



October 12, 2007

Mr. Mike Halpin, P.E.
Siting Administrator
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, 32399-2400

RE: Willow Oak- Wheeler- Davis Transmission Line Siting Application

Dear Mr. Halpin:

Enclosed for your review are six hard copies (with enclosed CD copies) and two additional CD (electronic) copies of Tampa Electric Company's application for corridor certification of the Willow Oak - Wheeler- Davis transmission line project. Certification of this line is sought under the State of Florida Transmission Line Siting Act, Sections 403.52-403.5365, Florida Statutes. The line will connect the planned Willow Oak substation located west of Mulberry in Polk County to the planned Davis substation, located in Temple Terrace in Hillsborough County. The corridor will also connect to the existing Wheeler substation located in Hillsborough County. Please note that the substations are not part of the certification. The total length of the preferred corridor is 30.0 miles. Therefore, the application filing fee calculated at \$130,000, is also enclosed.

Tampa Electric is currently distributing copies of this application to the statutory parties. A copy of the distribution list is also enclosed.

If you have any questions, please call me at (813) 228-4858, or Nate Alcoz at (813) 228-4843.

Sincerely,

A handwritten signature in blue ink that reads "Paul L. Carpinone".

Paul L. Carpinone
Director
Environmental, Health & Safety

EHS/rhk/PLC101

Enclosure

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Willow Oak- Wheeler-Davis 230-kV Transmission Line Project

Application for Corridor Certification



Prepared by:

ECT

Environmental Consulting & Technology, Inc.
3701 Northwest 98th Street
Gainesville, Florida 32606
ECT No. 061022-0200

TECO
TAMPA ELECTRIC

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Wheeler-
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APPLICANT INFORMATION

Please supply the following information:

Applicant's Official Name Tampa Electric Company

Address P.O. Box 111, Tampa, Florida 33601-0111

Business entity (corporation, partnership, co-operative,
name(s), owner(s), etc. Corporation

Name and Title of Chief Executive Officer(s) _____

Charles R. Black, President, Tampa Electric

Name, Title, address and phone numbers of
official representatives responsible for
obtaining certifications Mr. Christopher A. Steele, P.E., Manager
Project Management; Tampa Electric Company, 820 South 78th Street,
Tampa, Florida 33619, 813/630-6545; Mr. Paul L. Carpinone, Director,
Environmental, Health & Safety; Tampa Electric Company, 702 North
Franklin Street, Tampa, Florida 33602, 813/228-4858

Corridor Location (counties crossed) Hillsborough and Polk Counties

Incorporated Cities within the corridor (names) Temple Terrace

Termination Points Planned Willow Oak Substation (Polk County) and
Planned Davis Substation (Hillsborough County)

Intermediate Substations Wheeler Substation (Hillsborough County)
Existing

Voltage 230 kilovolts (kV)

Line Type (AC or DC) AC

Length of line and number of circuits 30.0 miles (1 circuit)

Remarks (if any): _____

1.0 PROJECT OVERVIEW

1.1 PROJECT INTRODUCTION

1.1.1 OVERVIEW OF THE PROJECT

The Willow Oak-Wheeler-Davis transmission line project (Willow Oak-Davis Project or the Project) is proposed by Tampa Electric Company (Tampa Electric) for certification under the State of Florida Transmission Line Siting Act (TLSA), Sections 403.52 through 403.5365, Florida Statutes (F.S.). The line will connect a new planned substation (Willow Oak) west of Mulberry in Polk County to the planned Tampa Electric Davis substation located in Temple Terrace, Hillsborough County (see Figure 1.1-1). The line will also connect with the intermediate and existing Tampa Electric Wheeler substation located along Wheeler Road northeast of Brandon in Hillsborough County. This new 230-kilovolt (kV) line will be located in the proposed corridor, which is approximately 30 miles long (see Figure 1.1-2).

In this application, Tampa Electric is seeking certification of a corridor of variable width between the Willow Oak and Davis substations. The new transmission line will be located on a right-of-way within this corridor, once certified. The preferred corridor ranges in width from approximately 300 feet (ft) up to nearly 1 mile (5,100 ft). In some areas, the Project may be constructed along established road rights-of-way or within right-of-way already owned by Tampa Electric.

The width of the new right-of-way will typically range from 25 to 100 ft. As provided in Section 403.522(10), F.S., once Tampa Electric acquires the property interests required for the Willow Oak-Davis Project, the boundaries of the certified corridor will narrow to only that land within the right-of-way. At that point, the remainder of the corridor will have no further legal significance related to this certification.

Tampa Electric is proposing to connect to one existing intermediate substation (Wheeler) for this Project. The Willow Oak and Davis substations are currently in the engineering

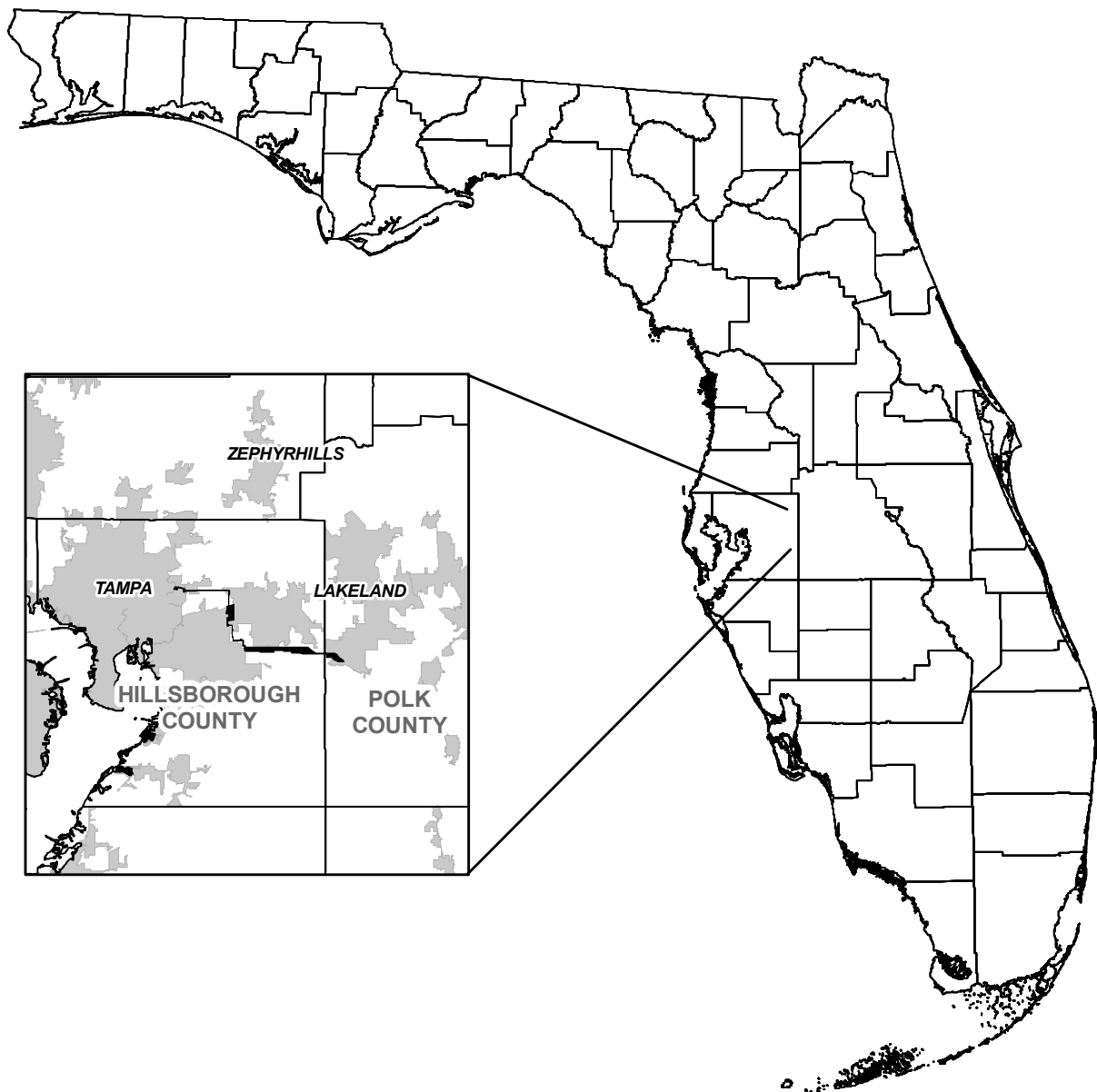


FIGURE 1.1-1.

LOCATION OF PROJECT AREA

Sources: Tampa Electric, 2007; ECT, 2007.



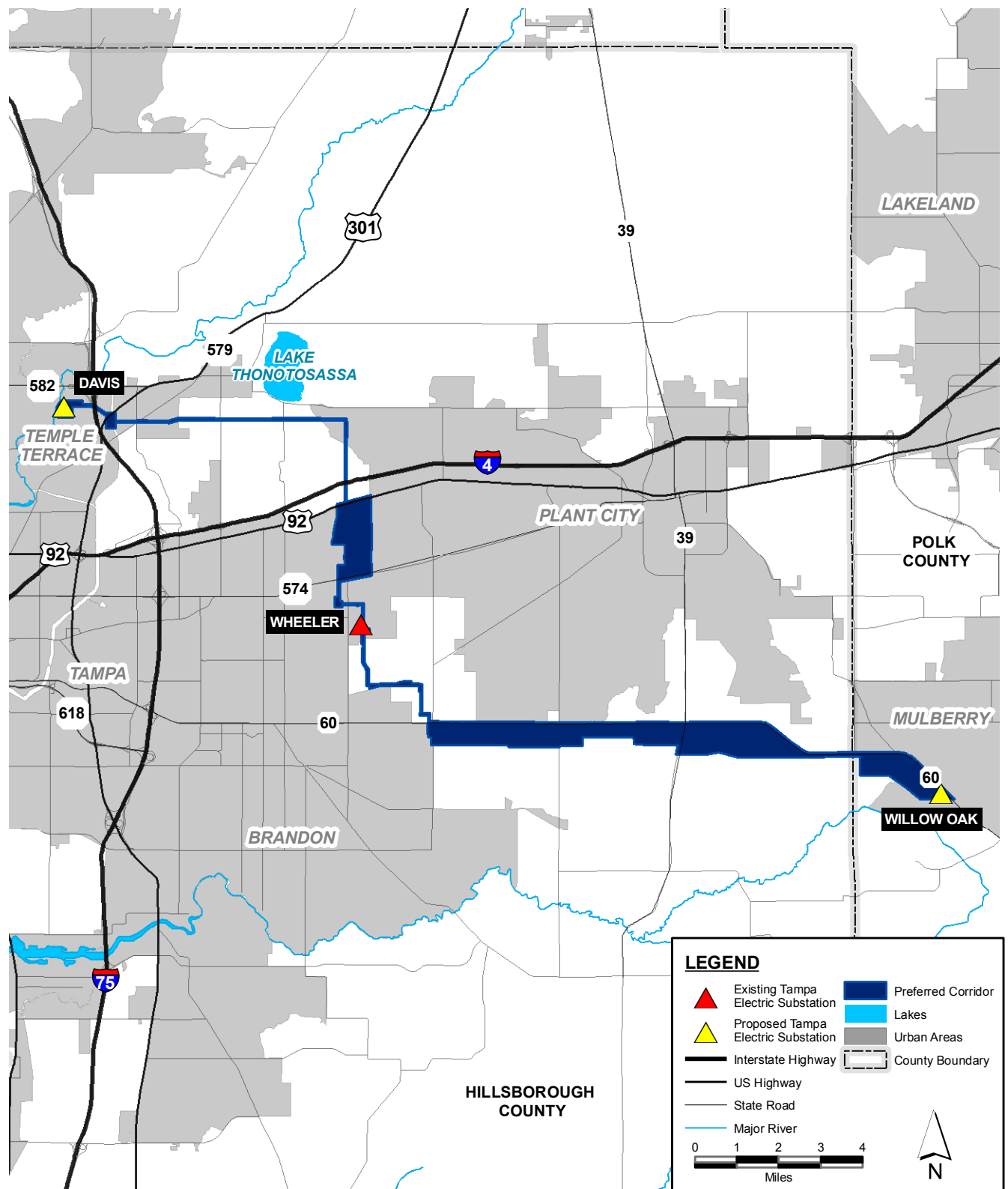


FIGURE 1.1-2.
WILLOW OAK - WHEELER - DAVIS 230-kV TLSA
PREFERRED CORRIDOR ALIGNMENT

Sources:FGDL, 2005; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.



phases. They will be permitted separately from the TLSA process through local government and regulatory agency permitting.

The scheduled in-service date for the Wheeler-Davis portion of the Project is summer 2010. The in-service date for the Willow Oak-Wheeler section is scheduled for spring 2012.

1.1.2 OVERVIEW OF THE NEED FOR THE WILLOW OAK-DAVIS PROJECT

The proposed 230-kV electrical transmission line connecting the planned Willow Oak substation in Polk County to the planned Davis substation in Hillsborough County is needed to meet the increasing power needs of the future and provide safe, reliable, and low-cost electrical service.

Transmission assessment studies conducted by Tampa Electric during 2006 have identified regional transmission system limitations in northeast Hillsborough County. The studies show that by 2012, the existing 230-kV transmission network will not have sufficient capability to provide reliable service to existing and proposed substations. Additionally, some of the projected load to be served by the proposed future distribution substations will be located further east and north of the existing 230-kV transmission network. As a result, it is necessary to increase the capability of the existing 230-kV network and provide electrical service to the new load areas and substations east and north of the existing transmission facilities.

The need for the Willow Oak-Davis 230-kV transmission line Project in Polk and Hillsborough Counties is based on the following factors:

- The need to provide additional transmission reinforcement to the existing 230-kV transmission network north of State Road (SR) 60, west of Willow Oak substation, and east of the existing River substation in a reliable manner consistent with the North American Electric Reliability Council (NERC) and the Florida Reliability Coordinating Council (FRCC) and other applicable standards.

- The need to serve the increasing load and customer base in the projected service area.
- The need to provide for another electrical feed via a separate right-of-way path, thereby reducing the impact of a loss of existing transmission facilities on a common right of way.

The Florida Public Service Commission (PSC) approved the need for the Project in accordance with Section 403.537, F.S., by order dated June 21, 2007. Appendix A to this application contains a copy of that order.

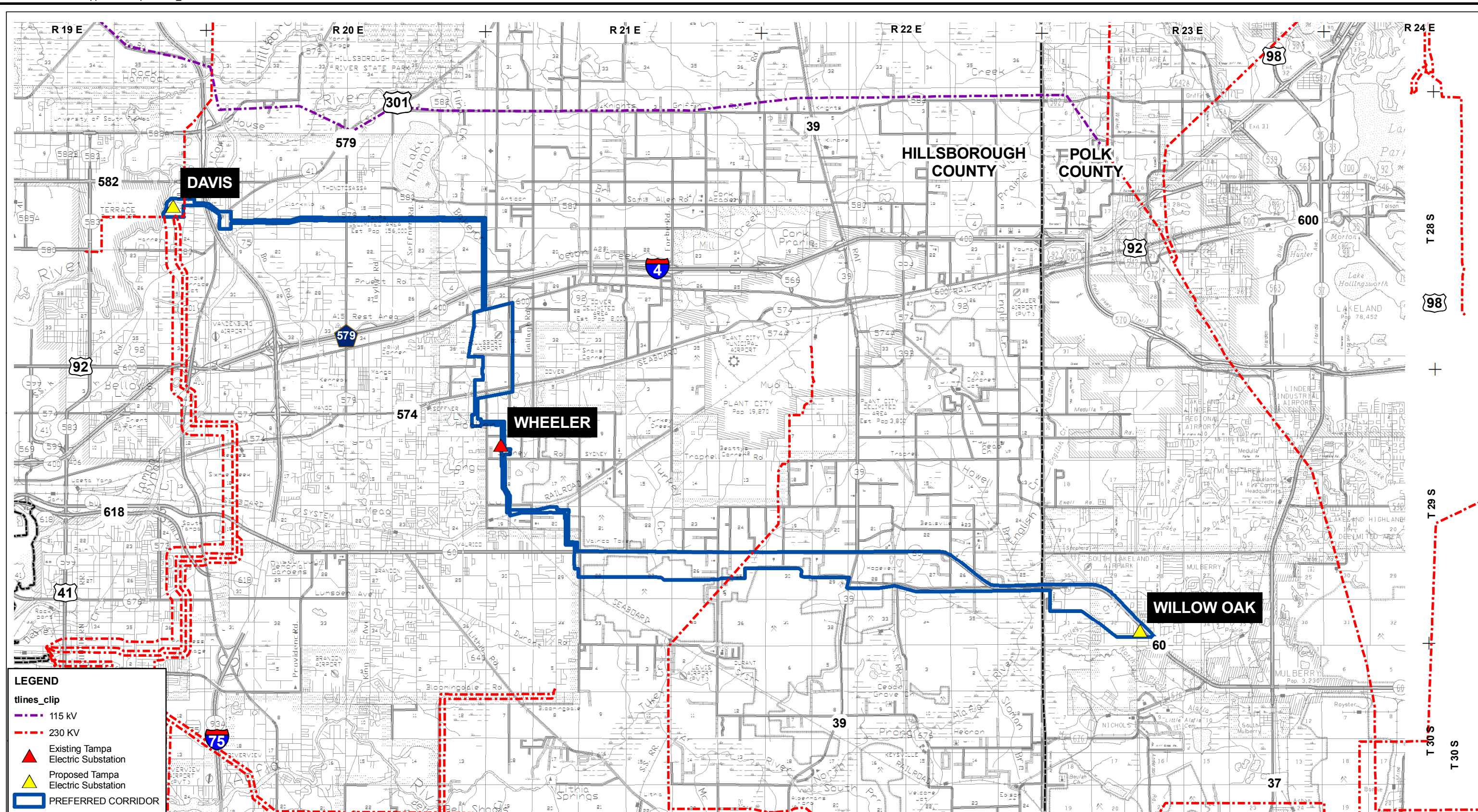
1.2 CORRIDOR LOCATION AND LAYOUT

Figure 1.2-1 illustrates the route for the preferred corridor for the Tampa Electric Willow Oak-Davis Project at a scale of 1:126,720, or 1 inch equals 2 miles. The preferred corridor is depicted on Florida Department of Transportation (FDOT) highway maps, which also show major geographic features and roads. Also shown on Figure 1.2-1 are existing transmission lines of 115 kV or greater located within 5 miles of the preferred corridor.

1.3 TRANSMISSION LINE AND ROAD DESIGN CHARACTERISTICS

The proposed transmission line is to be constructed typically using single-circuit, un-guyed steel poles embedded in the ground using concrete or crushed stone backfill. Figures 1.3-1 through 1.3-5 illustrate typical structures anticipated for use on the Willow Oak-Davis Project. In some areas, where warranted, a horizontal framing configuration may be used. Such special structures and conductor configurations may be required at specific locations, such as the crossings of major road intersections, or to accommodate specific engineering considerations, such as near the South Lakeland Airport. Where the transmission line turns large angles or crosses other major linear facilities, the single-pole structure may require guys and anchors.

The three conductors of the proposed transmission line will typically be framed in a vertical configuration, as shown on all figures except Figure 1.3-4. Each conductor is anticipated to be one 1,590-thousand-circular-mil, aluminum conductor, steel supported (ACSS) galvanized core. The maximum current rating (MCR) for the line will be



L-1

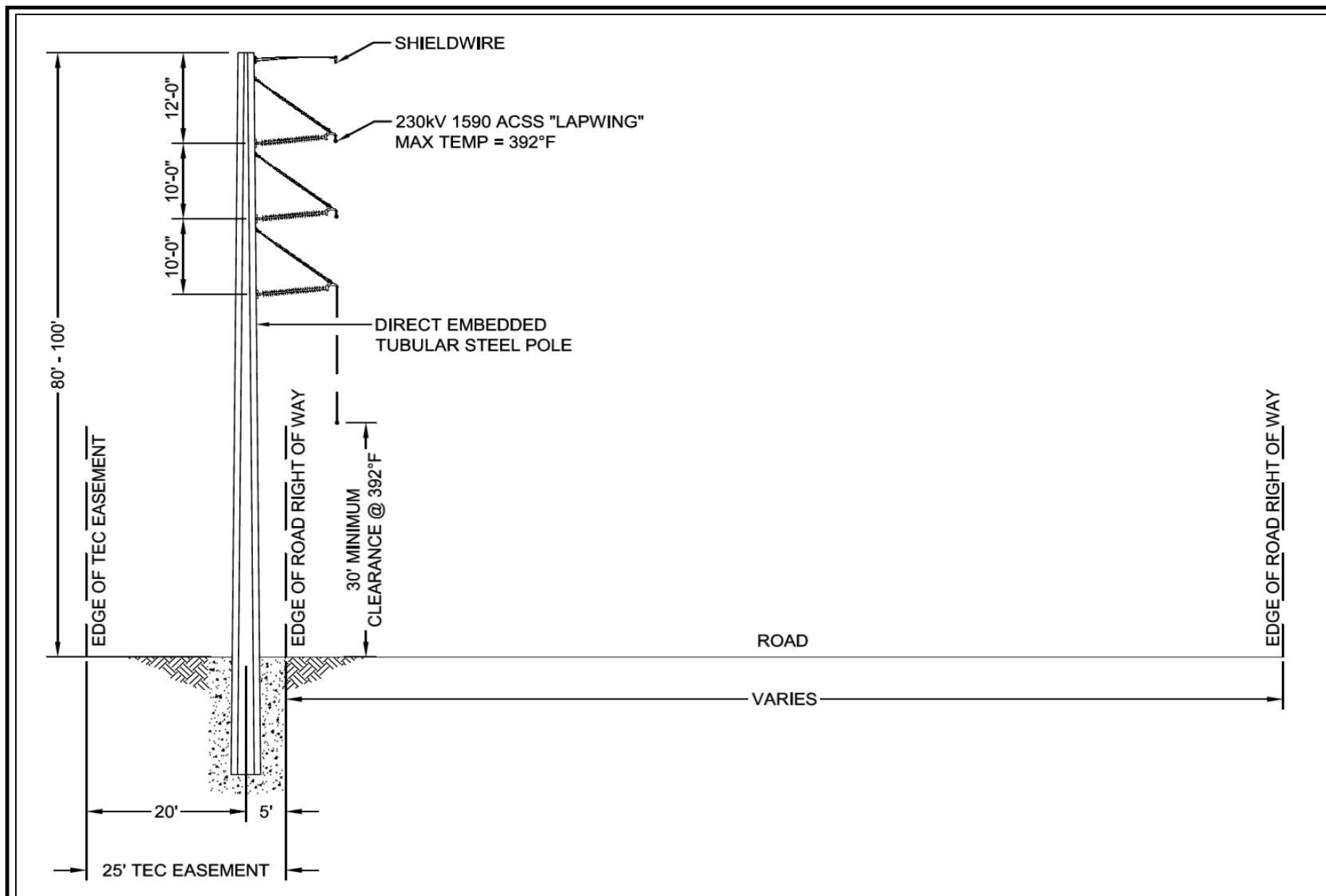


FIGURE 1.3-1.

TYPICAL 230-kV SINGLE-CIRCUIT ROADSIDE CROSS-SECTION

Source: Black & Veatch, 2007.



8-1

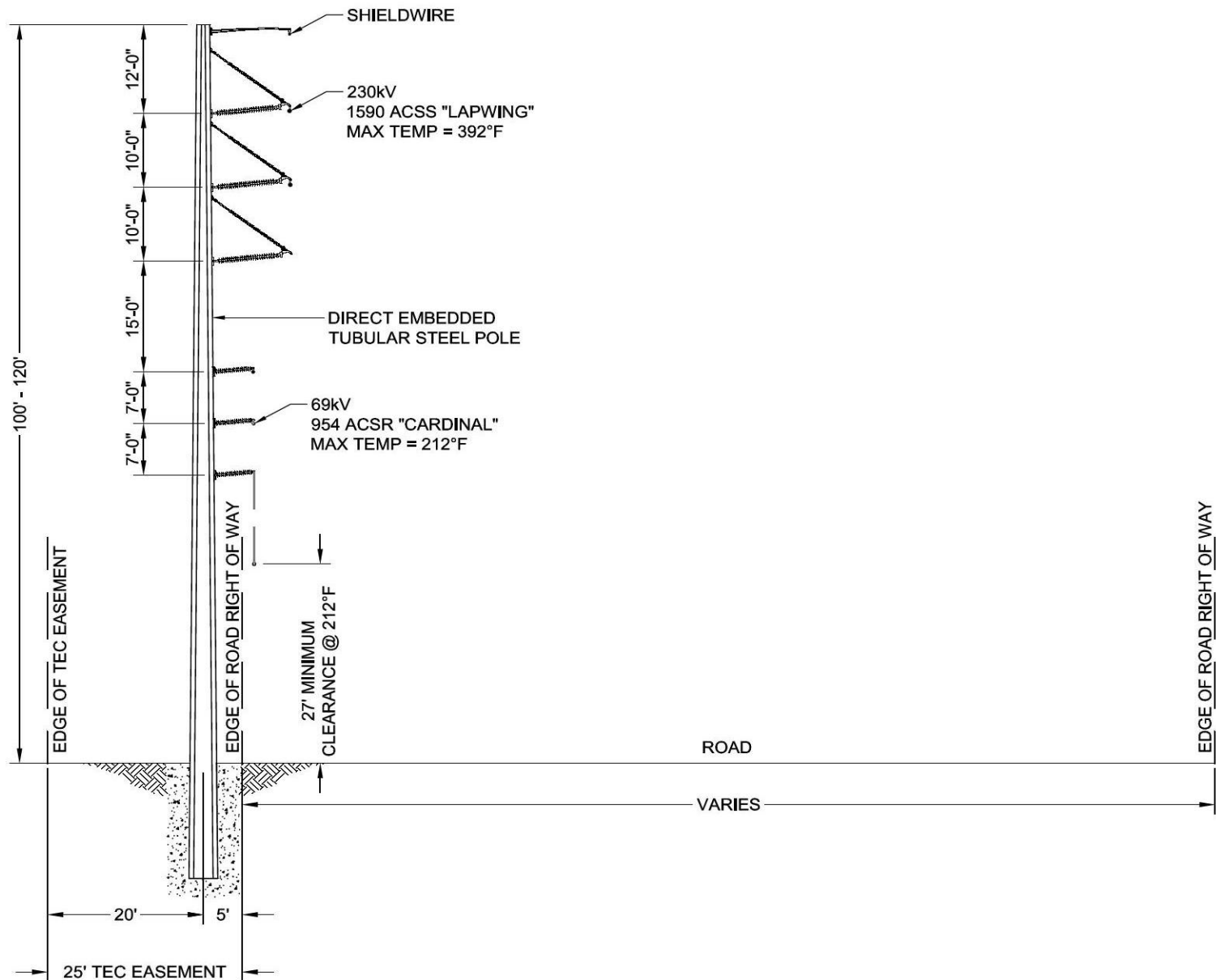


FIGURE 1.3-2.

TYPICAL 230-kV SINGLE-CIRCUIT ROADSIDE CROSS-SECTION WITH 69-kV
UNDERBUILD

Source: Black & Veatch, 2007.



6-1

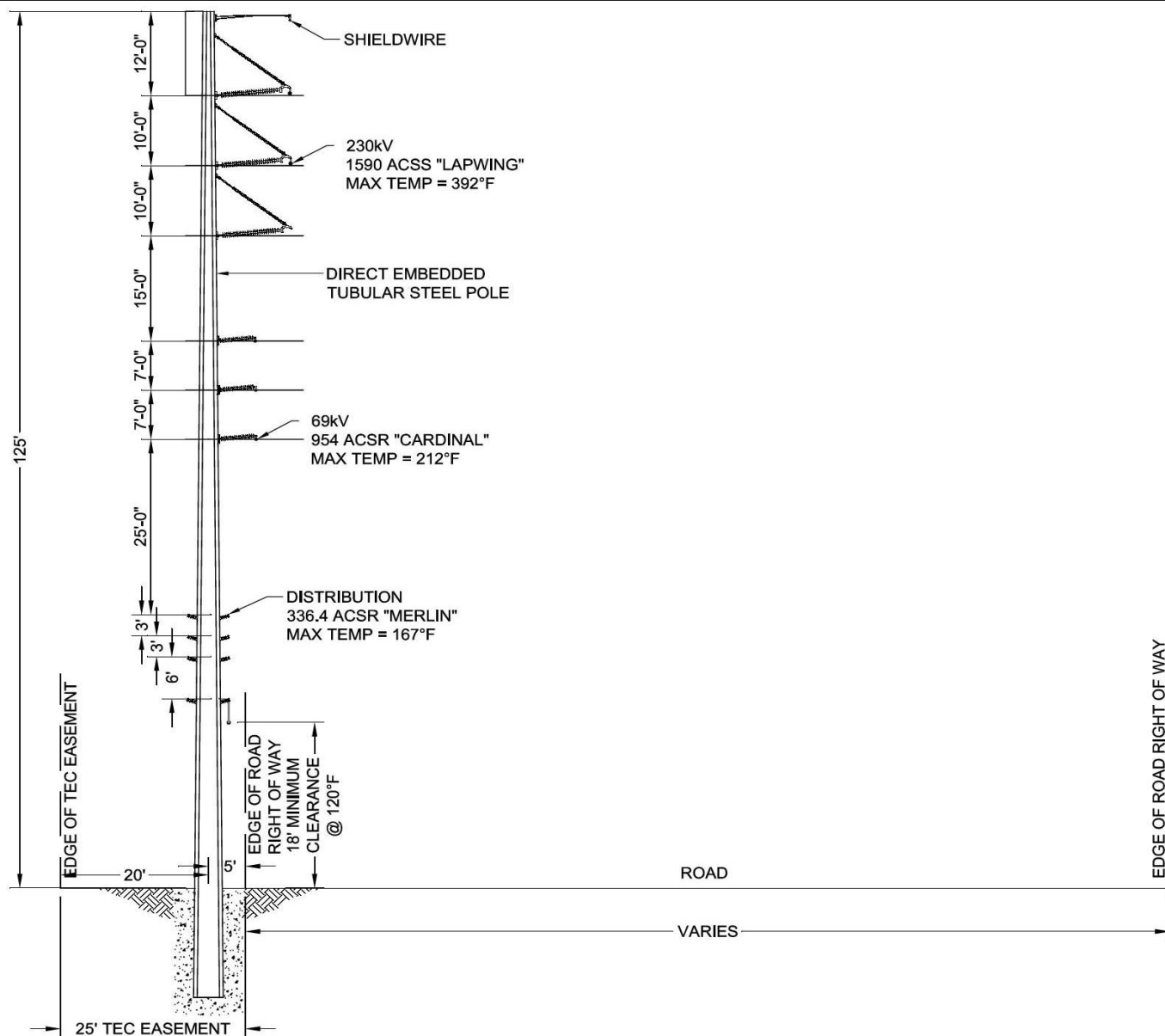


FIGURE 1.3-3.

TYPICAL 230-kV SINGLE-CIRCUIT ROADSIDE CROSS-SECTION WITH 69-kV UNDERBUILD AND DISTRIBUTION UNDERBUILD

Source: Black & Veatch, 2007.



1-10

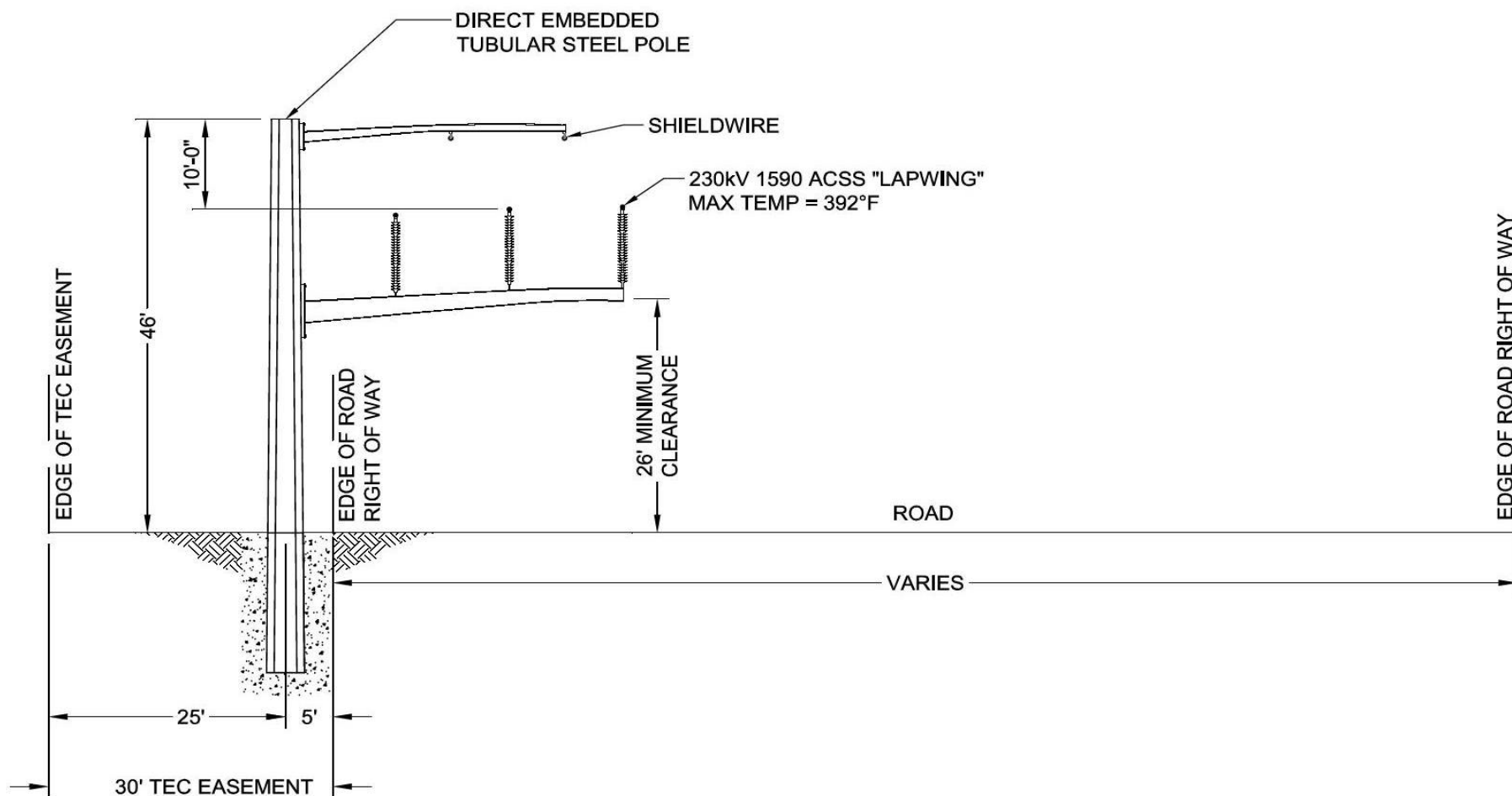


FIGURE 1.3-4.

SPECIAL 230-kV SINGLE-CIRCUIT ROADSIDE CROSS-SECTION
(SOUTH LAKELAND AIRPORT)

Source: Black & Veatch, 2007.



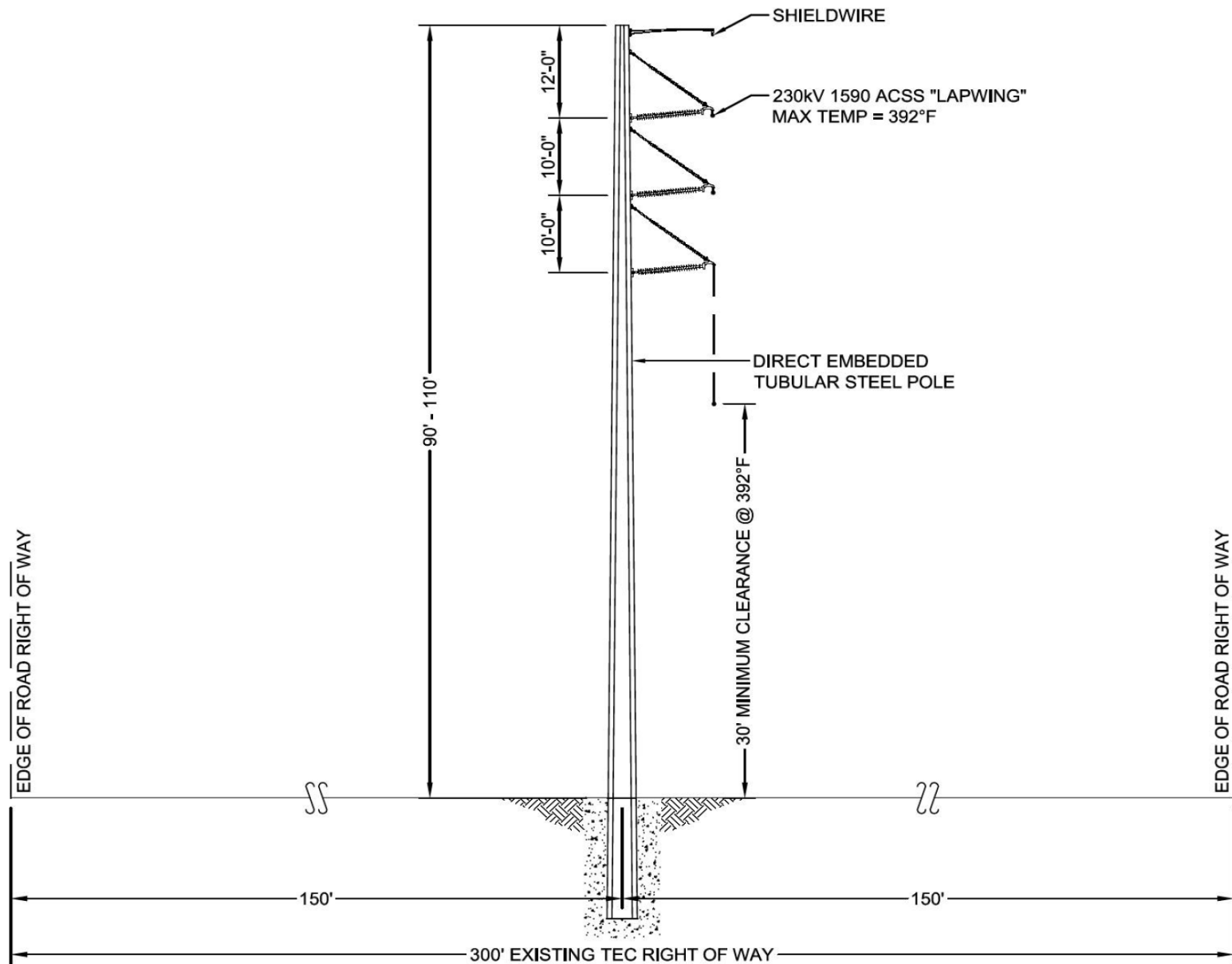


FIGURE 1.3-5.

TYPICAL 230-kV SINGLE-CIRCUIT EXISTING TAMPA ELECTRIC
RIGHT-OF-WAY CROSS-SECTION

Source: Black & Veatch, 2007.



2,560 amperes. The MCR is the nominal value that would be expected to cause the conductor to reach its design temperature limit of 200 degrees Celsius (°C).

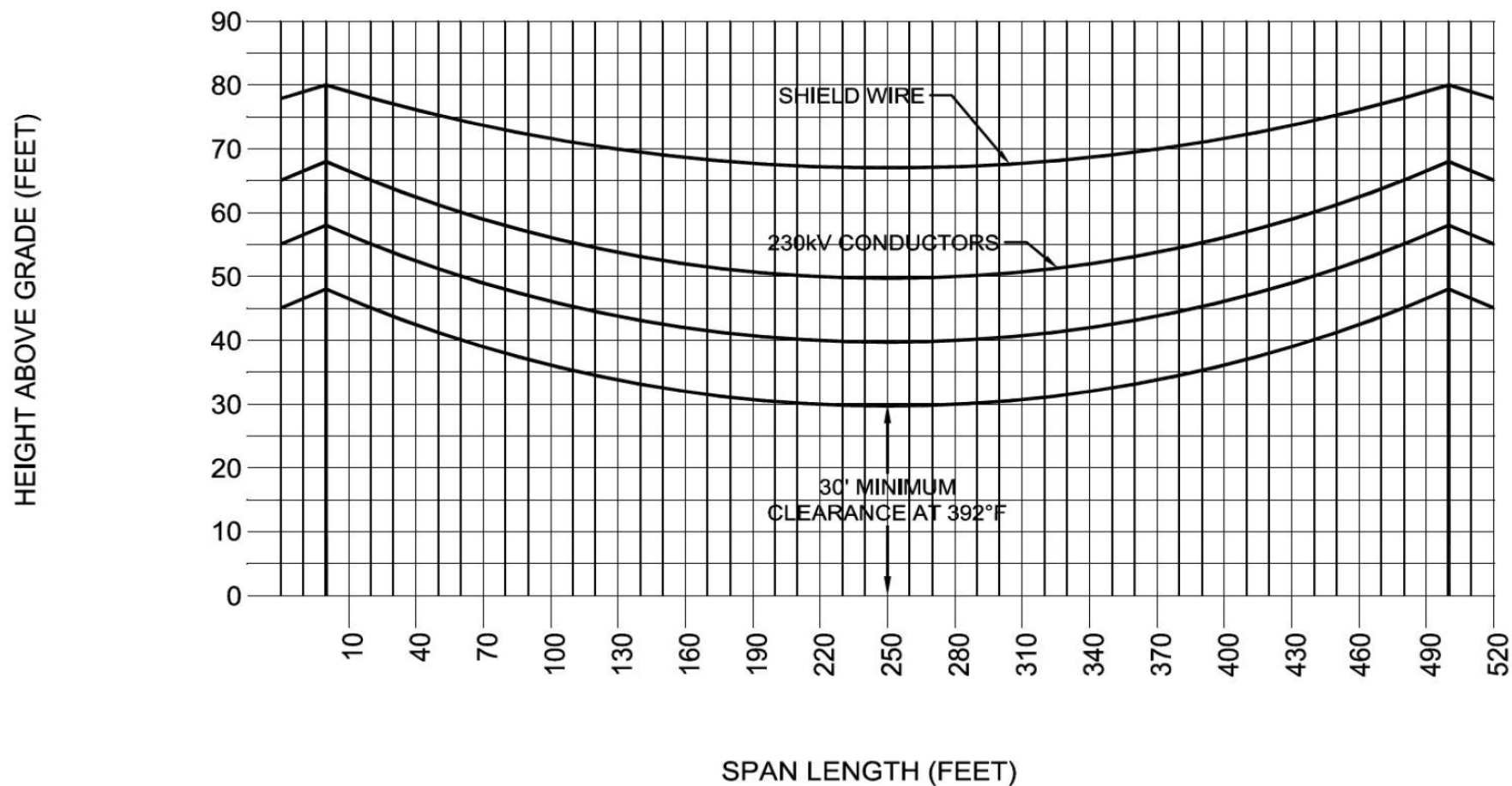
In some cases, the transmission line may also provide for other attachments such as underbuilt 69-kV lines, electric distribution lines, communication facilities, or other utility equipment. Span lengths between structures will typically vary between 200 and 800 ft, depending on site-specific right-of-way widths and other design considerations. Figures 1.3-6 through 1.3-10 depict typical span profiles for the Willow Oak-Davis Project using the typical configurations proposed.

Transmission line conductor vertical clearances will vary along the length of the line; however, in all instances, the clearances will comply with NESC (Institute of Electrical and Electronics Engineers, Inc., 2007), as required by Section 366.04, F.S., and Florida PSC regulations. Clearances will also provide for operational requirements of regulatory agencies (U.S. Army Corps of Engineers [USACE], Southwest Florida Water Management District [SWFWMD], etc.).

It is expected minimal new access road construction will be required for this Project due to the fact the corridor uses collocation opportunities with roads and other existing transmission lines.

New access roads may be required such as along Tampa Electric's fee-owned right-of-way, leading into Davis substation from SR 60. If new roads are required here, they will be constructed according to Tampa Electric's standard specifications. Typically these involve a minimum 14-ft width, side slopes of less than 2:1, and a grade of less than 8 percent. Materials used for construction generally consist of stabilized crushed limestone. Figure 1.3-11 depicts a typical access road cross-section.

Where roads are necessary in wetland areas, some fill and culverting may be required. Such areas will be identified in the environmental resource permit (ERP) information, which will be provided to the regulatory agencies as a condition of corridor certification (see Section 3.2).



