines or hunting from perched positions on transmission and distribution structures.

Electrocution occurs when a bird or other organism completes an electric circuit by simultaneously touching two energized parts or an energized part and a grounded part of electrical equipment. Most electrocutions occur on medium-voltage distribution lines (4 to 34.5 kV), in which the spacing between conductors may be small enough to be bridged by birds. Poles with energized hardware, such as transformers, can be especially hazardous, even to small birds, as they contain numerous, closely-spaced energized parts (APLIC 2005). Even with adequate separation distances on utility structures, scavengers and predatory species that may perch on power line structures, such as vultures and herons, can be electrocuted when they expel large streams of excrement, called streamers, which span from an energized conductor to another power line structure (APLIC 2006).

Similarly, line collisions may be reduced, but not eliminated, by installation of line markers to enhance the visibility of the transmission lines to avian species. However, proximity to transmission lines is a major risk factor for birds and the key recommendation for minimizing risk of collision mortality of flying birds or electrocution from birds landing on wires or tower is to avoid siting new transmission lines such that they fall on or near to important bird flight paths (APLIC and USFWS 2005; APLIC 2006).

An Avian Risk Assessment was conducted as part of the NPS EIS for the proposed land exchange between NPS and FPL (Acquisition of the Florida Power & Light Company Land in the East Everglades Expansion Area) to attempt to estimate the relative risk to avian species from each of the alternatives (Exponent 2012). Three corridors were evaluated: FPL's West Secondary and West Preferred Corridors and a hypothetical corridor within the zone of possible construction that roughly corresponds to the center of the Preferred Alternate Corridor. The report found that freshwater marsh was the preferred habit for all the wading birds examined, with the exception of the roseate spoonbill. The Preferred Alternate Corridor was found to cross less linear feet of preferred foraging habitat when compared to the FPL corridors. The risk assessment found that within both a 5 mile and a 30 mile radius, wading birds were observed closer to the FPL corridors than to the Preferred Alternate Corridor. For all species examined, the risk assessment found that the Preferred Alternate Corridor posed the least risk to preferred habitats, foraging areas, and nesting areas.

Analysis of the Preferred Alternate Corridor's potential impacts on threatened and endangered species is presented below.

Wood stork — Transmission line and access road construction would result in the loss of foraging habitat for wood stork when wetlands are filled to create access roads and structure pads and if the hydrology of wetlands adjacent to construction areas is altered. Foraging behavior may also be altered during the construction period due to the construction noise and equipment traffic. The presence of the two 500 kV and one 230 kV transmission lines present a strike hazard that could result in wood stork injury or mortality. The risk assessment conducted by Exponent (2012) found that most of the wood stork colonies and foraging sites within a 30 mile radius of the Preferred Alternate Corridor are located west of the corridor and that the majority of the colonies and foraging

sites are farther away from the Preferred Alternate Corridor than either FPL's West Secondary or West Preferred. This also held true when examining the foraging and nesting sites within a 5 mile radius. The Preferred Alternate Corridor was also found to cross less linear feet of preferred foraging habitat (freshwater marsh) of the three corridors examined. The results of the risk assessment indicate the lowest risk to wood stork nesting and foraging habitats, and preferred habitat types is presented by the Preferred Alternate Corridor.

FPL stated that it would comply with any federal permit conditions regarding wood stork colonies, including those related to mitigation for lost foraging habitat. FPL's construction designs would include features to minimize impacts on avian species including the wood stork. For example, the spacing between transmission conductors (wires) for the proposed 230- and 500-kV lines would be far greater than the 61-inch wingspan for the wood stork, greatly minimizing the threat for electrical harm to the bird. These designs would be consistent with the Florida Fish and Wildlife Conservation Commission (FWC) recommended Conditions of Certification to install flight diverters on overhead ground wires to minimize bird interactions with the lines in areas within one-half mile of active wood stork colonies and FPL's design standard of installing perch discouragers on all new 230- and 500-kV transmission line structures. FPL's designs would be consistent with the Mitigation Concepts document shared previously with NPS. However, these measures are not expected to eliminate all impacts on wood storks.

Further, FPL has stated that an Avian Protection Plan specifically for this project, consistent with the Mitigation Concepts document and Avian Powerline Interaction Committee (APLIC) guidelines, would be developed in consultation with USFWS. In the mitigation concepts document, FPL suggested that various mitigation options are available in certain areas to reduce potential impacts on wading birds. These options include wildlife and wading bird colony surveys to document the species and areas of the ROW alignment where potential impacts are possible. These measures would be in addition to design features, such as perch discouragers on the towers and flight diverters mentioned above.

Subsequent to submission of that document to NPS, FPL has been negotiating proposed Conditions of Certification with FWC and SFWMD. Included in those proposed Conditions of Certification are requirements for pre-construction listed species surveys all along the ROW and ground and follow-flight surveys of wading bird usage along the ROW in areas of known wading bird colonies. The proposed Conditions of Certification also require potential design alternatives such as perch discouragers and flight diverters in areas of those known colonies. FPL would also work with FWC to design a post-construction mitigation effectiveness monitoring study. Based on the results of such a study, FPL may be required to implement further mitigation measures, such as additional flight diverters. A specific design has not yet been selected, so these measures are not specifically incorporated into the analysis this report. FPL has stated that it would comply with any federal permit conditions regarding wood storks (FPL SCA W9.4.4.2).

Everglade snail kite — The noise and vehicular traffic associated with construction of the transmission line and access road construction may cause changes in Everglade snail kite behaviors such as foraging, breeding, and nesting. Filling of wetlands for structure pads and access roads would also result in loss of foraging habitat for Everglade snail kite. The risk assessment conducted by Exponent (2012), found that the Preferred Alternate Corridor posed the lowest risk to snail kite nests and preferred habitat of the three corridors examined. The majority of nests within a 30-mile radius of the corridors were further from the Preferred Alternate Corridor than to FPL's West Secondary or Preferred corridors. The same pattern held true at a 5-mile radius. There are also fewer Everglade snail kite nests closer to the Preferred Alternate Corridor than the other two corridors when looking at nests within a 5-mile radius of the corridors.

FPL's construction designs would include features to minimize impacts on avian species including the Everglade snail kite. FPL's designs would be consistent with the Mitigation Concepts document shared previously with NPS. However, these measures are not expected to eliminate all impacts on the Everglade snail kite. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Florida sandhill crane — Construction noise and traffic may impact Florida sandhill crane behavior during the construction period. Construction of the access roads and structure pads may result in a loss of foraging habitat for this species. In addition, construction of the transmission lines would create a strike hazard for Florida sandhill crane. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

White-crowned pigeon — Impacts on white-crowned pigeons from construction of the transmission lines are expected to be minor due to its low likelihood of occurrence in the Corridor. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with FFWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Little blue heron, snowy egret, tricolored heron, and roseate spoonbill — These wading birds are likely to forage within wetland areas in the Preferred Alternate Corridor. The behavior of these birds is likely to be impacted by the increased noise and vehicle levels during the construction period. Construction of access roads and structure pads would result in loss of wetland foraging habitats. Construction of the transmission lines would create a strike hazard for the wading birds. For any species documented within the proposed ROW as a result of post-certification surveys, FPL has stated it would work with FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Florida burrowing owl — Construction noise and vehicle traffic may result in changes in burrowing owl behavior. Burrowing owls may be killed or injured during clearing and construction activities. For any species documented within the proposed ROW as a result of post-certification surveys, FPL has stated it would work with FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Mammals. Mammal behavior may be impacted by construction noise and traffic. Impacts on behavior would likely be greatest during breeding and birthing seasons. Large mammals, such as white-tailed deer, are expected to move out of the construction zone due to the noise and traffic and re-enter the area after construction is completed. Less mobile species may be killed or injured during construction activities. Construction of the lines and access roads will result in a permanent loss of habitat and may act as a barrier to movement for some species.

Florida panther — Construction traffic and noise are likely to cause short-term changes to the travel patterns and hunting behaviors of panthers in this area. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species. In addition, FPL would work with USFWS and FWC to mitigate any potential impacts on panther habitat once a corridor is certified and a specific ROW is designed (SCA W9.4.4.2).

Florida bonneted bat — ROW and access road clearing activities may result in the loss of roosting habitat (palm and other tree foliage) for Florida bonneted bat. If bats are roosting in the areas when clearing takes place, bat injury or mortality may occur. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on the species.

Aquatic Life. The diversity and abundance of aquatic life in the drainage canals and other open water areas is expected to be minimal. Impacts on fish and other aquatic species that utilize such habitats, including manatees, should be negligible. No in-water work in open water is anticipated during transmission line construction; however, work may occur in inundated wetland areas. Appropriate erosion control measures would be implemented during construction to prevent degradation of adjacent waterbodies. Transmission line construction stormwater discharges released into waters of the state would be addressed through compliance with Rule 62-621.300(4) (Generic Permit for Stormwater from Large and Small Construction Activities). Culvert sizing for the access roads and structure pads in extensive wetland areas would be based on appropriate hydrological studies and comply with applicable codes and requirements. Where construction of access roads and structure pads is required in wetlands, turbidity screens and erosion control devices would be used to minimize construction impacts on wetlands and waterbodies and ensure that state water quality standards for turbidity are met. Wetland impacts would be permitted through a joint permitting process between the USACE and the SFWMD and appropriate minimization and mitigation would be identified during the permit process. Species utilizing wetland environments would experience a loss of habitat due to filling of wetlands for structure pads and access roads. The filling of wetlands for access roads may create a barrier for movement of certain species. This impact can be mitigated by proper culvert design to accommodate wildlife passage. For any species documented within the proposed ROW as a result of post-certification surveys, FPL would work with USFWS (for any federally listed species) or FDACS or FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on species within the respective agencies' jurisdiction.