NOTE:

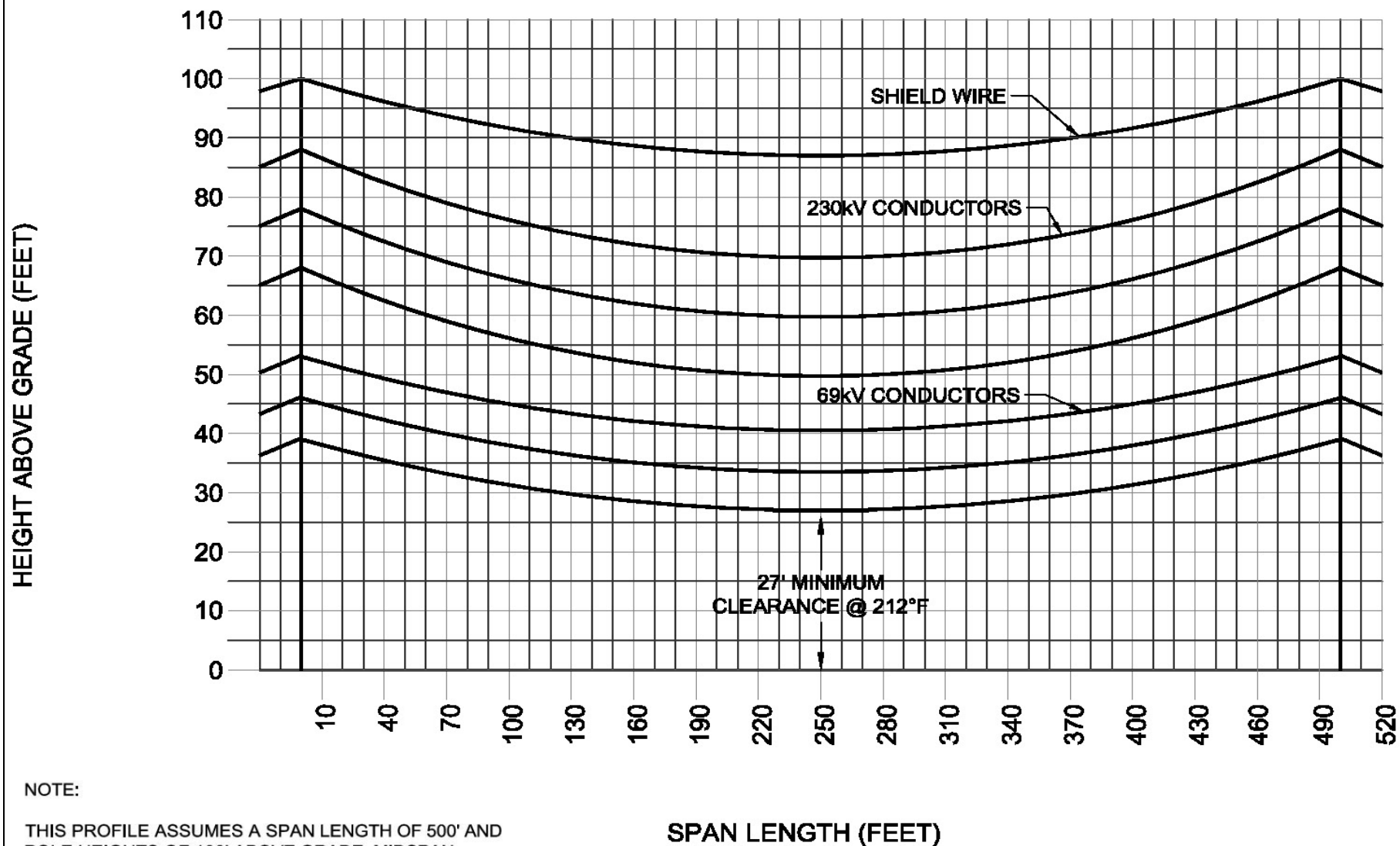
THIS PROFILE ASSUMES A SPAN LENGTH OF 500' AND POLE HEIGHTS OF 80' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

FIGURE 1.3-6.

TYPICAL 230-kV SINGLE-CIRCUIT ROADSIDE CONDUCTOR PROFILE

Source: Black & Veatch, 2007.





NOTE:

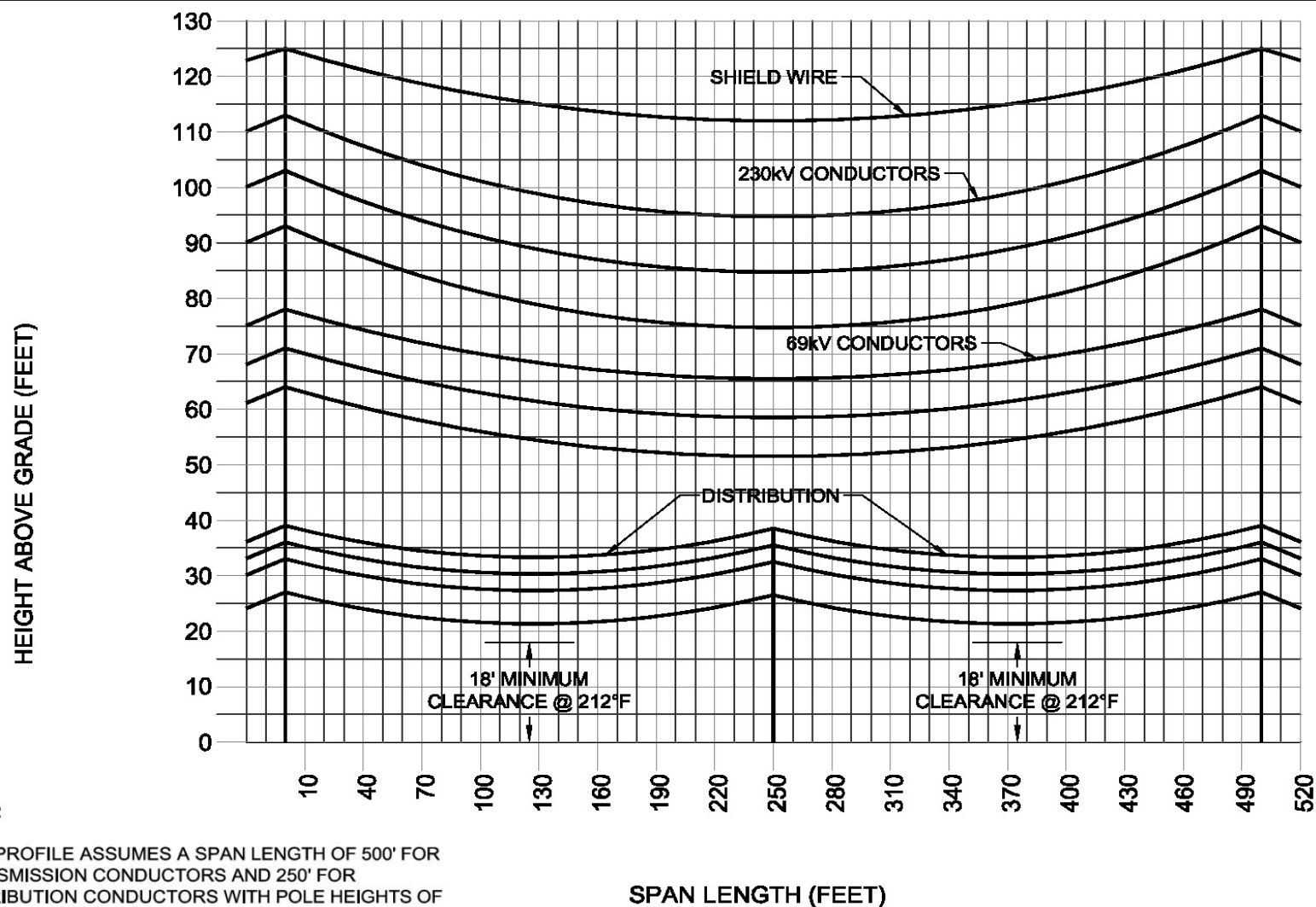
THIS PROFILE ASSUMES A SPAN LENGTH OF 500' AND POLE HEIGHTS OF 100' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

FIGURE 1.3-7.

TYPICAL 230-kV WITH 69-kV UNDERBUILD ROADSIDE CONDUCTOR PROFILE

Source: Black & Veatch, 2007.





NOTE:

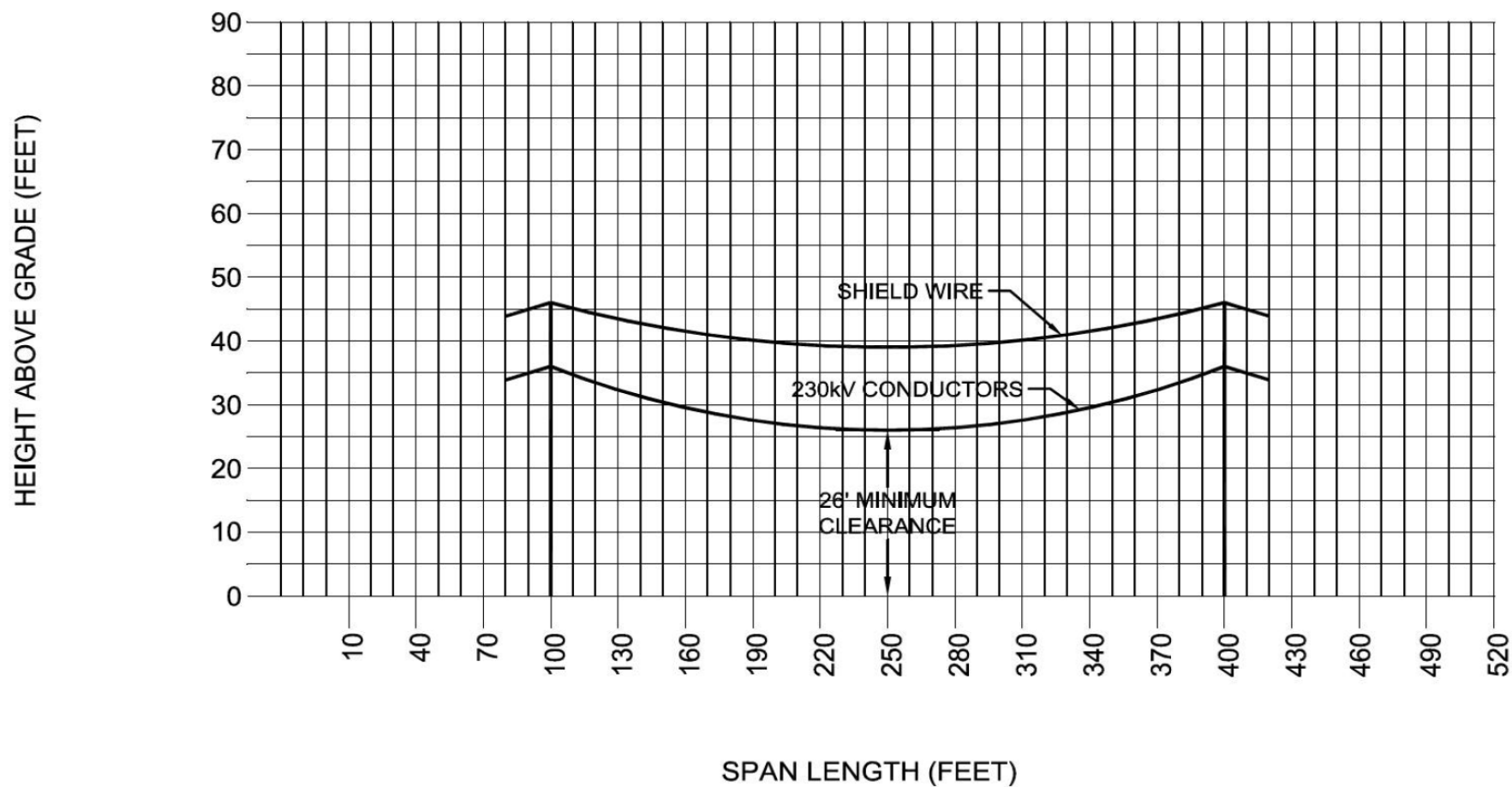
THIS PROFILE ASSUMES A SPAN LENGTH OF 500' FOR TRANSMISSION CONDUCTORS AND 250' FOR DISTRIBUTION CONDUCTORS WITH POLE HEIGHTS OF 125' ABOVE GRADE FOR TRANSMISSION LINE STRUCTURES AND 38.5' ABOVE GRADE FOR DISTRIBUTION LINE STRUCTURES. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

FIGURE 1.3-8.

TYPICAL 230-kV WITH 69-kV AND DISTRIBUTION UNDERBUILD ROADSIDE CONDUCTOR PROFILE

Source: Black & Veatch, 2007.





NOTE:

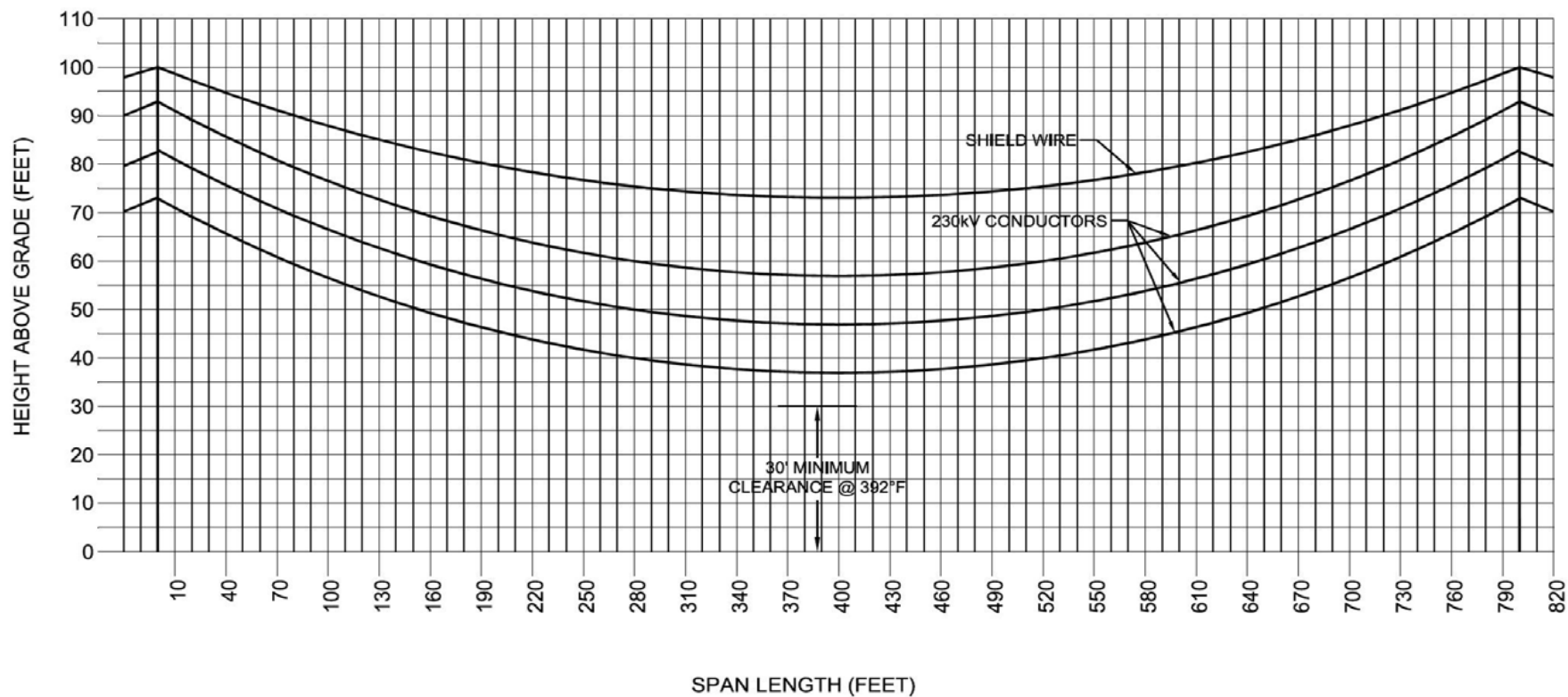
THIS PROFILE ASSUMES A SPAN LENGTH OF 300' AND POLE HEIGHTS OF 46' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

FIGURE 1.3-9.

SPECIAL 230-kV SINGLE-CIRCUIT CONDUCTOR PROFILE NEAR SOUTH LAKELAND AIRPORT

Source: Black & Veatch, 2007.





NOTE:

THIS PROFILE ASSUMES A SPAN LENGTH OF 800' AND POLE HEIGHTS OF 100' ABOVE GRADE. MIDSPAN CLEARANCES ALONG THE LINE WILL VARY DEPENDING ON POLE HEIGHTS AND SPAN LENGTHS BETWEEN STRUCTURES.

FIGURE 1.3-10.

TYPICAL 230-kV SINGLE-CIRCUIT EXISTING TAMPA ELECTRIC
RIGHT-OF-WAY CONDUCTOR PROFILE

Source: Black & Veatch, 2007.



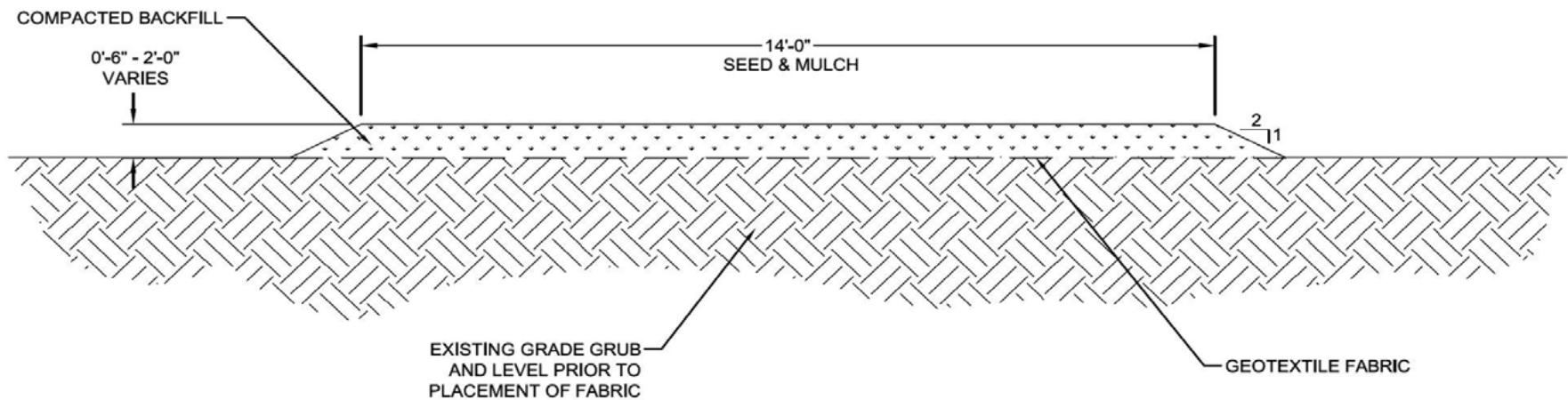


FIGURE 1.3-11.

TYPICAL ACCESS ROAD CROSS-SECTION

Source: Black & Veatch, 2007.



1.4 PROPOSED INTERMEDIATE SUBSTATIONS

The Willow Oak-Davis Project will connect with one existing intermediate Tampa Electric substation (Wheeler). Wheeler is an existing 69-kV substation and is located in Hillsborough County (see Figure 1.2-1).

1.5 COST PROJECTIONS

The exact location of the transmission line and the number and types of structures necessary to complete the transmission line project will be determined following corridor certification. The approximate costs are projections based on cost studies of similar lines. The actual cost of the line may vary from these generalized average costs depending on the ultimate locations of structures, cost of right-of-way, and other site-specific conditions. Changes in line length due to conditions imposed on line routing through the certification process may also result in cost variation.

Estimated per-mile cost for transmission line construction, including right-of-way acquisition, right-of-way clearing, access road construction, mitigation, and line construction, is approximately \$2 million per mile, or a total construction cost of approximately \$58.4 million. The Wheeler, Willow Oak, and Davis substation costs are estimated to be \$12.8 million. The estimated total project costs (2007 dollars) are estimated to be approximately \$71.2 million.

CHAPTER 2.0

2.0 BACKGROUND FEATURES OF THE PROPOSED CORRIDOR

2.1 CORRIDOR SELECTION

The preferred corridor for the Tampa Electric Willow Oak-Davis Project was selected by a multidisciplinary licensing team consisting of experts in land use, engineering, and environmental from the following entities:

- The consulting firm of Environmental Consulting & Technology, Inc. (ECT).
- Representatives from Tampa Electric, including Project Management, Transmission Engineering and Operations, Line Clearance, Real Estate, Substation Engineering and Operations, Environmental Health and Safety, Community Relations, and System Planning.

The objective of the corridor selection study was to select a certifiable corridor that balances land use/socioeconomic, environmental, engineering, and cost considerations. Corridor selection methods were designed to be:

- Integrative of multidisciplinary siting criteria.
- Rational and objective in decision-making.
- Sensitive to social and environmental conditions.
- Responsive to regulatory requirements.
- Reflective of community concerns and issues.
- Capable of accurate documentation and verification.

The corridor selection process consisted of three major tasks: (1) project and study area definition, (2) resource mapping and alternative route delineation, and (3) evaluation of alternative routes and selection of the preferred corridor. The following subsections present a summary description of each major task. The licensing team was also assisted throughout this process by members of the public who participated in the public outreach program developed specifically for this Project. Section 2.1.4 summarizes this program.

2.1.1 PROJECT AND STUDY AREA DEFINITION

Chapter 1.0 of this application defined the Project and addressed the need for this new line. Tampa Electric determined that a single-circuit, 230-kV transmission line on a single-pole structure is the best option to meet this need. The new line will help ensure the continued delivery of reliable and affordable electricity to Tampa Electric's customers.

Therefore, the proposed study area for this Project was delineated to accommodate a project that would meet this need, while providing Tampa Electric flexibility in identifying potential routes. The study area (Figure 2.1-1) was delineated as described in the following paragraphs.

On the west, the study area was delineated to include Tampa Electric's existing property and the planned Davis substation site, while allowing ingress and egress to the substation site from the north, south, and east.

The northern boundary was delineated just north of Fowler Avenue, which allowed inclusion of an existing Tampa Electric right-of-way running west to east from the Davis substation site. The northern boundary was located south of Plant City to exclude the majority of the Plant City incorporated area.

The eastern boundary was aligned within Polk County to include the planned Willow Oak substation site. This site is located along SR 60 and Turner Road. The study area boundary was located east of the substation site to allow ingress and egress from all directions.

The southern boundary was delineated just south of Lithia-Pinecrest Road (County Road [CR] 640) in Polk and Hillsborough Counties. The southern boundary then extends to the northwest to avoid the majority of the Brandon area.

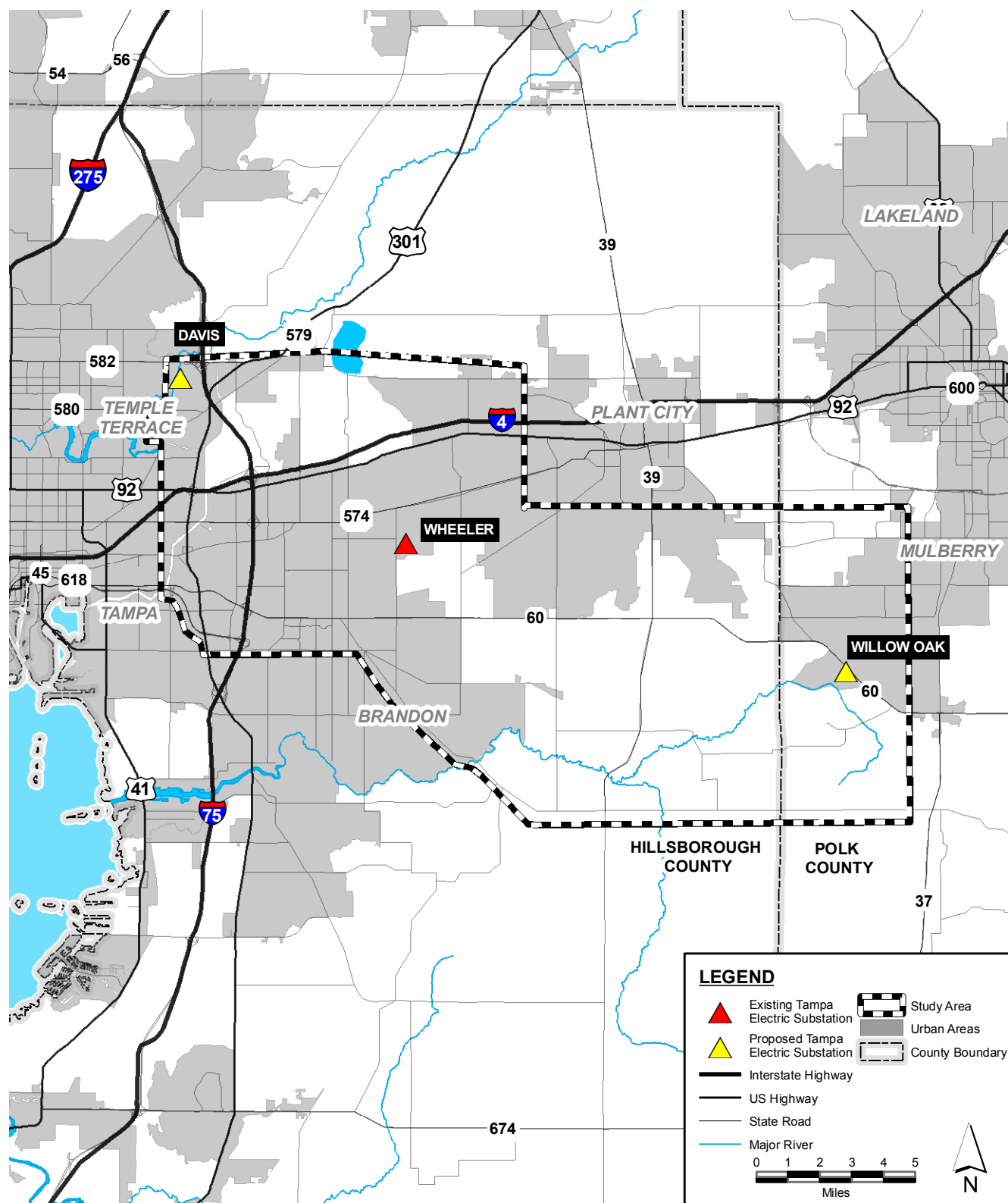


FIGURE 2.1-1.
WILLOW OAK - WHEELER - DAVIS 230-kV TLSA
STUDY AREA

Sources:FGDL, 2005; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.



2.1.2 RESOURCE MAPPING AND ALTERNATIVE ROUTE DELINEATION

The objective of this task was to identify various siting constraints and siting opportunities within the study area. Resource mapping information was obtained from available information sources, including local, state, and federal agency data files; the Florida Geographic Data Library (FGDL); the Florida Natural Areas Inventory (FNAI); and other commercial nonagency databases. The Tampa Electric licensing team used a technique of overlay mapping through the use of computer mapping software programs such as AutoCAD® and ArcView®. Use of computer mapping allowed flexibility in adding new information as it became available and modifying coverages to analyze certain constraints or opportunities. Table 2.1-1 provides a listing of the types of resources mapped. Once those resources were mapped, the team developed alternative routes that attempted to best avoid or minimize certain constraints and take advantage of certain opportunities.

Additionally, Tampa Electric had a previous routing study performed by Black & Veatch for this study area in 2005. Some of their recommended alternative routes were included in this study for verification and comparison to other newly identified routes. Figure 2.1-2 presents the regional screening map and the alternative routes identified for this study.

Based on the results of the alternative route identification, 41 route segments were identified, comprising 423 potential alternative route alignments between the planned Willow Oak substation site and the planned Davis substation. Each of these routes was evaluated as described in Section 2.1.3.

2.1.3 ALTERNATIVE ROUTE EVALUATION AND PREFERRED CORRIDOR SELECTION

The objective of this task was to evaluate, in detail, the alternative routes identified and select a preferred corridor.

2.1.3.1 Alternative Route Evaluation

This step involved a systematic, quantitative evaluation of each alternative route using environmental, land use, and cost/engineering criteria. Table 2.1-2 presents the criteria

Table 2.1-1. Study Area Resources Mapped

Category	Resource
Base map information	• Highways, roads, streets • County boundaries • City boundaries • Railroads, airports • Existing and proposed Tampa Electric substations • Existing transmission lines • Existing Tampa Electric rights-of-way and fee-simple property • Water bodies, rivers, streams, canals
Land use information	• Existing and proposed development for which local approvals are pending • Planned unit developments (PUDs) and developments of regional impact (DRIs) • Property boundaries • Existing and proposed school properties • National parks, wildlife refuges, estuarine sanctuaries, landmarks, or historical sites • State parks, preserves, Florida Forever Lands (proposed and existing), Areas of Critical State Concern, Conservation and Recreation Lands, Save Our Rivers lands, aquatic preserves • SWFWMD-owned lands • Hillsborough County lands, parks, recreation areas, and mitigation lands • Polk County lands, parks, recreation areas, and mitigation lands • Private designated wetland mitigation areas • Privately owned environmental preserves/sanctuaries and conservation easements
Environmental information	• Listed federal and state species and unique habitats, U.S. Fish and Wildlife Service (USFWS)-designated critical habitats • Wetlands as delineated on USFWS National Wetlands Inventory (NWI) maps

Source: ECT, 2007.

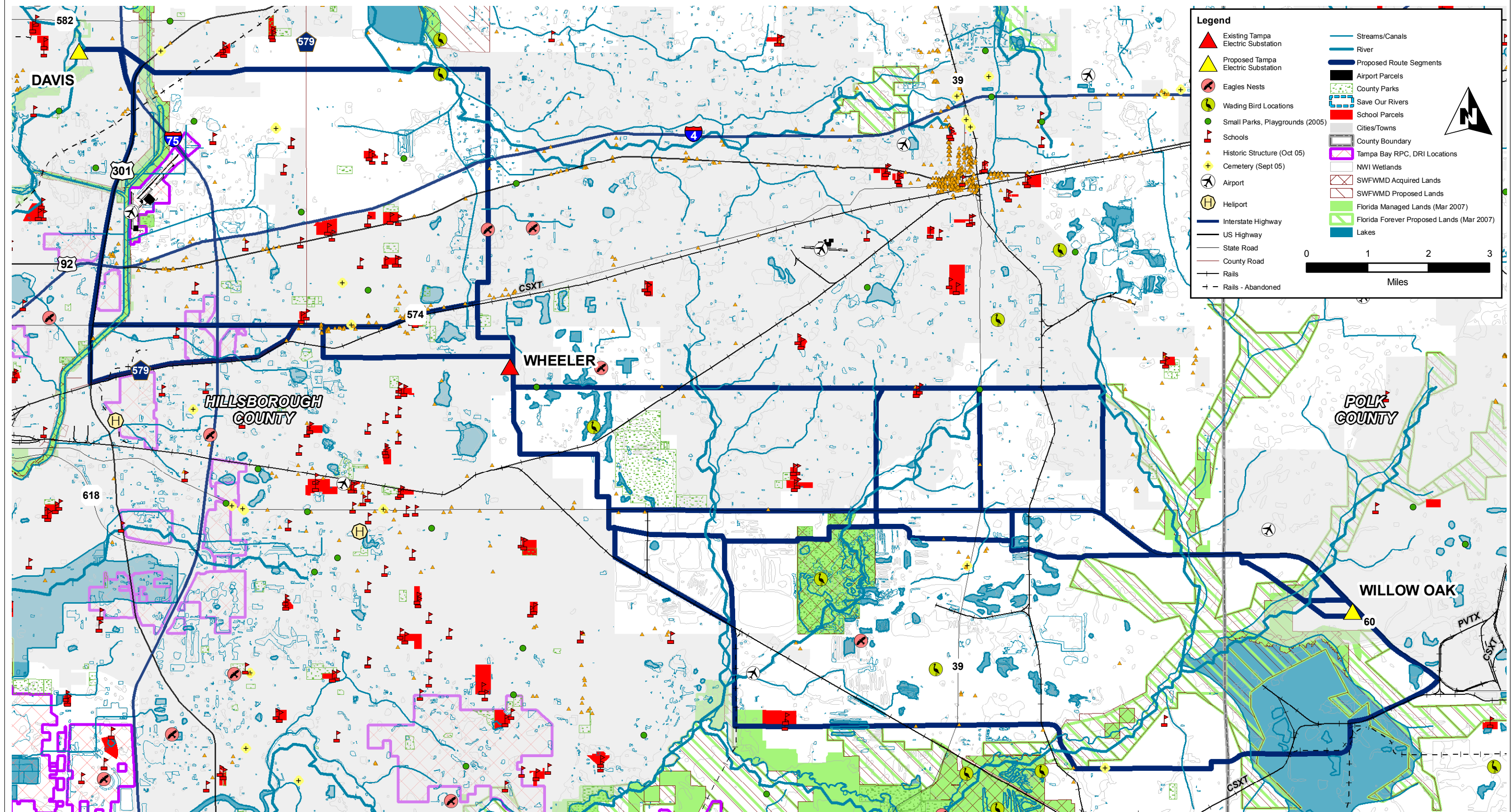


FIGURE 2.1-2.

REGIONAL SCREENING AND ALTERNATIVE ROUTES

Sources: FGDL, 2005/2007; Hillsborough County, 2007; Polk County 2007; FWC, 2007; Tampa Electric, 2007; ECT, 2007.



used in this evaluation. These criteria are based on application of accepted transmission line siting factors utilized on other TLSA projects across Florida.

Table 2.1-2. Alternative Route Evaluation Criteria

-
- Number of homes within 500 ft of the route centerline
 - Length of forested wetlands crossed
 - Length of herbaceous wetlands crossed
 - Length of line through existing parks, recreation areas, or other designated conservation lands
 - Number of school properties within 500 ft of the route centerline
 - Length of line where existing linear facilities are available for placement or collocation of the transmission line
 - Length of route where available Tampa Electric fee ownership or easement exists
 - Number of parcels/lots crossed
 - Number of eagle nests or wading bird rookeries within 0.5 mile of the route centerline
 - Cost
-

Source: ECT, 2007.

Data used to apply these criteria came from the regional screening map data, recent digital aerial photography for the study area, input from agencies and local governments, ground surveys of routes, and input from the extensive community outreach program.

Each segment of each alternative route, depicted in Figure 2.1-2, was then analyzed for each of the criteria listed in Table 2.1-2, and the value for each criterion was recorded by segment. Alternative routes consisted of various combinations of segments, forming a continuous path between the planned Willow Oak substation and the planned Davis substation sites.

The relative weight (importance) of each criterion to be used in the alternative route evaluation was then established by a multidisciplinary team. These criteria and weights were validated through input from the community obtained as part of the community outreach program.

The routes were ranked according to their weighted composite score on all criteria with the lowest score being the most favorable. This score represented the potential for impacting a combination of all the relevant resources (Table 2.1-2) found in the vicinity of the route.

The licensing team then further evaluated the top-ranked alternatives with a qualitative assessment of site-specific conditions. This evaluation included consideration of qualitative criteria such as opportunities for collocation with other linear facilities (roads and utility rights-of-way), future electric service needs, existing and proposed land use, and the ability to construct the line along that alignment. Quantitative information used in the previous step was refined and considered again at this stage. Feedback and comments received at agency meetings, community open houses, meetings with area residents, and other public channels of communication were also incorporated into the evaluation.

After evaluation of the top-ranked alternative routes in this area and significant public input, a preferred route for certification was selected. Figure 2.1-3 presents a map showing the preferred and alternative routes for the Willow Oak-Davis Project.

Finally, boundaries were placed on the preferred route resulting in a corridor of varied width to give Tampa Electric an appropriate amount of flexibility in avoiding or accommodating site-specific constraints or taking advantage of certain opportunities. The preferred corridor is shown on recent (2006) aerial photographs at a scale of 1:24,000 in Attachment 2-1 at the end of this chapter. Through ground truthing, the licensing team verified that data contained on the aerial photographs are reasonably representative of the corridor area and are current within 12 months of filing.

2.1.3.2 Preferred Corridor Description

The preferred corridor follows existing rights-of-way for much of its length. These rights-of-way include Tampa Electric-owned rights-of-way, existing Tampa Electric transmission or distribution easements, or existing road rights-of-way. The design of this transmission line will allow sharing of existing rights-of-way, which reduces the need for new rights-of-way and therefore potentially reducing land use and environmental impacts.

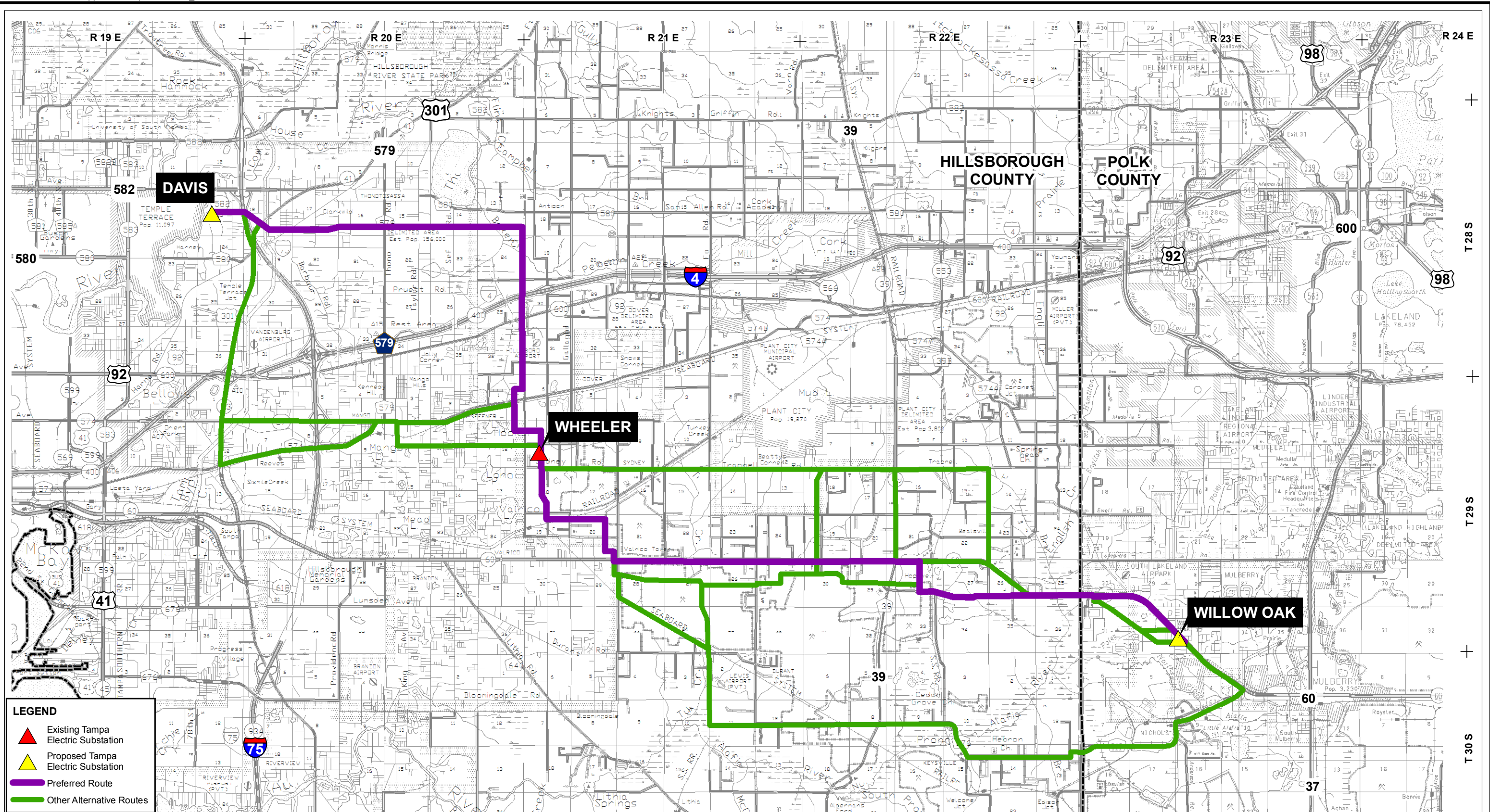
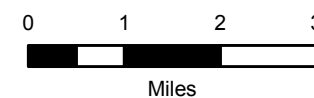


FIGURE 2.1-3.

PREFERRED ROUTE AND ALTERNATIVE ROUTES

Sources: Hillsborough County, 2006; Polk County, 2006; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.



The preferred corridor exits the planned Davis substation site in Temple Terrace, Hillsborough County. Tampa Electric owns a large parcel of property surrounding the substation, and all of it is included in the preferred corridor. This will allow maximum flexibility in entering or leaving the substation. The existing Tampa Electric River substation also occurs within this property.

The corridor then exits due east and is located entirely within an existing Tampa Electric right-of-way, crossing Interstate 75 (I-75) and up to the Hillsborough Bypass Canal. Here the property surrounding the canal is owned by SWFWMD, and the corridor is widened to include the SWFWMD property. This will allow Tampa Electric flexibility in identifying and acquiring a right-of-way to best minimize potential impacts to SWFWMD's plans and existing use of the property.

Upon leaving SWFWMD property, the corridor is limited to an approximately 300-ft-wide right-of-way owned by Tampa Electric. This right-of-way proceeds due east for approximately 5.4 miles. At a point just west of McIntosh Road, the corridor turns due south, again within Tampa Electric's property, to U.S. Highway 92 (U.S. 92).

At U.S. 92 (Hillsborough Avenue) and continuing south to CR 574 (Martin Luther King, Jr., Boulevard), the corridor is of variable width from approximately 3,500 to 5,100 ft. This is due to the presence of an active eagle's nest located near the center of the corridor and within Tampa Electric's right-of-way through this area. (See Section 2.3.3 for more discussion on the nest.) The corridor was widened to avoid potential impacts to the nest.

South of CR 574, the corridor is again restricted to Tampa Electric-owned right-of-way, which runs south and east to SR 60 (Brandon Boulevard). Included in this stretch is the existing Wheeler substation, which is located along Wheeler Road.

At SR 60, the corridor is again expanded and is of variable width along SR 60 and south of the highway. Widths vary from 2,000 to 3,000 ft up to the intersection with SR 39. This wider corridor gives Tampa Electric flexibility in finding a right-of-way along either side of SR 60 or a cross-country route south of SR 60.

At the intersection with SR 39, the corridor widens to more than 4,000 ft. This allows flexibility in locating a right-of-way on either side of SR 60 or Old Hopewell Road, which is south of SR 60.

At the intersection of Old Hopewell Road and SR 60, the preferred corridor is narrowed to 500 ft, encompassing both sides of SR 60. This narrowed portion of the preferred corridor is approximately 1 mile in length.

Finally, to enter the planned Willow Oak substation, the corridor is widened to 4,000 ft. This allows flexibility in addressing existing residential development, South Lakeland Airport flight zones, and the ability to follow SR 60 or other Tampa Electric rights-of-way or easements.

The preferred corridor is 30 miles in length. Attachment 2-1 contains detailed aerial photographs depicting the corridor.

2.1.4 COMMUNITY OUTREACH PROGRAM

Tampa Electric expended considerable effort to inform and involve the public during the corridor selection process. Tampa Electric used direct mail, a survey, four open house public meetings, newspaper advertisements, a project Web page, and contact with agencies and public officials. In addition, a toll-free telephone number was created to provide an opportunity for interested persons to learn more about the Willow Oak-Davis Project and express their views.

Initially, using county property appraisers' and Tampa Electric customer databases, more than 4,500 letters were sent to Tampa Electric customers and property owners throughout the Project study area as well as to some 200 homeowners' associations. Enclosed with the letter were a fact sheet, study area map, and announcements of the four open houses.

Four open houses were held, one in Polk County (Willow Oak) and three in Hillsborough County (Seffner, Plant City, and Temple Terrace). More than 180 people signed in as

open house attendees. During the open houses, visitors were able to talk directly with Tampa Electric Project team members; learn about the Project and the routes being considered; review information provided on the Project and Tampa Electric on display boards and in brochures; and express their views on the Project. During the open houses, members of the public were encouraged to complete the Project feedback survey. Through those responses, Tampa Electric's Project team was able to learn which of the route selection criteria the respondents thought were more important. The survey also generated information on respondents' concerns and ways Tampa Electric might address their concerns. During the open houses, a total of 126 people completed the surveys. An additional 16 people supplied comments and responses to the survey through the Project Web site and mail, for a total of 142 responses. Tampa Electric staff and consultants also made notes of their conversations with visitors so comments, information, and suggestions as well as questions could be recorded and shared with all Project team members.

Members of the public and governmental agencies who participated through the various components of the program were able to suggest the following to the Project team:

- Places to consider or avoid in routing.
- Other linear facilities to consider for collocation with the transmission line.
- Which evaluation criteria should be treated as more important.
- Specific routes to evaluate.
- Unique or important study area features or characteristics that should be given consideration in route selection.

Following the completion of the open houses and the compilation of the survey data and comments, a second mailing was sent to the full address list, including more than 4,500 property owners and customers summarizing the results of the survey and discussing the Project progress. Recipients were encouraged to follow up through the Project Web site and over the telephone with additional comments.

Tampa Electric's Project survey specifically asked participants to rank a series of routing criteria in order of importance. The results of these rankings were compared to the criteria weightings developed by the Project team and were considered in the quantitative

route selection study (see Section 2.1.3). In addition, both through surveys and open house conversations, the Project team solicited specific comments and issues related to the routes and/or specific locations on the routes that were of concern to the respondents.

In addition to open houses, the Project staff responded directly to telephone and Web site inquiries about specific points of interest and visited several specific properties based on comments received. Appendix B includes copies of the two community letters along with materials available at the open houses, other outreach materials, as well as detailed results of the outreach efforts.

Local, state, and federal agency contacts were made throughout the corridor selection process, not only to collect relevant data and maps but also seek input on route selection issues. Appendix C provides a list of agency contacts for the Willow Oak-Davis Project.