9.4.5 Impact on Human Populations

In general, the Preferred Alternate Corridor's impacts on human populations would be expected to be similar to those described for FPL's West Preferred Corridor (FPL W9.4.5). In general, due to the temporary nature of the construction process and the short duration of each phase of construction at each location, the nuisance and inconvenience experienced by people near the transmission lines would be minor. Activities would typically be scheduled during daylight hours to minimize disturbances to residents while the transmission lines are under construction. In addition, the majority of the Preferred Alternate Corridor is within sparsely populated areas, with the exception of when the corridor would cross near, but still more than 500 feet away, from a residential area associated with SW 100th Street, SW 104th Street, and SW 106th Street.

Transmission line construction occurs as a series of tasks accomplished in sequence by different specialized crews (FPL 9.4.5). According to FPL, tasks include clearing the ROW, constructing access roads and pads (if necessary), installing foundations, assembling and erecting structures, stringing conductors, and cleanup activities. Several crews may work simultaneously along the length of the line. During the construction of the transmission line, the duration of a crew's stay in any one area would be relatively short (approximately 1 to 2 weeks per location). Minor nuisances and inconveniences that may be experienced by residents near the transmission line are primarily confined to noise from equipment used intermittently at various locations or heavy equipment traffic along the ROW during the construction period.

Over the entire construction period for the transmission lines, construction crews and equipment would be present at each work location at irregular intervals for short durations. These durations would vary for each phase of construction but would usually be only a few days. On a short-term basis, heavier traffic may occur on roads used by construction crews to travel to and from the ROW. Where required, the transmission line construction contractor would follow FDOT guidelines for traffic control.

9.4.6 Impact on Regional Scenic, Cultural, and Natural Landmarks

The Preferred Alternate Corridor does not cross any known regional scenic, cultural, or natural landmarks; however, but because it would cross nearby Everglades National Park, there would be potential impact on park visitors.

Impacts on visual resources at Everglades National Park would be limited since the majority of the Preferred Alternate Corridor is located several miles from the park boundary. During construction, there would be short-term, adverse impacts from the increase in construction equipment on Tamiami Trail and in the vicinity of the Preferred Alternate Corridor. Once construction of the transmission lines is completed, impacts on visual resources would occur over the operational lifetime of the transmission line. Vantage points (looking east) at the eastern boundary of the park could be affected by the addition of new transmission line structures. These impacts are expected to be negligible to minor due to intervening industrial development and vegetation between the park boundaries and the Preferred Alternate Corridor. Further, visitors to Everglades National Park would likely be facing west when observing the park from the L-31N Canal (eastern border of the park), not towards the Preferred Alternate Corridor.

Overall, the incremental contribution of these structures to visual impacts on the park would be slight, due to the distance and the fact that they would be situated behind preexisting development in the form of radio towers, commercial and industrial facilities, and existing power transmission structures.

Impacts on recreational use within Everglades National Park are not expected to result from construction or operation of the Preferred Alternate Corridor due to the distance of the Corridor from recreation sites. Users of the L-31N Canal may notice a minor short-term increase in noise during construction in the portion of the Preferred Alternate Corridor that crosses the canal, but would likely be unaware of the construction while on the L-31N canal. Within the park, visitors would likely be unable to see the transmission line structures while in the Northeast Shark River Slough area, Shark Valley, or Chekika areas of the park and would experience no adverse impacts.

Heavy equipment used within the Preferred Alternate Corridor would result in short-term impacts on soundscapes in the park and on adjacent lands. Construction noise would be intense (over 90 A-weighted decibels [dBA] within 50 feet), but would also be intermittent and would not occur for long periods of time in one location as crews move along the transmission line alignment. No nighttime construction is anticipated. The audibility of construction would vary day to day depending on factors such as the number of pieces of equipment in use at any one time and the level of natural sounds (such as wind), which can mask human-caused sounds. Construction noise impacts would be greatest in winter when natural ambient noise is lowest (28.4 dBA), at which time the construction activity could equal the natural ambient noise in the park out to a distance of 13 miles, thereby reducing listening area for wildlife and visitors. Construction of the Preferred Alternate Corridor would result in sound levels of 10 dBA or higher than the natural ambient noise (perceived by humans as a doubling of loudness) for approximately 38 square miles of the park that are within 4.3 miles of the eastern edge Preferred Alternate Corridor.

Corona discharge from a transmission line in Preferred Alternate Corridor would result in adverse impacts on soundscapes in the park and on adjacent lands. Corona noise would be greatest during foul weather (49 dBA at 50 feet from the line), at which time it could increase ambient noise levels by 3 dBA or more out to a distance of 1,200 feet. Approximately 0.06 square miles of the park would be affected by corona noise from a transmission line constructed on the eastern edge of the Preferred Alternate Corridor. Corona noise would be less during dry weather than during wet weather, and would be barely audible only within the transmission line corridor itself.

9.4.7 Impact on Archaeological and Historic Sites

According to FPL (SCA W9.4.7), it would make every attempt to avoid known cultural resources along or within the corridor. This can be accomplished with alignment of the actual ROW and structure and pad placement. FPL may be required by the Florida Division of Historic Resources (DHR) to conduct an archaeological resource assessment survey of archaeologically sensitive areas within the eventual ROW, and the report of the survey would be submitted to DHR for review. If any archaeological resources within the ROW are determined to be significant, DHR would be consulted regarding appropriate procedures for either preservation or excavation of the significant resource(s). If unforeseen archaeological finds are discovered during construction, DHR would be notified. Following a determination of the importance of such finds, FPL has stated it would work with DHR to assess mitigation measures necessary to minimize adverse impacts.

9.5 Post-Construction Impacts and Effects of Maintenance

9.5.1 Maintenance Techniques

Maintenance techniques for the Preferred Alternate Corridor are expected to be the same as those described by FPL for the West Preferred and West Secondary corridors (SCA W9.5.1). As described by FPL, it would make every effort to provide safe and reliable operation of the new transmission lines through regular inspection of the poles, conductors, insulators, hardware, access areas, and vegetation in proximity to the facilities. The inspections would primarily consist of truck patrols but may also include aerial (helicopter/airplane) patrols. Electric transmission lines normally require minimal maintenance; however, FPL would inspect the transmission lines on a regular basis to look for problems caused by weather, vandalism, and vegetation regrowth.

Vegetation maintenance would likely take place twice yearly. Vegetation would be maintained in the ROW to ensure the safe, reliable operation of the transmission lines. FPL would manage vegetation on the transmission line ROW by a variety of methods, including trimming, mowing, and the use of approved growth regulators and herbicides, targeting species that are incompatible with the safe access and operation and maintenance of the transmission system.

FPL's ROW maintenance program is specific to each location, and a maintenance prescription is often detailed down to the individual spans between poles. The exact manner in which ROW maintenance would be performed would depend on the location, type of terrain, surrounding environment, and regulatory control. Vegetation removal would be minimized consistent with safe and reliable operation of the transmission line. In non-urbanized or non-cultivated portions of the ROW, fast-growing vegetation species and other vegetation whose mature height could exceed 14 feet would be pruned or removed from the area between the structures to avoid interference with the conductor clearance. Any vegetation that could restrict access to the ROW would be removed. Other species are generally allowed to remain, resulting in a shrubby and herbaceous cover within the ROW.

FPL would also work to control the spread of nuisance plants that could present a fire hazard within the ROW through the use of approved herbicides and other removal techniques. Use of

herbicides for vegetation control would be selective. Application of these herbicides would meet applicable federal, state, and local regulations. Where vegetation maintenance activities occur within or adjacent to Everglades National Park, herbicide use or other removal techniques would be coordinated with the park and in accordance with the National Park Service Integrated Pest Management Plan.

Some vegetation maintenance activities outside the ROW are occasionally necessary. To enhance the safe, reliable operation of the proposed transmission lines, FPL may trim or remove danger timber outside the FPL ROW in coordination with the adjacent property owner(s). Danger timber includes trees in danger of falling or leaning into the conductors or, in areas of wildfire hazard, other vegetation that may provide excessive fuel loading in proximity to the transmission lines. FPL may acquire the necessary property rights to maintain such vegetation, as needed.

9.5.2 Multiple Uses

According to FPL (SCA W9.5.2), its ROWs are frequently used for other purposes compatible with the safe and reliable operation and maintenance of transmission lines. Multiple uses of a transmission line ROW typically include grazing, citrus and row-crop farming, other agricultural operations, controlled landscaping, recreational uses such as hiking/biking trails, and other compatible activities that do not interfere with FPL's full use of the ROW and the safe, reliable function of the transmission line facilities. In most cases, FPL's property rights consist of an easement for the construction, maintenance, and operation of its transmission line, as well as the rights of ingress and egress to the line from another party who retains the fee-simple interest in the property. The easement may provide for the acceptable use of the ROW by the fee owner for activities that do not interfere with FPL's full use of its easement and the safe, reliable function of the transmission line facilities.

In some cases, FPL owns or purchases a fee interest in its ROWs. If FPL owns the ROW, all rights to the property would be held by FPL. If a party wishes to use the company-owned property, a license agreement may be negotiated, allowing for activities that do not interfere with FPL's full use of the ROW and the safe, reliable function of the transmission line facilities.