In summary, Tampa Electric completed extensive community outreach that included four open houses, a project Web site, newspaper advertisements showcasing the open houses, and a Project hotline that allowed customers to reach Tampa Electric directly. There were also numerous mailings sent for notification of the open houses and to provide feedback about results of the survey and contact with local and governmental agencies.

2.2 SOCIOPOLITICAL ENVIRONMENT OF THE CORRIDOR AREA

2.2.1 GOVERNMENTAL JURISDICTIONS

The preferred corridor is located in Polk and Hillsborough Counties and the incorporated city of Temple Terrace. Figure 2.2-1 shows the preferred corridor at a scale of 1:126,720, or 1 inch equals 2 miles, in relation to the governmental jurisdictions within 1 mile of the edge of the preferred corridor. In addition to the SWFWMD property along the Tampa Bypass Canal previously mentioned, the corridor traverses, is adjacent to, or within 1 mile of the following governmental jurisdictions:

- Poley Creek (Tributary to the Alafia River)—This area is crossed by the corridor as it follows SR 60. The property is owned or proposed to be acquired by SWFWMD and its primary purposes are for conservation land and water quality protection.

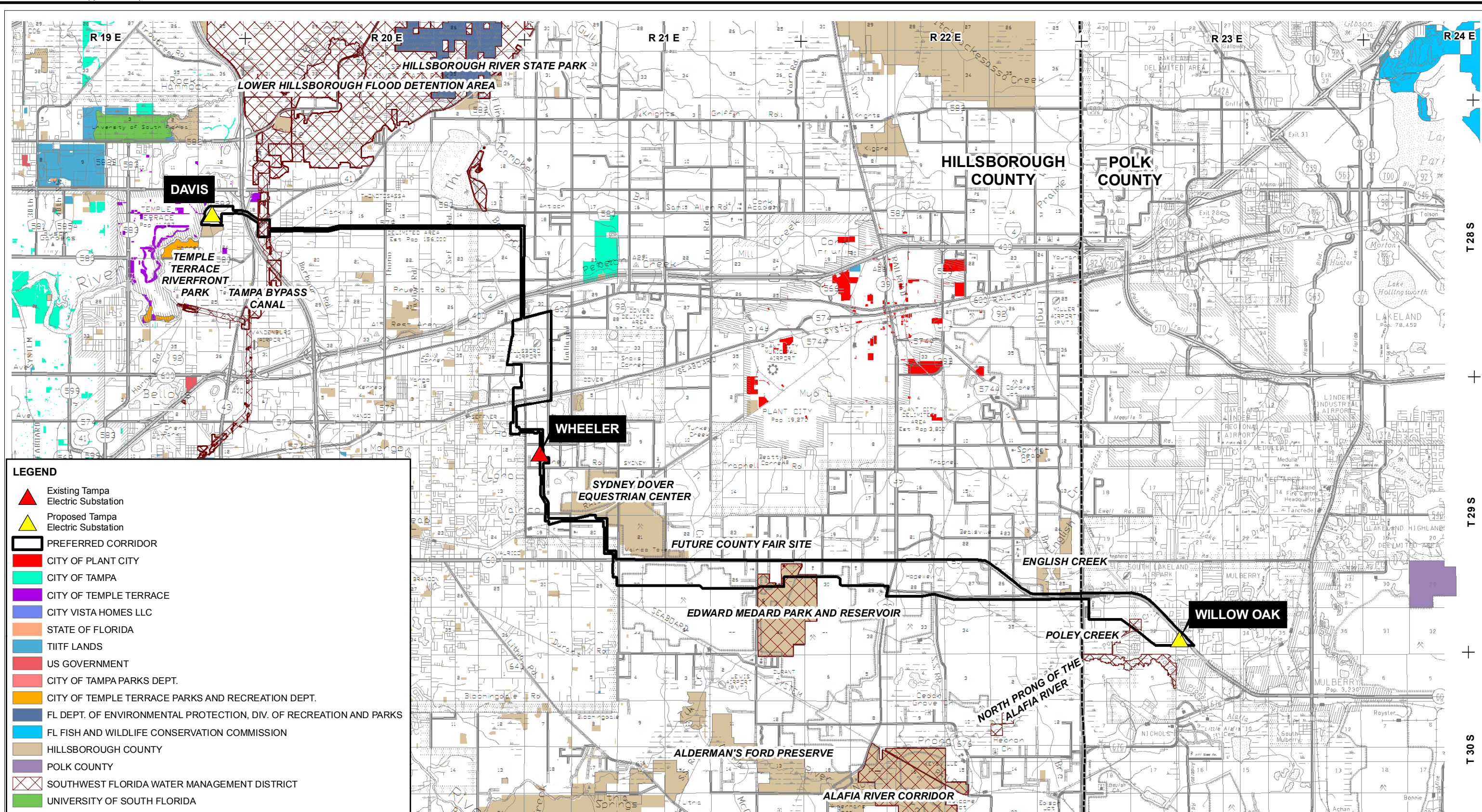


FIGURE 2.2-1

GOVERNMENTAL JURISDICTIONS

Sources: Hillsborough County, 2006; Polk County, 2006; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.



- English Creek (Tributary to the Alafia River)—The corridor crosses this area located north of SR 60. This portion of English Creek was acquired through the Hillsborough County ELAPP. Its primary purposes are for conservation land and water quality protection.
- Edward Medard Park—As the corridor runs west along SR 60, west of SR 39, this SWFWMD-owned park is located to the south. It is currently managed by Hillsborough County.
- Sydney Road Equestrian Park and Future County Fair Site—As the corridor runs west along SR 60, west of Turkey Creek Road, these Hillsborough County-owned lands are located adjacent to SR 60 to the north.
- Tampa Bypass Canal—This excavated waterway is owned by SWFWMD as part of the area drinking water supply. The corridor crosses it north of U.S. Highway 301 (U.S. 301). SWFWMD also owns the property on both sides of the canal.

The following federal, state, and local jurisdictional areas were researched, and none were found to occur within 1.0 mile of the edge of the preferred corridor:

- | | |
|---|---|
| • National parks. | • Marine and estuarine sanctuaries. |
| • National forests. | • State forests. |
| • National wildlife refuges. | • Roadless area review and evaluation (RARE) areas. |
| • National seashores. | • Outstanding Florida Rivers |
| • National wilderness areas. | • Areas of critical state concern. |
| • National memorials. | • State archaeological landmarks. |
| • National monuments. | • State aquatic preserves. |
| • Properties in the national register of historic places. | • Indian reservations. |
| • Natural landmarks. | • Military installations. |
| • Game Management Areas | |

2.2.2 ZONING AND LAND USE PLANS

2.2.2.1 Land Use Plans

The preferred corridor crosses the unincorporated areas of Polk and Hillsborough Counties and the incorporated city of Temple Terrace. 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 land use plans. Attachment 2-2 at the end of this chapter shows the location of the preferred corridor in relation to the adopted land use plans of the three local governments affected. Appendix D contains reproductions of relevant portions of the two counties' and one city's future land use maps (FLUMs).

The following lists the FLUM categories crossed by the preferred corridor:

- Polk County:
 - o Agriculture/Residential-Rural (A/RR).
 - o Preservation (PRESV).
 - o Recreation and Open Space (ROS).
 - o Residential-Suburban (RS).
 - o Neighborhood Activity Center (NAC)
 - o Convenience Commercial (CC)
 - o Commercial Enclave (CE).
 - o Linear Commercial Corridor (LCC).
 - o Institutional-1 (INST-1).
 - o Institutional-2 (INST-2).
 - o Industrial (IND).
- Hillsborough County:
 - o Natural Preservation (N).
 - o Agricultural Mining (AM).
 - o Agricultural Rural (AR).
 - o Agricultural Estate (AE).
 - o Residential-1 (R-1).
 - o Residential-2 (R-2).
 - o Residential-4 (R-4).

- o Residential-6 (R-6).
- o Suburban Mixed Use-6 (SMU-6).
- o Residential-9 (R-91).
- o Residential-12 (R-12).
- o Community Mixed Use (CMU-12).
- o Public/Quasi-Public (P/QP).
- o Light Industrial Planned (LI-P).
- o Light Industrial (LI).
- City of Temple Terrace:
 - o Residential-4 (R-4).
 - o Residential-18 (R-18).

Descriptions of the future land use categories crossed by the corridor in the three jurisdictions are provided in the following subsections.

Polk County

- Agriculture/Residential-Rural (A/RR)—This land use category recognizes the importance of agriculture and provides for its protection and future continuance through the establishment of a base residential density of one dwelling unit per 5 acres.
- Preservation (PRESV)—This land use category is characterized by property publicly or privately purchased for long-term protective purposes and sensitive and/or unique vegetative or animal habitats or publicly accessible property intended for low impact open space purposes.
- Recreation and Open Space (ROS)—This designation is primarily sites and facilities that are accessible to the general public and that are oriented toward providing recreation services for the resident and the short-term and long-term visitor to the county. These lands are commonly county-owned or maintained open spaces, community and regional parks, and the facilities and services associated with each respective park type.
- Residential-Suburban (RS)—Areas in this category are established for a low-density suburban residential environment up to and including one

dwelling unit per 5 acres. This classification is characterized by single family and duplex units.

- Convenience Commercial (CC)—Neighborhood activity centers are intended to accommodate the convenience/shopping needs of residents living within the immediate surrounding neighborhood(s). General characteristics include:
 - o 1 to 5 acres.
 - o 3, 000 to 20,000 square feet (ft²) of gross leasable area.
 - o 2,500 to 5,000 people served in a 1-mile radius.
 - o Tenants include laundry, dry cleaning, restaurant, barber, gas station, and convenience store.
- Neighborhood Activity Center (NAC)—Neighborhood activity centers are intended to accommodate the shopping needs of residents living within the immediate surrounding neighborhood(s). General characteristics include:
 - o 5 to 20 acres.
 - o 20,000 to 150,000 ft² of gross leasable area.
 - o 5,000 to 10,000 people served in a 1- to 1.5-mile radius.
 - o Tenants include supermarket, drug store, restaurant, bakery, office, and convenience store.
- Commercial Enclave (CE)—This land use category is for concentrations of commercial/office uses and zoning districts that are located outside of activity centers and/or linear commercial corridors and whose future development or redevelopment will not degrade the county's growth management program. Permitted uses include commercial, office, and institutional uses with a maximum floor area ratio of 0.35.
- Linear Commercial Corridors (LCC)—This land use category is characterized by linear concentrations of all types of commercial, office, and institutional uses along a roadway. The maximum floor area ratio is 0.35.
- Institutional-1 and Institutional-2 (INST-1 and INST-2)—Institutional areas are primarily characterized by private and public service structures. Permitted uses include public and private educational facilities, government administration buildings, public safety structures, cultural facilities, and healthcare facilities.

- Industrial (IND)—This land use category is characterized by facilities for the processing, fabrication, manufacturing, recycling, and distribution of goods. The maximum floor area ratio is 0.75.

Hillsborough County

- Natural Preservation (N)—This land use category recognizes publicly or privately owned lands of significant environmental importance set aside primarily for conservation purposes. All development is prohibited except for a residence for caretaker and compatible recreational/educational development.
- Agricultural Mining (AM)—This land use category is to designate those areas of long-term agricultural character, those areas involved in agricultural and mining productivity, or other rural areas. Permitted uses include up to one dwelling unit per 20 acres, farms, ranches, feed lots, mining activities, rural scale neighborhood commercial, office, and industrial uses.
- Agricultural/Rural (A/R)—This land use category is to designate those areas of long-term agricultural character, those areas involved in agricultural productivity, or other rural areas. Permitted uses include up to one dwelling unit per 5 acres, farms, ranches, feed lots, mining activities, rural scale neighborhood commercial, office, and industrial uses.
- Agricultural Estate (AE)— This land use category is to designate those areas that are best suited for agricultural development and for compatible rural residential uses. Permitted uses include up to one dwelling unit per 2.5 acres, farms, ranches, residential uses, rural scale neighborhood commercial, office, and multipurpose uses.
- Residential-1 (R-1)—Residential-1 is for rural residential uses compatible with short-term agricultural uses. Permitted uses include up to one dwelling unit per gross acre, farms, ranches, residential uses, rural scale neighborhood commercial, office, and multipurpose uses.
- Residential-2 (R-2)—Residential-2 is for areas that are best suited for non-urban density residential development requiring a limited level of urban services. Permitted uses include up to two dwelling units per gross acre, subur-

ban scale neighborhood commercial, office, and multipurpose uses. Agricultural uses may be permitted.

- Residential-4 (R-4)—The Residential-4 land use category is for areas that are suitable for low-density residential development. Permitted uses include up to four dwelling units per gross acre, suburban scale neighborhood commercial, office, and multipurpose uses. Agricultural uses may be permitted.
- Residential-6 (R-6)—The Residential-6 land use category is for areas that are suitable for low-density residential development. Permitted uses include up to six dwelling units per gross acre, suburban scale neighborhood commercial, office, multipurpose uses, and mixed use development. Agricultural uses may be permitted.
- Suburban Mixed Use-6 (SMU-6)—This land use category shall be urban/suburban in intensity and density of uses. Residential development is allowed up to six dwelling units per gross acre. Other permitted uses are suburban scale neighborhood commercial, office, research corporate park, light industrial, multipurpose uses, and mixed use development. Agricultural uses may be permitted.
- Residential-9 (R-9)—The Residential-9 land use category is for areas that are suitable for low-medium density residential development. Permitted uses include up to nine dwelling units per gross acre, urban scale neighborhood commercial, office, multipurpose uses, and mixed use development. Agricultural uses may be permitted.
- Residential-12 (R-12)—The Residential-12 land use category is for areas that are suitable for medium density residential development. Permitted uses include up to 12 dwelling units per gross acre, urban scale neighborhood commercial, office, multipurpose uses, and mixed use development. Agricultural uses may be permitted.
- Community Mixed Use-12 (CMU-12)—This land use category shall be urban in intensity and density of uses. Residential development is allowed up to 12 dwelling units per gross acre. Other permitted uses are community scale retail commercial, office, research corporate park, light industrial, multipurpose uses, and mixed use development. Agricultural uses may be permitted.

- Public/Quasi-Public—This land use category recognizes areas where public facilities, public structures or grounds, regional, district or community recreation uses or facilities or other private establishments generally available to the public are located.
- Light Industrial-Planned (LI-P)— The Light Industrial-Planned land use category is for areas that are suitable for industrial activities outside concentrated industrial designated areas or in areas where the need for a site plan would be beneficial to insure land use compatibility. Permitted uses include light industrial uses such as processing, manufacturing, recycling, and storage of materials as the predominant uses with support including offices, warehousing, and rural scale commercial. The maximum floor area ratio is 0.5.
- Light Industrial (LI)—The Light Industrial land use category is for concentrated industrial development. Permitted uses include processing, manufacturing, and assembly of materials, offices, and research corporate parks as the predominant uses with support including hotels, motels, restaurants, rural scale commercial, and recreational facilities. The maximum floor area ratio is 0.5.

City of Temple Terrace

- Residential-4—This land use designation is primarily for single-family homes on individual lots. Up to four dwelling units per gross acre are allowed.
- Residential-18—This land use designation is primarily for townhouses and multifamily dwellings up to 18 dwelling units per gross acre. Some type of commercial, institutional, and public uses are allowed.

Polk County Future Land Use Element

The preferred transmission line corridor traverses an unincorporated portion of west-central Polk County. The county has five distinct development areas that combine with future land use categories to guide development within unincorporated Polk County. The proposed transmission line corridor is located in the Rural Development Area.

The Polk County Comprehensive Plan identifies electrical transmission and distribution facilities, including electrical transmission lines, substations, and related electrical distribution facilities as utility use (see Future Land Use Element Policy 2.125-D1b). Electrical transmission lines are considered a permitted use throughout the county in all land use classifications subject to county approval.

Future Land Use Element Policy 2.125-D2 is titled Utilities Development Controls. The policy states, in Part c, “[t]he development of utility facilities shall be permitted in the Rural Development Area, as designated on the Future Land Use Map, only when such developments provide regional services, or is incompatible with urban uses, or services the existing needs of the immediate area in which it is located.” The proposed transmission line is planned to provide a regional service.

Policy 2.102-A8 addresses public facilities and utilities siting. The policy states, “[p]ublic facilities and utilities shall be located to:

- a. Maximize the efficiency of services provided,
- b. Minimize their cost, and
- c. Minimize their impacts on the natural environment.”

As proposed, the Project meets the siting provisions contained in Policy 2.102-A8.

Hillsborough County Future Land Use Element

The following policies of the Hillsborough County Future Land Use Element are directly applicable to linear type electric transmission facilities:

- Policy A-3.5—For public facilities that can be designed in a linear fashion, such as utilities, drainage improvements, and parks, the county shall seek opportunities for combining the objectives and funding of these projects with the objectives of the Hillsborough Greenways Master Plan, particularly when doing so would provide a connection to an existing or planned greenway on adjacent land.

- Policy B-1.4—To prevent the bisecting of established communities, the impact of major roadway and similar corridor projects on existing communities shall be evaluated by citizens and other affected parties through their inclusion in the predesign evaluation of alternates, including route selection.
- Objective C-34—Any negative effects of bulk electric transmission corridors upon environmentally sensitive lands and residential areas shall be minimized through the use of locational criteria.
- Policy C-34.1—The location and placement of bulk electric transmission corridors through environmentally sensitive lands and resources shall be in compliance with all applicable federal, state, and local environmental regulations.
- Policy C-34.2—The location of bulk electric transmission corridors shall be discouraged through existing residential neighborhoods.
- Policy C-34.3—Bulk electric transmission corridors shall be encouraged to locate at the fringe of urban and urbanizing areas.
- Policy C-34.4—Electric utilities shall be encouraged to use shared utility corridors, wherever feasible.
- Policy C-34.5—Electric utilities shall be encouraged to locate bulk electric transmission corridors adjacent to other utility and road corridors.
- Policy C-34.6—New residential uses shall be discouraged in close proximity to bulk electric transmission corridors and minimum separation distances between these uses should be established based on best available information. When reviewing the relationship between residential uses and bulk transmission lines, the following aspects shall be evaluated:
 - o The voltage rating of the transmission line.
 - o The vertical and horizontal distance of the line to adjacent property lines.

Adherence with Policy B-1.4 is demonstrated in Section 2.1.4 describing the community outreach program. Objective C-34 and Policies C-34.1 through C-34.6 have been met predominately through locating the corridor within or adjacent to existing roadways or

Tampa Electric fee-owned lands. Minimization of impacts to environmentally sensitive lands was accomplished in the routing process and will be further accomplished through pole spacing in compliance with existing, applicable regulations. No existing neighborhoods will be traversed by the preferred corridor where existing roadways or fee-owned lands are already located. To the extent practicable, the preferred corridor has been sited within the right-of-way or proximate to the right-of-way of SR 60, a four-lane arterial roadway.

City of Temple Terrace Future Land Use Element

The Future Land Use Element does not contain any specific policies that address bulk transmission lines or substations. Policy 6.1.5 states, “[e]nsure that suitable lands and/or easements are available for the provision of utility facilities necessary to support proposed development.” The existing and future substation property (already owned by Tampa Electric) and the area of the preferred transmission line corridor have been recently annexed into the city limits thereby ensuring adequate land and suitable land for the new transmission line corridor and substation.

2.2.2.2 Zoning and Land Use Districts

Zoning within the preferred corridor is shown at a scale of 1:24,000 in Attachment 2-3 at the end of this chapter. The preferred corridor crosses the following zoning districts:

- **Polk Land Use Districts:**
 - o PRESV Preservation Areas
 - o ROS Recreation and Open Space
 - o A/RR Agricultural/Rural
 - o RS Residential Suburban
 - o NAC Neighborhood Activity Center
 - o CC Convenience Center
 - o CE Commercial Enclave
 - o LCC Linear Commercial Corridor
 - o INST-1 Institutional-1
 - o INST-2 Institutional-2

- o OC Office Commercial
 - o IND Industrial
- Hillsborough County Zoning Districts:
 - o AI Agricultural Industrial
 - o AM Agricultural Mining
 - o AR Agricultural Rural
 - o AS-0.4 Agricultural, Single Family Estate
 - o AS-1 Agricultural, Single Family
 - o ASC-1 Agricultural, Single Family, Conventional
 - o RSC-2 Residential, Single Family, Conventional
 - o RSC-3 Residential, Single Family, Conventional
 - o RSC-4 Residential, Single Family, Conventional
 - o RSC-6 Residential, Single Family, Conventional
 - o RDC-12 Residential, Duplex, Conventional
 - o CN Commercial, Neighborhood
 - o CG Commercial, General
 - o CI Commercial, Intensive
 - o PD Planned Development
 - o PD-C Planned Development, Commercial
 - o PD-H Planned Development, Housing
 - o PD-I Planned Development, Industrial
 - o PD-MU Planned Development, Mixed Use
 - o PD-O Planned Development, Office
- City of Temple Terrace Zoning Districts:
 - o A* Agriculture

*Proposed zoning

The subject site containing the planned Tampa Electric Davis substation and existing River substation plus overhead lines was annexed into the city of Temple Terrace and subsequently two city of Temple Terrace comprehensive plan designations were applied to it, Residential 4 and Residential 18. The property retains its Hillsborough County zoning of Agricultural Single-Family Conventional-1 (ASC-1). Per the County Code Sec-

tion 2.02.02 Allowable Uses in Zoning Districts, a table of allowable uses in zoning districts (p. II-24) indicates that electricity substations (grouped with neighborhood and general public service and emergency service uses) are allowed in the ASC-1 zoning district with conditional use approval. Since the electricity substation and overhead lines existed on the property at the time of annexation, the city of Temple Terrace recognizes them as allowable uses.

Polk County—Land Development Code

The following is a description of the normally relevant portions of the Polk County Land Development Code.

The Polk County Land Development Code defines transmission lines as a Class I utility (see page 10-66 of the Polk County Land Development Code, adopted March 1, 2000, and revised June 2004). Class I utilities are permitted in all land use districts (see page 2-13 of the Polk County Land Development Code).

Polk County has resource protection standards for surface water bodies, wetlands, floodplains, airports, aquifers, ecological communities, wellheads, and historic preservation. Wetland impacts from utility transmission lines are permitted where unavoidable and where properly mitigated as determined by agencies having jurisdiction (see page 6-5 of the Polk County Land Development Code, Section 620 C 2c).

With respect to airport regulations, the Polk County Land Development Code regulates land use to ensure that land use does not limit or restrict public-use airport operations. The South Lakeland Airpark is situated just north of SR 60 and east of the Hillsborough/Polk County line. The Project is subject to the Polk County development review procedures. Variances, special exceptions, and appeals may be granted, if needed, by the Airport Zoning Board of Adjustment in consultation with the Federal Aviation Administration (FAA).

By its terms, the TLSA supersedes the procedural portions of the land development code and ordinances. Substantive provisions, as applicable, may be proposed as conditions of certification.

Hillsborough County Land Development Code

The following is a description of the normally relevant portions of the Hillsborough County Land Development Code.

Section 2.02.02 provides a table indicating the categories of uses allowable in each standard zoning district. Electrical transmission lines are not specifically listed in the use table. Public service facilities, defined as, “[t]he use of land, buildings, or structures by a public utility, railroad, or governmental agency, including water treatment plants or pumping stations, electrical substations, telephone exchanges, and other similar public service structures,” are allowed as a conditional use in every standard and planned development district except in one airport zoning district.

In Part 3.14.00 of the Land Development Code, identified as the SR 60 (Brandon Boulevard) Overlay District, regulations applicable to the Suburban Sector, which runs from I-75 to Lakewood Drive and from Kingsway Road to North Dover Road, require a broad landscaped buffer along the highway. Only the extreme western portion of the preferred corridor that runs along SR 60 is included in this overlay area.

Section 4.01-03 of the Land Development Code, identified as a Natural Resources Permit, states that, except as specifically exempted herein, it shall be unlawful for any person, firm, or corporation, either individually or through an agent, to cause land alteration within Hillsborough County without having obtained a Natural Resources Permit.

Section 4.01.03C provides that no permit under this section is required for land alteration activities within new, approved utilities rights-of-way or easements necessary to supply gas, water, sewer, telephone, cable television, or electrical service with one exception, provided these activities do not adversely impact an environmentally sensitive area. The exception to this exemption is any land alteration activity within a new electrical transmission corridor greater than 100 ft in width. Pursuant to the definition of land alteration, activities undertaken to maintain existing utility rights-of-way or easements are not regulated by these land alteration regulations.

Under the section related to the Natural Resources Permit, Section 4.01.05 establishes standards for minimizing impact on soil and water. Section 4.01.06 establishes standards for tree protection and the preservation of natural plant communities. Section 4.01.07 establishes standards for protection of wetlands and natural water bodies. Section 4.01.09 establishes standards for protection of upland significant wildlife habitat. Section 4.01.10 establishes standards for the protection of upland essential wildlife habitat (i.e., upland habitat for populations of endangered and threatened species and species of special concern). Section 4.01.11 establishes standards for protection of land owned by the public or by a private, nonprofit conservation organization and held for natural preservation purposes. Section 4.01.12 establishes standards for onsite preservation of significant wildlife habitat. Section 4.01.13 establishes standards for offsite preservation of significant wildlife habitat.

Section 6.08.04 of the Land Development Code, identified as Unusually Tall Structures, states that unless specifically stated otherwise elsewhere in this code concerning height, towers that are principal structures in themselves, such as high voltage transmission line towers, may only exceed the height limitations established for the district wherein they are proposed for relocation following review by the Administrator, who may only grant the permit where they find:

- That the proposed structure is not located on property zoned SPI-Ap, nor would it result in restriction or interference with air traffic.
- That the proposed structure is consistent with the existing surrounding uses and is compatible with the existing neighborhood development.
- That the proposed structure is consistent with any adopted or projected development plan for the area.
- That the proposed structure is not detrimental to the existing or proposed use of any neighboring property and does not unreasonably restrict the free flow of light, sunlight, and air to those properties.

Part 6.01.01, District Performance and Dimension Standards, includes the Schedule of Area, Height, Bulk and Placement Regulations. Heights generally range from 35 to 50 ft except in the M district, where the height limit is 110 ft.

Hillsborough County Land Development Regulations

The regulations of Hillsborough County Ordinance 03-29 appear to be applicable to the proposed transmission line. The provisions of this ordinance are applicable to rights-of-way use permit applications that include large facilities.

Section 8 of Ordinance 3-29, Supplemental Permit Requirements for Large Facilities in the Rights-of-Way, provides as follows:

- Section 8A—Requirements are applicable to all rights-of-way use permit applications that include large facilities. Large facilities are defined as “facilities which, when installed, will exceed 75 ft in height or poles greater than 24 inches in diameter at the ground line on a two-lane road.”
- Section 8B—Large facilities require the application and granting of a supplemental large facilities permit.
- Section 8C—Application shall include an analysis of alternate routes or locations.
- Section 8D—Application may only be approved by the Board at a public hearing.
- Section 8E—Applicant shall publicize the public hearings by mailing written notice to residents and owners of property within 250 ft and neighborhood associations within 1 mile and by posting a sign at each proposed location identifying the height, width, type and material composition of the proposed facility.

By its terms, the TLSA supersedes the procedural portions of the land development code and ordinances. Substantive provisions as applicable may be proposed as conditions of certification.

City of Temple Terrace Land Development Code

The Land Development Code defines essential public utility services as, “[t]he erection, construction, alteration or maintenance, by public utilities or other governmental agencies, of underground or overhead gas, electrical, steam or water transmission or distribu-

tion systems, collection, communication, supply or disposal systems, including poles, wires, mains, drains, sewers, pipes, conduits, ... or other similar equipment and accessories in connection therewith; reasonably necessary for the furnishing of adequate service by such public utilities or municipal or other governmental agencies for the public health or safety or general welfare, but not including buildings.” The proposed transmission line and substation meet the definition of essential public utility services.

A search of the Land Development Code found no further reference of essential public utility services. Each zoning district does allow utility structures or stations owned or operated by the city of Temple Terrace, including transmission lines, poles, guy wires, and pipelines as necessary for the installation and maintenance of utility service. A request has been made of the Planning Department for an interpretation of the Land Development Code as to whether essential public utility services are allowed in all zoning districts.

Section 14.190 of the Land Development Code concerns noise control. This section states, “[n]o person shall willfully make, or cause to be made or continue to make, any loud and raucous noise, which term shall mean any sound which, because of its volume level, duration, and character annoys, disturbs, injures, or endangers the comfort, repose, health, peace, or safety of reasonable persons of ordinary sensibilities within the corporate limits of the city.” The noise would be subject to this section upon the public streets, in any public park, in any school or public building, or upon the grounds thereof while in use, in any church or house of worship, hospital, public parking lot, in any occupied residence, and at no less than 50 ft from the source of the noise. The noise from transmission lines is neither an exception to this section nor a specific act identified as a violation.

2.2.3 EASEMENTS, TITLE, AGENCY WORKS

Easements may be necessary for the transmission line to cross lands for which the title is held by the Board of Trustees of the Internal Improvement Trust Fund (TIITF), Polk County, Hillsborough County, the city of Temple Terrace, or SWFWMD within the preferred corridor.

Approvals for crossing or use of state road rights-of-way must be granted pursuant to FDOT regulations. Approvals of crossings or use of county-maintained road rights-of-way must be granted pursuant to the requirements of the two respective counties and the city. This is particularly noteworthy since much of the preferred corridor follows or includes a crossing of road rights-of-way. All crossings of state roads will conform to specifications contained in FDOT's Utility Accommodation Manual (2007). Two airports occur in proximity to the preferred corridor (South Lakeland Airport and Vandenberg Airport). Tampa Electric's structure design will comply with any FAA or other regulated height restrictions in these areas.

Approvals are also normally required to cross or collocate with canals or works of the district under the jurisdiction of SWFWMD's Governing Board. Such works will include the Tampa Bypass Canal and may include structures, impoundments, wells, streams, canals, or other watercourses officially adopted by SWFWMD's governing board. Other than the lands noted in Section 2.2.1, no other lands or facilities owned by SWFWMD have been identified within the preferred corridor.

Table 2.2-1 presents a list of potential lands, roads, canals, or works of the district for which crossing approvals would normally be required.

2.2.4 ARCHAEOLOGICAL AND HISTORIC SITES

The Florida Department of State, Division of Historical Resources (DHR), was contacted to determine whether any known archaeological or historic sites occurred along the preferred corridor. ECT, on behalf of Tampa Electric, submitted a list of all sections, townships, and ranges crossed by the preferred corridor. DHR provided a geographic information system (GIS) database file containing their known records of archaeological/historic sites within each section within which the corridor is located. Using a preferred corridor overlay, sites within or adjacent to the preferred corridor boundaries were identified for discussion. Table 2.2-2 provides a description of the sites found within the preferred corridor.

As indicated in Table 2.2-2, 22 archaeological sites are located in or partially in the preferred corridor. There are 14 houses/homesteads, one fire tower, and one bridge. Not all

Table 2.2-1. Possible Easements, Titles, Crossing Approvals Expected to Be Required for Transmission Line Construction in the Preferred Corridor

Facility/Lands	Agency	Approval
<u>Roads</u>		
I-75	FDOT	Right-of-way use or crossing permit
I-4	FDOT	Right-of-way use or crossing permit
U.S. 92	FDOT	Right-of-way use or crossing permit
U.S. 301	FDOT	Right-of-way use or crossing permit
SR 39	FDOT	Right-of-way use or crossing permit
SR 60	FDOT	Right-of-way use or crossing permit
Harney Road	HCPW*	Right-of-way use or crossing permit
CR 579	HCPW	Right-of-way use or crossing permit
McIntosh Road	HCPW	Right-of-way use or crossing permit
CR 574	HCPW	Right-of-way use or crossing permit
Valrico Road	HCPW	Right-of-way use or crossing permit
Wheeler Road	HCPW	Right-of-way use or crossing permit
Sydney Road	HCPW	Right-of-way use or crossing permit
Salem Church Road	HCPW	Right-of-way use or crossing permit
Turkey Creek Road	HCPW	Right-of-way use or crossing permit
Smith-Ryals Road	HCPW	Right-of-way use or crossing permit
Old Hopewell Road	HCPW	Right-of-way use or crossing permit
<u>Water Bodies/Conservation Lands</u>		
Poley Creek	SWFWMD	Easement/use and/or crossing permit
English Creek	Hillsborough County and FDEP	Sovereign submerged lands crossing approval and Use/crossing permit
North Prong Alafia River	Hillsborough County and FDEP	Sovereign submerged lands crossing approval and Use/crossing permit
Tampa Bypass Canal	SWFWMD	Works of the District
<u>Parks</u>		
Edward Medard Park	Hillsborough County	Easement or permit
Sydney Dover Equestrian Park	Hillsborough County	Easement or permit
Future County Fair Site	Hillsborough County	Easement or permit
English Creek Preserve	Hillsborough County	Easement or permit

*Hillsborough County Public Works Department.

Source: ECT, 2007.

Table 2.2-2. Archaeological and Historic Sites Possibly Located in the Preferred Corridor

Site ID	Site Name	Comment	Location
HI00201	Sparkman Homestead	Not specifically located	Along Gallagher Road
HI00218	McDonald, John Robert	House and Grove	Old Hopewell Road
HI00219	McDonald, William Glenn	House	Old Hopewell Road
HI00475	301 Crossing	Archaeological Listing	U.S. 301
HI00971	C-5	Archaeological Listing	Old Hopewell Road area
HI00972	C-6, 7, 8, 9	Archaeological Listing	SR 39
HI01018	Hall, James Hester	House	Along Old Hopewell Road
HI01060	McDonald, John Robert	Homestead	Along Old Hopewell Road
HI03880	Valrico Work Center Fire Tower	Fire Tower	SR 60
HI03882	Bledsoe Residence	Residence	SR 60
HI03984	Bledsoe	Archaeological Listing	South of SR 60
HI03985	Bledsoe/Bridges	Archaeological Listing	South of SR 60
HI03986	Bridge Farm	Archaeological Listing	South of SR 60
HI03987	Akerman	Archaeological Listing	South of SR 60
HI03991	No name	Archaeological Listing	South of SR 60
HI03992	No name	Archaeological Listing	South of SR 60
HI00404	Fort King Road	Archaeological Listing	Near Baker Creek
HI05332	Baker Creek Site	Archaeological Listing	U.S. 92
HI05438	X137AW1-1	Archaeological Listing	Tampa Bypass Canal
HI05439	No name	Archaeological Listing	Harney Road
HI05440	No name	Archaeological Listing	Near Harney Road
HI05442	No name	Archaeological Listing	Near Mango Road
HI05443	No name	Archaeological Listing	Between Mango Road and Taylor Road south of Skew Lee Road
HI05444	Compressor Station 27	Archaeological Listing	Between Mango Road and Taylor Road south of Skew Lee Road
HI05445	No name	Archaeological Listing	Near Taylor Road
HI05446	Baker Creek	Archaeological Listing	Near Baker Creek south of Thonotosassa Road
HI05452	X138AW1-1	Archaeological Listing	Near US 301
HI05707	Dr. Martin Luther King Jr. Boulevard	Residence	Dr. Martin Luther King Jr. Boulevard
HI05709	McLeroy Place	Residence	McLeroy Place
HI06454	Brenglewood Estate	Residence	Wheeler Road
HI06729	Kingsway Road	Residence	Kingsway Road
HI06748	Swamp View Estates	Archaeological Listing	Cassels Road
HI06918	Shady Acres Road	Residence	Shady Acres Road
HI06919	McLeroy Place	Residence	McLeroy Place
HI06920	McLeroy Place	Residence	McLeroy Place
HI06921	McLeroy Place	Residence	McLeroy Place
HI06934	Compressor Station 27	Archaeological Listing	Near Taylor Road
PO04629	FDOT 160940	Bridge	SR 60 at Poley Creek

Source: DHR, 2007.

houses/homesteads along Old Hopewell Road could be specifically located. As the entire length of Old Hopewell Road is within the preferred corridor, it is assumed that these listed sites with addresses along this road are located within the corridor. Similarly, the Sparkman Homestead may be located in the preferred corridor along Gallagher Road, on which the homestead is addressed, and is partially located in the corridor.

DHR will review the preferred corridor and make an assessment as to potential impacts on these known or other potential sites. They may also request a cultural resources assessment be performed along certain areas of the proposed right-of-way, once it is selected and acquired. DHR requests that distribution of information/maps on locations of known sites be limited due to potential vandalism. Therefore, this application does not depict the precise location of those resources discussed.

2.3 BIOPHYSICAL ENVIRONMENT OF THE CORRIDOR AREA

2.3.1 LAND USE/VEGETATION

The existing land use and vegetation cover types occurring within and for 0.5 mile adjacent to either side of the preferred corridor were acquired from the current SWFWMD GIS database (2006). These land use/cover types were classified using the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT, 1999), Categories II and III. The various land use/vegetation types along the preferred corridor are shown in Attachments 2-1 (aerial photographs) and 2-4 (land use/vegetation maps) at the end of this chapter, and descriptions of the major land use and vegetation cover classes along the preferred corridor are provided in the following subsections. Although the data provided by SWFWMD were originally generated in 2000, the vegetation/land use covers depicted are representative of the current resources.

2.3.1.1 Land Use

Land uses mapped along the route consist of residential, commercial and services, industrial, mining, institutional, recreational, open land, agricultural, disturbed land, transportation, and utilities. According to the FLUCFCS, these categories include (1100) low-density residential, (1200) medium-density residential, (1300) high-density residential, (1400) commercial and services, (1500) industrial, (1600) extractive, (1700) institutional,

(1800) recreational, (1900) open land, (2100) cropland and pasture land, (2140) row crops, (2200) tree crops, (2400) nurseries and vineyards, (2600) other open lands (rural), (7400) disturbed land, (8100) transportation, and (8300) utilities. Of these land use classifications, the agricultural land uses dominate.

The improved and unimproved pasture land uses are typically used for cattle grazing and have a dominant cover of pasture grasses such as bahiagrass (*Paspalum notatum*), Bermudagrass (*Cynodon dactylon*), and big carpetgrass (*Axonopus furcatus*), among others. Depending on the degree of improvement, old field species such as dog fennel (*Eupatorium capillifolium*), slender goldenrod (*Euthamia caroliniana*), other goldenrods (*Solidago* spp.), manyflower marshpennywort (*Hydrocotyle umbellata*), blackberry (*Rubus* spp.), and other weedy herbaceous species, as well as occasional shrubs of saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), Brazilian pepper (*Schinus terebinthifolius*), or netted pawpaw (*Asimina reticulata*) often inhabit these communities. Various types of citrus and vegetable crops such as tomatoes, snap beans, green peppers, and squash, among others, are produced in the area of the preferred corridor.

Residential, commercial and services, industrial, mining, institutional, recreational, open land, disturbed lands, transportation, and utilities make up a relatively smaller portion of the preferred corridor.

2.3.1.2 Vegetation

The preferred corridor will mostly be located within or adjacent to existing road and transmission line rights-of-way and across large tracts of agricultural land. The majority of the rights-of-way are maintained grassy areas. In addition to the mowed rights-of-way, a variety of natural communities will be traversed or are located within 0.5 mile adjacent to the preferred corridor. These vegetation cover classes include (3100) herbaceous rangeland (dry prairie), (4100) upland coniferous forest, (4110) upland pine flatwood forest, (4340) hardwood conifer mixed forest, (4400) tree plantations, (6150) stream and lake swamps (bottomland), (6210) cypress-dominated forested wetland, (6300) wetland forest mixed, (6410) freshwater marsh, (6430) wet prairies, and (6440) emergent aquatic vegetation. Although not technically a vegetation community, (5100) streams and water-

ways, (5200) lakes, and (5300) reservoirs are also included and described along with the dominant vegetation types in the following subsections.

Upland Communities

There are five dominant upland communities within or adjacent to the preferred corridor. These communities consist of both natural and altered states of forest and rangeland.

Herbaceous Rangeland (Dry Prairie) (3100)

Herbaceous rangeland or dry prairie was mapped at only one location along the preferred corridor. Herbaceous rangeland is typically dominated by upland grasses such as bahia-grass, crabgrasses (*Digitaria* spp.), fingergrasses (*Eustachys* spp.), bluestems (*Andropogon* spp.), and lovegrasses (*Eragrostis* spp.), as well as other old-field herbaceous species like dog fennel, goldenrods, blackberry, and sweet broom (*Scoparia dulcis*). Herbaceous rangelands generally lack any significant canopy cover but may have scattered shrubs or small trees of species such as wax myrtle, groundsel tree (*Baccharis halimifolia*), Brazilian pepper, saw palmetto, winged sumac (*Rhus copallinum*), cabbage palm (*Sabal palmetto*), and upland oaks (*Quercus* spp.).

Upland Coniferous Forest (4100)

Any stand of natural woods with a canopy dominated by at least 66 percent coniferous species is classified as a coniferous forest. Due to the similar morphology of pine species within Florida, identification to a species specific community type may be difficult using aerial photography alone (i.e., a Level III Classification). Therefore, pine-dominated areas of the preferred corridor that cannot be easily distinguished using aerial photographic interpretation are mapped within this Level II category.

Pine Flatwoods (4110)

The upland pine flatwoods community occurs along the preferred corridor. It is characterized by a prevalence of pine trees that may vary in age. The dominant pine tree in central Florida is slash pine (*Pinus elliottii*). Occasional stands or individuals of sand pine (*Pinus clausa*) or longleaf pine (*Pinus palustris*) may also be present, as well. In addition to the pines, cabbage palm (*Sabal palmetto*), saw palmetto, wax myrtle, gallberry (*Ilex glabra*),

staggerbushes (*Lyonia* spp.), netted pawpaw, and a variety of flatwoods grasses are also present. Finally, invasive exotic species, such as Brazilian pepper have become established within many disturbed pine flatwood areas in this region.

Hardwood Conifer Mixed Forest (4340)

This forest community comprises several small tracts along the preferred corridor. It is not dominated by either pines or hardwoods, rather both comprise a significant component of the canopy. Most temperate hardwood species do not inhabit the forested communities of central Florida, so the hardwood component of the canopy is primarily live oak (*Quercus virginiana*), water oak (*Q. nigra*), and laurel oak (*Q. laurifolia*). Cabbage palm, sweetgum (*Liquidambar styraciflora*), hackberry (*Celtis laevigata*), red maple (*Acer rubrum*), and common persimmon (*Diospyros virginiana*) also may occur here. Slash pine, sand pine, and/or longleaf pine are intermixed. Shrubs typically consist of saw palmetto, wax myrtle, groundsel tree, and/or American beautyberry.

Pine Plantations (4400)

This forest type consists mainly of slash pine being planted for the purpose of timber production. These pine plantations can be easily distinguished from native woods due to the uniform appearance of the even rows of pine trees all growing at the same height. Other canopy/subcanopy species can include live oaks, water oaks, laurel oaks, and cabbage palms.

Wetland Communities

Numerous wetlands are present within or adjacent to the preferred corridor, which is to be expected considering the prevalence of wetlands in central Florida. Six wetland community types and three surface water features have been identified within and/or adjacent to the preferred corridor.

Streams and Waterways (5100)

This surface water category includes rivers, creeks, canals, and other linear water bodies. Where the watercourse is interrupted by a control structure, the impounded water area is

classified as a reservoir (5300). The portions of a water body having prominent emergent vegetation or identifiable submerged vegetation are classified as wetlands (6000 series).

Lakes (5200)

The lakes category includes extensive inland water bodies, excluding reservoirs.

Reservoirs (5300)

This water category refers to artificial impoundments of water. Reservoirs are typically used for irrigation, flood control, municipal and rural water supplies, and recreation. The presence of dams, levees, and other water control structures is usually the most evident feature in identifying reservoirs.

Stream and Lake Swamps (6150)

This bottomland community is dominated by hardwood tree species such as laurel oak, pop ash (*Fraxinus caroliniana*), elm (*Ulmus americana*), water hickory (*Carya aquatica*), black gum (*Nyssa sylvatica*), red maple, cabbage palm, swamp bay (*Persea palustris*), and sweet bay (*Magnolia virginiana*), among others. Common shrub/small tree species include Carolina willow (*Salix caroliniana*), elder (*Sambucus nigra*), swamp dogwood (*Cornus foemina*), buttonbush (*Cephalanthus occidentalis*), American snowbell (*Styrax americanus*), and dahoon holly (*Ilex cassine*). A variety of sedges, rushes, ferns, and epiphytes are also important components of this swamp type. The majority of these forested wetlands occurs along the creek crossings of the preferred corridor.

Cypress (6210)

These wetlands typically occur in depressions in the landscape. Dome or pond cypress wetlands occupy circular depressions, and strands occur in linear depressions formed from slow water flow. These wetlands usually are seasonally to semi-permanently flooded. However, many of them are ditched and have an altered hydrologic regime. Typical vegetation species include bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), black gum, slash pine, cabbage palm, swamp bay, red maple, dahoon holly, Carolina willow, greenbriers (*Smilax* spp.), swamp fern (*Blechnum serrulatum*), fireflag (*Thalia geniculata*), and various bromeliads and orchids, among others.

Brazilian pepper, an invasive exotic species, often invades cypress swamps and displaces the native species. Some of these swamps have become completely overrun by the invasive species and are pure stands of Brazilian pepper.

Wetland Forested Mixed (6300)

Mixed wetland forest also occurs along the preferred corridor. This community includes wetlands in which the canopy is not predominantly hardwood or coniferous species. Rather, this community has a relatively equal mix of the two tree categories. Common species in this community include laurel oak, water oak, elm, slash pine, cabbage palm, swamp bay, and Carolina willow.

Fresh Water Marsh (6410)

Fresh water marsh wetlands are common along the preferred corridor. These marshes typically exhibit a distinct vegetation zonation pattern based largely on the depth and duration of flooding. Typical species along the upper rim of the wetland include sand cordgrass (*Spartina bakeri*), soft rush (*Juncus effusus*), spike rushes (*Eleocharis* spp.), maidencane (*Panicum hemitomon*), and various sedges, among others. In the center of the wetland, where water is deeper and present for a longer duration, vegetation species such as sawgrass (*Cladium jamaicense*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), bladderworts (*Utricularia* spp.), and arrowheads (*Sagittaria* spp.) dominate. Occasional shrubs of Carolina willow, Brazilian pepper, and wax myrtle can sometimes be found in and around these wetlands. Due to disturbances primarily associated with agriculture, many of the areas mapped as freshwater marshes have been converted to wet grassy depressions. These areas are typically dominated by pasture grasses such as bahiagrass, Bermudagrass, or big carpetgrass and support the growth of emergent wetland species such as common dayflower (*Commelina diffusa*), alligatorweed (*Alternanthera philoxeroides*), dotted smartweed (*Polygonum punctatum*), Virginia buttonweed (*Diodia virginica*), and torpedograss (*Panicum repens*).

Wet Prairies (6430)

This nonforested wetland type is composed predominately of grassy vegetation on hydric soils and can be generally distinguished from marshes by being shallower, having a

shorter hydroperiod, containing less organics in the upper soil layer and/or supporting a lower percentage of obligate wetland plants. Wet prairies are typically dominated by a mix of emergent wetland plants such as maidencane, blue maidencane (*Amphicarpum muhlenbergianum*), spike rushes, beakrushes (*Rhynchospora* spp.), sand cordgrass, St. Johns-wort (*Hypericum fasciculatum*), yellow-eyed grasses (*Xyris* spp.), flatsedges (*Cyperus* spp.), soft rush, and other rushes (*Juncus* spp.). Wet prairies can either occur as isolated areas or as the transitional edge to deeper water marshes and swamps.

Emergent Aquatic Vegetation (6440)

This wetland category includes deeper water systems with a discernible presence of free-floating, floating-leaved emergent, and/or emergent vegetation either occurring along littoral zones or as floating “islands.” Typical plant species found in these areas include Carolina willow, Peruvian primrosewillow (*Ludwigia peruviana*), cattail (*Typha* sp.), anglestem primrosewillow (*Ludwigia leptocarpa*), paragrass (*Urochloa mutica*), water lettuce (*Pistia stratiotes*), water hyacinth (*Eichhornia crassipes*), duckweeds (*Lemna* spp. and *Spirodela* spp.), fragrant white water lily (*Nymphaea odorata*), and spatterdock (*Nuphar lutea*), among others.

2.3.2 AFFECTED WATERS AND WETLANDS

The preferred corridor falls within both the SWFWMD Alafia River and Hillsborough River basins (i.e., the Hillsborough River Basin occurs at the most western portion of the corridor in Hillsborough County, while the majority of the corridor occurs in the Alafia River Basin, which includes both Hillsborough and Polk Counties).

The physiography is characterized by topography that is gently rolling to nearly flat with elevations increasing further inland. Typical elevations along the corridor range from approximately 120 to 30 ft from east to west, respectively.

Surface water bodies and wetlands crossed by the preferred corridor were identified using 1:24,000 U.S. Geological Survey (USGS) topographic maps, National Wetlands Inventory (NWI) maps, SWFWMD land use/cover maps, and recent aerial photographs (2006).

Pursuant to the provisions of Section 62-302.400, Florida Administrative Code (F.A.C.), the majority of surface waters and wetlands crossed by the corridor would be classified as Class III waters, Recreation, Propagation, and Maintenance of Healthy, Well-Balanced Population of Fish and Wildlife. The preferred corridor does not include any Outstanding Florida Waters.

Water Bodies

Table 2.3-1 provides a list of the major water bodies found within the preferred corridor. As noted, Poley Creek, English Creek, Baker Creek, and the Tampa Bypass Canal are the most significant water bodies crossed by the preferred corridor. The remainder of waters crossed by the preferred corridor includes minor tributaries and roadside ditches, in addition to natural and manmade ponds and larger reservoirs and lakes. These smaller water bodies are not listed in Table 2.3-1.

Many of the ditches and roadside swales crossed or within the corridor (such as along roads) are intermittent, carrying water only during the rainy summer season. These intermittent ditches are neither navigable nor generally used for recreational purposes.

There are no water bodies located within the preferred corridor that cannot be spanned or avoided; therefore, no structures will be located within water bodies of the state.

Drainage all along the preferred corridor is generally to the south and west through sheet-flow in wetland systems and small drainages/tributaries. The major drainages in the study areas are the Hillsborough River and the Tampa Bypass Canal, both of which drain to Tampa Bay.

Wetlands

Given the shallow ground water table in places, flat topography, and varying soil conditions, there are various types of wetlands within or adjacent to the preferred corridor. As described in Section 2.3.1, these wetland types include bottomland swamps, cypress swamps, mixed wetland forests, fresh water marshes, wet prairies, and emergent aquatic vegetation. The hydrologic regime of these wetlands varies from semi-permanently

Table 2.3-1. Surface Water Bodies within the Preferred Corridor (West to East)

Water Body	Receiving Water	Comments
Hillsborough River	Tampa Bay	Corridor begins along the eastern side of river at the existing Tampa Electric Davis Substation property
Tampa Bypass Canal	Hillsborough River	Corridor crosses just east of the Hillsborough River
Baker Creek (1)	Lake Thonotosassa	Corridor crosses southeast of Lake Thonotosassa
Baker Creek (2)	Lake Thonotosassa	Corridor crosses southeast of Lake Thonotosassa
Unnamed tributary	Unnamed canal draining to Baker Creek	Corridor crosses south of U.S. 92
Unnamed tributary	Unknown	Corridor crosses just north of Sydney Road
Turkey Creek	Alafia River	Corridor crosses at SR 60
Grassy Creek	Medard Reservoir	Corridor crosses at SR 60
Hopewell Creek	Medard Reservoir	Corridor crosses south of SR 60 near intersection with CR 39
Horton Creek	English Creek	Corridor crosses at Old Hopewell and Smith-Ryals Roads
English Creek	Alafia River	Corridor crosses along SR 60 bridge
Unnamed tributary	English Creek	Corridor crosses along SR 60
North Poley Creek	Alafia River	Corridor crosses along SR 60 bridge

Source: ECT, 2007.

flooded to seasonally flooded, depending on their landscape position and the extent of drainage improvements within the immediate area.

Isolated and connected fresh water marshes and swamps sporadically occur in the corridor for most of its length. A portion of the preferred corridor crosses the Edward Medard Park and Reservoir and English Creek managed by Hillsborough County and the Alafia Reserve managed by SWFWMD

Extensive agricultural activities in portions of the preferred corridor have severely altered the natural hydrologic regime of many of the wetlands. Also, the preferred corridor follows along several road rights-of-way, where many of the wetlands and other water bodies that will be crossed have already been impacted by previous development such as filling, bridging, or constructing culverts at the proposed point of crossing. This will minimize disturbance associated with construction since the area has already been impacted. However, limited construction for the placement of poles may be required in jurisdictional wetlands. Detailed design information will be provided to appropriate regulatory agencies as postcertification submittals to facilitate monitoring to ensure drainage patterns and characteristics are not further altered from predevelopment condition.

2.3.3 ECOLOGY

An area including the preferred corridor and 1,500 ft beyond either edge of the corridor was evaluated for the potential presence of listed plant or wildlife species. Listed species include those with a designation of endangered, threatened, species of special concern, or commercially exploited that are regulated by the U.S. Fish and Wildlife Service (USFWS), the Florida Department of Agriculture and Consumer Services (FDACS), or the Florida Fish and Wildlife Conservation Commission (FWC).

Listed species were included for discussion in this application based on their known or expected occurrence in the preferred corridor study area as residents, migrants, or transients based on previous identifications in Polk and Hillsborough Counties and the presence of suitable habitat within the preferred corridor. The lists of plant and animal species

identified as potentially occurring within or adjacent to the preferred corridor are presented in the following subsections.

The probability of occurrence of these species was based on known locations for such species, recent and historical reports of occurrence in the scientific literature, and the presence of suitable habitat as shown on land use and land cover maps, NWI maps, and recent aerial photographs. The FNAI's database (2007) was also used to identify known occurrences of such species. Since the specific locations of many plant species are not known or mapped and most vertebrates, particularly birds, have extensive ranges and show significant daily and/or seasonal movement and distribution patterns, the ecology section addresses their probability of occurrence in the preferred corridor primarily based on suitable habitat and range. This represents a conservative approach resulting in more diverse species inventories than solely depending on field observations and inclusion of species that may not occur within the confines of the preferred corridor.

In addition to the probability for occurrence, the potential for impacts due to right-of-way clearing, construction, and maintenance or other concerns such as the presence of ecologically unique or valuable habitats were evaluated for the species identified as potentially occurring in or adjacent to the preferred corridor. Individual discussions of the species are presented in the following subsections.

2.3.3.1 Plant Species

Based on the results of a search by FNAI (2007) of element occurrences, there are no records of listed plant species for the entire study area. However, approximately 68 regulated plant species are known to occur within Polk and/or Hillsborough Counties within habitats similar to those found within the study area. Due to the rarity of most species and the disturbed condition of most of the habitats crossed by the preferred corridor, only 19 of these species are considered to have a reasonable likelihood for occurrence within the preferred corridor. These 68 species, including the 19 with potential to occur in the corridor, are listed on Table 2.3-2. Only two of the species on Table 2.3-2 appear on both state and federal listings. Of the 19 species listed by FDACS, five are listed as endangered, seven are listed as threatened, and seven are listed as commercially exploited

Table 2.3-2. Listed Plant Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Pine-woods bluestem	<i>Andropogon arctatus</i>	—	T	Flatwoods
Auricled spleenwort	<i>Asplenium erosum</i>	—	E	Epiphytic on live oaks in mesic hammocks and strand swamp
Florida bonamia	<i>Bonamia grandiflora</i>	T	E	Sandy soil, scrub
Ashe's savory	<i>Calamintha ashei</i>	—	T	Dry pinelands and sand pine scrub/disturbed areas
Many-flowered grass-pink*	<i>Calopogon multiflorus</i>	—	E	Damp pinelands and meadows
Chapman's sedge	<i>Carex chapmanii</i>	—	E	Hammocks and woodlands
Sand butterfly pea	<i>Centrosema arenicola</i>	—	E	Open, mixed woodlands, pine or oak-palmetto thickets
Pygmy fringe tree	<i>Chionanthes pygmaeus</i>	E	E	Low nutrient levels; sandy, dry soil of Central Florida scrub
Florida golden aster	<i>Chrysopsis floridana</i>	E	E	Sand pine scrub, on bare sand
Scrub pigeon-wing	<i>Clitoria fragrans</i>	T	E	Sandhill, scrub, scrubby flatwoods and roadside
Piedmont jointgrass	<i>Coelorachis tuberculosa</i>	—	T	Marshes, margins of ponds
Short-leaved rosemary	<i>Conradina brevifolia</i>	E	E	Sand pine scrub of Lake Wales ridge
Avon Park rabbit-bells	<i>Crotalaria avonensis</i>	E	E	Bare white sand, partial shade along Lake Wales ridge
Scrub mint	<i>Dicerandra frutescens</i>	E	E	On yellow sand in sand pine scrub openings and paths
Spoon-leaved sundew	<i>Drosera intermedia</i>	—	T	Seepage slopes, wet flatwoods, depression marshes, sinkhole lakes, and drainage ditches
Scrub buckwheat	<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	T	E	Sandhill, scrub, longleaf pine, and Lake Wales ridge
Florida butterfly orchid*	<i>Encyclia tampensis</i>	—	C	Mangrove, cypress and hardwood swamps and hammocks
Green-fly orchid*	<i>Epidendron conopseum</i>	—	C	Cypress and hardwood swamps, moist hammocks
Godfrey's privet	<i>Forestiera godfreyi</i>	—	E	Mesic calcareous woods

Table 2.3-2. Listed Plant Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area (Continued, Page 2 of 4)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Tampa vervain*	<i>Gladularia tampensis</i>	—	E	Flatwoods, hammocks, sandy soil, and disturbed sites
Threadroot orchid	<i>Harrisella filiformis</i>	—	T	Old orange groves, strand swamps, hardwood swamps, and hammocks
Hartwrightia	<i>Hartrightia floridana</i>	—	T	Wet flatwoods, bogs, seepage slope clearings, and pine woods
Highlands scrub hypericum	<i>Hypericum cumilicola</i>	E	E	White sand and sand pine scrub
Edison's ascyrum	<i>Hypericum edisonianum</i>	-	E	Depression marshes, seepage slopes, wet prairie, wet flatwoods, and ponds.
Star anise	<i>Illicium parviflorum</i>	—	E	Bottomland forest and wet hammocks
Nodding pinweed	<i>Lechea cernua</i>	—	T	Sand scrub, openings, fire maintained
Spreading pinweed	<i>Lechea divaricata</i>	—	E	Dry, sandy soil and scrubby flatwoods
Florida blazing star	<i>Liatris ohlingerae</i>	E	E	Sand pine scrub
Pine lily*	<i>Lilium catesbaei</i>	—	T	Wet flatwoods and bogs, usually with grasses
Carter's large-flowered flax	<i>Linum carteri</i> var. <i>smallii</i>	—	E	Mowed pine rockland, roadside, marl.
Pondspice	<i>Litsea aestivalis</i>	—	E	Margins of ponds, bay heads, hammocks in cypress swamps, peaty soils
Scrub lupine	<i>Lupinus aridorum</i>	E	E	Sand pine scrub and yellow sand
Nodding club-moss*	<i>Lycopodiella cernua</i>	—	C	Wet depressions, ditches, moist areas
Lowland loosestrife*	<i>Lythrum flagellare</i>	—	E	Low, open ground, swamps and thickets
Florida spiny-pod	<i>Matelea floridana</i>	—	E	Bluffs, pine-oak hickory woods
Celestial lily	<i>Nemastylis floridana</i>	—	E	Clearings in swamps, marshes, and wet pine flatwoods

Table 2.3-2. Listed Plant Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area (Continued, Page 3 of 4)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Florida beargrass	<i>Nolina atopocarpa</i>	—	T	Grassy areas of flatwoods bordering savannahs and shell middens
Britton's beargrass	<i>Nolina brittoniana</i>	E	E	Dry pinelands and sand pine scrub
Hand fern	<i>Ophioglossum palmatum</i>	—	E	Epiphytic on cabbage palm in hydric hammocks and strand swamps
Cinnamon fern*	<i>Osmunda cinnamomea</i>	—	C	Swamps, bogs, marshes
Royal fern*	<i>Osmunda regalis</i>	—	C	Swamps, bogs, marshes
Cutthroat grass	<i>Panicum abscissum</i>	—	E	Wet pinelands, seepage areas
Paper-like nailwort	<i>Paronychia chartacea</i> ssp. <i>Chartacea</i>	T	E	Shores of karst lakes and scrub
Plume polypody	<i>Plecuma plumula</i>	—	E	Epiphytic or on rocks in hammocks
Terrestrial peperomia	<i>Peperomia humilis</i>	—	E	Maritime hammocks, upland hardwoods and swamps
Blueflower butterwort*	<i>Pinguicula caerulea</i>	—	T	Pine flatwoods, ditches, and roadsides
Yellow-flowered butterwort*	<i>Pinguicula lutea</i>	—	T	Pine flatwoods, seepage bogs, ditches, and roadsides
Yellow fringeless orchid	<i>Platanthera integra</i>	—	E	Swampy meadows, boggy depressions in wet woods
Lewton's polygala	<i>Polygala lewtonii</i>	E	E	White sand, scrub
Florida jointweed	<i>Polygonella basiramia</i>	E	E	White sand in sand pine and rosemary scrub of Lake Wales and Avon Park Air Force ridges.
Small's jointweed	<i>Polygonella myriophylla</i>	E	E	Scrub
Scrub plum	<i>Prunus geniculata</i>	E	E	Sand pine scrub of Central Florida Ridge.
Giant orchid*	<i>Pteroglossaspis ecristata</i>	—	T	Sand pine, scrub, sandhill, and pine rockland
Needle palm*	<i>Rhapidophyllum hystrix</i>	—	C	River bluffs, ravine slopes, hammocks, and bottomland

Table 2.3-2. Listed Plant Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area (Continued, Page 4 of 4)

Common Name	Scientific Name	Designated Status		Preferred Habitat
		USFWS	FDACS	
Leafless beaked orchid*	<i>Sacoila lanceolata</i>	—	T	Open pastures, roadsides, wet pine flatwoods, and sandhills
Florida willow	<i>Salix floridana</i>	—	E	Wet hammocks, dense bottom-land forest, stream margins, swamps
Scrub bluestem	<i>Schizachyrium niveum</i>	—	E	Rosemary scrub
Scrub stylisma	<i>Stylisma abdita</i>	—	E	Dry pinelands and scrub
Toothed maidenfern	<i>Thelypteris serrata</i>	—	E	Pond-apple and pop-ash hammocks, guava groves, and cypress sloughs and swamps
Broad-leaved nodding-caps	<i>Triphora amazonica</i>	—	E	Hardwood hammocks
Inflated and reflexed wild pine*	<i>Tillandsia balbisiana</i>	—	T	Hammocks, cypress swamp, pineland, and scrubs; epiphytic
Cardinal airplant*	<i>Tillandsia fasciculata</i> var. <i>densispica</i>	—	E	Hammocks, cypress swamp, and pinelands; epiphytic
Giant wild pine*	<i>Tillandsia utriculata</i>	—	E	Hammocks, cypress swamp, and pinelands; epiphytic
Clasping warea	<i>Warea amplexifolia</i>	E	E	Dry pinelands and sand hills
Carter's warea	<i>Warea carteri</i>	E	E	Pinelands, scrub and sandhills
Coontie*	<i>Zamia pumila</i>	—	C	Oak hammocks, pinelands, and shell middens
Rain lily*	<i>Zephyranthes simpsonii</i>	—	T	Wet flatwoods and meadows
Scrub ziziphus	<i>Ziziphus celata</i>	E	E	Between sand pine scrub and longleaf pine (Lake Wales Ridge)

*Could potentially occur within the preferred corridor.

Note: E = endangered.

T = threatened.

C = commercially exploited.

Sources: FNAI, 2007.

ECT, 2007

by FDACS. Given the known range of these species and the presence of potential habitat on or adjacent to the preferred corridor, there is a possibility that some or all of these species could occur within or in the vicinity of the corridor. Brief descriptions of these species are provided in the following paragraphs.

Ferns and Fern Allies

Two species of ferns, cinnamon fern and royal fern, and one fern ally, nodding clubmoss, are classified as commercially exploited species by FDACS. The fern/fernlike species are fairly common throughout Florida, occur in a variety of wetland habitats, and are expected along the preferred corridor. However, given their range in habitat, these species would be expected to persist in the corridor following the construction of the transmission line.

Lilies, Orchids, and Bromeliads

A total of 10 of the listed plant species are lilies, orchids, or bromeliads. Of these species, two are lilies, five are orchids, and three are bromeliads. The rain lily is listed as threatened by FDACS and is a large lily that grows solitarily or clumped. It may be found growing in wet flatwoods or unimproved wet pastures along the route. It is possible for the rain lily to coexist with the transmission line, once built, in wet areas with periodically maintained herbaceous cover, similar to wet pasture. The pine lily is also listed as threatened by FDACS. This lily grows in wet flatwoods and bogs. If native shrub layers are not disturbed during clearing or maintenance, pine lily could potentially persist in the transmission line easement.

Both terrestrial and epiphytic orchids could potentially occur within the preferred corridor area. The three terrestrial orchids under review typically inhabit flatwoods habitats. Many-flowered grass-pink is a terrestrial orchid listed as an endangered species by FDACS. Another terrestrial orchid, which is listed as threatened by FDACS, is the giant orchid. The third terrestrial orchid species, which is also listed by FDACS as threatened, is the leafless beaked orchid. The terrestrial orchids could be expected to coexist in the transmission line easement.

There are two epiphytic orchids, which are both listed by FDACS as threatened: Florida butterfly orchid and green-fly orchid. Florida butterfly orchids are epiphytic plants that form clusters along the trunks of hardwoods (mostly live oaks) and cypress trees. The plant can be found blooming at different seasons throughout the year. It occurs sporadically throughout peninsular Florida. Although somewhat rare throughout the state of Florida, the orchid is typically abundant where found. Green-fly orchids are epiphytic plants, that, like butterfly orchids, also grow in clusters on the trunks of trees. Since these two orchid species are epiphytic, any tree clearing and maintenance associated with transmission line construction and operation would limit the growth of these orchids to areas outside of the transmission line right-of-way, where suitable habitat is available.

There are three listed bromeliads (epiphytes of the genus *Tillandsia*) that could potentially occur along the route, given the presence of their preferred habitat. Weevils, in addition to habitat destruction and overharvesting, threaten all three bromeliad species. One bromeliad species, inflated and reflexed wild pine, is listed as threatened by FDACS. Although listed as endangered, the last two *Tillandsia* species, namely giant wild pine and cardinal airplant, are more common than the previously referenced bromeliad. Giant wild pine is the largest *Tillandsia* species and can grow up to 8 ft tall. It is unlikely the epiphytic bromeliad species would inhabit the cleared and maintained transmission line right-of-way since they grow attached to tree trunks. However, they could persist adjacent to the transmission line, where suitable habitat is available.

Other Plant Species

Tampa Vervain

Tampa vervain is listed as endangered by FDACS. Since this plant is found in disturbed sites, it is possible that Tampa vervain could coexist with the new transmission line.

Lowland Loosestrife

Lowland loosestrife is listed as endangered by FDACS. It grows on low, open ground, swamps, and thickets. It is possible that this species could occur within or adjacent to the preferred corridor. Since this species does well in open habitats, it is possible that lowland loosestrife could coexist with the new transmission line.

Butterworts

There are two butterworts that could potentially occur along pine flatwoods, ditches, and roadsides on the preferred corridor. Blueflower butterwort is listed as threatened by FDACS. Yellow-flowered butterwort is also listed as threatened by FDACS. Both plants are insectivorous and could potentially coexist within a new transmission line right-of-way.

Needle Palm

This palm is only listed as commercially exploited by FDACS. Since needle palms prefer shady locales, opening up the tree canopy during clearing and maintenance activities associated with the transmission line could impact their long-term growth if these palms were present.

Coontie

Coontie is a cycad or primitive palm and is listed as commercially exploited by FDACS. Coontie occur in a variety of well-drained sites including oak hammocks, pinelands, and shell middens. It is possible that coontie could exist in drier portions of the new transmission line right-of-way where maintenance procedures allow for shrub development.

2.3.3.2 Wildlife Species

The presence or potential for occurrence of wildlife species within a given area is primarily related to the presence of suitable habitat for cover, feeding, and reproduction. In general, the type and quality of wildlife habitats vary with vegetation type and structure, surrounding land use, and hydrology. For this reason, wildlife habitat types can frequently be equated with vegetation community types.

To determine the vegetation community (i.e., habitat) types intersected by the preferred corridor, land use and land cover classification maps were obtained from SWFWMD. These maps identified natural community systems as well as developed lands in various stages of disturbance. Using the SWFWMD classification (see Section 2.3.1), community systems identified in the corridor that serve as the principal wildlife habitat types include pine flatwoods, forested mixed uplands, and wetlands such as cypress forests, mixed

hardwood swamps, freshwater marshes, wet prairies, and emergent wetlands. Habitats such as improved pasture, agricultural operations, transportation rights-of-way, recently mined lands, landscaped residential development, and commercial/industrial development are of relatively lower value to wildlife due to the limited diversity of niches, which is reflected in the lower wildlife species diversities in such habitats.

Developed areas such as residential, commercial, and industrial areas offer little habitat value to native vegetation and wildlife. Such areas occur primarily in the western section. In contrast, the undeveloped habitats in and along the preferred corridor include a variety of upland and wetland communities representing a wide range of habitat values for specific plant and wildlife species. Areas of potentially high habitat value within the preferred corridor area include the forested areas, swamp, and wet prairie communities found in some of the undisturbed areas of the corridor, such as along Poley Creek, English Creek, and Edward Medard Park.

The status and potential for occurrence of species recommended for study (i.e., species listed as endangered, threatened, or of special concern) in the Willow Oak-Davis study area were determined by a habitat analysis, literature survey, agency contacts, and ground surveys. A total of 20 vertebrate species, including 6 reptiles and amphibians, 11 birds, and 3 mammals, was identified as species occurring or possibly occurring in the study area. The status and potential for occurrence of these vertebrate species in and along the preferred corridor area are summarized in Table 2.3-3 and discussed in the following paragraphs.

Amphibians

Gopher Frog (*Rana capito*)

The gopher frog is a species of special state concern as identified by FWC. This amphibian is typically considered a commensal species to the gopher tortoise. Therefore, habitat requirements tend to be xeric upland habitats that support gopher tortoise populations. Along the preferred corridor wherever xeric habitats are found, there is a moderate likelihood this species may be present.

Table 2.3-3. Listed Wildlife Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area

Common Name	Scientific Name	Designated Status*		Likelihood of Occurrence within Preferred Corridor
		USFWS	FWC	
<u>Amphibians</u>				
Gopher frog	<i>Rana capito</i>	—	SSC	Moderate—wherever gopher tortoises are found
<u>Reptiles</u>				
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	SSC	High—in wetlands and water bodies throughout the corridor area
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	Moderate—especially where gopher tortoises are found; records from study area (FNAI)†
Short-tailed snake	<i>Stilosoma extenuatum</i>	—	T	Low—suitable habitat generally lacking from corridor area; records exist outside study area (FNAI)
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	—	SSC	Low—suitable habitat generally lacking from corridor area; records exist outside study area (FNAI)
Gopher tortoise	<i>Gopherus polyphemus</i>	—	T	High—likely found in more xeric portions of corridor; records found throughout the study area (FNAI)
<u>Birds</u>				
Little blue heron	<i>Egretta caerulea</i>	—	SSC	Moderate—in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Snowy egret	<i>Egretta thula</i>	—	SSC	Moderate—in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Tricolored heron	<i>Egretta tricolor</i>	—	SSC	Moderate—in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
White ibis	<i>Eudocimus albus</i>	—	SSC	Moderate—in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Wood stork	<i>Mycteria americana</i>	E	E	Moderate—in suitable habitats along the corridor; no breeding colonies known within 0.5 mile, although individual records exist for study area (FNAI)
Limpkin	<i>Aramus guarauna</i>	—	SSC	Low—slow-moving streams generally absent from corridor area; records exist from study area (FNAI)
Roseate spoonbill	<i>Platalea ajaja</i>	—	SSC	Low—more coastal species, but records exist for the study area (FNAI)

Table 2.3-3. Listed Wildlife Species Potentially Occurring in the Tampa Electric Willow Oak-Davis Study Area (Continued, Page 2 of 2)

Common Name	Scientific Name	Designated Status*		Likelihood of Occurrence within Preferred Corridor
		USFWS	FWC	
Florida sandhill crane	<i>Grus canadensis pratensis</i>	—	T	Moderate—in wet pastures and marshes along the corridor; records exist for the study area (FNAI)
Bald eagle	<i>Haliaeetus l. leucocephalus</i>	—	T	Present—records for active nesting in the study area; one recorded active nest in corridor north of CR 574 in Hillsborough County
Florida burrowing owl	<i>Athene cunicularia floridana</i>	—	SSC	Low—prefers dry, well drained pastures; no records exist for study area (FNAI)
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	SSC	Low—mature slash/longleaf pine stands generally absent from the corridor area; no records exist for the study area (FNAI)
<u>Mammals</u>				
Florida mouse	<i>Podomys floridanus</i>	—	SSC	Low—possibly found where gopher tortoises exist; no records from the study area (FNAI)
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	—	SSC	Low—preferred habitat generally lacking from corridor; records exist for perimeter of study area (FNAI)
Florida black bear	<i>Ursus americanus floridanus</i>	—	T	Low—preferred habitat lacking from study area; possibly found north of study area in Hillsborough River Swamp

* E = endangered.

T = threatened.

T(S/A) = threatened due to similarity in appearance to a federally listed species.

SSC = species of special concern.

†FNAI 2007 records search of rare element occurrences for the study area.

Sources: FWC, 2007.

FNAI, 2007.

ECT, 2007.

Reptiles

American Alligator (*Alligator mississippiensis*)

The alligator is listed as threatened due to similarity of appearance by USFWS and a species of special concern by FWC. This reptile would almost certainly be present in wetlands and water bodies along the preferred corridor.

Eastern Indigo Snake (*Drymarchon corais couperi*)

This distinctive large, black snake can occur in suitable habitats throughout Florida. It has a wide range of habitat preferences and prey species. Often considered as a gopher tortoise commensal, it can be found in xeric habitats, but also uses more mesic habitats. There is a moderate likelihood it would be found along the preferred corridor. Both USFWS and FWC list the indigo snake as a threatened species.

Short-Tailed Snake (*Stilosoma extenuatum*)

The short-tailed snake is generally restricted to sandhill communities, which are xeric habitats. These habitats are generally absent from the corridor area. FNAI (2007) does have records for this species just outside the Project's study area.

Florida Pine Snake (*Pituophis melanoleucus mugitus*)

The Florida pine snake prefers longleaf pine/xeric oak woodlands. These are generally lacking from the corridor area. FNAI (2007) does show records for this species for areas outside the study area.

Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise's range in Florida includes all of the study area. It is likely to be found in xeric habitats along the preferred corridor. Several records exist for the study area (FNAI, 2007). Since it prefers burrows in sunny locations, xeric habitats along existing road or transmission line rights-of-way may be particularly suited to this species. FWC just recently relisted the gopher tortoise from a species of special concern to threatened status.

Birds

Little Blue Heron (*Egretta caerulea*)

This wading bird is listed as a species of special concern by FWC and is found in suitable wetlands throughout Florida. They prefer freshwater habitats for foraging. This heron may be found foraging in suitable habitats along the preferred corridor.

Snowy Egret (*Egretta thula*)

FWC lists snowy egrets, like the other wading birds, as a species of special concern. This bird is widely distributed in Florida in both fresh and saltwater systems. It may occur in wetlands along the preferred corridor.

Tricolored Heron (*Egretta tricolor*)

The tricolored heron (formerly called Louisiana heron) is a species of special concern as listed by FWC. It likes estuarine habitats but can be found foraging in almost any wetland system. It may occur along the preferred corridor.

White Ibis (*Eudocimus albus*)

The white ibis is actually one of the most common wading birds in Florida, but FWC lists it as a species of special concern. Large flocks of this bird are often seen foraging in shallow marshes or wet pastures. The white ibis is likely to occur along the preferred corridor.

Wood Stork (*Mycteria americana*)

The wood stork is an endangered species according to both USFWS and FWC. This large bird prefers nesting in cypress swamps. No known nesting colonies are found in the vicinity of the preferred corridor. The corridor selection process ensured that known wood stork colonies were avoided. However, individuals of the species almost certainly would be found foraging in marshes and ditches along the preferred corridor.

Limpkin (*Aramus guarauna*)

FWC lists the limpkin as a species of special concern. Its range is primarily north-central Florida, and it is found in slow-moving waterways inhabited by the apple snail. This

bird's likelihood of occurrence in the preferred corridor is considered low due to the lack of these systems within the preferred corridor.

Roseate Spoonbill (*Platalea ajaja*)

Roseate spoonbills are a conspicuous bird that nest and primarily forage along the coast. They do occasionally forage inland and therefore may occur in the study area due to its proximity to Tampa Bay. FNAI (2007) reports occurrences around the study area.

Florida Sandhill Crane (*Grus canadensis pratensis*)

The sandhill crane is listed as threatened by FWC. It prefers marshes for nesting and pastures, wet prairies, or farm fields for foraging. Given the potential habitats along the preferred corridor, its likelihood of occurrence is considered moderate. It has been recorded in the study area (FNAI, 2007).

Bald Eagle (*Haliaeetus leucocephalus*)

FWC currently lists the bald eagle as threatened, but USFWS just delisted this bird in the summer of 2007. The eagle is making a comeback in population numbers in the United States, and, in Florida, eagle nests are becoming more common. One active bald eagle's nest does occur within the preferred corridor. This nest, believed to be the former nest identified as HL 012 on the FWC's eagle nest database, was last identified as active in 1997. The current identified and unnumbered nest is located within Tampa Electric's right-of-way, approximately 1 mile north of CR 574 (Martin Luther King, Jr., Boulevard) and 3,000 ft west of McIntosh Road. Sheet 3 of Attachment 2-4 depicts these nest locations.

No other active eagle nests are known to occur in the corridor or within 1,500 ft of the preferred corridor.

Burrowing Owl (*Athene cunicularia floridana*)

The burrowing owl prefers xeric pastures with low vegetation. Since the preferred corridor does cross some dry pastures and croplands, there is a potential for the burrowing owl

to be present. However, its likelihood of occurrence is considered low, since no recorded observations exist for the study area (FNAI, 2007).

Red-Cockaded Woodpecker (*Picoides borealis*)

This small woodpecker is listed as endangered by USFWS and threatened by FWC. It has very specific habitat requirements—old age pine (usually longleaf or slash) that is infected with red-heart disease. Due to the lack of old age pine stands throughout the corridor vicinity, no records of the bird are documented. Therefore, its potential for occurrence is low.

Wading Bird Colonies

FWC and FNAI do list known locations of some wading bird colonies in the study area. While none are recorded as occurring within the preferred corridor, some are shown to occur within 0.5 mile of the preferred corridor (see Attachment 2-4). While not all such colonies contain listed species, their locations are noteworthy as a transmission line siting consideration.

- Colony 611169 is located near the southeast corner of Lake Thonotosassa and is within 0.5 mile of the preferred corridor. Although not verified as currently active by FWC, both FWC and FNAI list historic presence of such listed species as snowy egret, little blue heron, and tricolored heron. This colony is shown on Sheet 2 of Attachment 2-4.
- Colony 611147 is currently listed as inactive by FWC and FNAI. It is located in the same general area as the previous colony. It is approximately 1,000 ft south of the preferred corridor. Historically, this colony contained anhingas and great blue herons; both are nonlisted species. This colony is depicted on Sheet 2 of Attachment 2-4.
- Colony 615330 is listed as active by FWC. It contains nonlisted species such as cormorants and cattle egrets, but also contains the listed little blue heron. This colony is located approximately 3,000 ft north of the preferred corridor in reclaimed mine ponds east of the Valrico area. It is depicted on Sheet 4 of Attachment 2-4.

Mammals

Florida Mouse (*Podomys floridanus*)

The Florida mouse is also recognized as a commensal to the gopher tortoise, commonly found residing in tortoise burrows. FWC lists the species as a species of special concern. Gopher tortoises may exist within the preferred corridor, but the Florida mouse's likelihood of occurrence is considered low. FNAI (2007) reports no records for the study area.

Sherman's Fox Squirrel (*Sciurus niger shermani*)

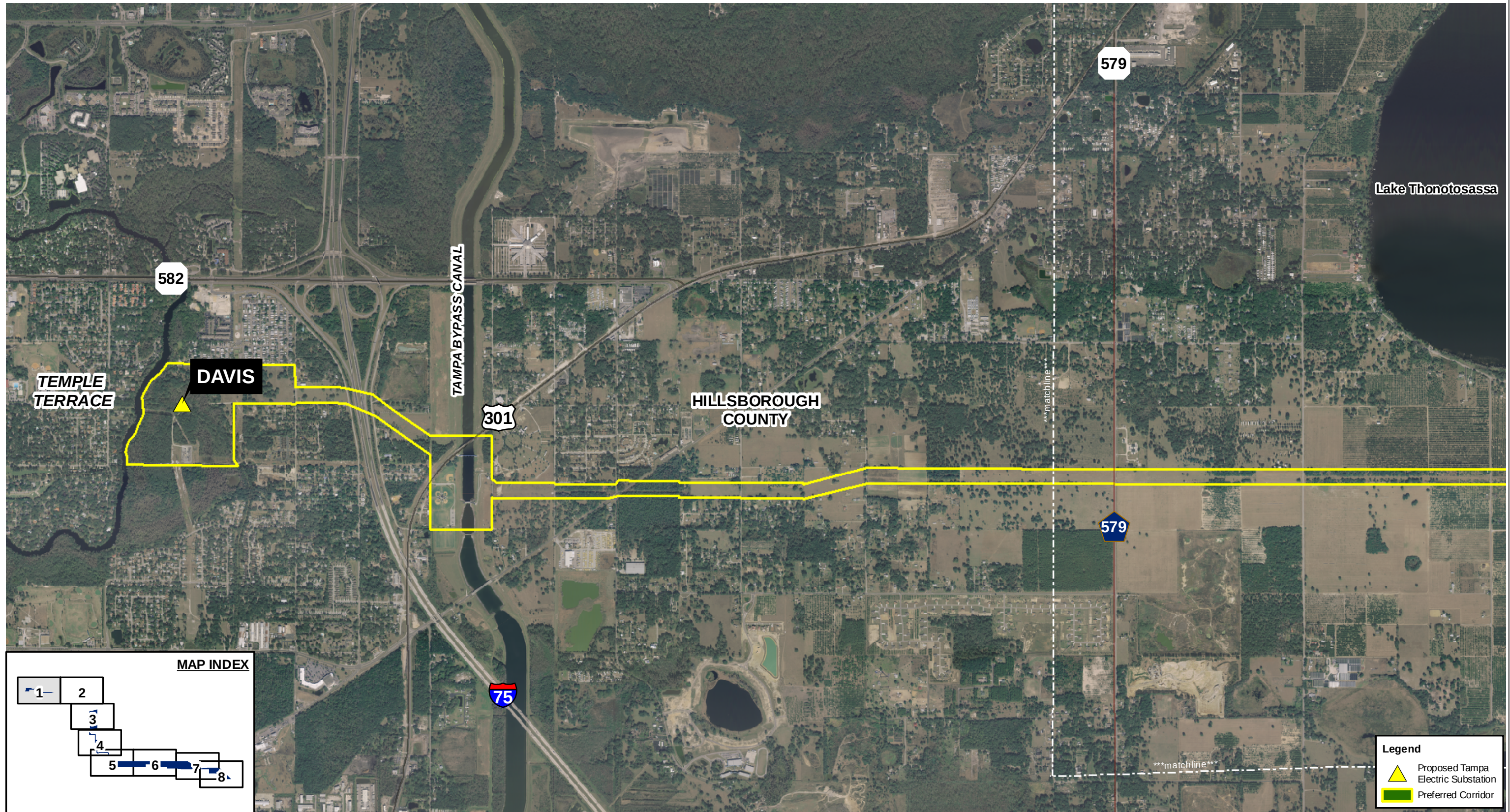
This squirrel has a low likelihood to occur in the study area and along the preferred corridor. FWC lists the species as a species of special concern. It would be expected to be found in drier pine flatwoods, xeric oak, or sandhill communities, which do not commonly occur along the preferred corridor. FNAI (2007) does show records of this species along the perimeter of the study area.

Florida Black Bear (*Ursus americanus floridanus*)

FWC currently lists the Florida black bear as threatened. This large mammal prefers large swamps and dense thickets. There would be a low likelihood of occurrence of the animal along the preferred corridor in appropriate habitats, since the dominance of agricultural lands or developed lands along the preferred corridor would minimize opportunities for the bear's presence.

2.3.4 OTHER ENVIRONMENTAL FEATURES

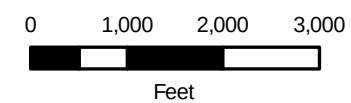
The preceding subsections present relevant environmental information regarding the biological and water resources within and near the Willow Oak-Davis Project corridor. No additional information has been determined necessary to describe environmental characteristics of this corridor.