9.5.3 Changes in Species Populations

Efforts were made during the corridor selection study to avoid potentially sensitive habitats as much as practicable. The avoidance of ecologically unique or valuable habitats was achieved primarily through traversing open lands or existing agricultural lands, as well as siting the corridor a distance away from known rare species locations. Changes in local species populations are not expected as a result of transmission line presence and maintenance because the Preferred Alternate Corridor does not cross any unique habitat. Displacement of individuals from the immediate ROW area that may occur during construction activities would be temporary. Habitat use would decline during actual construction due to noise and human presence. Such avoidance behavior would enable wildlife to escape direct impacts from construction activities, although some losses of individual, less mobile species, such as rodents or amphibians may occur during ROW clearing. These displaced species are expected to re-inhabit the ROW areas after construction. No animal or plant species is expected to be permanently displaced from the transmission line ROW area. Due to necessary maintenance practices in the ROW, a decrease in structural diversity would occur in formerly forested areas (i.e., permanent loss of a tree canopy layer), which are few on the corridor.

Since most of the Preferred Alternate Corridor occurs in disturbed or active agricultural lands, clearing of canopy vegetation would be minimal. In those portions of the corridor where clearing is necessary, a strip of canopy habitat would be lost; however, the Preferred Alternate Corridor does not cross any large tracts of undisturbed forest. In areas where forest clearing is necessary, clearing

of overstory vegetation and subsequent maintenance requirements would not result in the loss of entire tracts or significant portions of regional wildlife habitat types. Because of the type of habitat crossed and the availability of similar habitat nearby, the long-term effects of these transmission lines and associated maintenance should not adversely affect regional populations of any listed species, including snail kites and wood storks. Through a vegetation maintenance program and proper culverting of access roads/pads, both existing habitat and hydrology would be maintained, providing foraging habitats for wood storks.

For any species documented within the proposed ROW as a result of post-certification surveys, FPL states that it would work with USFWS (for any federally listed species) or FDACS or FWC (for any state-listed species) to identify appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address impacts on species within the respective agencies' jurisdiction.

9.5.4 Effects of Public Access

According to FPL, it is policy to provide locked gates at the point where the transmission line access road intersects previously fenced property (SCA W9.5.4). Since FPL would install locked gates at any location that is currently fenced, no increased vehicle access is anticipated following construction except by FPL personnel performing routine maintenance. Where structures are placed adjacent to an existing roadway, maintenance of the line would have no additional impact on public access to the adjacent properties. In areas that currently have restricted access, FPL would maintain that restriction with the appropriate regulatory authority. In the event a new access road is needed in a restricted access area, the road would be gated. No impacts on environmentally sensitive areas or resident wildlife populations from additional public access are expected.

9.5.5 Other Post Construction Effects

The Proposed Alternate Corridor would be constructed using the same construction techniques and equipment as FPL's West Preferred Corridor. As such, the effects described in sections W9.5.5.1 through of the W9.5.5.3 of the FPL SCA application related to electromagnetic fields, audible noise, radio and television interference, and induced currents would be substantially similar for the Proposed Alternate Corridor; however, it would be expected to vary somewhat based upon proximity to residences. Heavy equipment used within the Preferred Alternate Corridor would result in short-term impacts on residential areas. Construction noise would be intense (over 90 dBA within 50 feet), but would also be intermittent and would not occur for long periods of time in one location as crews move along the transmission line alignment. No nighttime construction is anticipated. The audibility of construction would vary day to day depending on factors such as the number of pieces of equipment in use at any one time and level of natural sounds (such as wind), which can mask human-caused sounds. The potential for construction noise impacts on residential areas is higher with a transmission line on the east side Preferred Alternate Corridor (which passes within 0.25 to 0.5 mile of dense development). Approximately 8,931 residences within 1.1 miles of construction activity could experience a 3 dBA increase in ambient levels from a line on the eastern side of the Corridor. Construction on the east side of Corridor could result in a 10 dBA increase in sound levels at 713 residences within 0.4 mile. Corona discharge from a transmission line in the zone of possible construction would result in long-term minor adverse impacts on soundscapes. Corona noise would be greatest during foul weather (49 dBA at 50 feet from the line), at which time it could increase ambient levels in the park by 3 dBA or more out to a distance of 1,200 feet.

As discussed in section W9.5.5.4 of FPL's SCA, FPL's transmission line facilities are designed to comply with all applicable codes, guidelines, and standards. The primary code used in the design of transmission lines is the NESC, 2007 edition. The NESC is an ANSI standard that covers electrical clearances and loading and strength requirements, including extreme wind. Codes and standards of

other agencies and standard organizations that provide rules, guidelines, and conditions for particulars not specified by the NESC, used to design the proposed transmission lines, include:

- Occupational Safety and Health Administration (OSHA) rules provide requirements for safe minimum approach distances.
- American Society of Civil Engineers (ASCE) Manual 74, Guidelines for Electrical Transmission Line Structural Loading, and Standard 48-05, Design of Steel Transmission Pole Structures.
- Federal Aviation Administration guidelines cover requirements in the vicinity of airports.
- FDOT 2007 Utility Accommodation Manual.

These codes, guidelines, and standards provide design parameters and guidelines with the goal of protecting public safety.

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APPENDIX A

Aerial Photography of the Preferred Alternate Corridor

Map Sheet A-1. Preferred Alternate Corridor – Tile 1 of 7



Map Sheet A-2. Preferred Alternate Corridor – Tile 2 of 7



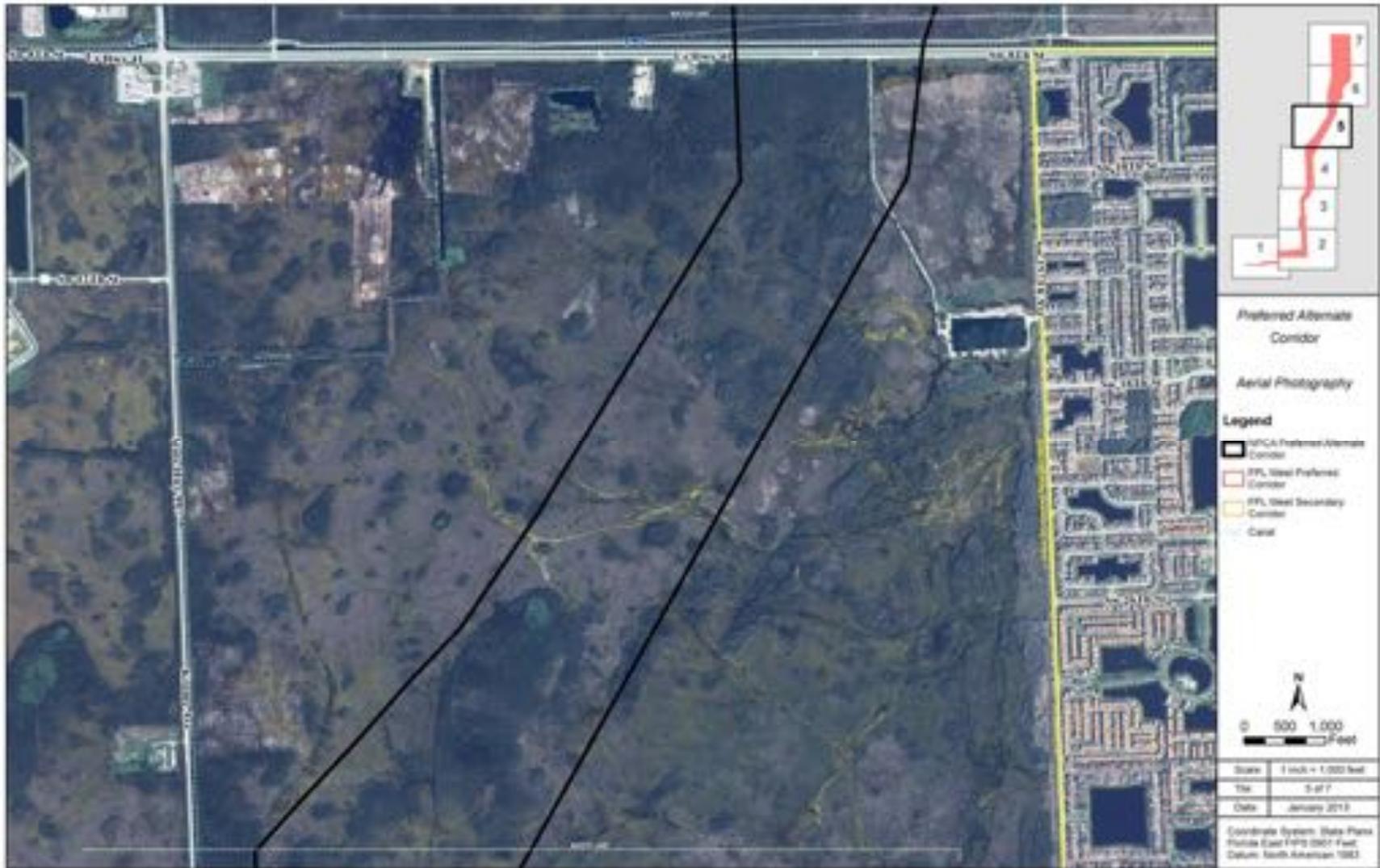
Map Sheet A-3. Preferred Alternate Corridor – Tile 3 of 7