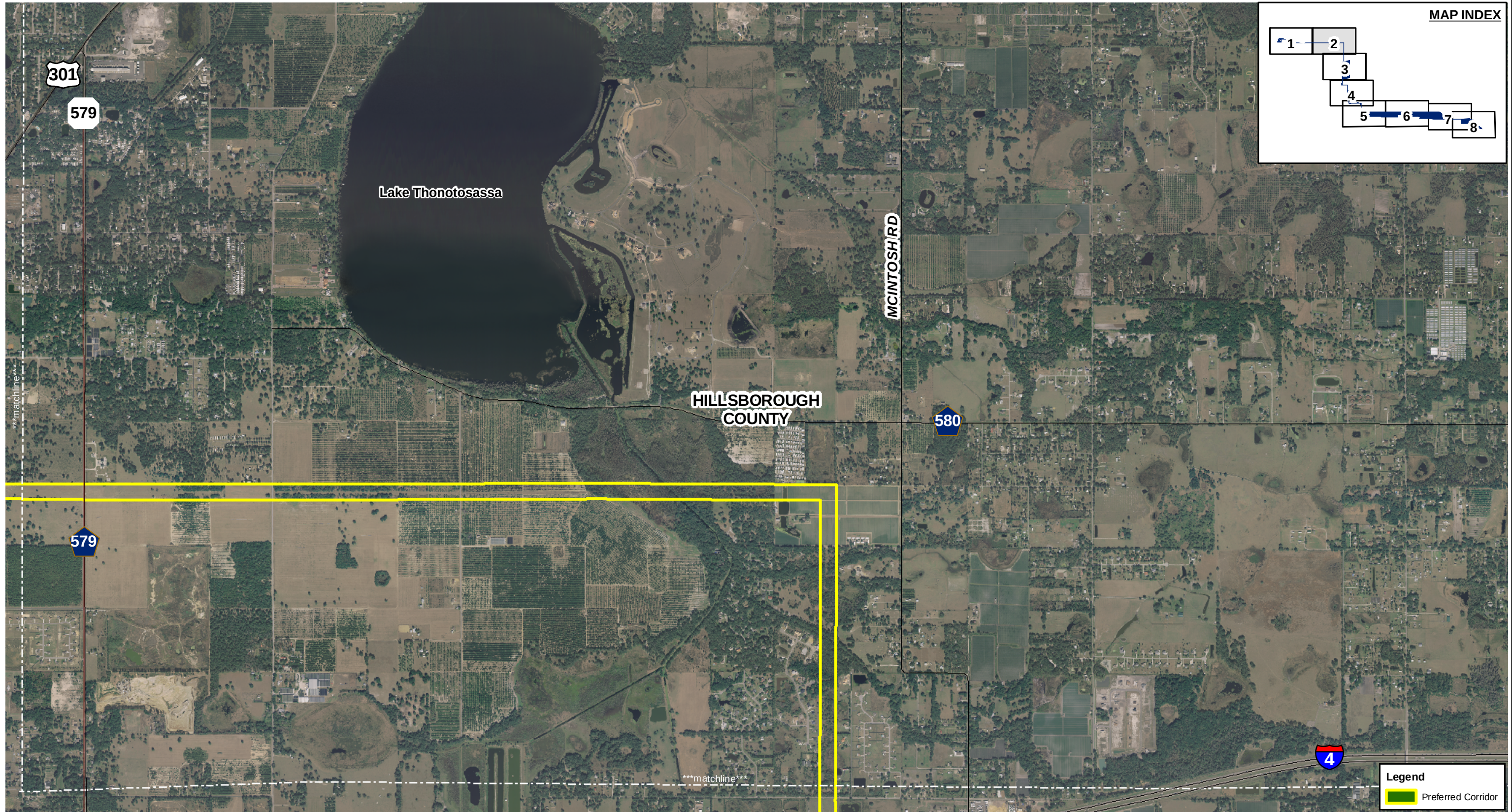


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 1 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

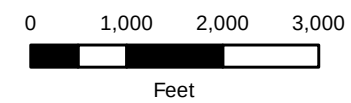


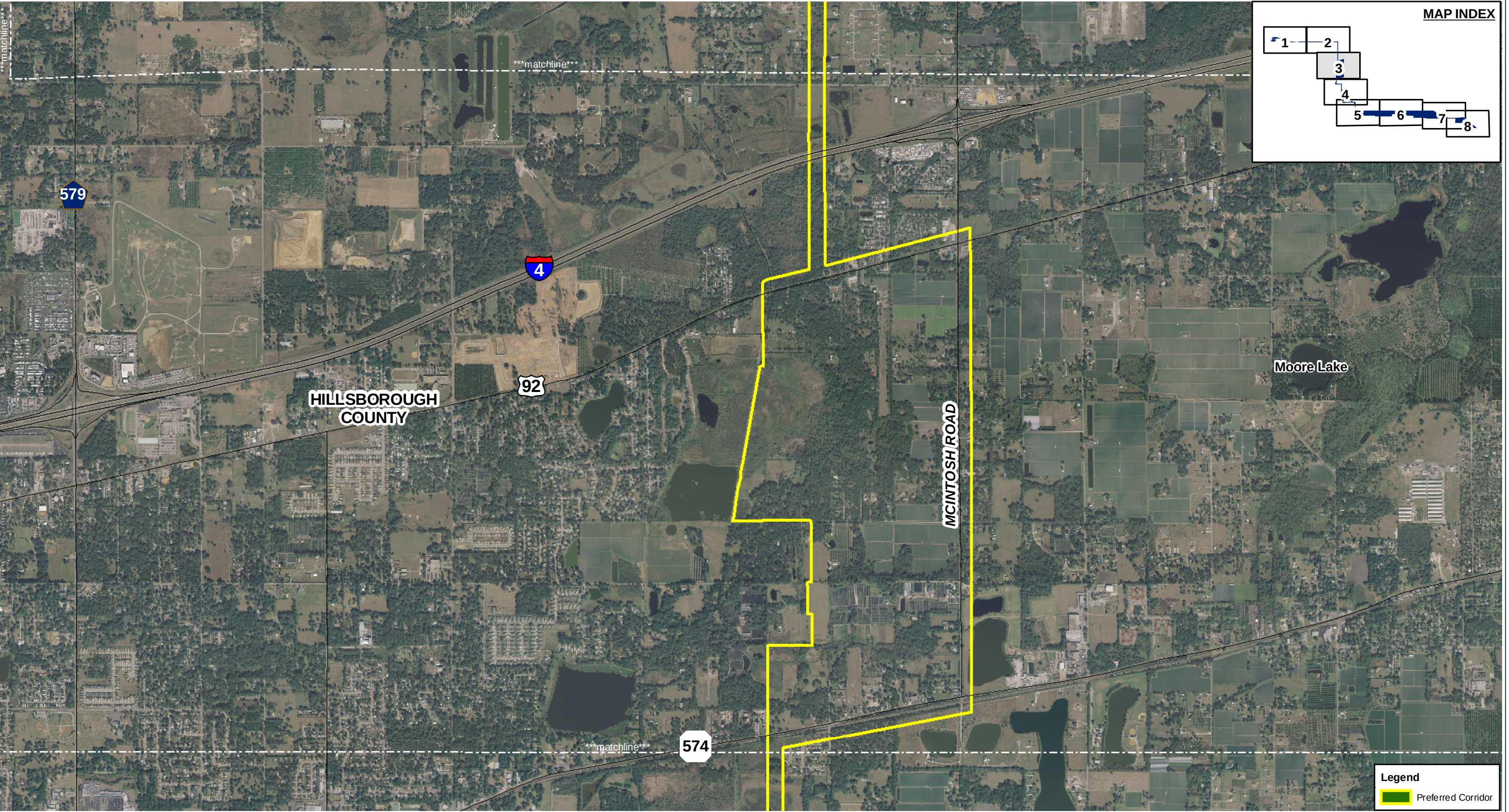


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 2 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

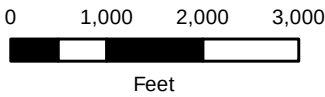


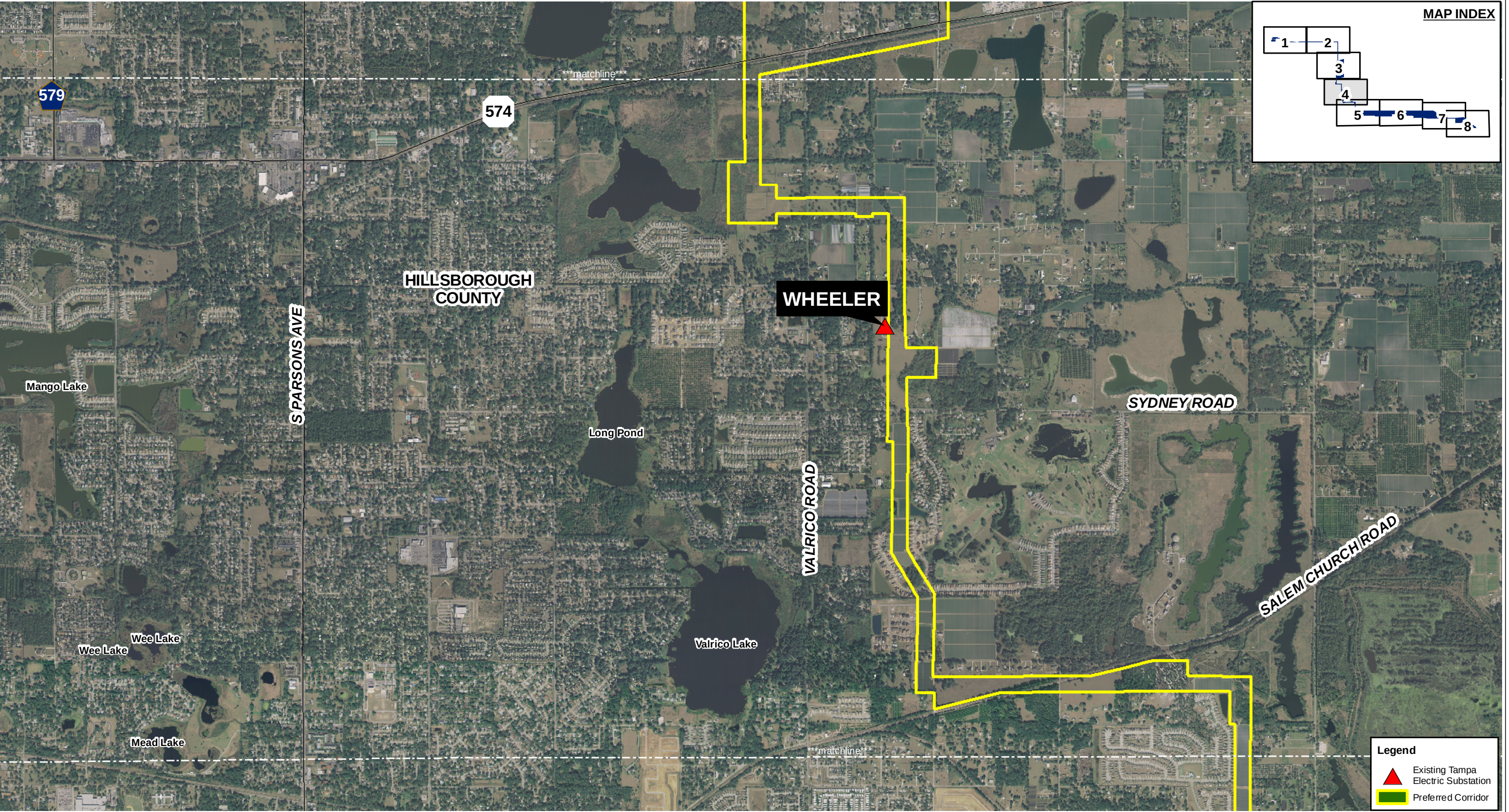


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 3 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

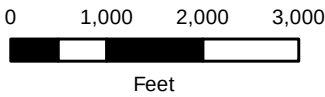


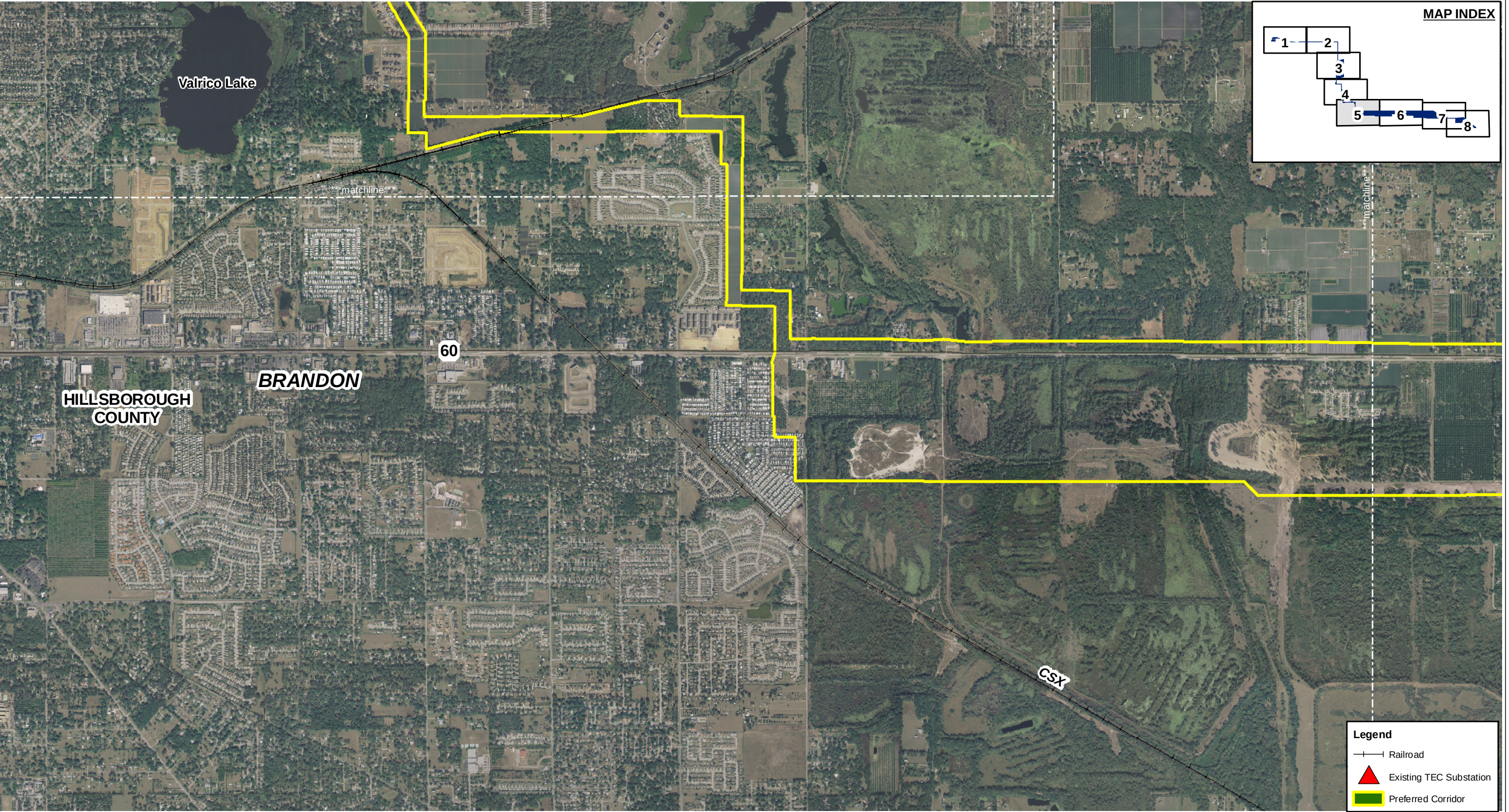


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 4 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

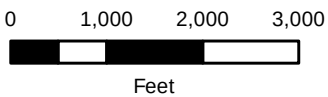


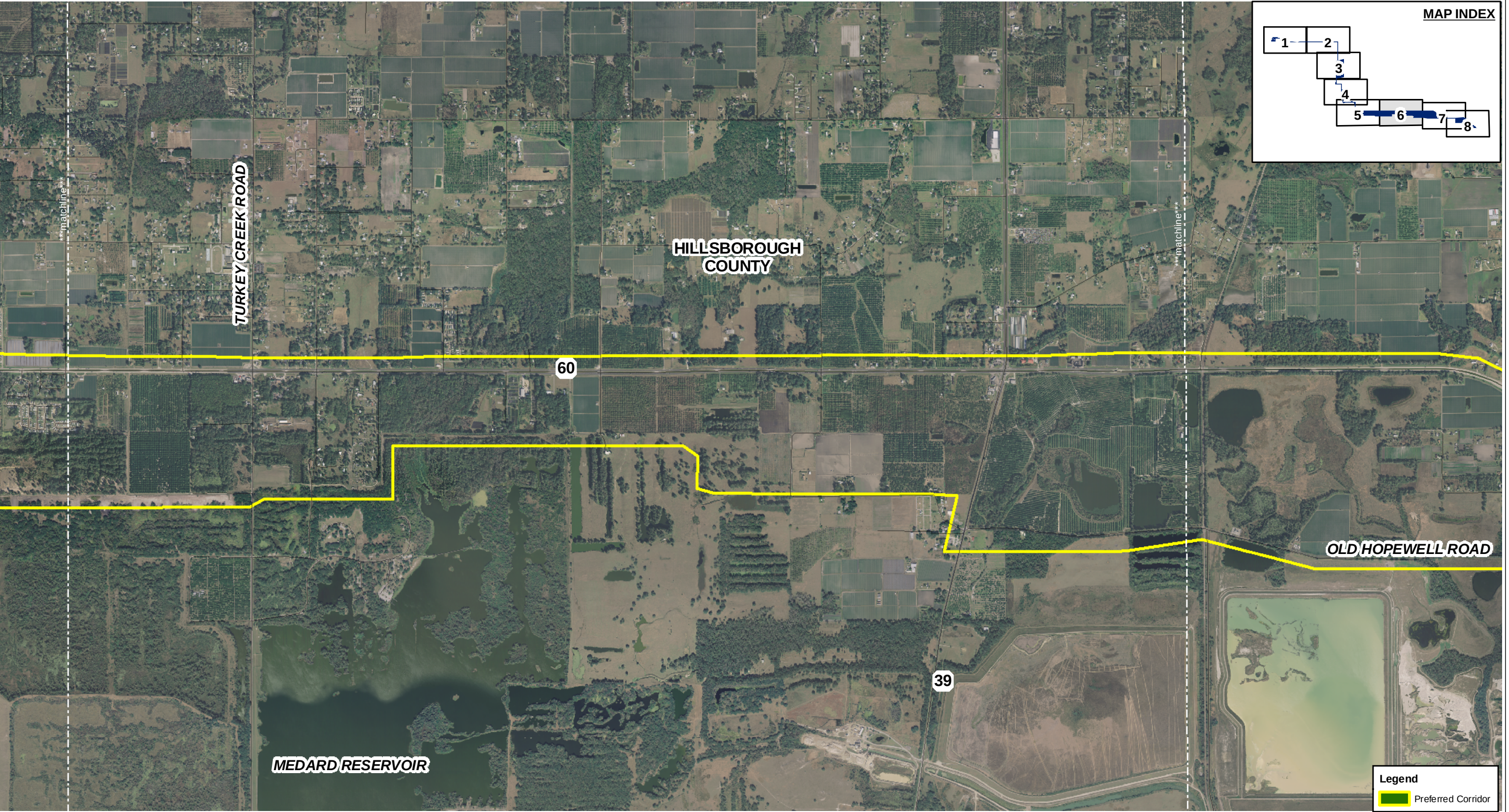


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 5 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

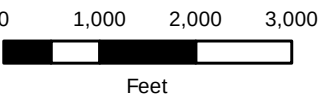


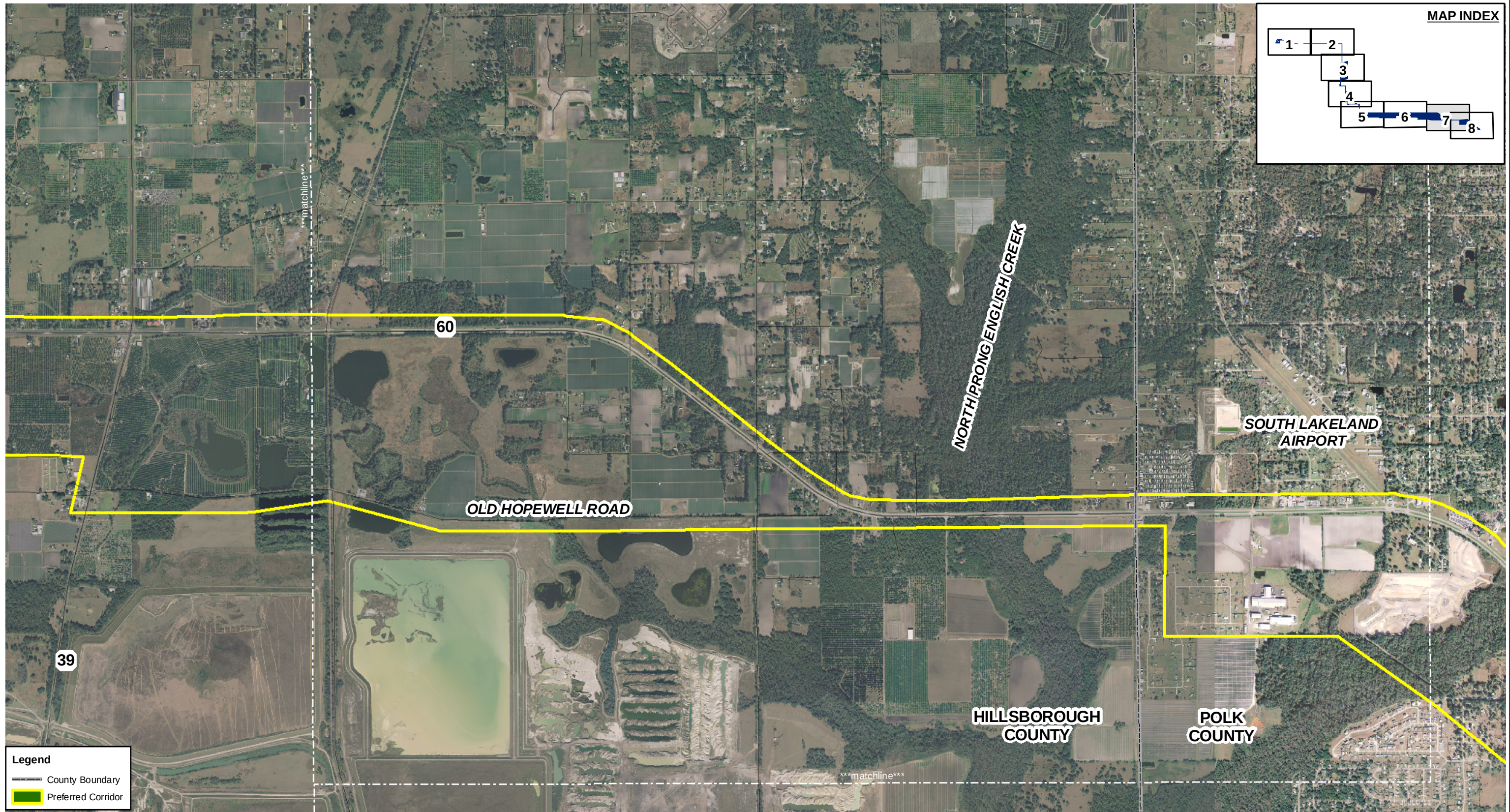


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 6 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

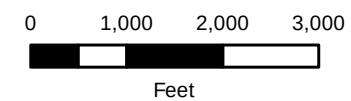




ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 7 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

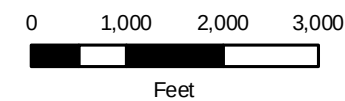


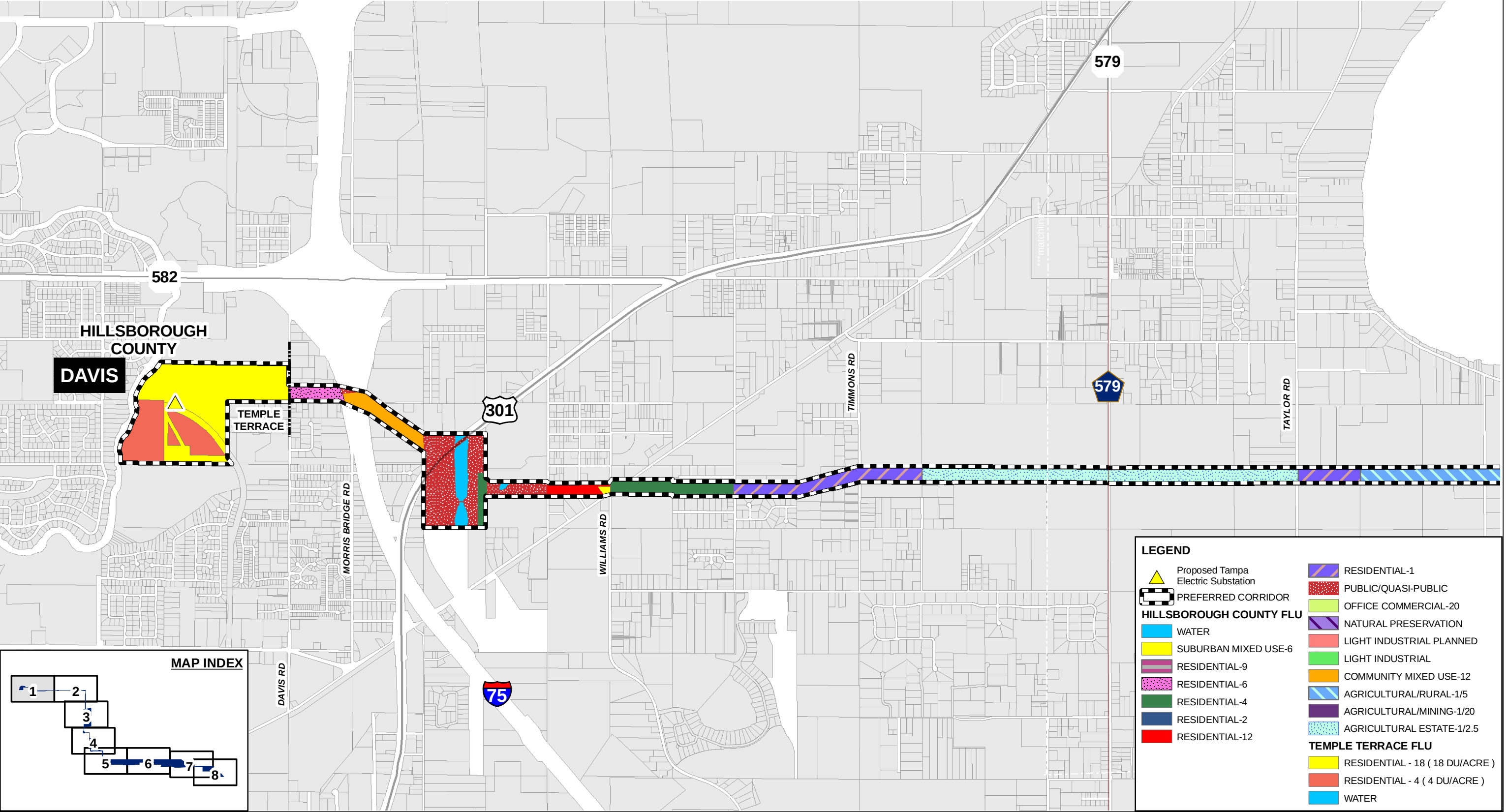


ATTACHMENT 2-1.

AERIAL PHOTOGRAPH: MAP 8 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

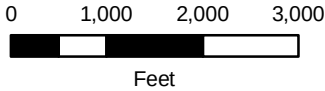


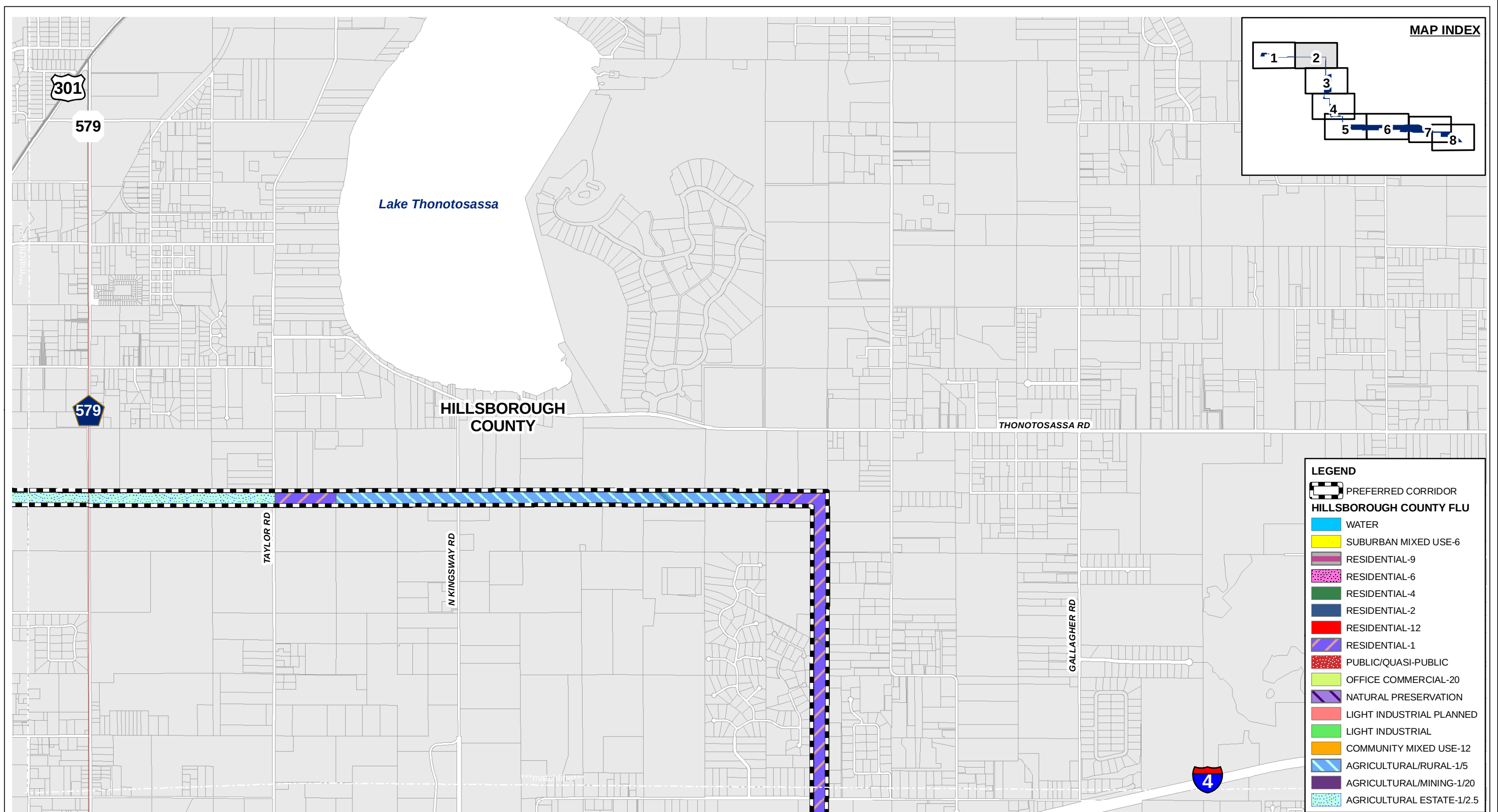


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 1 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

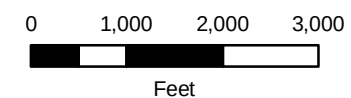


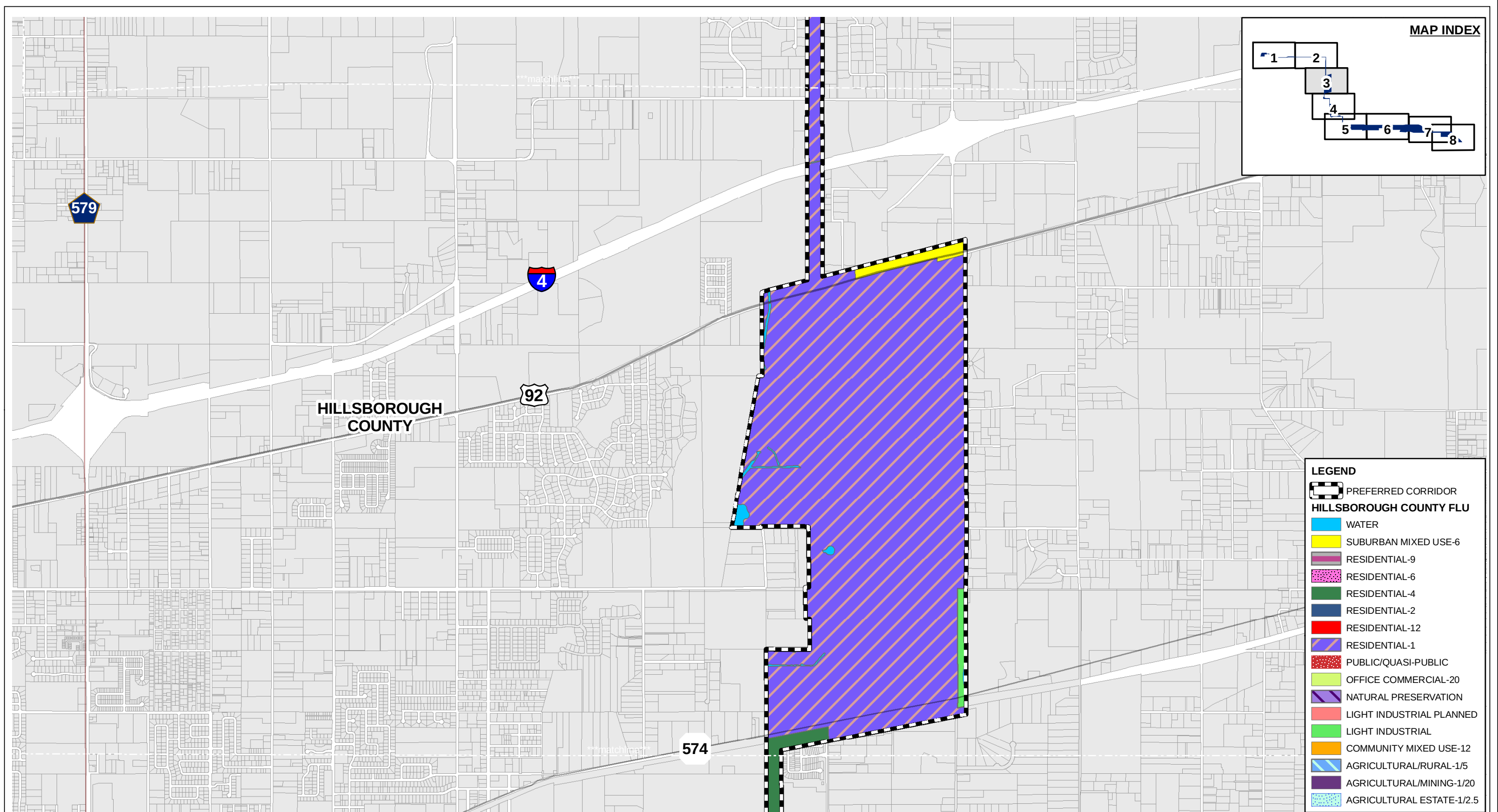


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 2 OF 8

Sources: Hillsborough County, 2005/2006; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

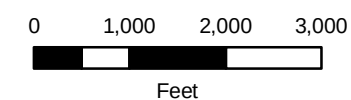


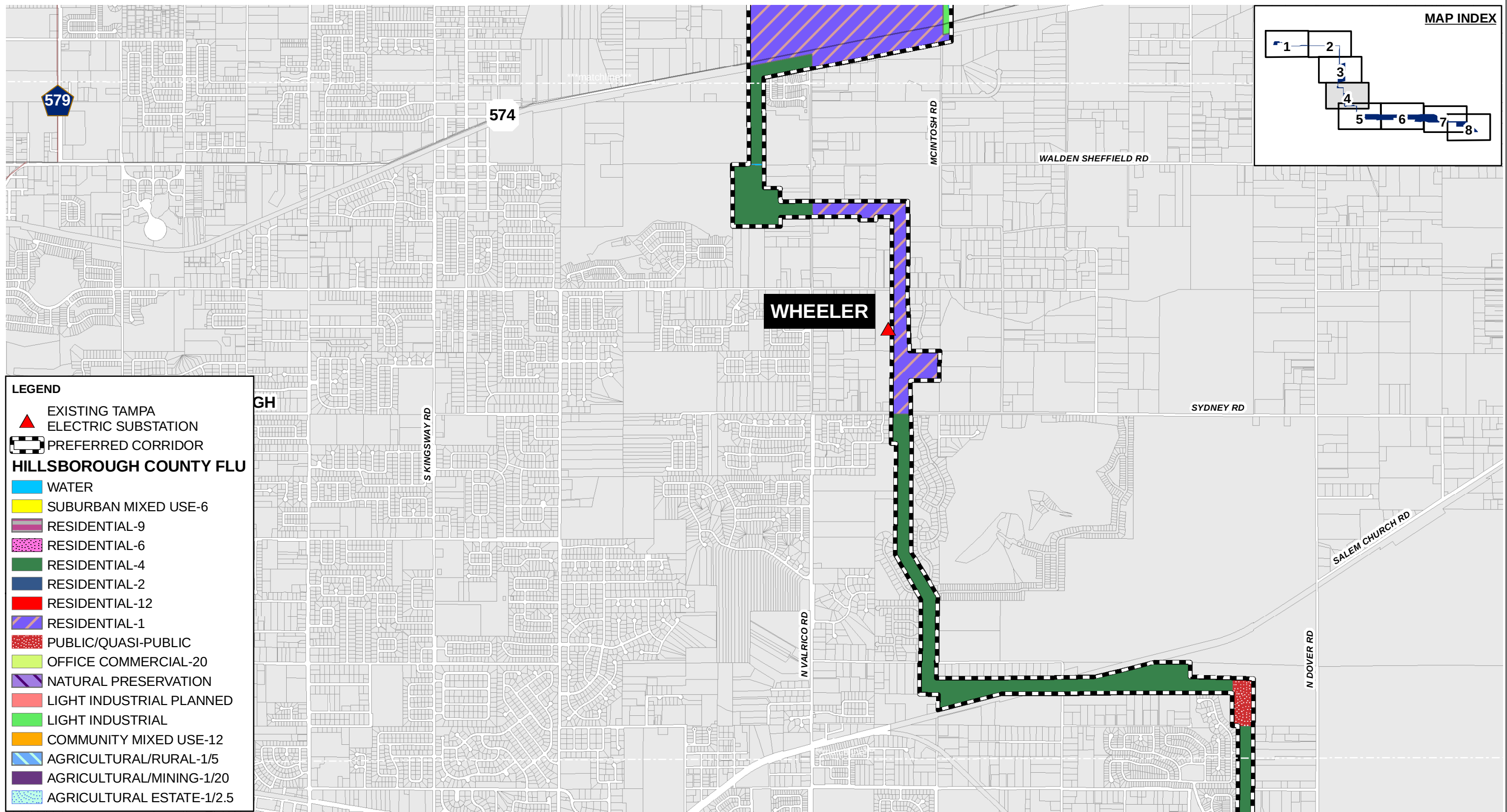


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 3 OF 8

Sources: Hillsborough County, 2005/2006; SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

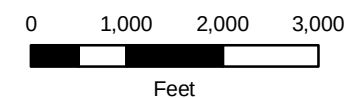


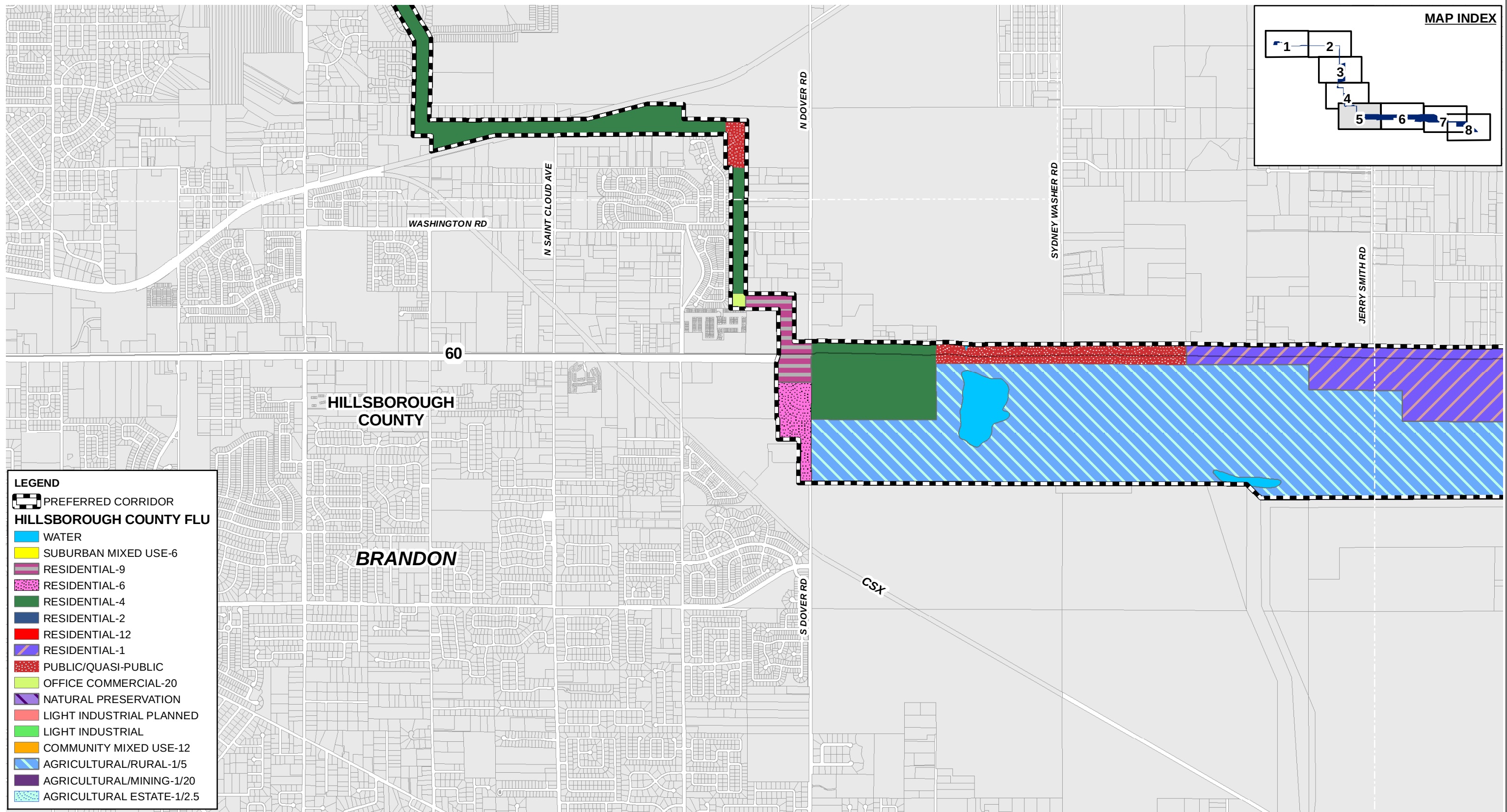


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 4 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

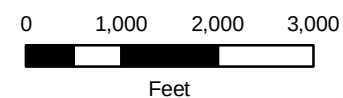


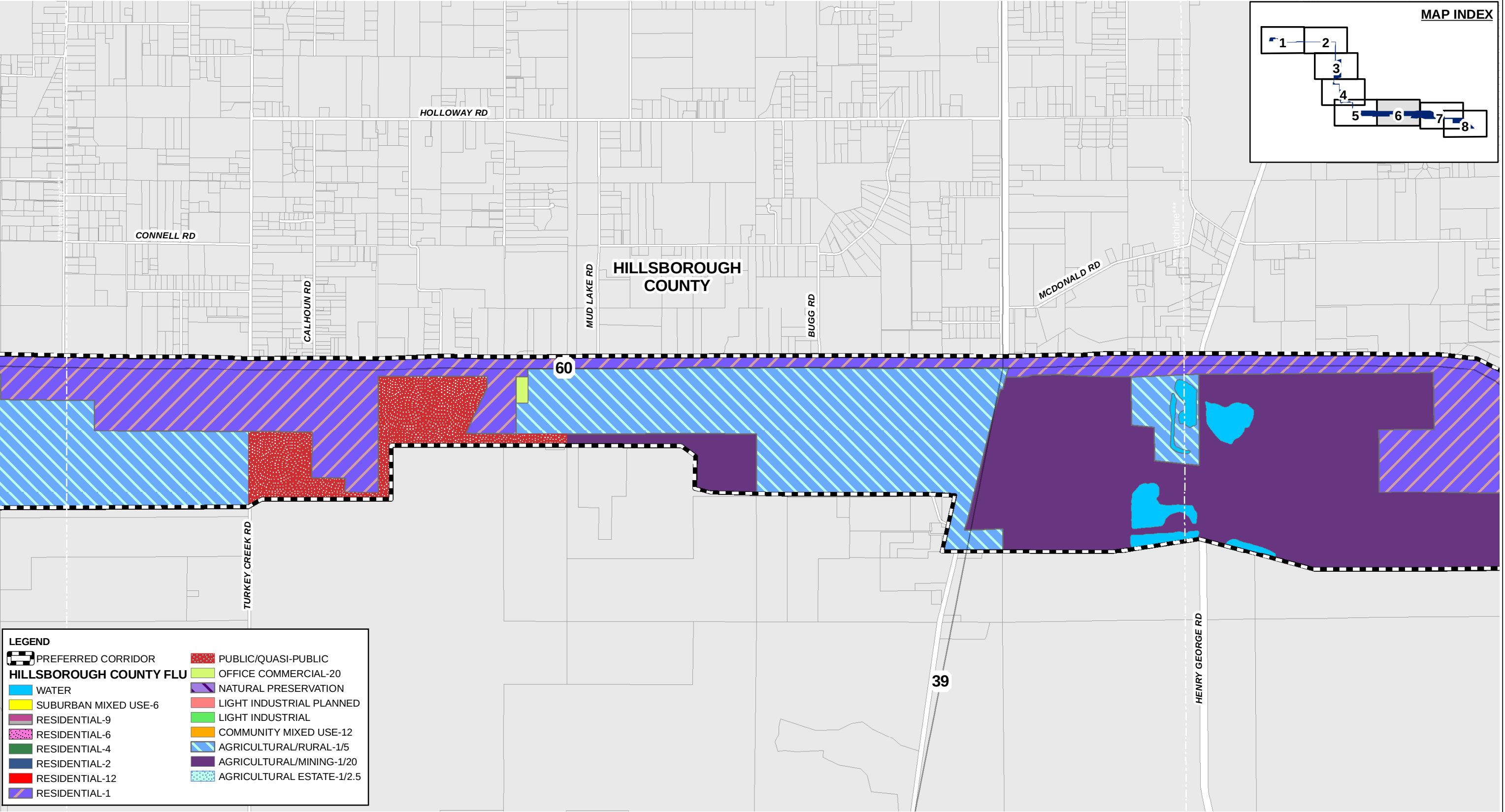


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 5 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

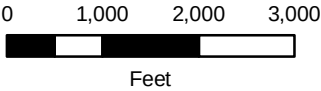




ATTACHMENT 2-2.

FUTURE LAND USE: MAP 6 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

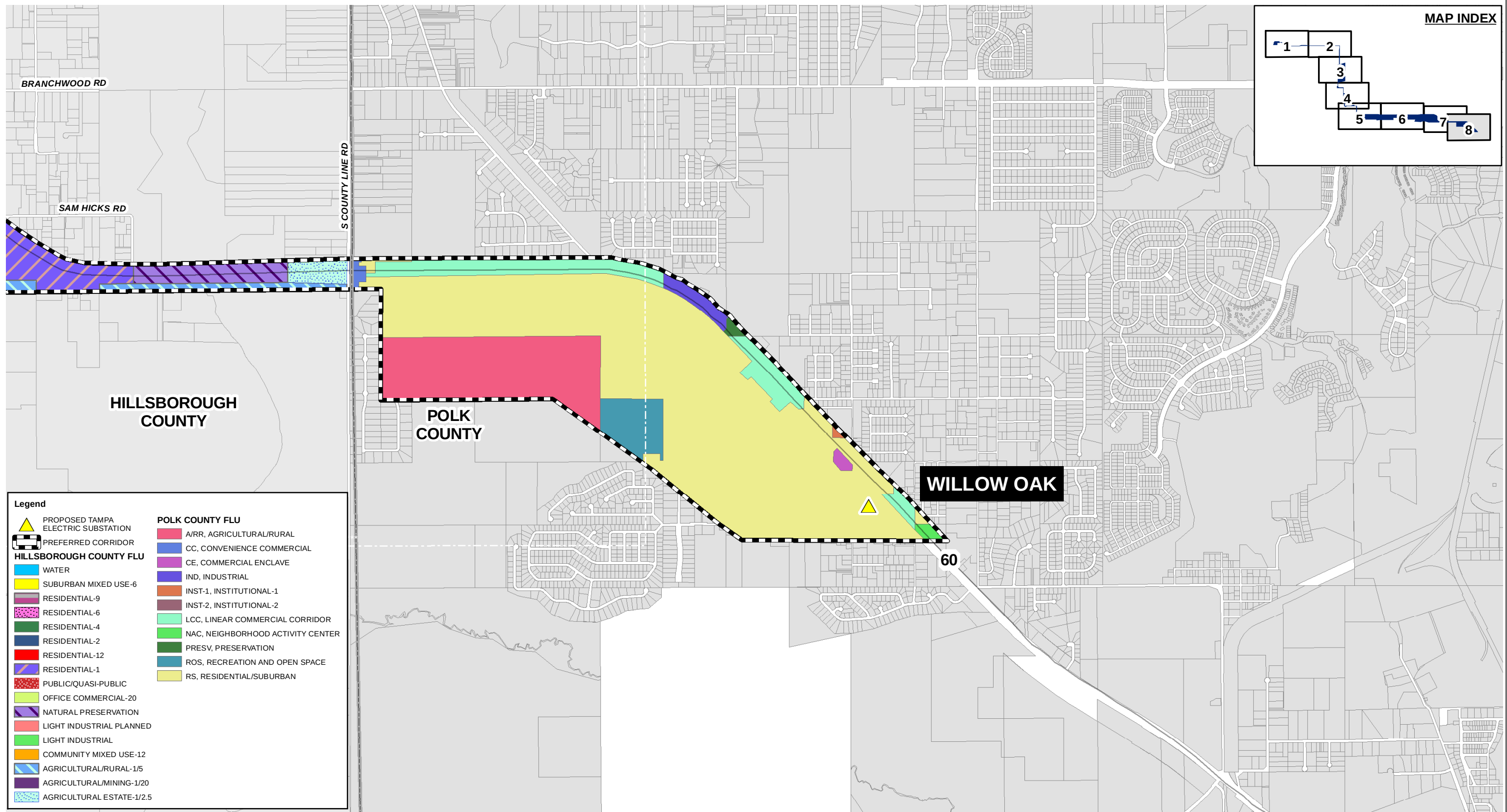




ATTACHMENT 2-2.

FUTURE LAND USE: MAP 7 OF 8

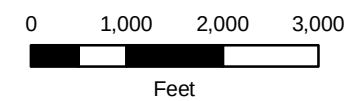
Sources: Hillsborough County, 2005/2006; Polk County, 2007; Tampa Electric, 2007; ECT, 2007.

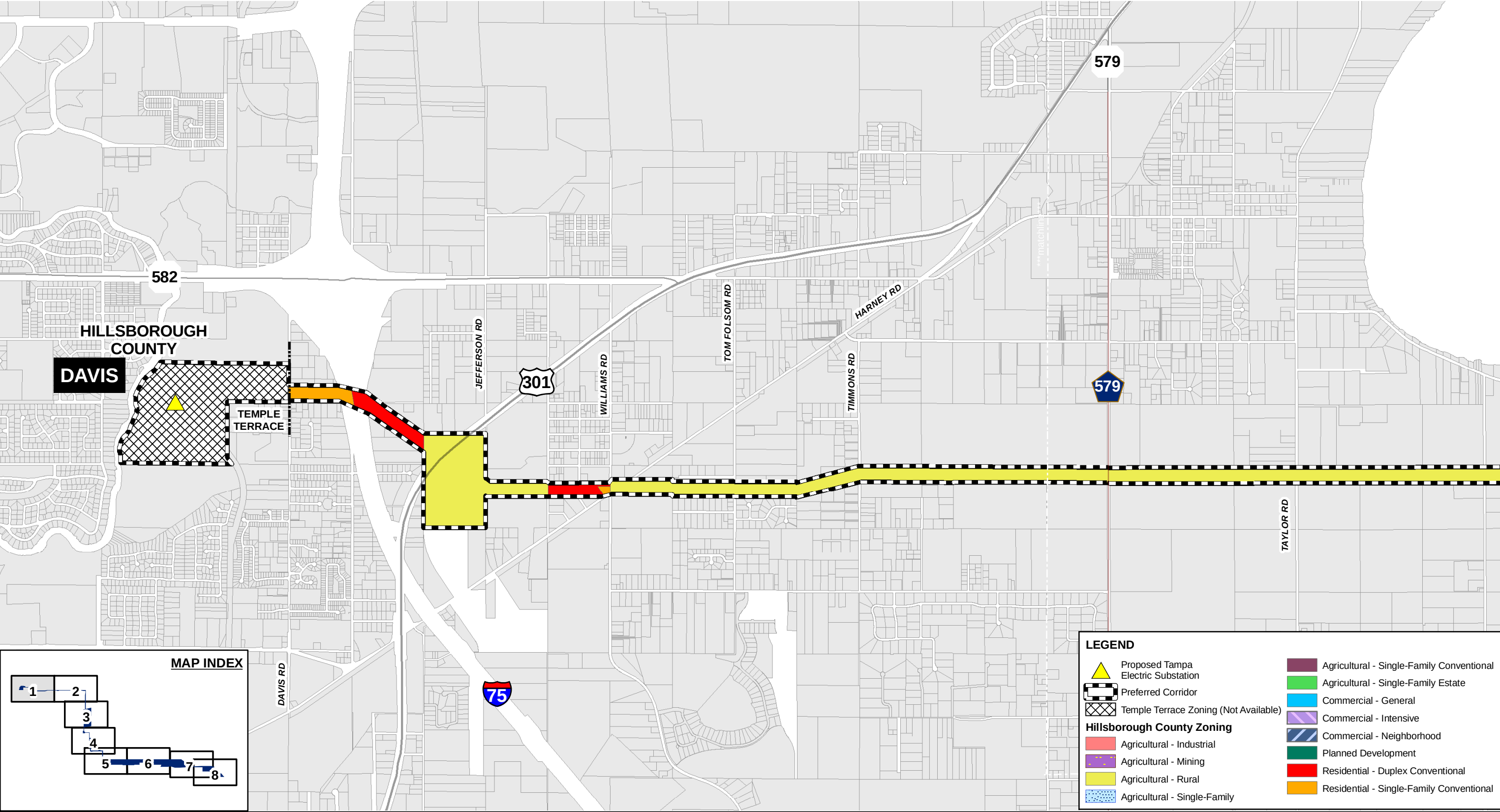


ATTACHMENT 2-2.

FUTURE LAND USE: MAP 8 OF 8

Sources: Hillsborough County, 2005/2006; Polk County, 2007; Tampa Electric, 2007; ECT, 2007.

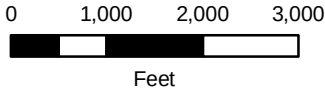


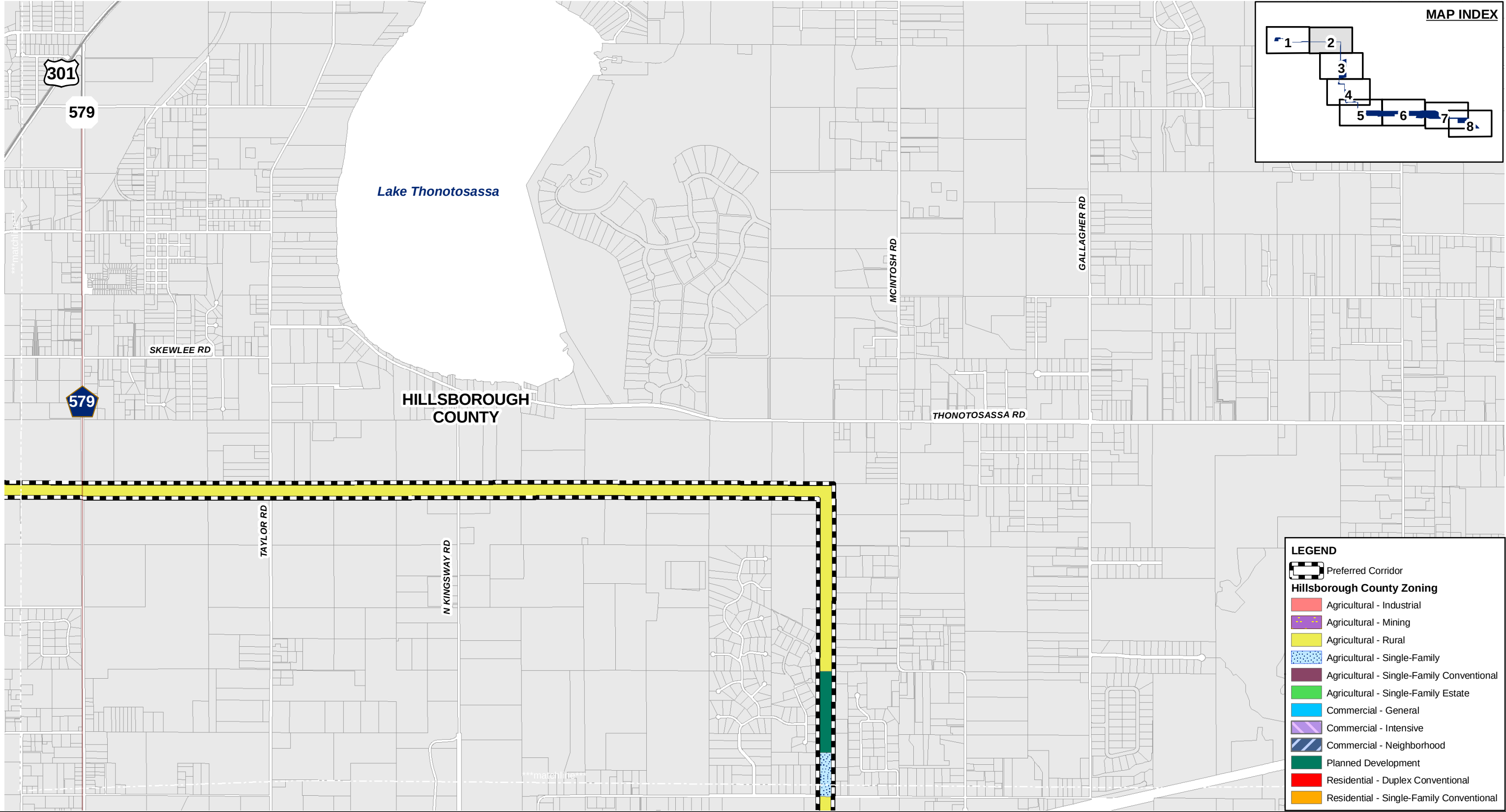


ATTACHMENT 2-3.

ZONING: MAP 1 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

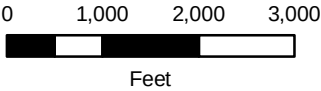


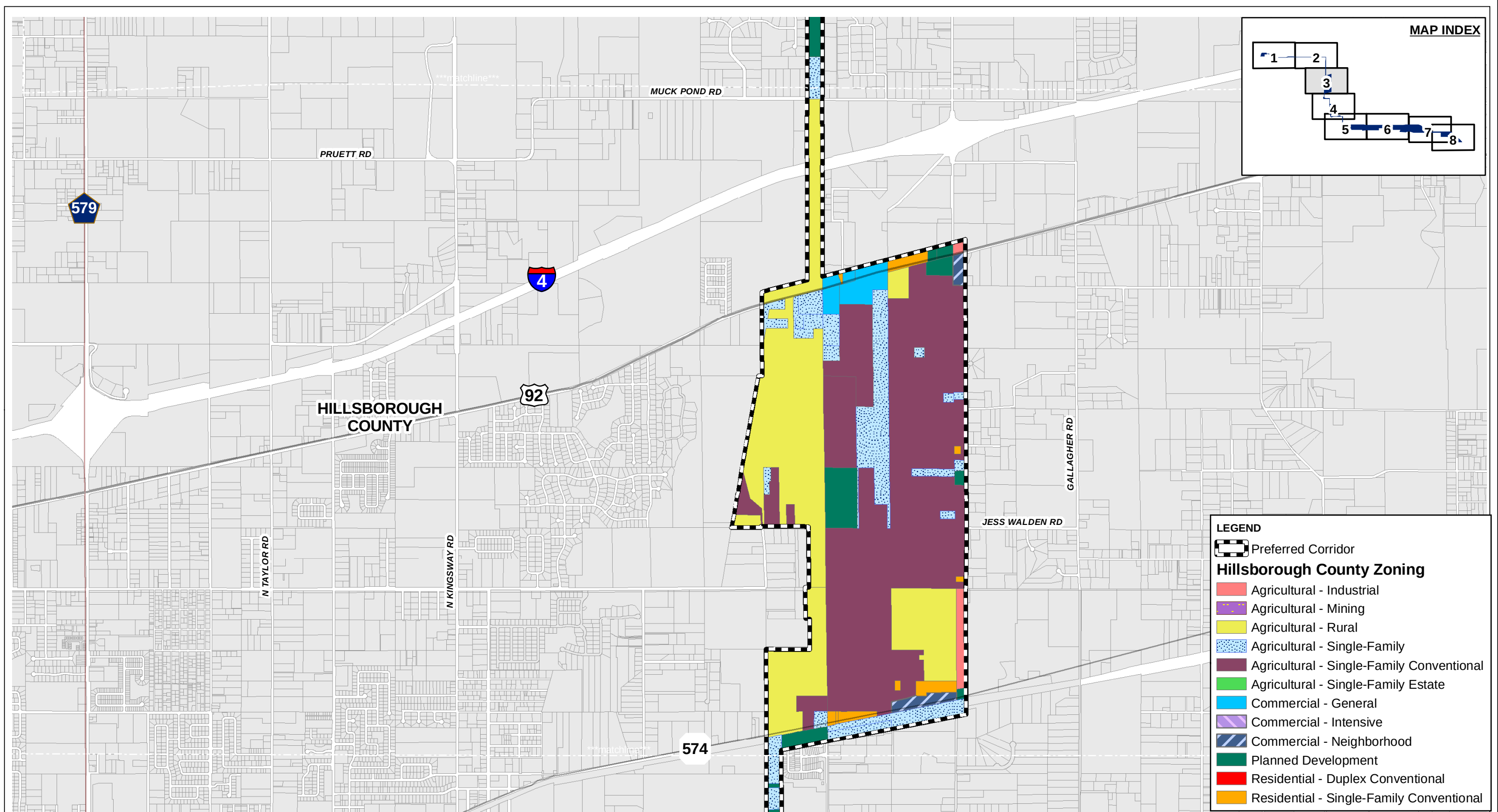


ATTACHMENT 2-3.

ZONING: MAP 2 OF 8

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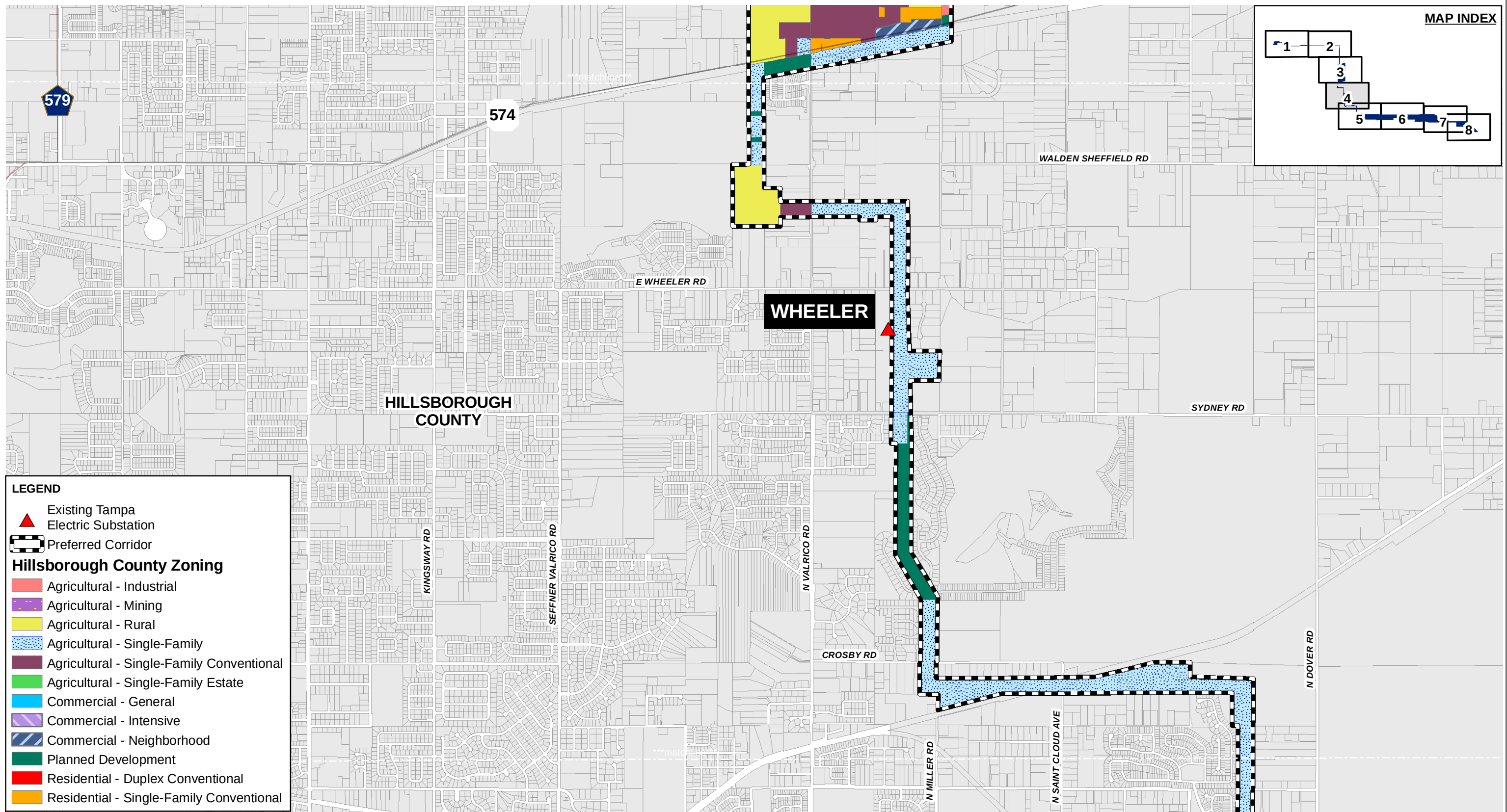




ATTACHMENT 2-3.

ZONING: MAP 3 OF 8

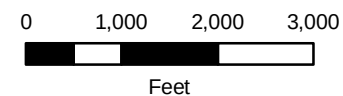
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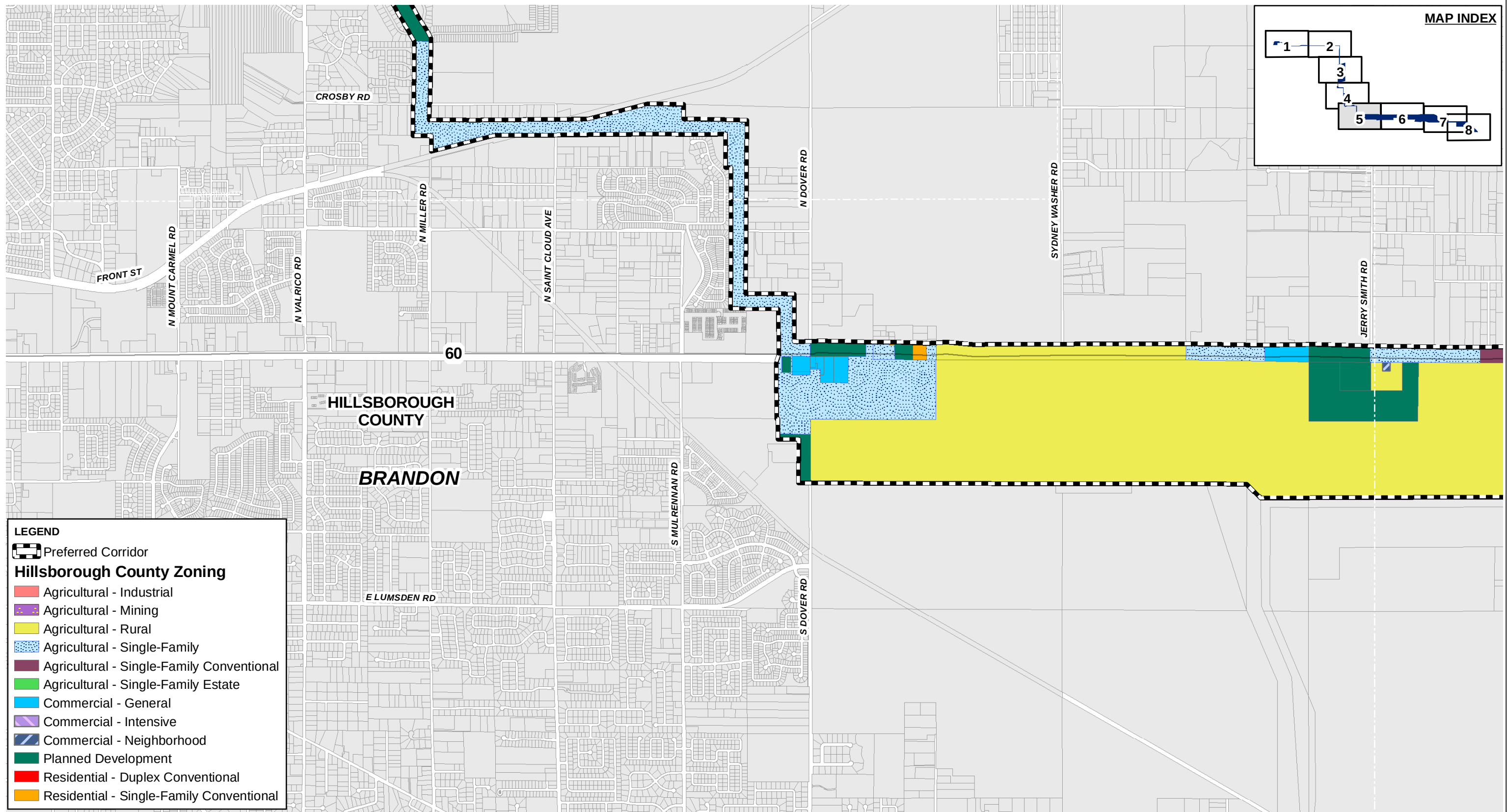


ATTACHMENT 2-3.

ZONING: MAP 4 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

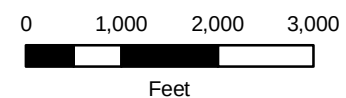


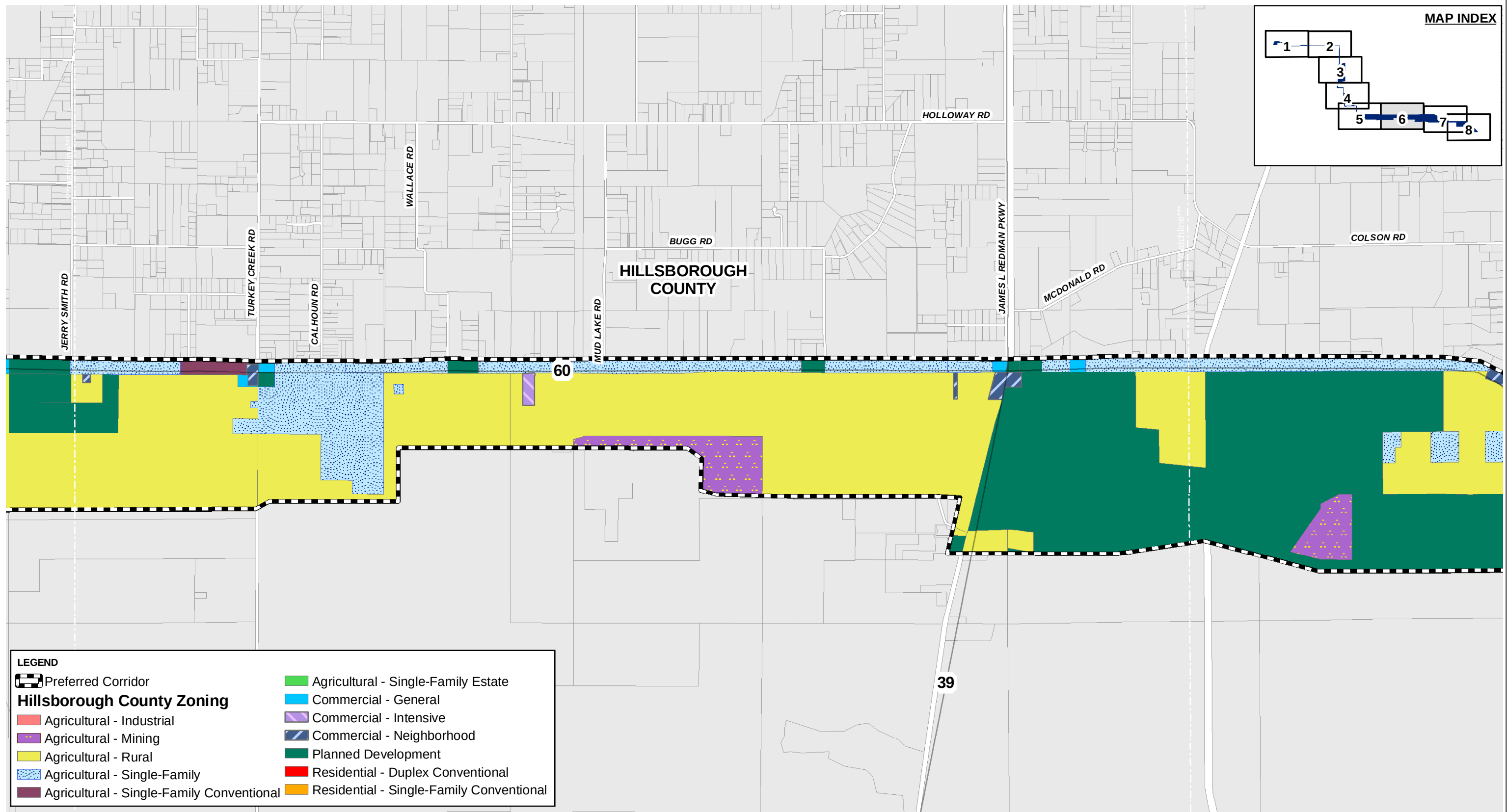


ATTACHMENT 2-3.

ZONING: MAP 5 OF 8

Sources: Hillsborough County, 2005/2006; Tampa Electric, 2007; ECT, 2007.

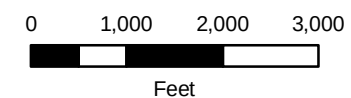


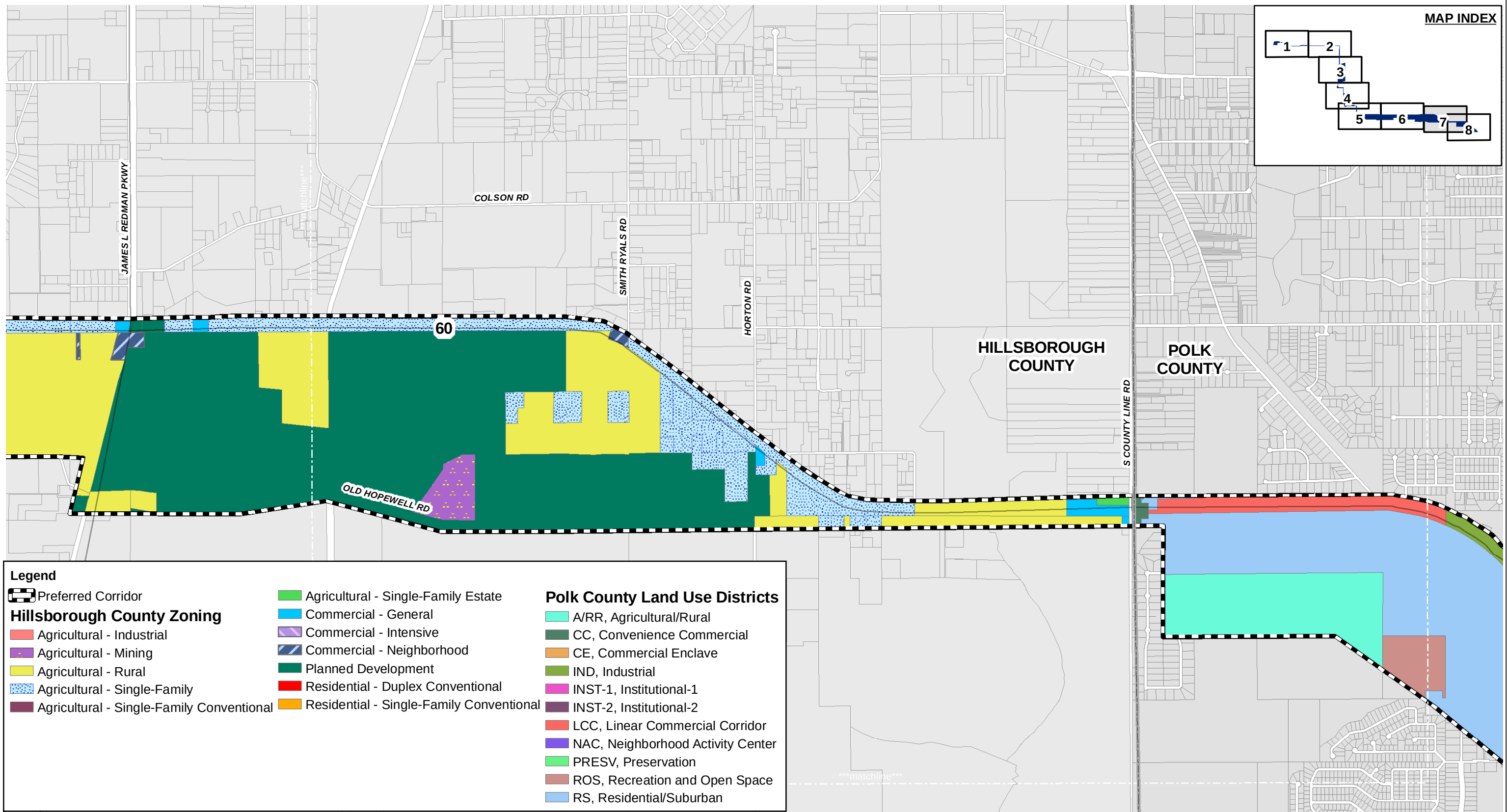


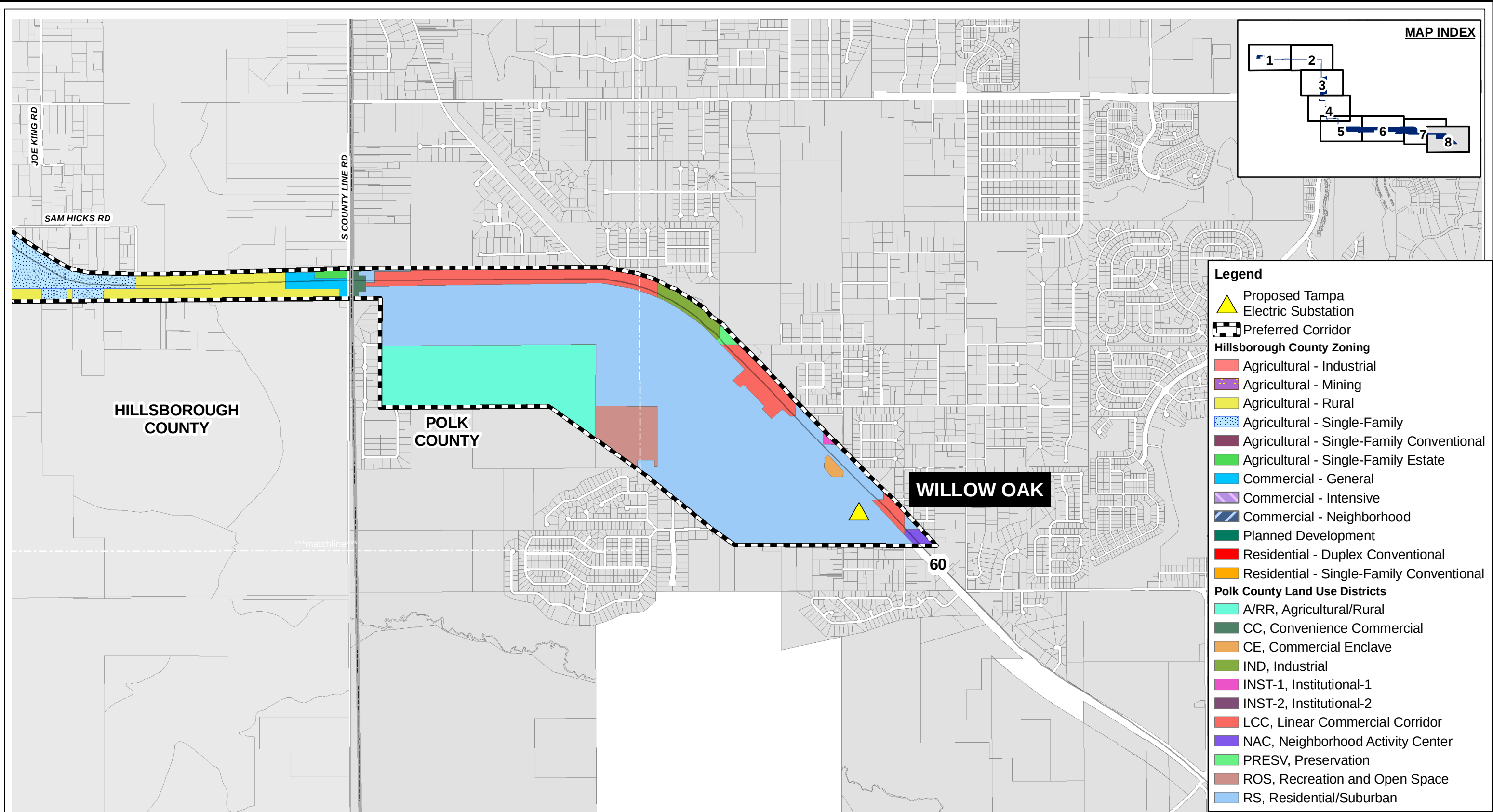
ATTACHMENT 2-3.

ZONING: MAP 6 OF 8

Sources: SWFWMD, 2006; Tampa Electric, 2007; ECT, 2007.

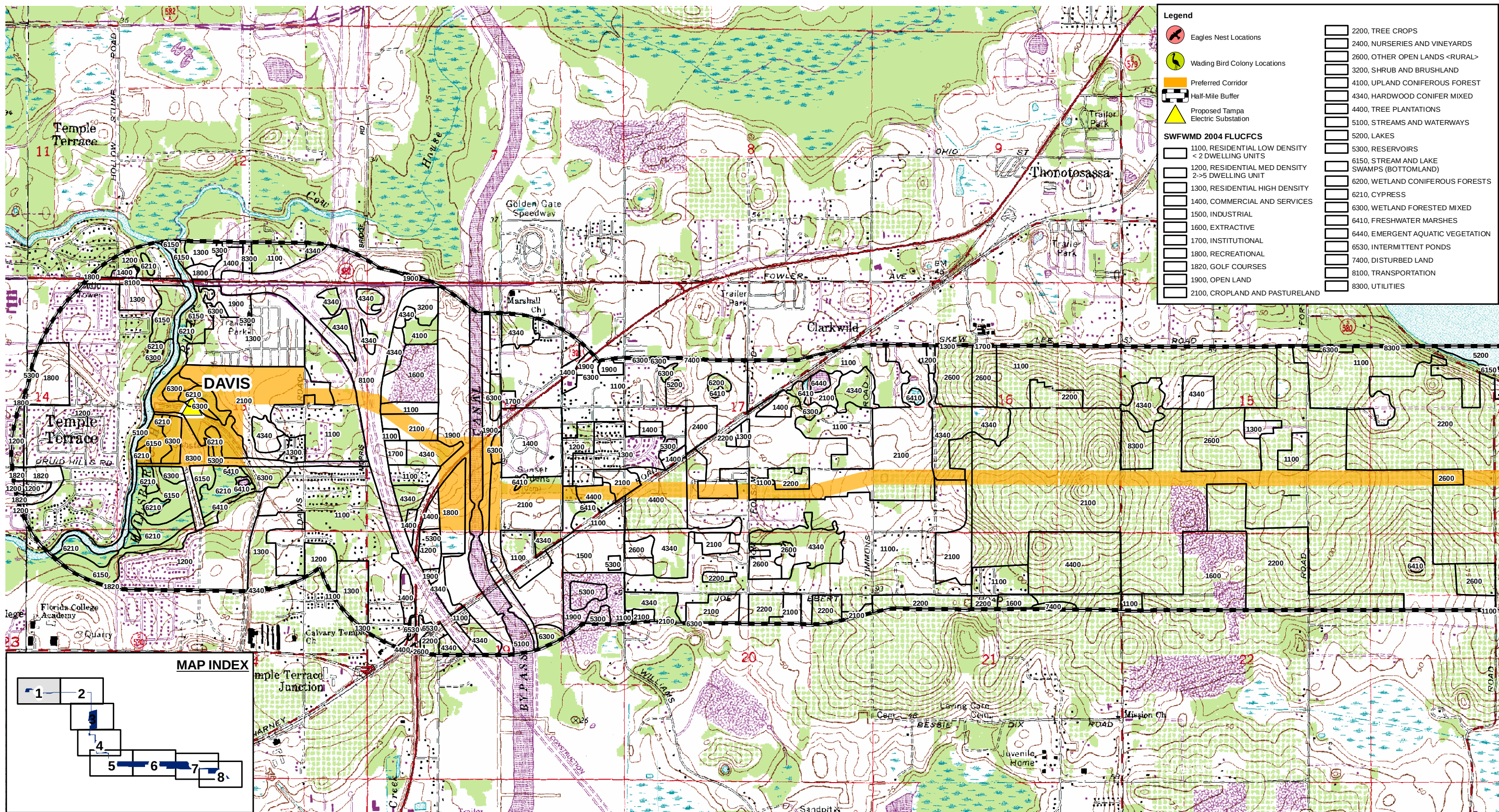






0 1,000 2,000 3,000
Feet

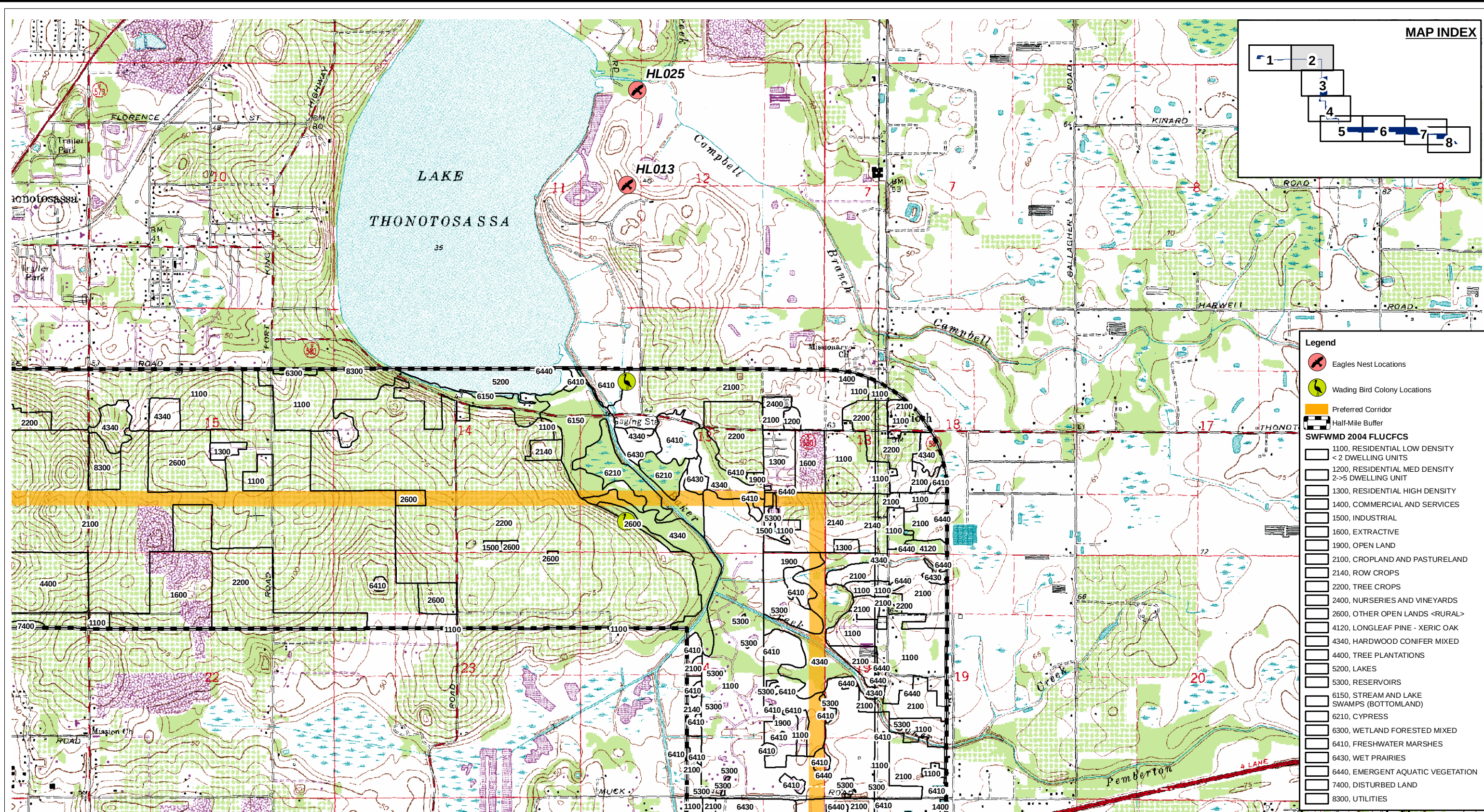




ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 1 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.



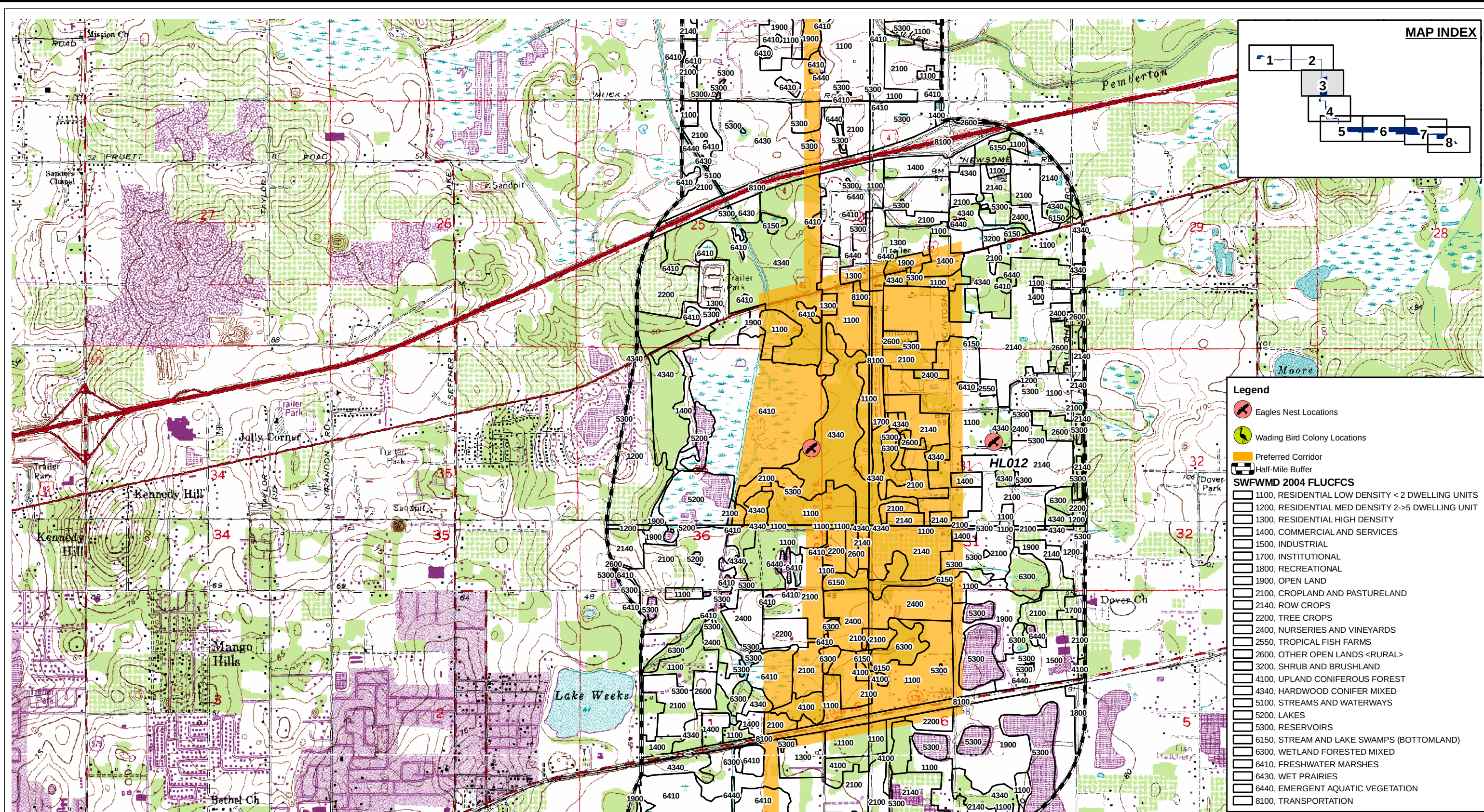
ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 2 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.