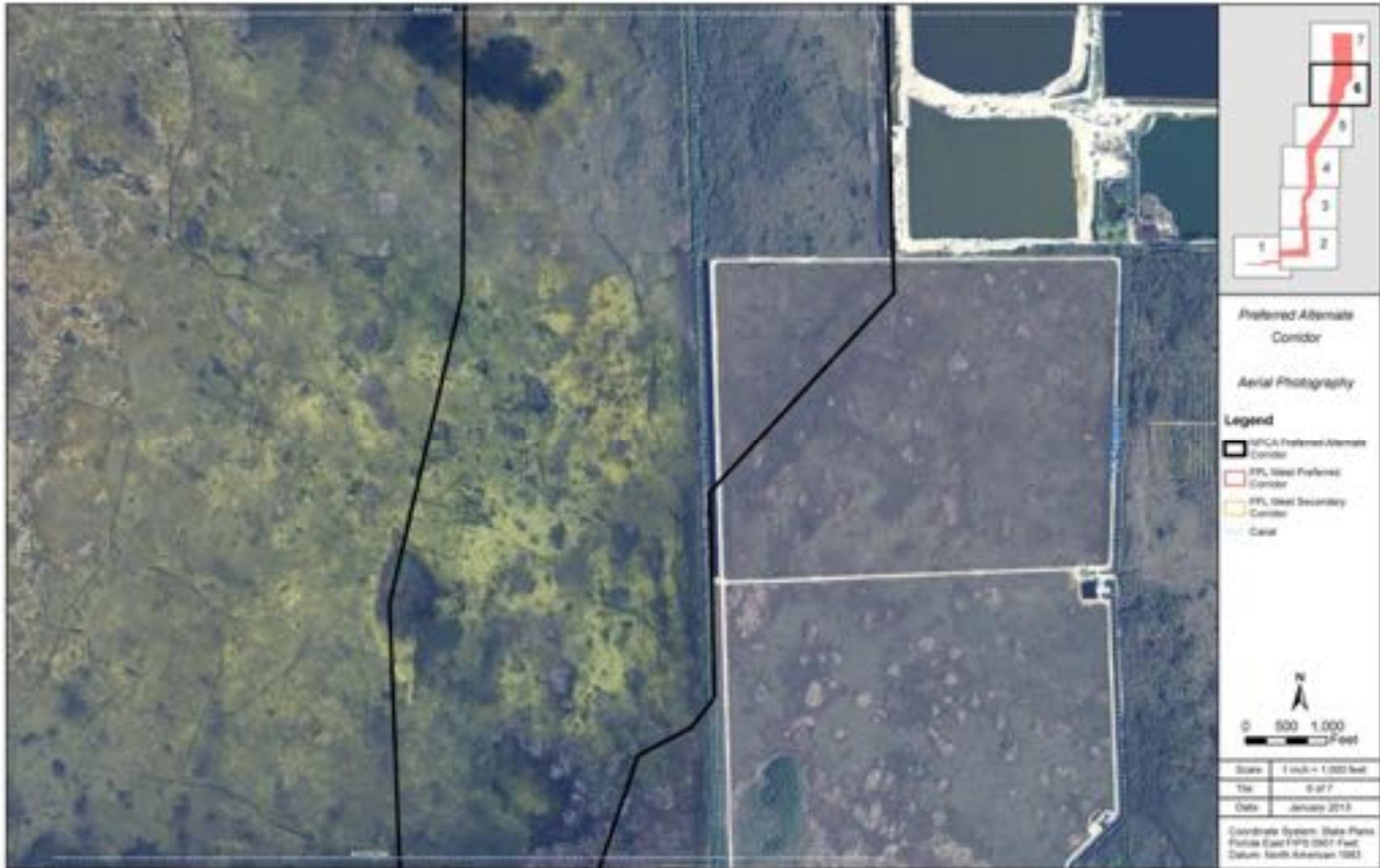
Map Sheet A-4. Preferred Alternate Corridor – Tile 4 of 7



Map Sheet A-5. Preferred Alternate Corridor – Tile 5 of 7



Map Sheet A-6. Preferred Alternate Corridor – Tile 6 of 7



Map Sheet A-7. Preferred Alternate Corridor – Tile 7 of 7



APPENDIX B

Right-of-Way Acquisition Cost Estimate Calculation

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3049080000110	SFWMD	9.94	3.41	0.34	\$140,000	\$14,079			Yes				1.6	\$76,718
3049080000130	Private	20.12	6.14	0.31	\$340,000	\$16,897			Yes				1.6	\$166,024
3049080000140	Private	10.01	0.60	0.06	\$160,000	\$15,987			Yes				1.6	\$15,277
3049180010190	Private	4.82	1.54	0.32	\$60,000	\$12,446		Yes				1.6		\$30,692
3049180010360	Private	9.77	0.43	0.04	\$120,000	\$12,284			Yes				1.6	\$8,538
3049180010541	SFWMD	2.35	1.16	0.49	\$30,000	\$12,751		Yes				1.6		\$23,602
3049180010550	County	9.62	0.22	0.02	\$120,000	\$12,472			Yes				1.6	\$4,442
3049190010530	SFWMD	9.69	4.93	0.51	\$150,000	\$15,480			Yes				1.6	\$122,116
3049190010600	SFWMD	9.94	5.00	0.50	\$140,000	\$14,085			Yes				1.6	\$112,732
3049300010050	County	4.82	2.44	0.51	\$75,000	\$15,554		Yes				1.6		\$60,816
3058120000018	Private	154.07	40.00	0.26	\$3,934,775	\$25,539			Yes	Yes			1.5	\$1,532,226
3058150000060	USACE	2.17	2.17	1.00	\$46,200	\$21,325		Yes				1.6		\$73,920
3058150000061	USACE	1.93	1.93	1.00	\$41,160	\$21,344		Yes				1.6		\$65,856
3049080000150	Private	10.01	5.07	0.51	\$220,000	\$21,974			Yes				1.6	\$178,128
3049180010640	Private	9.52	1.15	0.12	\$119,964	\$12,602			Yes				1.6	\$23,211
3049190010210	Private	9.87	5.01	0.51	\$120,000	\$12,162			Yes				1.6	\$97,436
3049300010280	County	9.66	5.36	0.55	\$170,000	\$17,596			Yes				1.6	\$150,900
3049300010370	County	9.64	3.45	0.36	\$180,000	\$18,671			Yes				1.6	\$103,052
3049300010380	Private	9.82	3.25	0.33	\$136,800	\$13,929			Yes	Yes			1.5	\$67,932
3058150000370	USACE	2.46	0.00	0.00	\$42,500	\$17,285		Yes				1.6		\$29
3049080000100	SFWMD	39.74	2.48	0.06	\$560,000	\$14,091			Yes				1.6	\$55,998
3049180010630	County	9.50	3.95	0.42	\$120,000	\$12,637			Yes				1.6	\$79,914
3049190010280	County	9.80	4.98	0.51	\$150,000	\$15,305			Yes				1.6	\$121,874
3049300010210	County	9.67	4.92	0.51	\$120,000	\$12,405			Yes				1.6	\$97,686
3048510000010	Private	19.55	2.97	0.15	\$4,448,485	\$227,599			Yes	Yes			1.5	\$1,015,312
3058150000330	Private	4.94	4.57	0.93	\$75,000	\$15,197		Yes		Yes		1.5		\$104,149

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3048240000010	Private	1632.54	28.05	0.02	\$9,634,920	\$5,902			Yes	Yes			1.5	\$248,287
3049180010540	SFWMD	2.39	1.69	0.71	\$30,000	\$12,563		Yes				1.6		\$33,931
3049180010542	SFWMD	2.44	0.32	0.13	\$30,000	\$12,285		Yes				1.6		\$6,371
3049190010051	County	4.49	0.07	0.02	\$63,630	\$14,179		Yes				1.6		\$1,657
3049190010120	County	9.85	4.99	0.51	\$120,000	\$12,184			Yes				1.6	\$97,365
3049300010430	Private	9.82	4.11	0.42	\$325,000	\$33,080			Yes	Yes			1.5	\$203,790
3058150000010	USACE	13.52	8.44	0.62	\$200,400	\$14,819			Yes				1.6	\$200,143
3049180010192	TRS II FUND	1.62	0.20	0.12	\$20,040	\$12,400		Yes				1.6		\$4,001
3049180010330	SFWMD	9.77	4.86	0.50	\$120,000	\$12,284			Yes				1.6	\$95,590
3049180010480	SFWMD	9.80	3.22	0.33	\$120,000	\$12,242			Yes				1.6	\$63,015
3049300010051	County	4.83	2.46	0.51	\$75,000	\$15,540		Yes				1.6		\$61,123
3059060000022	Private	59.82	10.69	0.18	\$2,137,800	\$35,740			Yes	Yes			1.5	\$572,815
3059070000011	Rail	6.29	0.77	0.12	\$0	\$0			Yes				1.6	\$0
3059070000030	SFWMD	16.58	0.04	0.00	\$63,040	\$3,803			Yes				1.6	\$250
3058150000011	USACE	1.66	0.88	0.53	\$1,000	\$603		Yes				1.6		\$851
3058150000090	USACE	4.18	4.18	1.00	\$63,450	\$15,194		Yes				1.6		\$101,520
3049180010010	Private	9.54	1.79	0.19	\$120,000	\$12,585			Yes				1.6	\$36,088
3049170010090	Private	9.31	0.01	0.00	\$150,000	\$16,112			Yes				1.6	\$266
3049180010470	TRS II FUND	9.59	2.54	0.27	\$120,000	\$12,516			Yes				1.6	\$50,922
3049190010370	County	9.89	5.02	0.51	\$150,000	\$15,165			Yes				1.6	\$121,925
3049190010440	County	9.98	5.07	0.51	\$150,000	\$15,033			Yes				1.6	\$121,985
3049300010120	County	9.64	4.91	0.51	\$120,000	\$12,446			Yes				1.6	\$97,766
3049300010420	Private	9.82	2.59	0.26	\$325,000	\$33,085			Yes	Yes			1.5	\$128,722
3049300010560	Private	9.68	2.19	0.23	\$325,000	\$33,569			Yes	Yes			1.5	\$110,315
3049300010570	Private	9.68	4.86	0.50	\$400,000	\$41,318			Yes	Yes			1.5	\$301,300