0 1,000 2,000 3,000
Feet





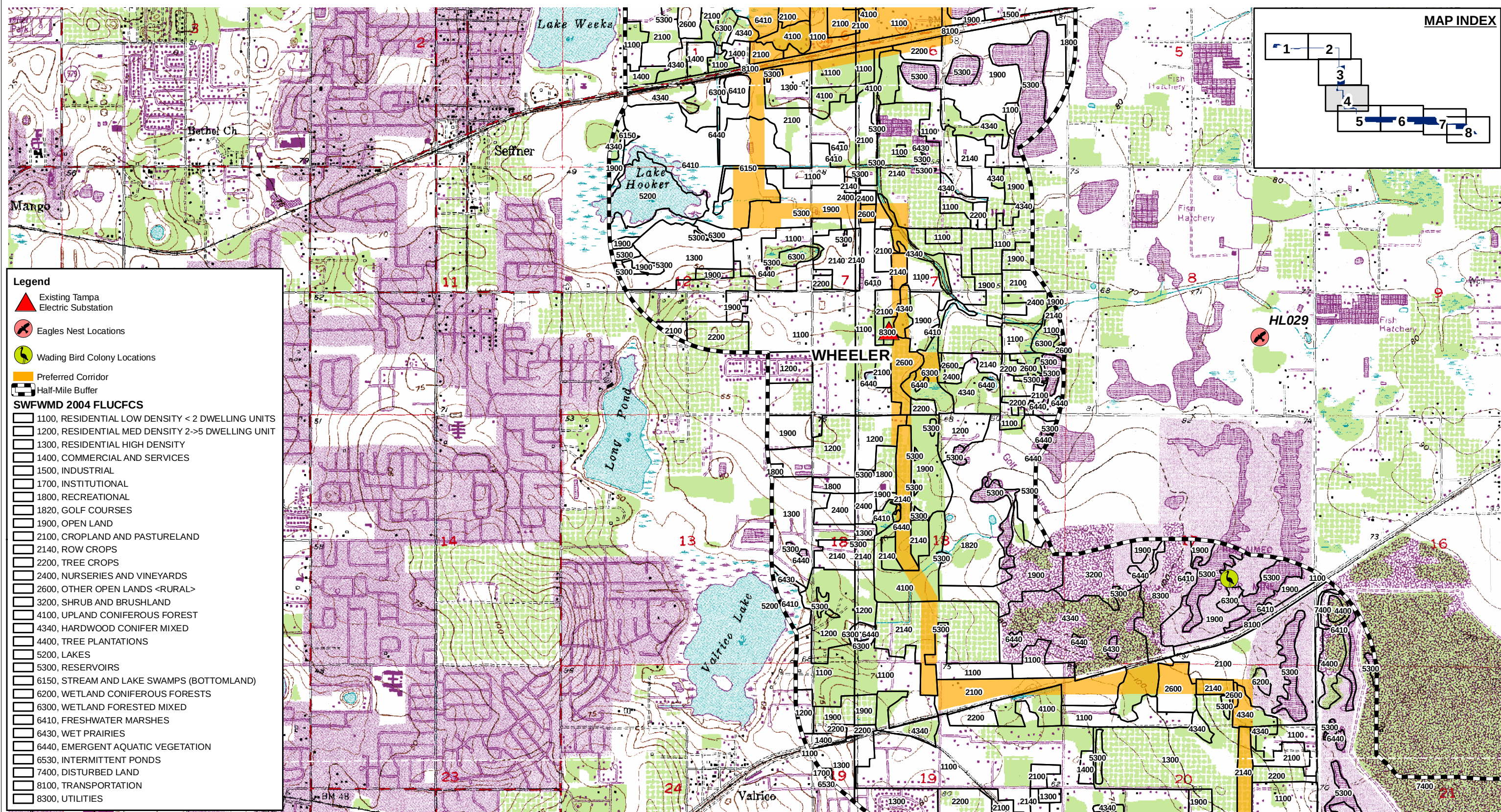
ATTACHMENT 2-4.

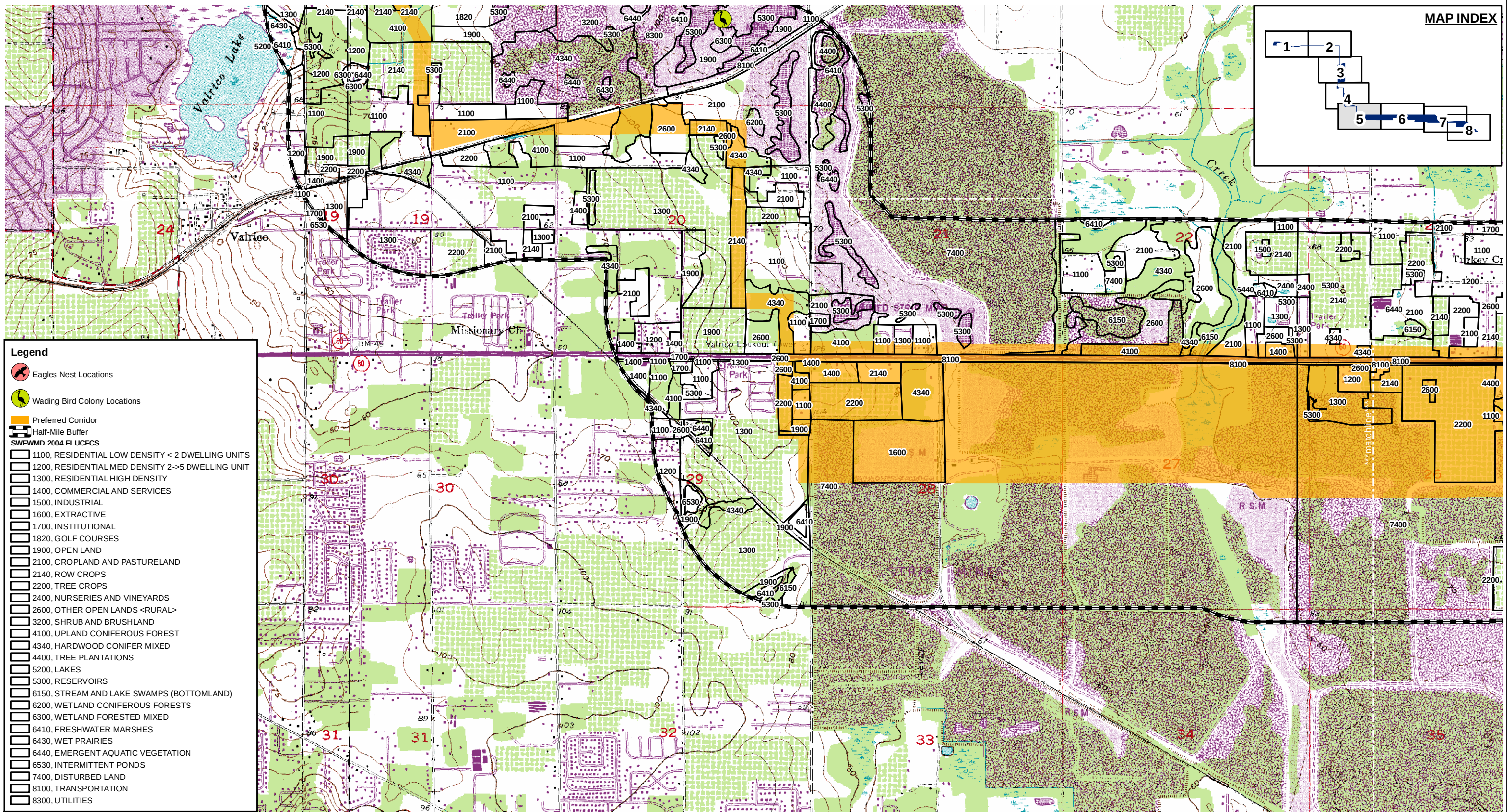
LAND USE/VEGETATION: MAP 3 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.

0 1,000 2,000 3,000
Feet







ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 5 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.

Legend

Eagles Nest Locations

Wading Bird Colony Locations

Preferred Corridor

Half-Mile Buffer

SWFWMD 2004 FLUCFCS

1100, RESIDENTIAL LOW DENSITY
< 2 DWELLING UNITS

1200, RESIDENTIAL MED DENSITY
2->5 DWELLING UNIT

1300, RESIDENTIAL HIGH DENSITY

1400, COMMERCIAL AND SERVICES

1500, INDUSTRIAL

1600, EXTRACTIVE

1700, INSTITUTIONAL

1800, RECREATIONAL

2100, CROPLAND AND PASTURELAND

2140, ROW CROPS

2200, TREE CROPS

2300, FEEDING OPERATIONS

2400, NURSERIES AND VINEYARDS

2600, OTHER OPEN LANDS <RURAL>

3100, HERBACEOUS

3200, SHRUB AND BRUSHLAND

4340, HARDWOOD CONIFER MIXED

4400, TREE PLANTATIONS

5200, LAKES

5300, RESERVOIRS

6150, STREAM AND LAKE
SWAMPS (BOTTOMLAND)

6300, WETLAND FORESTED MIXED

6410, FRESHWATER MARSHES

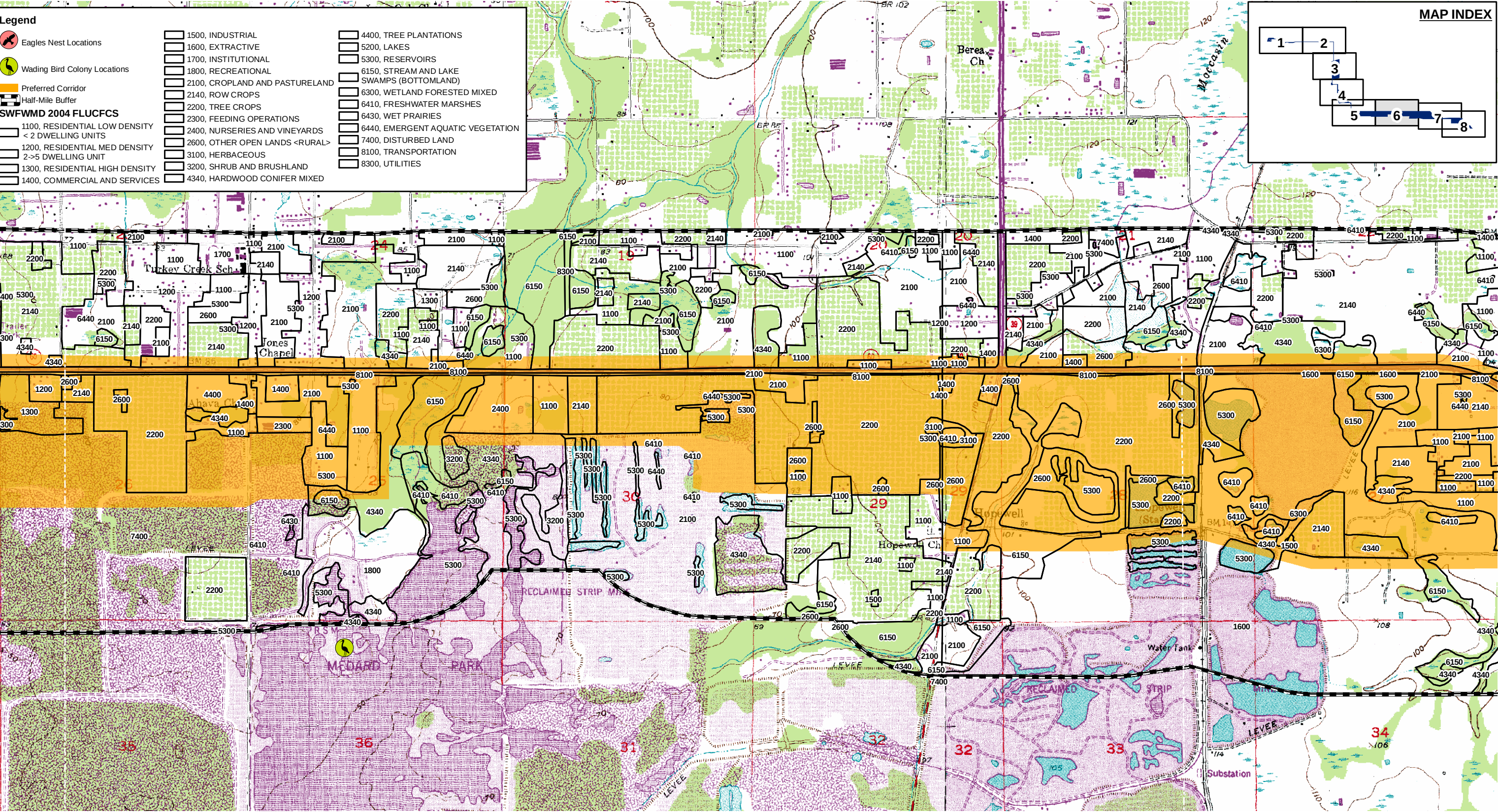
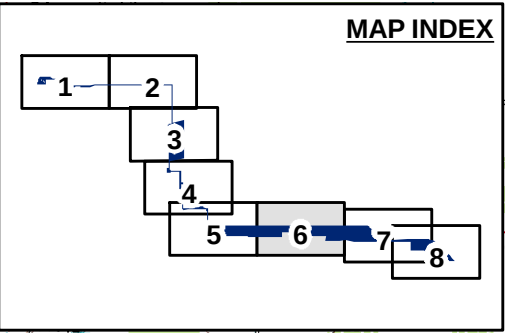
6430, WET PRAIRIES

6440, EMERGENT AQUATIC VEGETATION

7400, DISTURBED LAND

8100, TRANSPORTATION

8300, UTILITIES



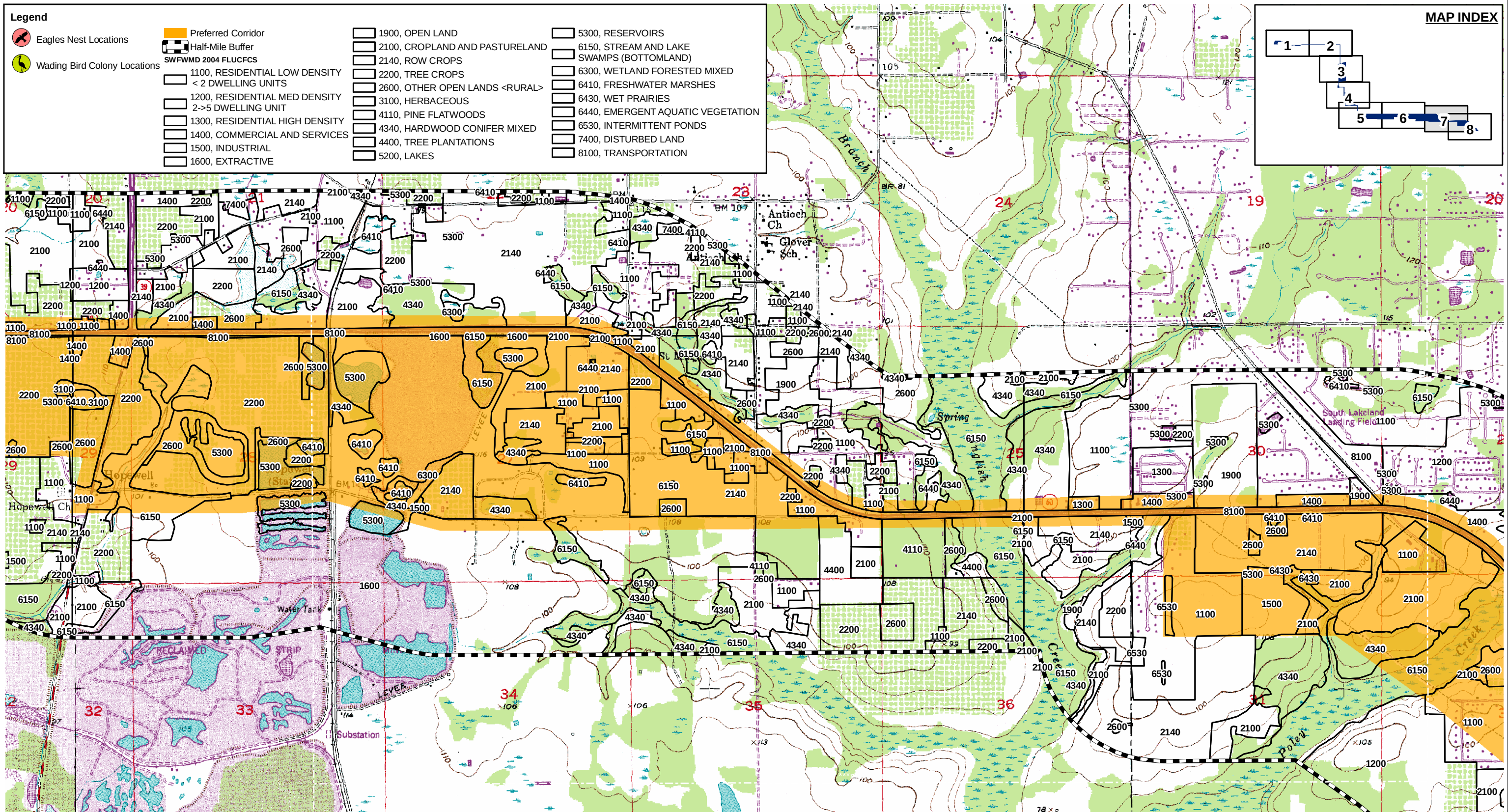
ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 6 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.

0 1,000 2,000 3,000

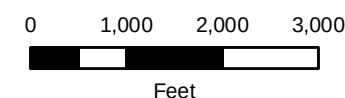
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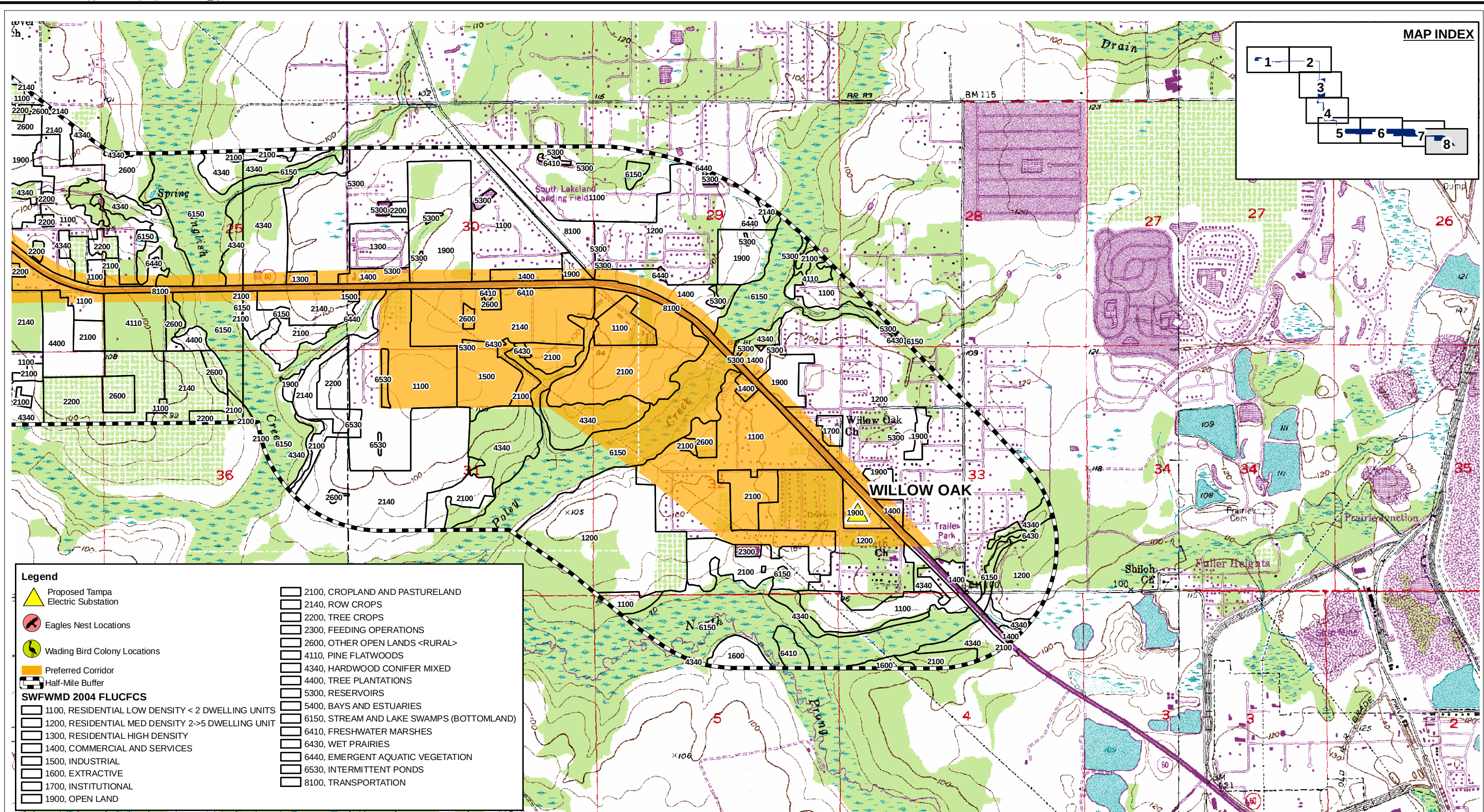


ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 7 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.





ATTACHMENT 2-4.

LAND USE/VEGETATION: MAP 8 OF 8

Sources: SWFWMD, 2004/2006; Tampa Electric, 2007; ECT, 2007.

CHAPTER 3.0

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

3.1 CONSTRUCTION TECHNIQUES

Construction phases will consist of right-of-way clearing, access road construction (where necessary), line construction, and right-of-way restoration. Construction phases generally will be performed sequentially along the right-of-way such that activities in any one area will be short term.

3.1.1 RIGHT-OF-WAY CLEARING AND ROAD CONSTRUCTION

It is anticipated that heavy right-of-way clearing will be required for portions of this transmission line due to the location of some of the preferred corridor along previously established but unused right-of-way. Other areas already adjacent to other linear facilities, such as road rights-of-way, will require minimal clearing. Where clearing is required, it will generally occur in the entire easement area, which is typically expected to be from 25 to 100 ft wide. An additional minimal amount of clearing/mowing may be required for installation of anchors for guyed structures and removal of danger timber outside the right-of-way that poses a risk of falling into the transmission line conductors.

The machinery used for clearing will depend on the density of trees to be cut and the restrictions on clearing in wetlands. Typical equipment will include bulldozers, shearing machinery, specialized mowing equipment, as well as chainsaws. Vegetative clearing in wetlands will use low ground pressure equipment, as appropriate.

Tampa Electric will ensure the construction of the Project will have minimal impacts to water resources and wetlands, both individually and cumulatively. Where there is a potential for erosion, turbidity screens and other erosion control devices and techniques will be used to minimize construction impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

3.1.2 LINE CONSTRUCTION

To install the transmission line structures, a digger truck will auger a hole approximately 25 to 35 ft deep, and the single steel poles will be embedded directly into the hole and backfilled with crushed rock or pumped concrete. Taller poles, site-specific geography, or poor subsurface conditions may require additional setting depths. Tampa Electric will frame and erect the structures using cranes and other support vehicles. Once the structures are set, wire-pulling equipment will be used to install the conductors and overhead shield wire. Support ground vehicles may include bulldozers, trailers, and heavy and light trucks.

3.1.3 EROSION

Construction will be performed to minimize disturbance to natural ground cover. Construction mats and low-pressure rubber-tired or nontracked vehicles may be used where appropriate in wetlands, which will minimize the potential for erosion. Tampa Electric will use turbidity screens and erosion control devices, where there is erosion potential, to minimize impacts to wetlands and water bodies and ensure that state water quality standards for turbidity are met.

During construction, low-lying vegetation (shrubs, grasses, ferns, etc.) will be allowed to remain where feasible. Past experience shows that disturbed ground cover reestablishes itself quickly, which reduces the erosion potential. The impacts of land clearing will be reduced in forested wetlands by leaving the root mat of most trees in place to minimize potential for erosion and impacts to water quality. Again, Tampa Electric's decision to locate the preferred corridor along other existing linear rights-of-way and farm fields for much of the Project will minimize the amount of new clearing required and, therefore, potential erosion during transmission line construction.

3.2 IMPACT ON WATER BODIES AND USES

A new transmission line of this length will cross some wetland areas. Wetlands in the study area were avoided and potential impacts minimized by the route selection methodology. Many of the wetlands within the preferred corridor have been previously impacted by exist-

ing agricultural operations or roads. Impacts to these wetlands will be minimized to the extent possible by limiting construction to an existing cleared right-of-way, using existing access roads where available, or locating the new right-of-way immediately adjacent to an existing clearing so only supplemental clearing is needed. It is Tampa Electric's intent to widen existing cleared wetland areas where practical rather than create new clearings through wetlands. Where a new access road and fill are unavoidable, construction techniques and culverting within these wetlands will comply with FDEP standards.

Water quality along and adjacent to the construction site will be preserved by the implementation of appropriate best management practices (BMPs) to control the quantity and quality of runoff from the construction site.

Land clearing activities are described in Section 3.1. To the extent possible, native vegetation will be left in place to reduce erosion. However, some vegetation will be disturbed by the construction of the transmission line. As previously noted, the impacts of land clearing will be reduced in forested wetlands by leaving the root mat of most trees in place to minimize potential for erosion and impacts to water quality.

Disturbed areas will be allowed to revegetate as each section of the transmission line is completed. Upon completion of construction, disturbed areas on steep slopes will be seeded and mulched to control erosion (e.g., at canal or ditch crossings).

The construction of the transmission line should require no ground water withdrawal, dewatering, or relocation of any water bodies.

The construction will create no new connections to waters of the state. Since all water-body crossings within the preferred corridor are relatively narrow, Tampa Electric will be able to span these waterways. Therefore, no impacts to navigation will occur on any of these waterways.

As noted in previous sections, the study area has characteristically flat terrain with little topographic relief. The predominant conveyance in this and similarly situated regions is

typically via manmade drainage swales, small tributaries, and sheetflow interconnected to natural wetlands and sloughs. These types of systems do not lend themselves to evaluation by gauging stations. As such, Soil Conservation Service (SCS) methods will be used to evaluate runoff characteristics for culvert crossings and access road designs.

Upon delineation of the final right-of-way and determination of the location of roads and structures, Tampa Electric will provide required, detailed information related to activities in waters of the state and wetland as a postcertification filing. Figure 1.3-11 in Section 1.3 shows a cross-section of a typical access road.

Where available, existing public roads and private access roads will be used to limit the need for fill to the extent practical. In these instances, most structure pads will be located and constructed to allow access to the structure from the existing road, thus minimizing the need for new and additional impacts.

Depending on site-specific circumstances, roads in wetland areas may be permanent or temporary. For permanent roads, the construction has been previously described (see Section 3.1.1). Temporary access roads may be used in some wetland areas. Most temporary access roads will be constructed in a manner similar to permanent access roads. Alternatively, Tampa Electric may employ either matting or geotextile fabric covered with temporary fill. Crossings of existing drainage swales, ditches, or canals will require installation of appropriately sized culverts. Culverts used for wetland system and canal/ditch crossings will be sized and located to accommodate up- or downstream flow regimes.

3.3 SOLID WASTES

Solid waste generated from right-of-way preparation and line construction generally consists of cleared vegetation and construction-related debris. It is expected that most solid waste generated by the Willow Oak-Davis Project will be disposed in appropriately permitted local landfills. Any proposed onsite chipping or burning will be performed in compliance with all local and state regulations.

3.4 CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE

Impacts on terrestrial and aquatic systems and species associated with transmission line right-of-way preparation and construction depend primarily on the location of the selected right-of-way and, to a lesser degree, on clearing and construction techniques.

Through a systematic, environmentally responsive corridor selection process, the crossing of major terrestrial, wetland, and aquatic systems has been minimized or avoided to restrict any potential impacts to sensitive habitats or endangered and threatened species associated with transmission line construction and maintenance. Approximately 29.8 miles (99 percent) of the preferred corridor include the opportunity to locate within or adjacent to existing road and dedicated transmission line rights-of-way. Where possible in these areas, the proposed transmission line will share existing rights-of-way. In the already altered areas, it is not anticipated that transmission line construction or maintenance will have any significant impact on vegetation, wildlife, or aquatic life. The remaining areas included within the preferred corridor consist of natural and disturbed upland and wetland community types as well as agricultural lands, pastures, mined land, and vacant land expected to become low-density residential developments in the future. An evaluation of potential and expected impacts on vegetation and wildlife components is presented in the following subsections.

3.4.1 VEGETATION

Because much of the preferred corridor contains lands that have already been cleared and maintained, construction associated with the 230-kV transmission line should minimize significant additional adverse changes to vegetation in these areas. Limited permanent alterations will be associated with right-of-way clearing, access road and structure pad installation, and additional right-of-way maintenance. The preferred corridor crosses no large expanses of forested uplands or wetlands.

A permanent alteration of limited areas of upland and wetland communities will result from right-of-way clearing and access road and structure pad construction. Section 3.1, Construction Techniques, addresses types of impacts associated with construction that are expected to occur to the existing vegetation communities crossed by the preferred corri-

dor. In areas of the corridor where collocation opportunities occur with existing roads, forested wetlands may have already been impacted. Limited additional clearing of trees directly adjacent to the existing rights-of-way may be required. In these areas, the right-of-way will subsequently be maintained in a low-growing, early successional state. Adjoining tracts of woodlands will remain intact and provide habitat for forest species. In addition, adjacent communities should not be affected by structure pad and road construction since erosion control measures and proper construction techniques will be used.

Construction practices in wetlands will retain the vegetative root mat in the right-of-way in areas not filled for road or structure pad construction, thereby minimizing impacts to the wetlands. Impacts to wetlands will also vary depending on the wetland system through which the transmission line is routed. The shift in wetland composition will 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, small freshwater marsh/wet prairie systems crossed by the transmission line will not be affected by construction activities since no clearing will be required, and proper construction will maintain the existing hydroperiod.

3.4.2 WILDLIFE

Specific impacts to terrestrial and aquatic animals due to transmission line construction vary by species and depend primarily on the extent of habitat alteration and continued availability of such habitat after construction. The preferred corridor crosses no federally designated critical habitat. In addition, no aquatic habitats critical to the continued regional presence of important species will be affected. The collocation with existing road and transmission line rights-of-way will minimize habitat losses and creation of barriers to animals' movements.

Individual small burrowing mammals (e.g., rodents), reptiles, or amphibians may be lost during right-of-way clearing. Such individual losses, however, will not affect local or regional populations. No losses of medium-sized or large mammals, birds, or other mobile species due to direct impacts or habitat alterations are expected because of the mobility of these animals. Therefore, no adverse impacts are expected to local or regional popula-

tions of game species, species of special concern or commercial importance, or threatened or endangered species occurring or potentially occurring within the right-of-way area.

No significant impacts to resident birds or migratory species are expected since the preferred corridor does not include major staging, breeding, or wintering areas for social, migratory species (e.g., waterfowl, shorebirds, passerines). Local disturbance or displacement of wildlife due to construction noise will be minor and short-term since construction activities in any one location will be intermittent and are not expected to last more than a few weeks. Also, the location of the preferred corridor along roadways and existing transmission line rights-of-way will further limit the potential for wildlife disturbance since individuals in these areas will already be habituated to traffic noise.

The potential construction impacts on listed species documented for the preferred corridor are discussed in the following paragraphs.

The active bald eagle nest discussed in Section 2.3.3.2 is located in the middle of the existing Tampa Electric right-of-way. Because of this, Tampa Electric widened the corridor in this location to approximately 1 mile to allow maximum flexibility in avoiding this nest.

The bald eagle was recently delisted by USFWS; however, it still is listed as threatened by FWC. USFWS has proposed new management guidelines to protect active nests, and these guidelines have buffer areas ranging from 330 to 660 ft from the nest. The buffer is based on existing similar development present and type of development proposed near the nest. The corridor in this vicinity will allow Tampa Electric to meet those buffer guidelines.

Once a right-of-way has been selected by Tampa Electric, the affected agencies will have an opportunity to review the alignment near the nest to ensure applicable guidelines are met.

Tampa Electric will also propose no clearing to occur in this location during the nesting season. Additionally, Tampa Electric is undertaking a monitoring study of the nest since it occurs on Tampa Electric property.

No wood stork colonies are documented for the preferred corridor vicinity. While such species would be expected to forage in wetlands along the preferred corridor, no impacts to nesting or roosting sites are anticipated from Project construction.

Section 2.3.3.2 documents the potential presence of other wading bird colonies located within 0.5 mile of the preferred corridor. While care was taken in avoiding these colonies with the preferred corridor location, birds from these colonies would be expected to forage in and around the corridor. Tampa Electric will verify status of these colonies in their postcertification listed species surveys. Results of those surveys and proximity of the proposed right-of-way will be submitted to the appropriate agencies as a postcertification requirement.

While other listed species possibly occur in habitats along the preferred corridor, no permanent or long-term impacts from construction are expected. Tampa Electric will be required to conduct site-specific listed species surveys along a preferred right-of-way alignment as part of its post-certification conditions. If any such listed species are found inhabiting the proposed right-of-way, specific consultation with the appropriate agencies will be conducted. Mitigation, relocation, or avoidance methods will be implemented as necessary.

3.4.3 AQUATIC LIFE

Impacts on aquatic systems and species are expected to be minor since the proposed corridor avoids major lakes and rivers. Additionally, Tampa Electric will span any small waterways and typically not place any structures or fill within the flow-way.

For any ditches, canals, or wetlands that are crossed, the construction of the transmission line may involve installation or expansion of culverts and placement of fill resulting in temporary increases in turbidity and silt deposition. Such impacts will be local and tem-

porary and are not expected to adversely affect aquatic resources. Appropriate control measures such as staked hay bales and silt curtains will minimize or eliminate siltation resulting from stormwater runoff. Transmission line and access road (if necessary) construction in wetland areas will use methods such as proper culverting and erosion control as necessary to minimize any significant disruption to the aquatic ecosystem or resultant changes in species composition.

3.4.4 SUMMARY

In summary, the majority of the proposed 230-kV transmission line will be situated within or adjacent to existing rights-of-way or in agricultural or residentially developing lands. This alignment significantly minimizes the crossing of natural or undisturbed systems.

Principal impacts from right-of-way clearing and construction of the Project will be removal of a limited amount of canopy vegetation and tall, woody vegetation along right-of-way sections crossing mature forested habitats where previously cleared areas will be slightly widened. Because of collocation of portions of the proposed corridor along existing rights-of-way, this impact is expected to be minimal and will not result in significant population changes in protected species compositions or in the regional status of ecologically unique or valuable habitats. The clearing and subsequent maintenance of right-of-way vegetation in some areas will change the character of the vegetation and provide new habitat for different species of wildlife. Local displacement of wildlife may occur during periods of construction activities. Such displacement is expected to be temporary and will not affect the local or regional status of important species.

3.5 IMPACT ON HUMAN POPULATIONS

Transmission line construction occurs as a series of tasks generally accomplished in sequence by different specialized crews. Tasks (where necessary) include clearing the right-of-way, constructing access roads, preparing foundations, assembling and erecting support structures, stringing conductors, and cleanup activities. Construction of the entire transmission line is expected to take approximately 12 to 18 months. Crew sizes vary depending on the task and usually range in size from 6 to 12 members. Although several crews may work

simultaneously along the length of a line, the duration of a crew's activities in any one area will be quite short (usually 1 to 2 days, with a few tasks such as wire pulling and setup locations taking 1 to 2 weeks). Inconveniences experienced by residents near the transmission line will be primarily confined to noise from machinery used intermittently at various locations along the right-of-way during construction and minor traffic disruptions due to use of heavy equipment along road rights-of-way. The construction and associated noise-producing activities are intermittent in nature and will mainly take place during normal working hours unless otherwise directed by local permitting agencies.

Population density in the vicinity of the preferred corridor varies but remains relatively low throughout most of the length of the corridor. Much of the preferred corridor is along agricultural, rural residential density, commercial, or undeveloped land, with generally a lower density of homes. In the few areas where development exists or is ongoing in Polk and Hillsborough Counties, the preferred corridor is predominantly collocated with existing linear facilities or is located in Tampa Electric fee-owned property.

In Polk County, the preferred corridor incorporates both sides of SR 60 and an area up to 4,000 ft to the south of SR 60 until just west of the South Lakeland Airpark. In general, the expanded corridor in this area has been provided to ensure that placement of the poles can meet Federal Aviation Administration (FAA) and Polk County requirements for height. This area includes an established neighborhood along Turner and Thompson Roads and the new residential development known as Creekside.

In Hillsborough County, the eastern portion of the corridor has been expanded to a width of approximately 5,000 ft to allow for pole placement along either SR 60 or Old Hopewell Road. There are fewer homes and fewer parcels located along Old Hopewell Road. SR 60 is a four-lane facility with approximately 150 to 200 ft of right-of-way (depending on the portion of SR 60) and Old Hopewell Road is a two-laned roadway within approximately 50 ft of right-of-way. The width of the preferred corridor allows for the transmission line to be placed in the SR 60 right-of-way from the county line westward to Dover Road where it connects to the Tampa Electric fee-owned corridor. Alternatively, the width can accommodate an alignment along Hopewell Road westward to Dover

Road, which incorporates sections of Tampa Electric fee-owned land and areas where no linear facilities currently exist. There are numerous opportunities for north-south connections from the southerly Old Hopewell Road alignment to the northerly SR 60 such as transmission line easements and SR 39.

The remainder of the preferred corridor is located in the 300-ft-wide Tampa Electric fee-owned property except in the area of the eagle nest and at the crossing of Tampa Bypass Canal. The southern portion of the north-south aligned corridor from SR 60 to the area of Crosby Road and Salem Church Road includes abutting subdivisions developed at suburban-type densities. New homes have been built within the Diamond Hills area, also at suburban-type densities. To the extent practicable, the transmission line will be centered in the 300-ft-wide fee-owned land.

North of Sydney Road, the land use transitions to lower density rural residential-type uses. In the area of the existing eagle's nest, the corridor has been widened to allow for designation of a route outside of the recommended protection zone. There are several undeveloped properties in this area, in addition to rural density residential uses. The east-west oriented portion of the preferred corridor on Tampa Electric fee-owned land traverses agricultural land and low density residential uses. It is anticipated that lower height poles will be placed in the regulated airspace of Vandenberg Airport. The expansion of the corridor in the vicinity of the Tampa Bypass Canal allows for coordination with SWFWMD for the actual crossing configuration. The final expansion of the preferred corridor at its Temple Terrace terminus allows for ingress/egress to the substation.

Impacts to the human population attributable to construction and operation of the Project will be minimal due to the avoidance of much of the existing development in the region by the preferred corridor, the collocation with existing linear facility rights-of-way where feasible, and the short duration of construction activities in any one location.

3.6 IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES

As discussed in Section 2.2.4, according to DHR's Master Site File, there are known archaeological/historic features found in the preferred corridor. Every effort will be made

to avoid these sites. This can be accomplished with alignment of the actual right-of-way and pole and pad placement.

If requested by DHR, an archaeological site assessment survey will be conducted of archaeologically sensitive areas (as determined by DHR) within the eventual right-of-way, and the report of the survey will be submitted to DHR for review. If any sites within the right-of-way are determined to be significant, DHR will be consulted regarding appropriate procedures for either preservation or excavation of the significant site(s).

If unforeseen archaeological finds are discovered during construction, DHR will be notified. Following a determination of the importance of such finds, Tampa Electric will work with DHR to assess mitigation measures necessary to minimize adverse impacts.

CHAPTER 4.0

4.0 ENVIRONMENTAL EFFECTS OF TRANSMISSION LINE RIGHT-OF-WAY MAINTENANCE AND POSTCONSTRUCTION IMPACTS

4.1 MAINTENANCE TECHNIQUES

Safe and reliable operation of the new line will be maintained through regular inspection of the poles, conductors, insulators, access areas, and vegetation in the right-of-way. The inspections will consist of ground patrols (truck) or aerial (airplane/helicopter) patrols. Transmission lines normally require minimal maintenance; however, Tampa Electric will inspect the line on a regular basis to look for problems caused by weather, vandalism, vegetation regrowth, etc.

Tampa Electric will manage vegetation on the right-of-way by a variety of methods, including trimming, mowing, and the use of approved herbicides, targeting species that are incompatible with the safe operation, maintenance, and access to the transmission system. This allows a broad diversity of vegetation growth, which enhances wildlife use potential.

The exact manner in which maintenance will be performed will depend on the location, type of terrain, and surrounding environment. Vegetation removal is minimized consistent with safe and reliable operation of the line. Each area of the right-of-way will be addressed based on site-specific vegetation and habitat. Endangered or threatened species, if present, are considered and accommodated in the maintenance program.

Use of herbicides for vegetation control will be selective. Application of these herbicides will meet federal, state, and local regulations. Due to the selective nature of vegetation cutting, the limited use of herbicides, and the infrequent occurrence of maintenance activities, the potential effects on wildlife and water quality will be minimal. Tampa Elec-

tric works to control the spread of nuisance plants within the right-of-way through the use of approved herbicides and other removal techniques.

As a result of this maintenance program, Tampa Electric rights-of-way are generally conducive to use by local wildlife. The open effect creates habitat that is attractive to certain raptors, songbirds, and small mammals, and the lower growing vegetation provides forage for deer and a multitude of other species. Open land-or marsh-dwelling wildlife should be unaffected by the existence of the transmission line and maintained right-of-way.

4.2 MULTIPLE USES

Tampa Electric rights-of-way are frequently used for other purposes compatible with the operation and maintenance of power lines. Multiple use of a transmission line right-of-way typically includes grazing, citrus and row-crop farming, agricultural operations, controlled landscaping, recreational uses such as golf courses and hiking/biking trails, and other compatible activities that do not interfere with Tampa Electric's full use of the right-of-way and the function of the transmission line facilities. In most cases, Tampa Electric obtains an easement for the construction, maintenance, and operation of its transmission line, as well as the rights of ingress and egress to that line, from another party who retains the fee-simple interest in the property. The easement may provide for acceptable use of the right-of-way by the fee owner for activities that do not interfere with Tampa Electric's full use of its easement and the function of the transmission line facilities.

In some cases, along this proposed corridor, Tampa Electric owns the fee interest in the right-of-way. Since Tampa Electric owns the right-of-way, all rights to the property will be held by Tampa Electric. If a party wishes to use the company-owned property, a license and/or lease agreement may be negotiated, allowing for activities that do not interfere with Tampa Electric's full use of the right-of-way and the function of the transmission line facilities. Currently, Tampa Electric allows other uses in this right-of-way such as grazing, citrus and row-crop farming, other agricultural operations, and linear pipeline easements.

4.3 CHANGES IN SPECIES POPULATIONS

Section 2.3.3 discusses the status and potential for occurrence of important species in and along the preferred corridor. The absence of significant impacts to important species is not coincidental as efforts were made during the corridor selection study to avoid potentially sensitive habitats as much as possible. The avoidance of ecologically unique or valuable habitats was achieved primarily through placement on, or collocation with, existing transportation rights-of-way and through crossing of agricultural lands, pastures, and developing lands.

Changes in local species populations are not expected as a result of the new transmission line's presence and maintenance. Displacement of individuals from the immediate right-of-way area that may occur during construction activities will be temporary. These displaced species are expected to reinhabit the right-of-way areas after construction. Habitat use will decline during actual construction due to noise and human presence. Such avoidance behavior will enable wildlife to escape direct impacts from construction activities, although some losses of individual vertebrates (e.g., rodents, amphibians) may occur during right-of-way clearing. Section 3.4.2 previously addressed the active eagle's nest within the corridor. No animal or plant species are expected to be permanently displaced out of the Project area as a result of this transmission line.

Due to necessary maintenance practices in the right-of-way, a decrease in structural diversity will occur in formerly forested areas (i.e., permanent loss of a tree canopy layer). However, this will be offset by an increase in species diversity as additional shrubs and herbs colonize the right-of-way in response to increased sunlight and decreased competition due to canopy removal. Since most of the preferred corridor is collocated with existing rights-of-way or follows previously disturbed lands, clearing of canopy vegetation will be minimal. In those portions of the preferred corridor where clearing is necessary, only a relatively narrow strip of canopy will be lost. In these areas, clearing of overstory vegetation and subsequent maintenance requirements will not result in the loss of entire tracts or significant portions of regional wildlife habitat types.

In nonforested systems, such as marshes and shrub swamps, maintenance clearing or alteration may not be necessary. In many instances, these community types can be spanned, thereby eliminating the need to affect structural or functional habitat characteristics and wildlife use.

Tampa Electric's route selection process minimized proximity to known wading or waterbird concentrations. Therefore, no change in the local population of wading birds or any avian group is expected to occur because of transmission line presence and maintenance activities. No ecologically unique or sensitive habitat types will be lost in the study area, and, as a result, no significant impacts to protected indigenous species populations are expected.

4.4 EFFECTS OF PUBLIC ACCESS

It is Tampa Electric's policy to provide locked gates at the point where the transmission line access road intersects previously fenced property. Since Tampa Electric will install locked gates at any location that is currently fenced, no increased vehicle access is anticipated following construction except by Tampa Electric 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. No impacts to environmentally sensitive areas or resident wildlife populations from additional public access are expected.

4.5 ELECTRIC AND MAGNETIC FIELD (EMF) EFFECTS

4.5.1 EMF RULE COMPLIANCE

The Project complies with the Florida EMF regulations specified in Section 62-814, F.A.C. (the Florida EMF Rule). The strength of the magnetic field under a transmission line is primarily a function of the amount of current carried by the line and the height of the conductors above the ground. The electric field is primarily a function of the voltage impressed on the line and conductor height above the ground. Consequently, the electric field near the transmission line is relatively constant over time, but the magnetic field fluctuates depending on customer demand for power.

The electric and magnetic fields produced by the proposed transmission line were calculated in accordance with the requirements of Section 62-814.460, F.A.C. The fields associated with the new transmission line comply with the standards set forth in the Florida EMF Rule, as demonstrated in Table 4.5-1. Although the current carried by the transmission line will vary throughout the day, the value used in the calculations is the maximum quantity of electric current that can be continuously carried on the conductors, as required by Chapter 62-814, F.A.C.