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3048510000012	Private	2.78	0.52	0.19	\$35,971	\$12,938		Yes				1.6		\$10,667
3059060000020	Private	27.40	9.61	0.35	\$1,008,525	\$36,807			Yes	Yes			1.5	\$530,486
3059070000010	Private	23.08	3.87	0.17	\$6,155,835	\$266,722			Yes	Yes			1.5	\$1,547,660
3058150000091	USACE	0.81	0.43	0.53	\$13,090	\$16,211	Yes				2			\$13,954
3049180010320	Private	9.77	0.88	0.09	\$120,000	\$12,286			Yes				1.6	\$17,211
3049180010370	TRS II FUND	9.77	5.30	0.54	\$120,000	\$12,287			Yes				1.6	\$104,273
3049180010530	Private	4.86	0.00	0.00	\$60,000	\$12,358		Yes				1.6		\$3
3059060000023	Private	101.05	20.05	0.20	\$4,454,235	\$44,078			Yes	Yes			1.5	\$1,325,543
3059070000010	Private	151.47	16.48	0.11	\$6,155,835	\$40,642			Yes	Yes			1.5	\$1,004,879
3059070000040	Private	32.22	5.12	0.16	\$1,385,300	\$42,993			Yes	Yes			1.5	\$330,484
3058150000100	USACE	4.79	0.00	0.00	\$72,150	\$15,051		Yes				1.6		\$41
3058150000062	USACE	2.36	0.00	0.00	\$46,830	\$19,872		Yes				1.6		\$51
3058150000340	Private	4.95	0.00	0.00	\$75,000	\$15,164		Yes				1.6		\$47
3049170010080	Private	8.72	2.93	0.34	\$180,000	\$20,648			Yes				1.6	\$96,683
3049180010180	SFWMD	9.52	5.57	0.58	\$120,000	\$12,605			Yes				1.6	\$112,320
3049180010170	TRS II FUND	5.00	0.08	0.02	\$60,000	\$12,003		Yes				1.6		\$1,626
3049180010200	TRS II FUND	9.81	4.02	0.41	\$120,000	\$12,233			Yes				1.6	\$78,774
3049180010543	SFWMD	2.42	2.25	0.93	\$30,000	\$12,421		Yes				1.6		\$44,635
3049180010679	Private	0.04	0.04	1.00	\$600	\$16,816	Yes				2			\$1,200
3049190010050	County	4.47	4.47	1.00	\$63,630	\$14,239		Yes				1.6		\$101,753
3049300010550	Private	9.82	4.51	0.46	\$325,000	\$33,082			Yes	Yes			1.5	\$223,846
3049300010580	Private	9.84	0.01	0.00	\$350,000	\$35,582			Yes	Yes			1.5	\$587
3049310010400	Private	25.84	8.49	0.33	\$1,582,200	\$61,238			Yes	Yes			1.5	\$780,046
3058140000043	Private	5.00	2.80	0.56	\$85,000	\$17,015		Yes		Yes		1.5		\$71,498
3058150000350	Private	1.89	1.89	1.00	\$34,510	\$18,221		Yes		Yes		1.5		\$51,765
3058140000044	Private	5.00	0.00	0.00	\$85,000	\$17,015		Yes		Yes		1.5		\$26

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3058150000020	Private	2.50	0.00	0.00	\$52,500	\$21,003		Yes				1.6		\$52
3039550000150	TIITF Florida	498.20	1.42	0.00	\$1,556,100	\$3,123			Yes				1.6	\$7,119
3049040000430	SFWMD	5.17	2.43	0.47	\$96,000	\$18,552			Yes				1.6	\$72,167
3049050010030	TRS II FUND	9.82	0.12	0.01	\$40,000	\$4,073			Yes				1.6	\$759
3049050010081	Private	4.69	1.56	0.33	\$19,240	\$4,103		Yes				1.6		\$10,232
3049050010510	TRS II FUND	3.83	0.17	0.05	\$24,520	\$6,404		Yes				1.6		\$1,790
3049050010410	TRS II FUND	11.50	1.26	0.11	\$46,040	\$4,003			Yes				1.6	\$8,059
3049050010400	TRS II FUND	41.10	0.20	0.00	\$1,113,750	\$27,100			Yes				1.6	\$8,649
3049050010020	TRS II FUND	9.72	0.07	0.01	\$40,000	\$4,115			Yes				1.6	\$476
3049050010060	SFWMD	8.87	4.44	0.50	\$35,480	\$4,000			Yes				1.6	\$28,425
3049050010480	TRS II FUND	9.81	1.71	0.17	\$40,000	\$4,076			Yes				1.6	\$11,161
3039200000020	Private	2064.70	59.04	0.03	\$22,596,270	\$10,944			Yes				1.6	\$1,033,844
3049050010082	TRS II FUND	4.70	3.47	0.74	\$19,240	\$4,098		Yes				1.6		\$22,782
3049080000100	SFWMD	39.74	5.77	0.15	\$560,000	\$14,091			Yes				1.6	\$130,088
3049080000120	SFWMD	20.00	0.01	0.00	\$300,000	\$14,999			Yes				1.6	\$299
3039200000020	Private	3.09	0.14	0.04	\$22,596,270	\$7,310,110		Yes				1.6		\$1,623,788
3039290000010	Private	319.20	20.67	0.06	\$0	\$0			Yes				1.6	\$0
3049050010010	SFWMD	9.08	0.03	0.00	\$40,000	\$4,405			Yes				1.6	\$222
3049040000450	SFWMD	4.84	2.21	0.46	\$96,000	\$19,845		Yes				1.6		\$70,108
3049050010490	TRS II FUND	8.95	2.10	0.23	\$40,000	\$4,469			Yes				1.6	\$14,983
3049080000010	SFWMD	39.67	11.41	0.29	\$620,000	\$15,629			Yes				1.6	\$285,337
3049080000060	SFWMD	80.19	10.85	0.14	\$1,120,000	\$13,968			Yes				1.6	\$242,536
3049040000460	SFWMD	5.15	2.31	0.45	\$96,000	\$18,632			Yes				1.6	\$68,873
3049050010380	TRS II FUND	9.77	3.48	0.36	\$200,000	\$20,460			Yes				1.6	\$114,017
3049080000040	SFWMD	39.79	1.21	0.03	\$560,000	\$14,072			Yes				1.6	\$27,313

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3039540000140	TIITF Florida	470.15	14.86	0.03	\$12,422,500	\$26,423			Yes				1.6	\$628,029
3049050010050	SFWMD	8.56	3.35	0.39	\$34,880	\$4,075			Yes				1.6	\$21,823
3049050010500	TRS II FUND	3.85	2.39	0.62	\$24,520	\$6,366		Yes				1.6		\$24,395
3049050010510	TRS II FUND	0.39	0.27	0.70	\$24,520	\$63,655	Yes				2			\$34,232
3049040000440	SFWMD	4.81	2.23	0.46	\$96,000	\$19,941		Yes				1.6		\$71,135
3049050010040	SFWMD	8.87	0.12	0.01	\$35,480	\$3,999			Yes				1.6	\$768
3049040000510	SFWMD	5.14	0.76	0.15	\$96,000	\$18,673			Yes				1.6	\$22,625
3049050010500	TRS II FUND	0.36	0.36	1.00	\$24,520	\$67,526	Yes				2			\$49,040
3049050010390	TRS II FUND	9.98	6.61	0.66	\$200,000	\$20,033			Yes				1.6	\$211,921
3058120000018	Private	154.07	0.00	0.00	\$3,934,775	\$25,539			Yes	Yes			1.5	\$125
3058110000600	SFWMD	2.37	0.45	0.19	\$28,176	\$11,902		Yes				1.6		\$8,514
3058150000330	Private	4.94	0.37	0.07	\$75,000	\$15,197		Yes		Yes		1.5		\$8,351
3058110000020	SFWMD	72.84	10.01	0.14	\$657,000	\$9,020			Yes				1.6	\$144,463
3058110001410	USACE	4.43	0.03	0.01	\$37,600	\$8,483		Yes				1.6		\$363
3058150000011	USACE	1.66	0.78	0.47	\$1,000	\$603		Yes				1.6		\$748
3058110001720	USACE	2.52	0.60	0.24	\$30,000	\$11,909		Yes				1.6		\$11,408
3058110001700	USACE	5.04	0.48	0.09	\$50,000	\$9,920		Yes				1.6		\$7,562
3058150000091	USACE	0.81	0.38	0.47	\$13,090	\$16,211	Yes				2			\$12,226
3058110000360	USA Everglades	4.73	0.16	0.03	\$47,000	\$9,938		Yes				1.6		\$2,623
3058140000043	Private	5.00	0.33	0.07	\$85,000	\$17,015		Yes		Yes		1.5		\$8,374
3058110004960	Private	1.48	0.63	0.43	\$15,000	\$10,148		Yes		Yes		1.5		\$9,602
3058110000534	USACE	1.46	0.58	0.40	\$15,000	\$10,279		Yes				1.6		\$9,554
3058110000410	USACE	2.93	1.26	0.43	\$30,000	\$10,235		Yes				1.6		\$20,592
3058110001200	USACE	2.94	1.26	0.43	\$30,000	\$10,211		Yes				1.6		\$20,563
3058110004970	USACE	1.48	0.63	0.43	\$15,000	\$10,138		Yes				1.6		\$10,237

Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3058110001170	USACE	10.02	5.00	0.50	\$100,000	\$9,984			Yes				1.6	\$79,801
3058110000600	SFWMD	2.37	0.93	0.39	\$28,176	\$11,902		Yes				1.6		\$17,721
3058110004010	Private	1.47	0.63	0.43	\$15,000	\$10,184		Yes		Yes		1.5		\$9,618
3058110001920	Private	4.20	2.23	0.53	\$42,000	\$9,989		Yes		Yes		1.5		\$33,397
3058110000020	SFWMD	72.84	4.51	0.06	\$657,000	\$9,020			Yes				1.6	\$65,104
3058110005040	USACE	1.48	0.63	0.43	\$15,000	\$10,125		Yes				1.6		\$10,233
3058110001410	USACE	4.43	3.55	0.80	\$37,600	\$8,483		Yes				1.6		\$48,232
3058110001921	USACE	0.80	0.27	0.33	\$8,000	\$9,965	Yes				2			\$5,285
3058110000011	USA Everglades	5.01	2.49	0.50	\$50,000	\$9,979		Yes				1.6		\$39,821
3058110001760	USA Everglades	2.51	1.25	0.50	\$30,000	\$11,932		Yes				1.6		\$23,850
3058110000533	USACE	2.92	1.26	0.43	\$30,000	\$10,260		Yes				1.6		\$20,617
3058110004080	Private	1.47	0.63	0.43	\$15,000	\$10,172		Yes		Yes		1.5		\$9,613
3058110001750	USA Everglades	2.52	1.25	0.50	\$30,000	\$11,926		Yes				1.6		\$23,842
3058110000535	USACE	1.46	0.08	0.06	\$15,000	\$10,290		Yes				1.6		\$1,356
3058110001310	USACE	2.94	1.26	0.43	\$30,000	\$10,203		Yes				1.6		\$20,538
3058110004890	Private	1.48	0.63	0.43	\$15,000	\$10,160		Yes		Yes		1.5		\$9,608
3058110000270	USACE	4.99	2.50	0.50	\$50,000	\$10,010		Yes				1.6		\$39,964
3058110000013	Private	5.04	2.51	0.50	\$25,000	\$4,957		Yes				1.6		\$19,896
3058110001720	USACE	2.52	0.40	0.16	\$30,000	\$11,909		Yes				1.6		\$7,572
3058110001700	USACE	5.04	0.02	0.00	\$50,000	\$9,920		Yes				1.6		\$248
3058110002500	USACE	2.51	1.24	0.50	\$35,400	\$14,127		Yes				1.6		\$28,071
3058110000271	USACE	4.99	2.49	0.50	\$50,000	\$10,022		Yes				1.6		\$40,005
3058110001860	Private	5.05	2.51	0.50	\$25,000	\$4,953		Yes				1.6		\$19,883
3058110000360	USA Everglades	4.73	2.49	0.53	\$47,000	\$9,938		Yes				1.6		\$39,540

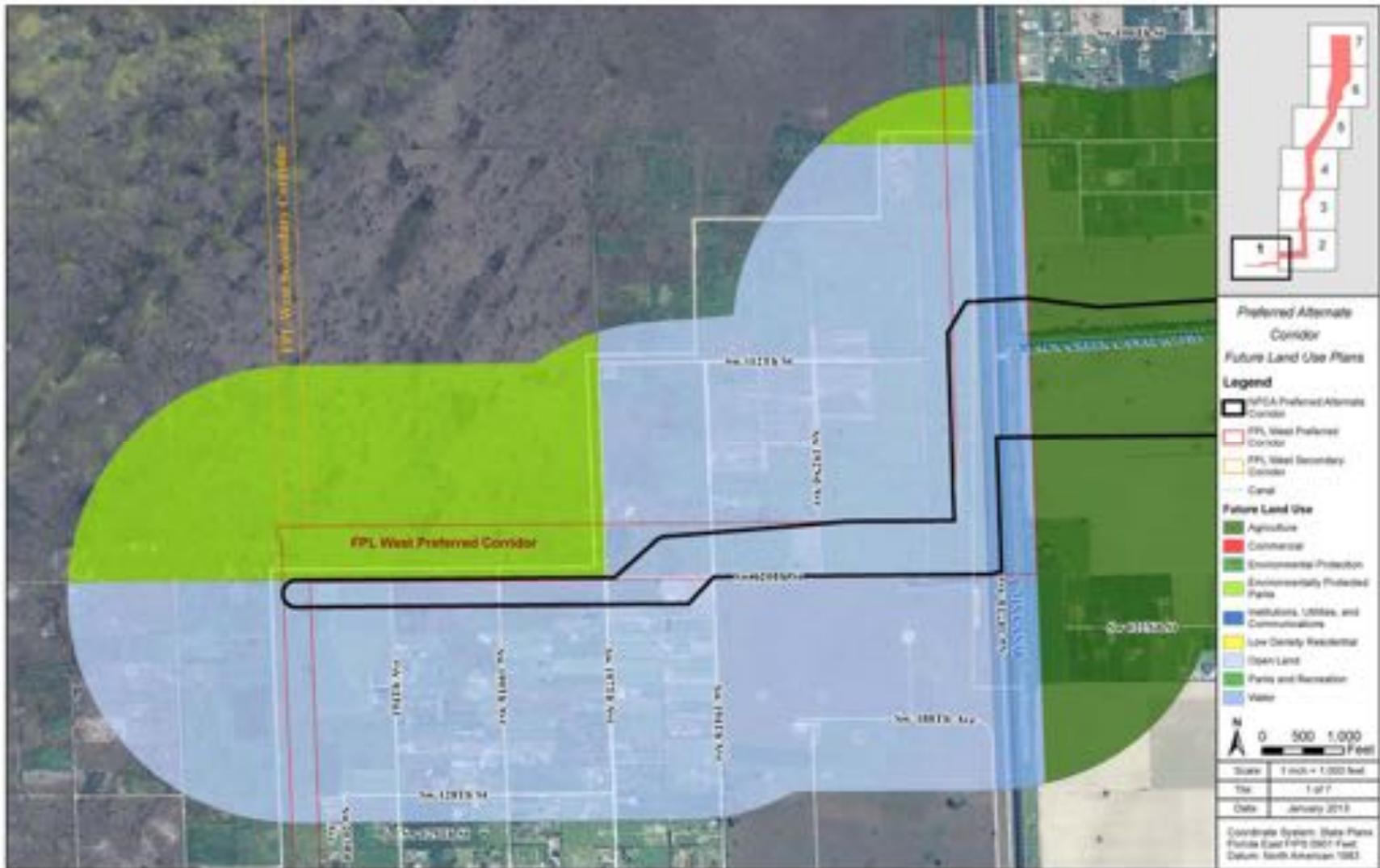
Folio Number	Parcel Category	Total Acreage	Acres within ROW ¹	Percent within ROW	Land Value	Land Value Per Acre	< 1 Acre Total	1 - 5 Acres Total	> 5 Acres Total	Ag Land	< 1 Acre Multiplier	1 - 5 Acre Multiplier	> 5 Acre Multiplier	Est. ROW Cost
3058110002510	USACE	2.50	1.26	0.51	\$35,400	\$14,159		Yes				1.6		\$28,636
3058110002520	USACE	1.47	0.00	0.00	\$15,000	\$10,172		Yes				1.6		\$33
3039200000020	Private	138.09	0.01	0.00	\$22,596,270	\$163,639			Yes				1.6	\$1,744
3039200000020	Private	3.09	0.02	0.01	\$22,596,270	\$7,310,110		Yes				1.6		\$204,905
Total														\$19,470,121
Total with 20% Markup														\$23,364,145

¹ Based on hypothetical 330-foot wide ROW, acreages rounded to the nearest 100th

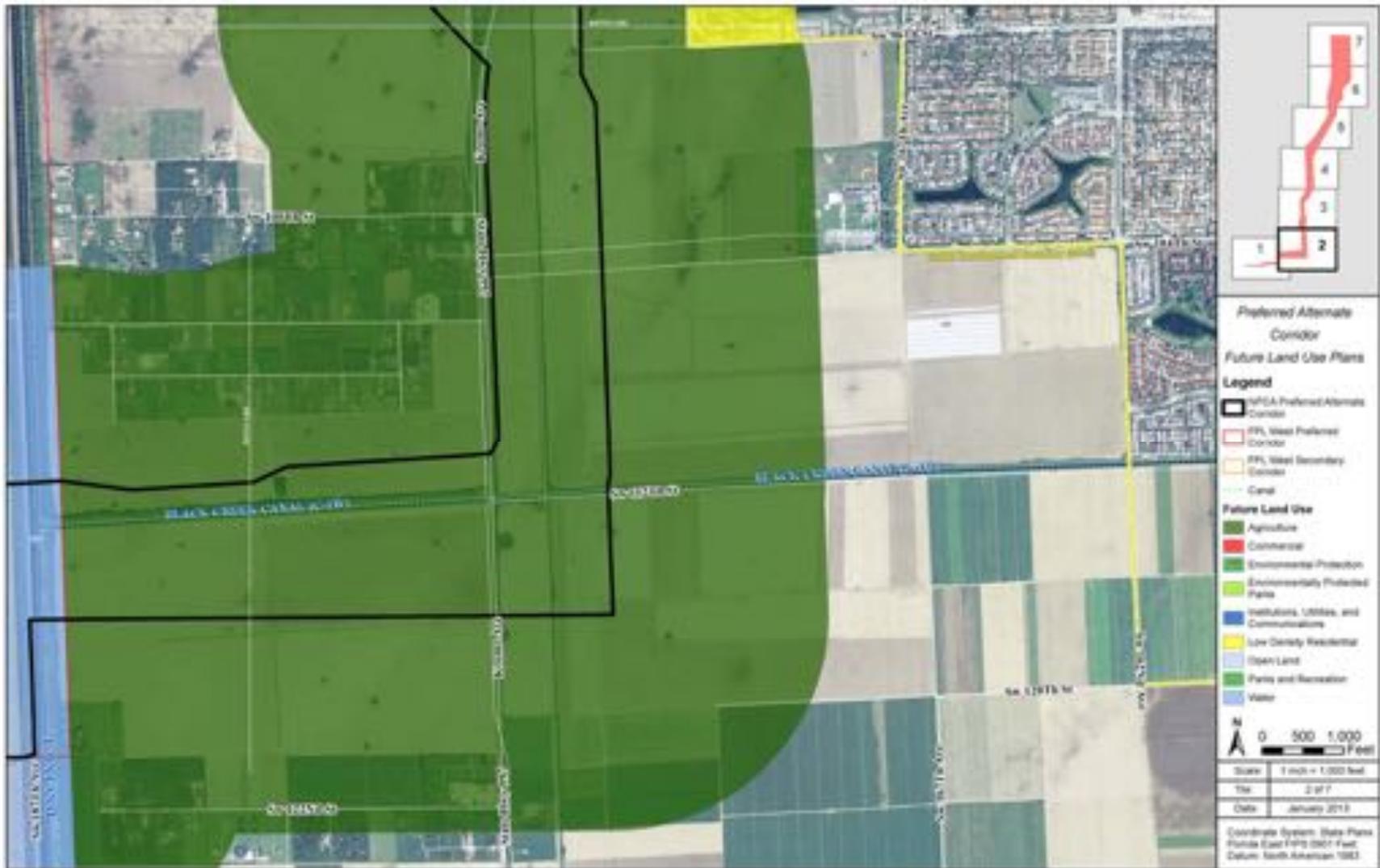
APPENDIX C

Preferred Alternate Corridor in Relation to the Miami-Dade Future Land Use Maps

Map Sheet C-1. Future Land Use – Tile 1 of 7



Map Sheet C-2. Future Land Use – Tile 2 of 7



Map Sheet C-3. Future Land Use – Tile 3 of 7



Map Sheet C-4. Future Land Use – Tile 4 of 7



Map Sheet C-5. Future Land Use – Tile 5 of 7



Map Sheet C-6. Future Land Use – Tile 6 of 7



Map Sheet C-7. Future Land Use – Tile 7 of 7



APPENDIX D

Zoning within the Preferred Alternate Corridor

Map Sheet D-1. Zoning within the Preferred Alternate Corridor – Tile 1 of 7



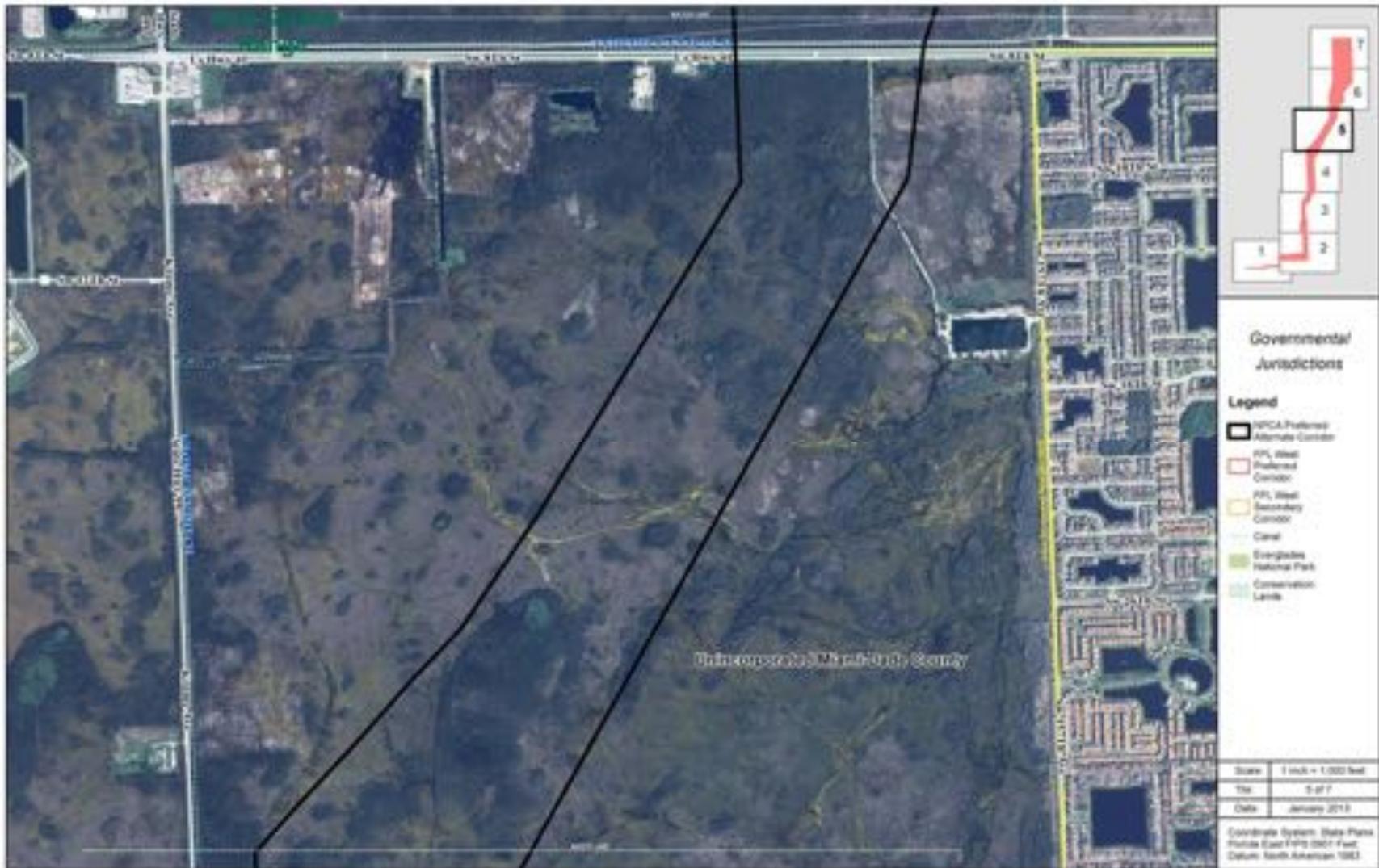
Map Sheet D-3. Zoning within the Preferred Alternate Corridor – Tile 3 of 7



Map Sheet D-4. Zoning within the Preferred Alternate Corridor – Tile 4 of 7



Map Sheet D-5. Zoning within the Preferred Alternate Corridor – Tile 5 of 7



Map Sheet D-6. Zoning within the Preferred Alternate Corridor – Tile 6 of 7



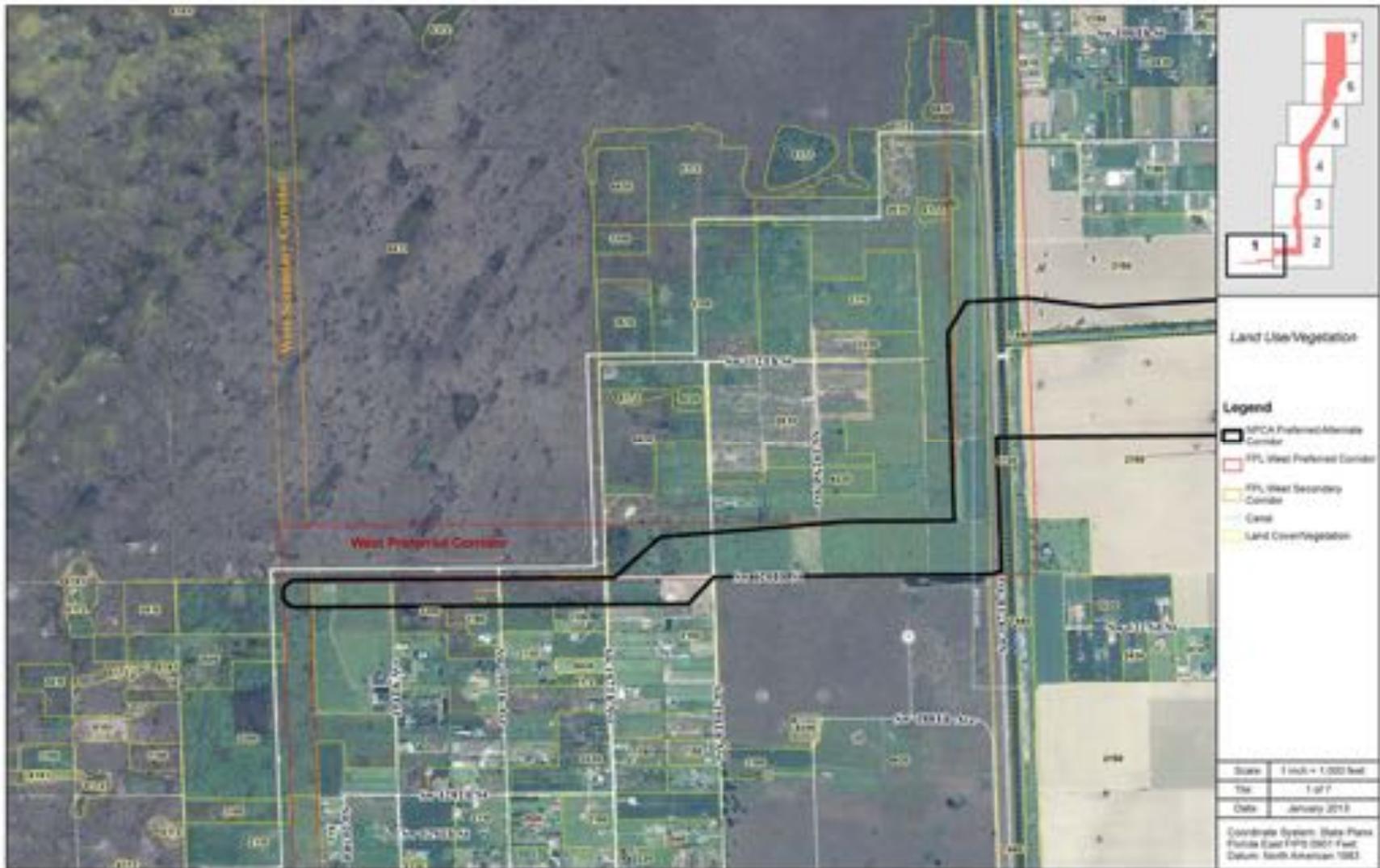
Map Sheet D-7. Zoning within the Preferred Alternate Corridor – Tile 7 of 7



APPENDIX E

Land Use and Vegetation Classifications in the Preferred Alternate Corridor

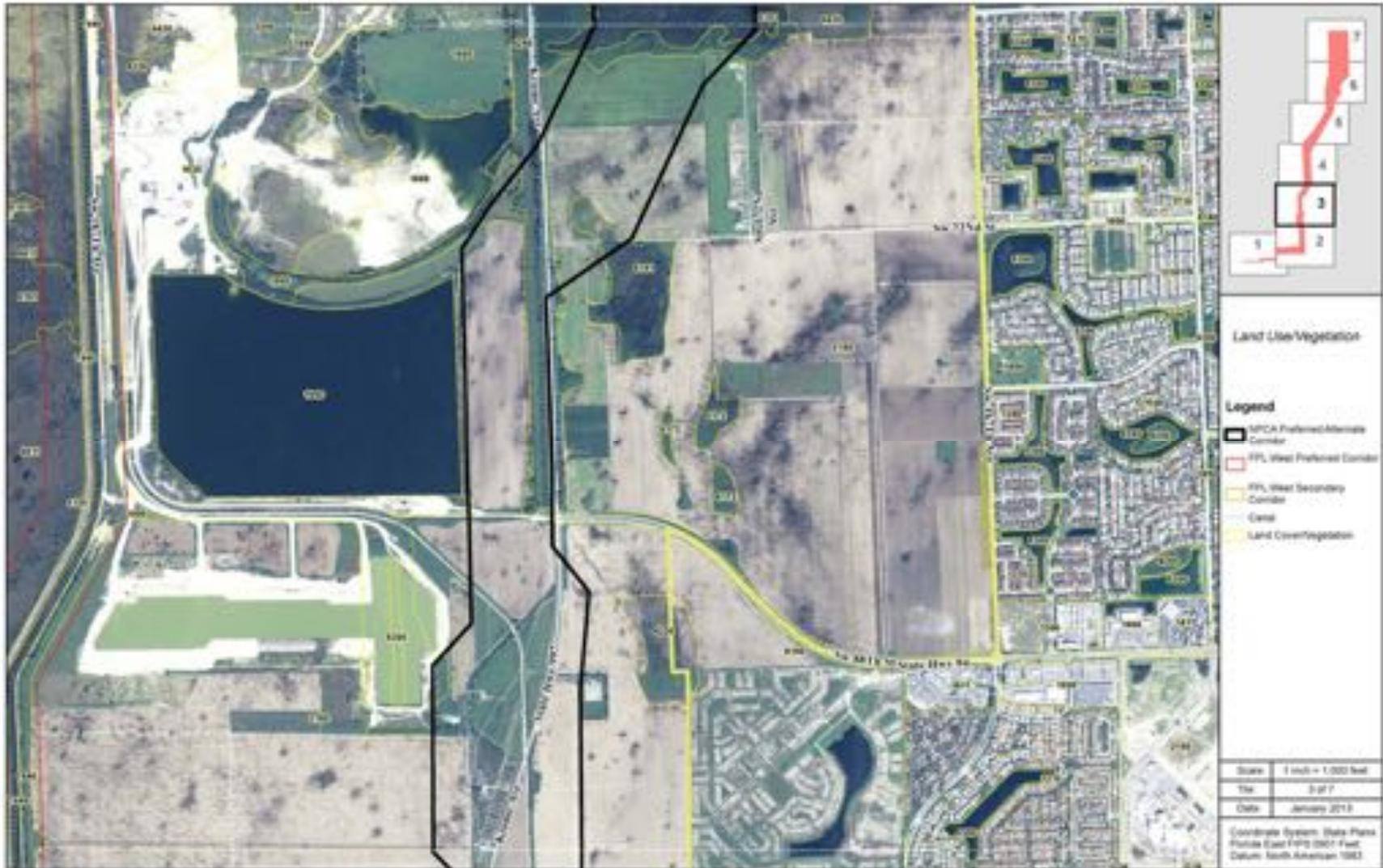
Map Sheet E-1. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 1 of 7



Map Sheet E-2. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 2 of 7



Map Sheet E-3. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 3 of 7



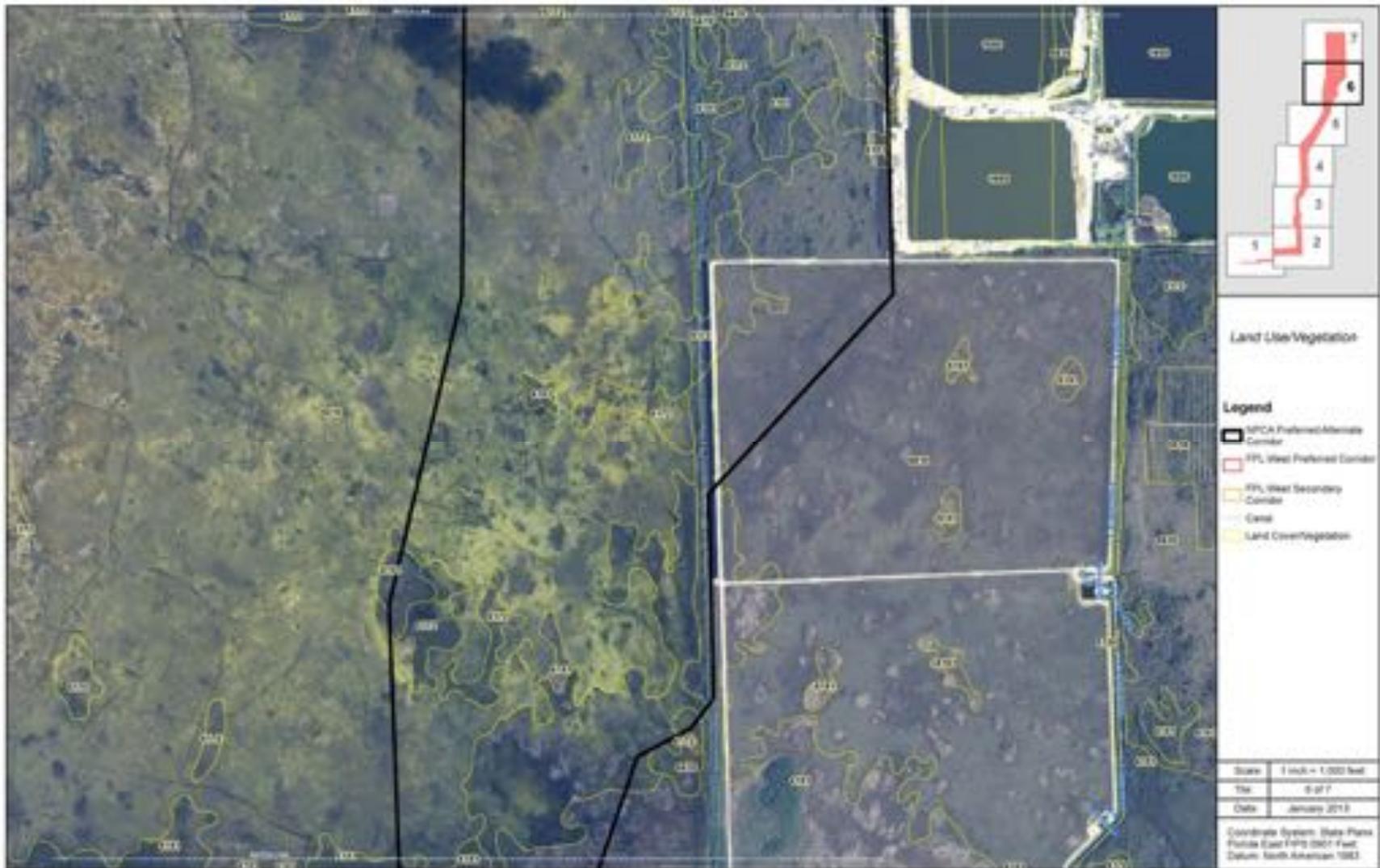
Map Sheet E-4. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 4 of 7



Map Sheet E-5. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 5 of 7



Map Sheet E-6. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 6 of 7



Map Sheet E-7. Land Use and Vegetation Classification in the Preferred Alternate Corridor – Tile 7 of 7