Table 4.5-1. Maximum EMF Capable of Being Produced by the Willow Oak-Davis Project

Right-of-Way Configuration	Electric Field (kV/m)		Magnetic Field (mG) at MCR*
	On Right-of-Way	Edge of Right-of-Way	
230-kV single-circuit roadside	2.4	0.6	134.8
230-kV single-circuit roadside with 69-kV underbuild	1.1	0.4	146.1
230-kV single-circuit roadside with 69-kV and distribution underbuild	0.3	0.1	117.2
230-kV single-circuit (South Lakeland Airport)	2.9	1.1	133.3
230-kV single-circuit existing Tampa Electric 300-ft right-of-way	2.4	0.1	13.6
<i>Florida EMF Rule limit for new 230-kV lines†</i>	<i>8.0</i>	<i>2.0</i>	<i>150</i>

*The MCR for the Willow Oak-Davis 230-kV line is 2,560 amperes per phase.

†These standard field levels are established in Rule 62-814.450(3), F.A.C.

Note: mG = milliGauss.

The field levels of the proposed transmission line shown in this table are based on the highest fields anticipated for the single-circuit 230-kV transmission line configuration, even though structural configurations with lower fields may be employed for some portions of the line. The transmission line will generally operate at a level well under the MCR.

Sources: EzEMF software program developed through Florida Electric Power Coordinating Group and accepted by FDEP.

Black & Veatch, 2007.

Tampa Electric, 2007.

Table 4.5-1 presents the maximum EMF that can be produced by the proposed transmission line under maximum operating conditions. These fields comply with FDEP rule requirements for new 230-kV lines. Appendix E provides data depicting the maximum EMF at maximum operating conditions for each of the typical line configurations, both on the right-of-way and at the right-of-way edge.

In the event additional configurations are required by the detailed design of the transmission line after certification, Tampa Electric will submit the EMF compliance demonstrations to FDEP at least 90 days prior to the start of construction.

4.5.2 AUDIBLE NOISE

The audible noise associated with a transmission line is generated by either corona from the conductors or from gap-type discharges. Corona is a phenomenon that occurs when there is an irregularity on the surface of the conductor, such as buildup from fog, water droplets, significant particulate matter, etc. Corona activity at the surface of the conductors produces a low-level audible noise that is a slight humming sound. Under wet conditions, higher noise levels are experienced than would occur under dry conditions. However, the background noise from various sources (inclement weather, traffic, etc.) has the effect of masking transmission line noise.

During fair weather and under normal operating conditions, the audible noise levels calculated for the proposed transmission line designs will be less than the ambient outdoor noise levels. Table 4.5-2 presents the maximum audible noise levels that could be produced by the proposed transmission line.

Table 4.5-2. Maximum Audible Noise at the Edge of Right-of-Way for the Willow Oak-Davis Project

Right-of-Way Configuration	L50* (dBA)
230-kV single-circuit roadside	47.5
230-kV single-circuit roadside with 69-kV underbuild	46.5
230-kV single-circuit roadside with 69-kV and distribution underbuild	45.2
230-kV single-circuit (South Lakeland Airport)	45.2
230-kV single-circuit existing Tampa Electric 300-ft right-of-way	41.1

*Maximum audible noise occurs during rain or other wet weather conditions. Noise levels will be lower during dry weather conditions.

Sources: Black & Veatch, 2007.
Tampa Electric, 2007.

For a small portion of time, when the conductors are wet from rainfall or heavy fog, the transmission line noise will increase. During wet conditions, the median (L_{50}) A-weighted sound pressure level of the transmission line noise will range from 41.1 to 47.5 dBA at the edge of the right-of-way, depending on the right-of-way cross-section configuration. The noise level produced by the transmission line will comply with applicable noise ordinances in Polk and Hillsborough Counties.

4.5.3 RADIO AND TELEVISION INTERFERENCE

Corona, which can occur on high-voltage transmission lines, produces electromagnetic noise. When this noise is sufficiently strong, it can cause interference with radio and television signals. Since corona is enhanced by water droplets or water vapor, the magnitude of this noise is greater during wet or rainy periods than during dry or fair weather periods.

The amplitude-modulated (AM) broadcast radio band and two television bands (very high frequency [VHF] and ultra high frequency [UHF] bands) are susceptible to this potential interference. No interference is expected for frequency-modulated (FM) radio, cable or satellite television systems, cellular telephones, home cordless telephones, or wireless networking.

In general, the electromagnetic noise levels from a transmission line decrease with increasing distance from the right-of-way and with increasing noise frequency. Thus, interference effects are greatest immediately adjacent to the right-of-way and at the lower broadcast frequencies for radio and television.

Radio and television interference calculation results serve as a general indication of the likelihood for interference. Actual interference from transmission line corona will depend on numerous factors, including the weather, terrain, broadcast signal strength, and frequency.

Electromagnetic noise levels produced by transmission line corona were calculated using software produced by Bonneville Power Administration (BPA). This software performs

noise calculations as a function of the transmission line configuration, the frequency of the electromagnetic noise, and the distance from the transmission line. These electromagnetic noise levels were compared to typical broadcast radio and television signals to evaluate radio interference in the AM broadcast frequency and television interference over the VHF and UHF bands. Specifically, the calculated L_{50} (median) radio interference and television interference levels were used to determine distances at which the noise levels dropped below typical broadcast signal strengths minus a required noise margin (to meet a target signal to noise ratio). The results of these evaluations are summarized in the following paragraphs. Because the noise levels decrease with increasing frequency, the evaluation was conservatively performed at the low end of the frequency bands being considered.

Radio

For broadcast signal levels with typical residential broadcast signal strength, fair weather interference is unlikely anywhere outside the right-of-way. For rural broadcast signals, fair weather interference is possible at the low end of the AM band within 55 ft of the edge of the right-of-way.

For strong residential broadcast signals during rain, interference is unlikely anywhere outside the right-of-way. For a weak residential broadcast signal level during rain, interference is possible within 375 ft of the edge of the right-of-way.

Television

For television stations meeting the minimum Grade A service as defined by the Federal Communications Commission (FCC), calculations indicate that television interference is unlikely anywhere along the preferred corridor.

Summary

Due to the 230-kV operating voltage of the proposed transmission line and the conservative evaluation method, the overall impact to radio or television is expected to be minimal, with the main potential for impact being the lower frequency AM radio band. In general, corona effects from transmission lines at 230 kV or lower are not a significant

issue. Should any homeowner or business experience abnormal interference as a result of this transmission line, Tampa Electric will work with them to resolve the interference issue.

4.5.4 SAFETY

As required by the Florida PSC in Section 25-6.0345, F.A.C., the proposed transmission line will comply with all requirements of the NESC (2007 edition). The purpose of this code is, among other things, the practical safeguarding of persons during the installation, operation, and maintenance of electric lines and associated equipment.

Tampa Electric standards require that fences and gates either crossing or parallel and within transmission line right-of-way be grounded to mitigate shock hazards. Tampa Electric will provide this grounding as part of its construction activities.

5.0 VARIANCES, EXCEPTIONS, AND EXEMPTIONS

The certification, construction, maintenance, and operation of the Tampa Electric Willow Oak-Davis 230-kV transmission line Project require no known variances, exceptions, or exemptions from applicable federal, state, and local standards or local ordinances.

REFERENCES

REFERENCES

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MAP DATA SOURCES:

Hillsborough County GIS Department. 2007. Digital files.

Polk County. 2007. Digital files.

Florida Department of Transportation (FDOT). 2002. Florida aeronautical chart.

FDOT. 2006. Hillsborough County highway map.

FDOT. 2006. Polk County highway map.

Florida Geographic Data Library (FGDL). 2006. Digital files for:

- Wetlands (NWI)
- Canals/streams/rivers/lakes
- Roads/highways
- County boundaries
- City boundaries
- Airports/heliports
- Schools
- Land use/land cover (FLUCFCS III)

Florida Natural Areas Inventory (FNAI). 2007:

- Florida Managed Area (FLMA)—File: Federal, state, local, privately managed lands
- Florida Forever/Board of Trustees (FFBOT) Environmental Lands, 2006—File: FDEP Managed lands
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- Data report form, 2007—Element occurrence within study area; March 7; Jason Griffen

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- Existing transmission lines
- Existing/proposed substations
- Existing fee rights-of-way

Southwest Florida River Water Management District (SWFWMD). 2006. Digital files for:

- 2006 digital ortho photo quadrangles
- Hydrography
- Land cover/vegetation
- Federal and state lands
- Endangered/threatened species

U.S. Geological Survey (USGS). Digital 1:24,000 scale quadrangle maps

WEB SITES:

Areas of critical concern	www.dca.state.fl.us/fdcp/dcp/acsc/index.cfm www.fightbackputnam.org/pdf/commplanprogguide.pdf
Conservation and Recreation Lands	www.tfn.net/NatureConserv/stories/manage.html
County codes	www.municode.com/resources/code
Estuarine Sanctuaries	www.sanctuaries.nos.noaa.gov/welcome.html
Florida Department of Environmental Protection	www.dep.state.fl.us/siting/programs/transmission-lines.htm
Florida Natural Areas Inventory	www.fnai.org
Hillsborough County	www.hillsboroughcounty.org
Indian Reservations	www.osec.doc.gov/eda/pdf/15Florida.pdf www.doilgov/leaders.pdf www.seminoletribe.com www.miccosukee.com/resmap.html
Marine Sanctuaries	www.sanctuaries.nos.noaa.gov/oms/oms.html
Military Installations	www.themilitaryzone.com/military_bases.html
National Forests	www.fs.fed.us/r8/florida/
National Historic Landmarks	tps.cr.nps.gov/nhl/
National Memorials	www.roadtripinfo.com/nmhslist.htm
National Monuments	www.roadtripinfo.com/nmlist.htm
National Natural Landmarks	www.nwi.org/Maps/WildernessData.html#anchor1087485
National Parks	www.roadtripinfo.com/nplist.htm
National Register of Historic Places	www.nationalregisterofhistoricplaces.com/
National Seashores	www.floridasmart.com/sciencenature/naturalflorida/seashores.htm
National Wildlife Refuge	www.fws.gov/refuges/

National Wilderness Area	www.wilderness.net/index.cfm?fuse=NWPS&sec=stateView&state=fl&map=gasouthflnorth
Orchids	www.orchids.org
Outstanding Florida Waters	www.dep.state.fl.us/water/surfacewater/ofwfs.htm#designation
Plants	www.plantatlas.usf.edu/
Polk County	www.polk-county.net
Properties in the National Register of Historic Places	www.cr.nps.gov/nr/about.htm
RARE Areas	roadless.fs.fed.us/states/fl/state3.shtml
State Aquatic Preserves	www.dep.state.fl.us/coastal/programs/aquatic.htm
State Archaeological Landmarks or Landmark Zones	dhr.dos.state.fl.us/archaeology/
State Forests	www.fl-dof.com/state_forests/
State Game Management Areas	wildflorida.org/hunting/
State Parks	www.floridastateparks.org/
Southwest Florida Water Management District	www.swfwmd.state.fl.us/
Temple Terrace	www.templeterrace.com/conserves/plandev.htm

APPENDIX A

FINAL ORDER ON DETERMINATION OF NEED

BEFORE THE PUBLIC SERVICE COMMISSION

In re: Petition for determination of need for
Willow Oak-Davis 230 kV transmission line in
Polk and Hillsborough Counties, by Tampa
Electric Company.

DOCKET NO. 070193-EI
ORDER NO. PSC-07-0522-FOF-EI
ISSUED: June 21, 2007

The following Commissioners participated in the disposition of this matter:

LISA POLAK EDGAR, Chairman
MATTHEW M. CARTER II
KATRINA J. McMURRIAN
NANCY ARGENZIANO
NATHAN A. SKOP

FINAL ORDER DETERMINING THE NEED
FOR AN ELECTRICAL TRANSMISSION LINE

APPEARANCES:

LEE L. WILLIS, ESQUIRE, and JAMES D. BEASLEY, ESQUIRE, Ausley &
McMullen, Post Office Box 391, Tallahassee, Florida 32302
On behalf of Tampa Electric Company (TECO).

MARTHA C. BROWN, ESQUIRE, Florida Public Service Commission, 2540
Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
On behalf of the Florida Public Service Commission (Staff).

BY THE COMMISSION:

CASE BACKGROUND

On March 28, 2007, Tampa Electric Company (TECO) filed a Notice of Intent to File a Petition for Determination of Need for a proposed 230 kV electrical transmission line in Polk and Hillsborough Counties, pursuant to the provisions of section 403.537, Florida Statutes (F.S.), and Rules 25-22.075 and 25-22.076, Florida Administrative Code (F.A.C.). We held an administrative hearing on TECO's petition on June 11, 2007. Notice of the filing of TECO's petition and of the June 11, 2007, public hearing was provided in accordance with applicable statutes and rules to those persons requesting notice and to counties and regional planning councils in whose jurisdiction the transmission line could be placed. Notice was published in the

DOCUMENT NUMBER-DATE

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FPSC-COMMISSION CLERK

Florida Administrative Weekly and in newspapers of general circulation no later than twenty (20) days prior to the date of the hearing.

No other parties intervened in the proceeding. At the hearing, the testimony and exhibits were stipulated into the hearing record and stipulated positions proposed to all the issues in the case. We issued a bench decision at the hearing approving the proposed stipulations and thereby determining the need for the transmission line. Our decision, explained in more detail below, determined the need and the beginning and end points for the transmission line. The transmission Line Siting Board will make the final determination concerning the length and route of the line.

DECISION

As provided in section 403.537, F.S., we are required to take the following into account in determining the need for a proposed transmission line subject to our review under Florida's Transmission Line Siting Act (sections 403.52-403.5365, F.S.):

[T]he need for electric system reliability and integrity; the need for abundant, low-cost electrical energy to assure the economic well-being of the citizens of this state; the appropriate starting and ending point of the line; and other matters within [our] jurisdiction deemed relevant to the determination of need.

Need for Electric System Reliability and Integrity

TECO's proposed new 230 kV transmission line, extending from its planned Willow Oak Substation in Polk County to its planned Davis Substation in Hillsborough County, is scheduled to be in service by March 2012. The project meets area load requirements by serving proposed future distribution Substations east of I-75 and north of State Road 60 in Hillsborough County while maximizing system reliability and minimizing cost to customers.

Transmission assessment studies conducted by TECO during 2006 have identified regional transmission system limitations in northeast Hillsborough County. These studies show that by 2012, the existing 230 kV transmission network will not have sufficient capability to provide reliable service to existing and proposed Substations. Additionally, some of the projected load to be served by the proposed future distribution Substations will be located further east and north of the existing 230 kV transmission network. A study of transmission improvements for this area evaluated various alternatives and resulted in the selection of the Willow Oak to Davis Project as the most cost-effective and efficient means to both increase the capability of the existing 230 kV network and provide electrical service to the new load areas and Substations east and north of the existing transmission facilities.

TECO has demonstrated the need for the Willow Oak-Davis 230 kV Transmission Line Project in Polk and Hillsborough Counties by March 2012 to: (a) provide additional transmission reinforcement to the existing 230 kV transmission network north of State Road 60, west of Willow Oak substation and to the east of the existing River Substation in a reliable manner

consistent with the North American Electric Reliability Council (NERC) and the Florida Reliability Coordinating Council (FRCC) and other applicable standards; (b) serve the increasing load and customer base in the projected service area; and (c) provide for another electrical feed via a separate ROW path, thereby reducing the impact of a loss of the existing transmission facilities on a common ROW.

For these reasons we find that TECO's proposed Willow Oak-Davis Project is needed to preserve electric system reliability and integrity.

Need for Abundant, Low-Cost Electrical Energy to Assure the Economic Well-Being of the Citizens of This State

TECO evaluated three alternatives to the proposed Willow Oak-Davis Project. All three alternatives were transmission modifications to the proposed ROW that used a portion of or the entire existing common ROW. TECO rejected the alternatives primarily due to economics and reliability concerns. The estimated capital cost of the Willow Oak-Davis Project is \$72.2 million excluding right-of-way, and TECO estimates that the project will reduce transmission losses by approximately 4 MW. The cost benefits and the reliability benefits of the project will be enhanced by the construction of the project in a geographically separate ROW. While the final cost of the project is subject to the final routing and conditions of certification required by the Transmission Line Siting Board, we find that the estimated cost of the project is reasonable, and we find that the transmission line will assure the economic well-being of the citizens of the state by serving projected new electric load in the region, and improving the region's electric reliability by minimizing exposure to single contingency events.

Appropriate Starting and Ending Points

We find that the planned Willow Oak Substation and the planned Davis Substation, as described and analyzed in the exhibit to the testimony of TECO's witness, Paul Davis, are the appropriate starting and ending points of the proposed Willow Oak-Davis 230 kV electrical transmission line. In addition to resolving the need to increase the 230 kV network capability, unlike the other alternatives TECO considered, the Willow Oak-Davis Project is in close proximity to planned distribution substations in the project area. As stated above, the Transmission Line Siting Board will make the final determination concerning the length and route of TECO's transmission line.

Conclusion

We approve Tampa Electric Company's petition for determination of need for the Willow Oak-Davis 230 kV transmission line in Polk and Hillsborough Counties. TECO has adequately demonstrated the need for the proposed project according to the criteria prescribed in section 403.537, F.S. This Order memorializing our decision will serve as our report to the Department of Environmental Protection.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that Tampa Electric Company's petition for determination of need for the Willow Oak-Davis 230 kV transmission line in Polk and Hillsborough Counties is granted. It is further

ORDERED that Tampa Electric Company's Willow Oak-Davis 230 kV transmission line project is needed, taking into account the criteria set forth in section 403.537, Florida Statutes. It is further

ORDERED that this docket shall be closed.

By ORDER of the Florida Public Service Commission this 21st day of June, 2007.



ANN COLE
Commission Clerk

(S E A L)

MCB

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request:

- 1) reconsideration of the decision by filing a motion for reconsideration with the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within five (5) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida

Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Office of Commission Clerk, and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

APPENDIX B

APPENDIX B

PUBLIC OUTREACH MATERIALS

Willow Oak – Wheeler – Davis Transmission Project

LIFE RUNS ON ENERGYSM



Project Overview:

Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County to ensure the continued delivery of reliable and affordable electricity to our customers.

The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles. The new transmission line will enable Tampa Electric to meet the needs of Polk and Hillsborough counties' growing communities and to serve the increased demand of existing customers in the area.

Tampa Electric will work with residents, community leaders, regulatory agencies and others during the route selection and siting process. The line will be sited under the Florida Transmission Line Siting Act (TLSA), which is required of all lines that are 15 miles or greater in length, designed to operate at 230-kilovolts or greater and cross a county line.

For more information about the project, visit our Web site at tampaelectric.com/infrastructure/davis or call our toll-free number: 1-877-277-4568.

Representatives from the following Tampa Electric departments are here to answer your questions related to this project:

Real Estate

The Real Estate team is responsible for the acquisition, leasing, management and disposition of real property rights for Tampa Electric.

Transmission Engineering and Operations

The Transmission Engineering and Operations team designs, constructs and maintains electrical transmission facilities within the Tampa Electric service territory. Transmission power lines move the electricity from the power plants through the service area to substations.

Distribution Engineering

The Distribution Engineering team is responsible for distribution line technical design analysis, engineering services and consultation in support of the Operating Line departments, Systems Services, Commercial/Industrial Customer Services, Construction Standards, Distribution Planning, Purchasing and Regulatory departments.

Grid Planning

The Grid Planning team assesses the future needs of the transmission system and plans projects to insure adequate transmission capacity that will reliably serve existing and new customers.

Substation Engineering and Operations

The Substation Engineering and Operations team designs, constructs and maintains substations. This includes building new stations, modifying existing stations and performing maintenance on the equipment, fencing and landscaping. Substations are large, fenced-in areas usually between one and five acres in size. Substations reduce line voltages, provide electrical protection for the circuits and provide switching capability.

Environmental Health and Safety

The Environmental, Health & Safety (EHS) team provides environmental services for Energy Delivery projects. EHS investigates proposed locations and corridors for potential environmental impacts. If potential impacts are noted and/or any permitting is required, EHS obtains the required federal, state and local permits necessary to construct and maintain the infrastructure. These permits provide protection of wetlands and accounts for wetland mitigation in the event there are any wetland impacts.

Corporate Communications

The Corporate Communications team handles all media inquiries and helps to clarify company information and positions, so that they are easily understood and put into proper context for customers and business stakeholders.

Customer Service

The Customer Service team is responsible for handling all residential and commercial customer inquiries including establishing new service, reporting power outages, billing questions, payment arrangements and requests for information.

Right-of-Way Maintenance

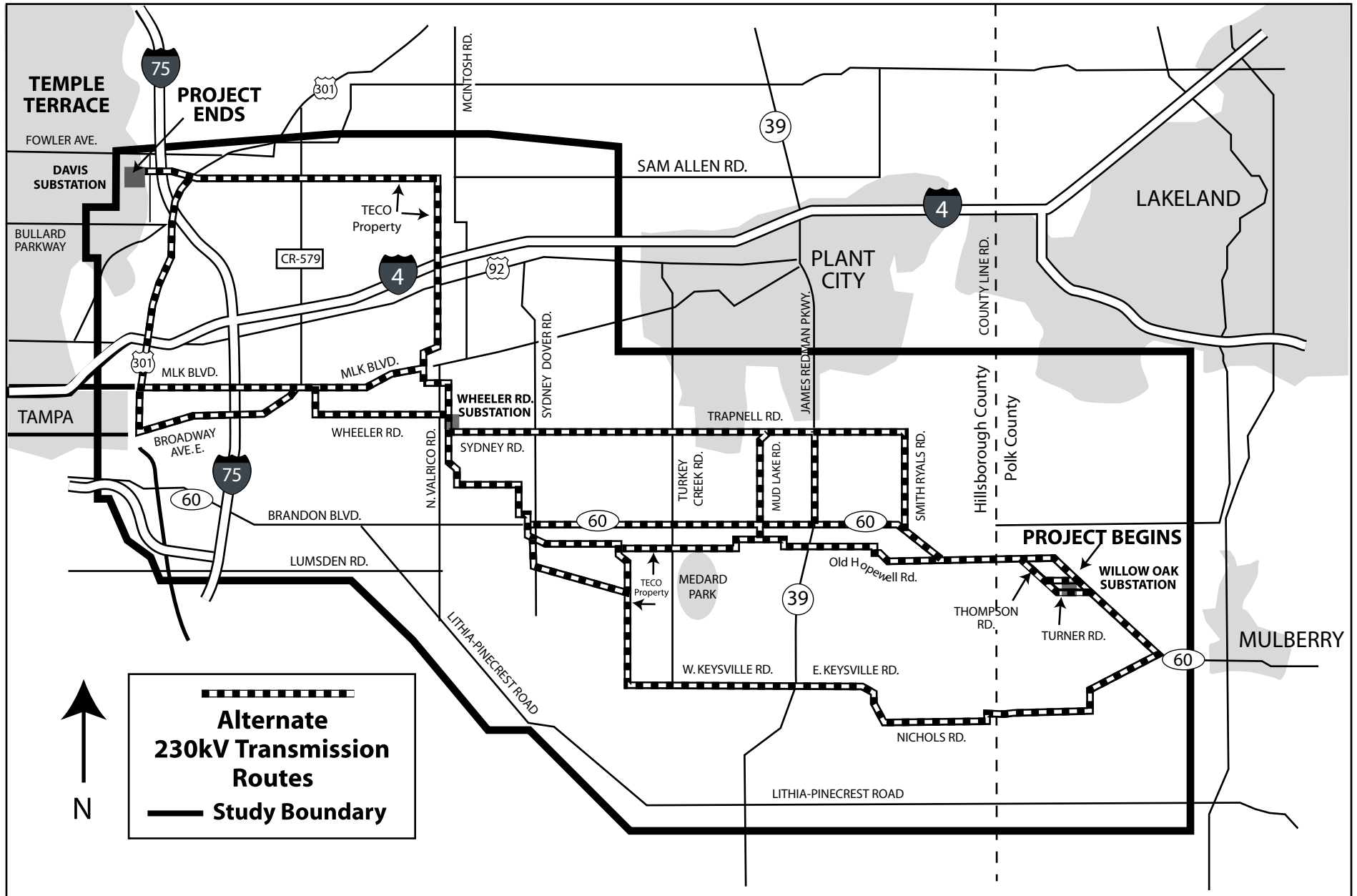
The Right-of-Way Maintenance team maintains the accessibility into and within Tampa Electric's right-of-way corridors. This promotes safety and better reliability of our electrical lines, which translates into better customer service.

Energy Delivery Construction Services

The Energy Delivery Construction Services team works with the engineering and planning staff of the cities and counties within our service territory as well as the state of Florida, to insure that all permitting, easements and right-of-way use requirements are met.



Willow Oak-Wheeler-Davis Project Area





Questions & Answers:

Willow Oak – Wheeler – Davis Transmission Project

Q: What is the purpose of this project/why is it needed?

A: Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County for the continued delivery of reliable and affordable electricity to our customers. The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles. The new transmission line will enable Tampa Electric to meet the needs of Polk and Hillsborough counties' growing communities and to serve the increased demand of existing customers in the area.

Q: What are the sizes of the structures that will be used? How many of them will there be?

A: Since we are in the initial stage of this project, the specific size and number of poles have not been determined. The technical evaluation and analysis to determine the size and number of structures will begin after a preferred route has been selected, through a technical analysis and consideration of feedback from the community.

Q: Can the route be put underground?

A: Transmission lines of this type placed underground are prohibitively costly and can take significantly longer to repair, resulting in the potential for extensive and lengthy power outages. Additionally, underground transmission lines require large trenches and other access devices to be placed along the entire route for cable pulling and splicing – this can have a greater environmental impact than overhead transmission lines.

Q: What is the proposed route?

A: Several potential routes have been identified at this time utilizing extensive route evaluation criteria such as: proximity to homes, schools, wetlands and other environmental considerations, along with utilization of Tampa Electric land and easements.

Q: What is the process for determining where the poles will go?

A: Pole placement will be determined by our engineering team following final route approval and after careful consideration of a number of criteria, including the size of and distance between poles. Another important consideration is the feedback we will gain from community leaders and the public at four open house events. We will work with the public during the route selection and siting process.

Q: What factors do you consider in determining where the lines will go?

A: Tampa Electric considers many factors in determining a transmission route. Considerations include the following:

- The number of homes within 500 feet of the center of poles
- The length through existing parks, recreation areas or other designated conservation lands
- The number of school properties within 500 feet of the center of the poles
- The length of the route where available public road rights-of-way or established Tampa Electric corridors are available
- Length of the route where another available facility exists that can be co-located with Tampa Electric's equipment
- The number of parcels or lots crossed by the route
- The length of forested wetlands crossed by the route
- The length of herbaceous wetlands crossed by the route
- The number of wading bird colonies or eagle nests within 0.5 miles of the route
- The cost of construction for our overall customer base

Tampa Electric Q&A – 2

Q: Is there a way to make sure the equipment doesn't end up near my house?

A: Proximity to homes is among the primary factors we consider in determining the optimal location for transmission equipment in new transmission routes. Among other considerations, we work to achieve projects that will have as minimal an impact to residents as possible, while also being as environmentally friendly as possible. As our area grows, however, it is impossible to entirely avoid populated areas. The equipment we install benefits all of our customers and ensures the reliability of the state's electrical grid. But, with growth constantly requiring more and more energy supply, inevitably, the equipment we need to distribute power to everyone may end up located closer to some customers than they would prefer.

Q: What role will residents' input play in the process?

A: Community feedback is an important consideration in the ultimate location of this needed transmission project. As a regulated utility, we must also consider other factors, such as security, system reliability and cost. We are holding a series of four open house events, which are designed to share information about this project and gain input and feedback from the community. Tampa Electric will work with residents, community leaders, regulatory agencies and others during the route selection and siting process.

Q: When will the final route be selected?

A: The final route will be selected once the preferred route is studied and certified through the Transmission Line Siting Act (TLSA) process.

Q: What is the overall timeframe for the project?

A: The estimated timeframe for the project is:

Community feedback	February 2007 - March 2007
TLSA application preparation/submittal	December 2006 – June 2007
TLSA application processing	June 2007 – May 2008
Engineering	June 2008 – June 2009
Follow-up informational meetings with residents	January 2009
Construction	June 2009 – June 2011
Completed project in service	June 2011

Q: Will you communicate with homeowners and businesses in the area when a decision has been made?

A: Tampa Electric plans to hold additional informational meetings when the final route has been selected to inform the community of the final project details.

Q: If I can't make it to one of the open houses, how can I provide my feedback?

A: Residents can provide feedback by:

- Completing our customer survey, which is available at www.tampaelectric.com/infrastructure/davis. The survey will be available at the open house meetings, but customers can also submit feedback electronically from this site.
- Calling our toll-free number: 1-877-277-4568.

Tampa Electric will utilize feedback from the community as we make the decision on the preferred route for this project.

Polk Power Station Unit 6

Lake Agnes

Silver Dollar

Rhodine

Sun City Center

Davis

Frequently Asked Questions

Project Map

Project Survey

Willow Oak

Infrastructure Home



Willow Oak - Wheeler - Davis

Dear Resident:

Tampa Electric is committed to keeping our customers and residents informed about the status of the project the company announced in February to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County. The new line, which is necessary to ensure the continued delivery of reliable and affordable electricity to our customers, will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in Temple Terrace, a span of approximately 30 miles.

At this time a route has not been selected; corridor evaluations are ongoing based on customer route selection criteria and, as a regulated utility, we must also consider other factors, such as security, system reliability and cost.

We appreciate the time and effort of the 145 residents who attended one of the four open houses or who provided us with feedback by mail, email or phone.

Listed below is a summary of your feedback on the route selection rating criteria ranked from most important to least important (**rankings: 1 – most important to 10 – least important**):

Criteria	Ranking
Minimize the number of homes within 500 feet of a particular route.	1
Maximize length of route where another linear facility exists along which Tampa Electric can locate.	2
Maximize length of route where public road right of way or established Tampa Electric corridors are available.	3
Minimize the length through existing parks, recreation areas or other designated conservation lands.	4
Minimize number of school properties within 500 feet of a particular route.	5
Minimize number of parcels or lots crossed by the route.	6
Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	7
Minimize length of forested wetlands crossed by the route.	8
Minimize cost of construction for our overall customer base.	9
Minimize length of herbaceous wetlands crossed by the route.	10

The company anticipates that a preferred route will be selected and submitted to the Florida Department of Environmental Protection by the end of August 2007 for the Transmission Line Siting Act (TLSA) Siting Board's final approval.

Tampa Electric submitted a request for determination of need to the Florida Public Service Commission (FPSC) in April 2007. The FPSC approved the company's request for determination of need on June 11, 2007.

We are committed to notifying the community in a timely manner when the next significant project milestone is accomplished such as when the preferred corridor is selected and/or the TLSA application is filed with the Florida Department of Environmental Protection.

If you would like to learn more about the project, call our toll-free number: **1-877-277-4568**.

Polk Power Station Unit 6

Lake Agnes

Silver Dollar

Rhodine

Sun City Center

Davis

Frequently Asked Questions

Project Map

Project Survey

Willow Oak

Infrastructure Home

Home

About Us

Careers

Contact Us



Willow Oak - Wheeler - Davis Project Survey

* indicates required field

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "1 - Most Important" to "10 - Least Important". Please use each number once, and use the space below to provide any additional comments.

Most Important

Least Important

* Minimize the number of homes within 500 feet of a particular route.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize the length through existing parks, recreation areas or other designated conservation lands.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Maximize length of route where another linear facility exists along which Tampa Electric can locate.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize number of parcels or lots crossed by the route.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize length of forested wetlands crossed by the route.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize length of herbaceous wetlands crossed by the route.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

* Minimize cost of construction for our overall customer base.

1 2 3 4 5 6 7 8 9 10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Comments:

Section 2.

The [project map](#) has been divided into six general route combinations 1-A, 1-B, 2-A, 2-B, 3-A, 3-B. Please provide us with any comments regarding the alternative route pairings, 1-A, 1-B, and so on. (For example 1-A would be from Willow Oak to Wheeler generally along Trapnell Road, and from Wheeler to Davis generally along Dr. Martin Luther King Blvd. and U.S. 301). Comments might include your preferences, specific areas or items you wish to see avoided, or information you think we need to know.

Comments:

Contact Information

Name:

Phone:

E-mail address:

Street address:

City / State / Zip:

FL

Send

We want your input on a new transmission project in your area



Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County to ensure the continued delivery of reliable and affordable electricity to our customers. The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles.

Tampa Electric would like to hear from you and will work with residents, community leaders, regulatory agencies and others during the route selection and siting process. Please plan to attend one of our open houses listed below:

Tuesday, February 20

5:30 p.m. – 7:00 p.m.

Willow Oak Baptist Church

3390 Willow Oak Rd., Mulberry, FL 33860

Tuesday, February 27

5:30 p.m. – 7:00 p.m.

Turkey Creek First Baptist Church

4915 W. Trapnell Rd., Plant City, FL 33566

Wednesday, February 28

5:30 p.m. – 7:00 p.m.

Centerpointe Community Church

8610 Temple Terrace Hwy., Tampa, FL 33637

Thursday, March 1

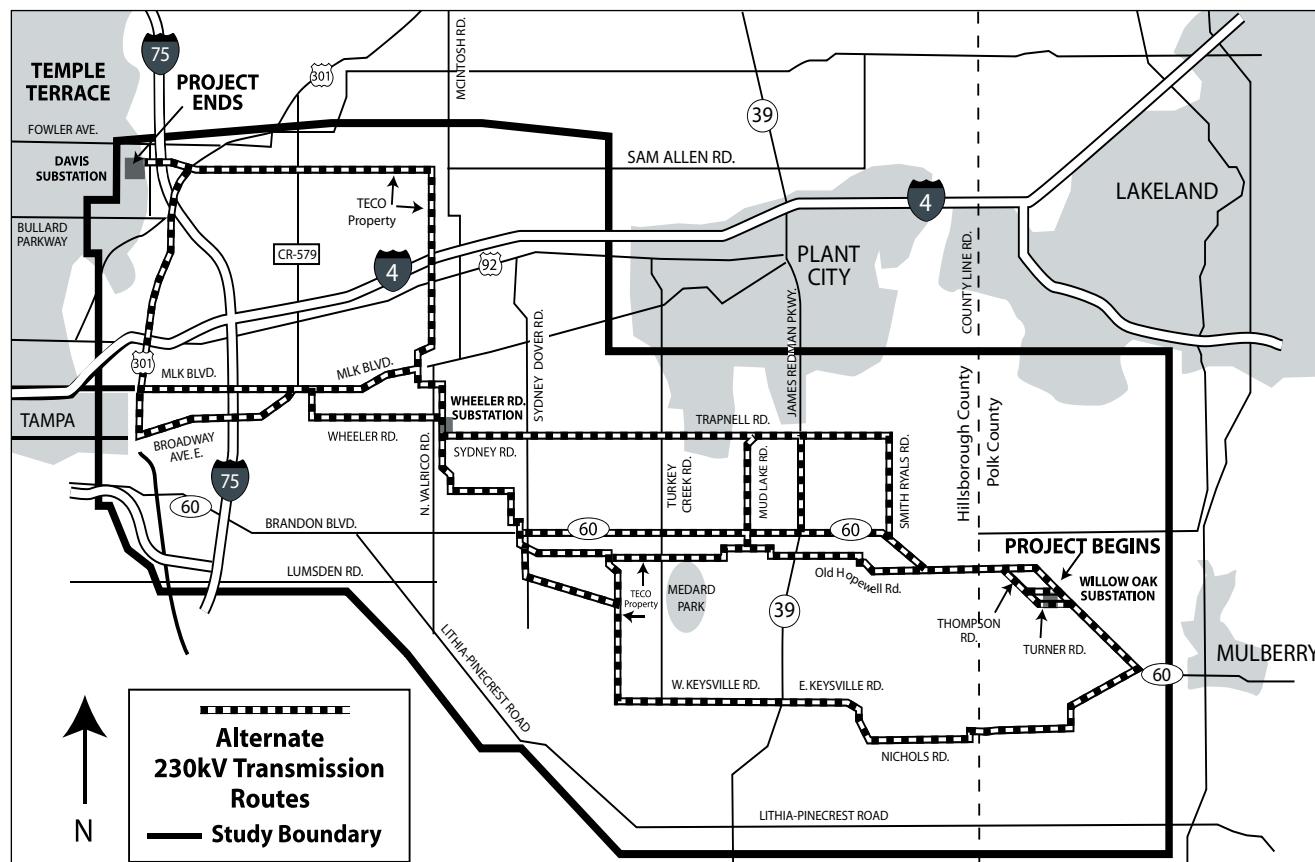
5:30 p.m. – 7:00 p.m.

Armwood High School

12000 E. U.S. Hwy. 92, Seffner, FL 33584

If you can't attend one of the open houses, but would like to learn more about the project:

Visit our Web site at tampaelectric.com/infrastructure/davis or call our toll-free number 1-877-277-4568.





February 2007

Dear Customer:

Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County to ensure the continued delivery of reliable and affordable electricity to our customers. The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles.

The new transmission line will enable Tampa Electric to meet the needs of Polk and Hillsborough counties' growing communities and to serve the increased demand of existing customers in the area.

Tampa Electric will work with residents, community leaders, regulatory agencies and others during the route selection and siting process. The line will be sited under the Florida Transmission Line Siting Act (TLSA), which is required of all lines that are 15 miles or greater in length, designed to operate at 230-kilovolts or greater and cross a county line.

Tampa Electric would like to hear from you. Please plan to attend one of our open houses. Tampa Electric representatives and members of the project team will be available to answer your questions about the project. They will have detailed displays, along with a map of the potential routes under consideration.

We look forward to the opportunity to speak with you at these meetings which are being held at the following locations:

Tuesday, February 20

5:30 p.m. – 7:00 p.m.
Willow Oak Baptist Church
3390 Willow Oak Road
Mulberry, FL 33860

Tuesday, February 27

5:30 p.m. – 7:00 p.m.
Turkey Creek First Baptist Church
4915 W. Trapnell Road
Plant City, FL 33566

Wednesday, February 28

5:30 p.m. – 7:00 p.m.
Centerpointe Community Church
8610 Temple Terrace Highway
Tampa, FL 33637

Thursday, March 1

5:30 p.m. – 7:00 p.m.
Armwood High School
12000 E. U.S. Highway 92
Seffner, FL 33584

If you can't attend one of the open houses, but would like to learn more about the project, visit our website at tampaelectric.com/infrastructure/davis or call our toll-free number: **1-877-277-4568**.

Sincerely,

Christopher A. Steele, P.E.

Chris Steele, P.E.
Project Administrator
Project Management – Energy Control Center



February 2007

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Sincerely,

A handwritten signature in black ink, appearing to read "T. Alan Denham", is written over a light blue horizontal line. The signature is written in a cursive, flowing style.

Alan Denham
Regional Manager, Community Relations
Phone: (813) 630-7384
E-mail: tadenham@tecoenergy.com



February 2007

Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County to ensure the continued delivery of reliable and affordable electricity to our customers. The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles.

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Seffner, FL 33584

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Sincerely,

A handwritten signature in black ink that reads "Anddrikk L. Frazier".

Anddrikk Frazier
Regional Manager, Community Relations
Phone: (813) 228-1075
E-mail: alfrazier@tecoenergy.com



February 2007

Tampa Electric plans to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County to ensure the continued delivery of reliable and affordable electricity to our customers. The new line will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in the Temple Terrace area of Hillsborough County, a span of approximately 30 miles.

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Sincerely,

A handwritten signature in black ink that reads "Doug Driggers".

Doug Driggers
Regional Manager, Community Relations
Phone: (813) 630-7185
E-mail: dkdriggers@tecoenergy.com



ROUTE EVALUATION CRITERIA

- Minimize the number of homes within 500' of a particular route
- Minimize the length of line through existing parks, recreation areas, or other designated conservation lands
- Minimize the number of school properties within 500' of a particular route.
- Maximize the length of route where available Tampa Electric owned corridors or easements are available.
- Maximize the length of route where another linear facility exists along which Tampa Electric can locate
- Minimize the number of parcels/lots crossed
- Minimize the length of forested wetlands crossed
- Minimize the length of herbaceous wetlands crossed
- Minimize the number of wading bird colonies/eagle nests within 0.5 miles of the route.
- Minimize the cost of construction for Tampa Electric's customer base.



Davis-Willow Oak Transmission Line Route Evaluation Open House Survey and Comments

- 1.** Below is a list of the criteria that TECO is considering in the route selection process. Please rank the criteria from 1 – Most important to 10 – Least Important. Provide any comments you might have.

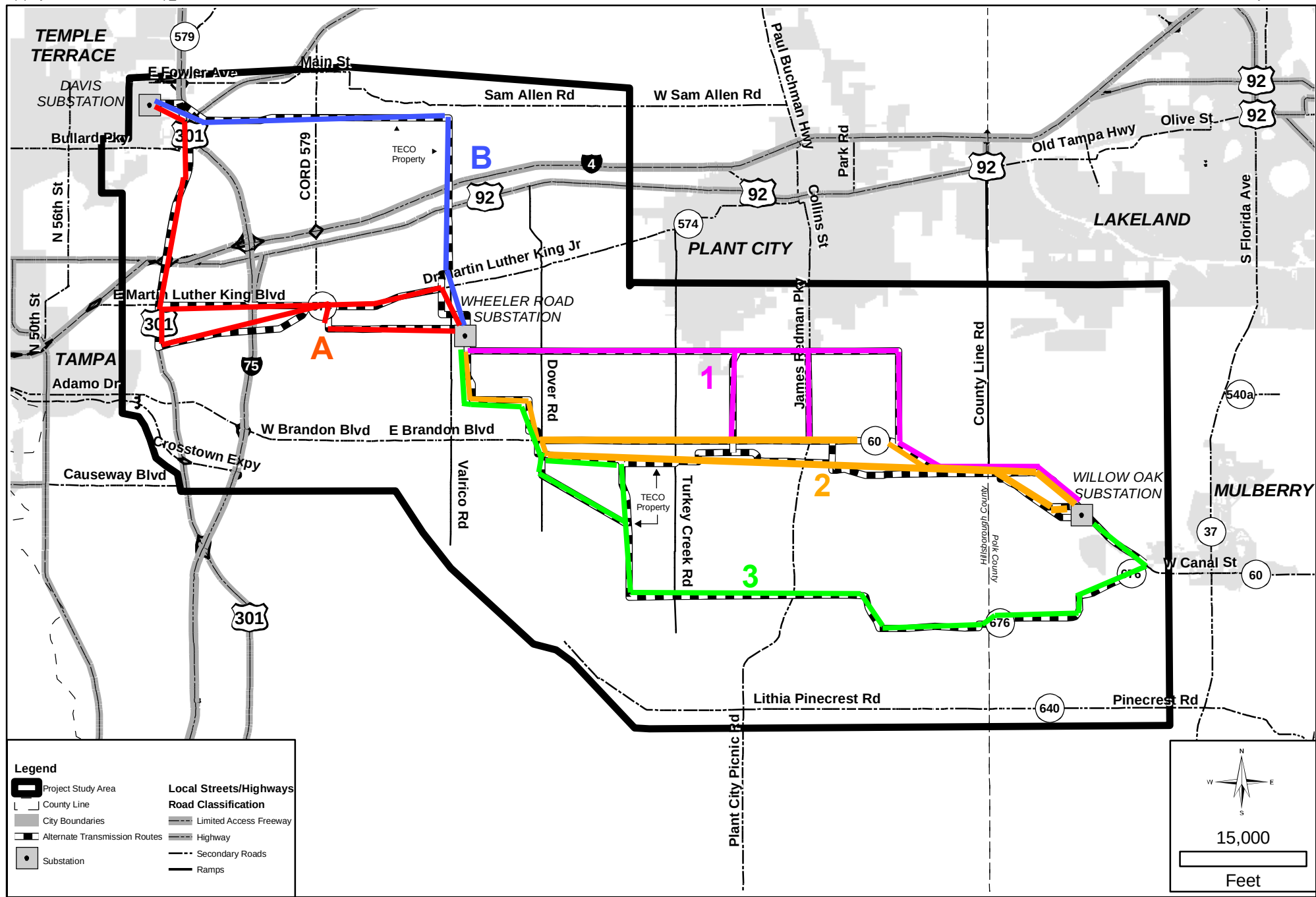
Rank	Criteria	Comments
	Minimize number of homes within 500' of the centerline	
	Minimize length of line through existing parks, recreation areas, or other designated conservation lands	
	Minimize number of school properties within 500' of the centerline	
	Maximize length of route where available TECo fee ownership or easement exists	
	Maximize length of route where other available linear facility exists with which to collocate	
	Minimize number of parcels/lots crossed	
	Minimize length of forested wetlands crossed	
	Minimize length of herbaceous wetlands crossed	
	Minimize number of wading bird colonies/eagle nests within 0.5 mile	
	Minimize cost	

- 2.** The Route map has been broken into 6 general route combinations 1-A, 1-B, 2-A, 2-B, 3-A, 3-B. Please provide us with any comments regarding the alternative route pairings, 1-A, 1-B, and so on. For example 1-A would be from Willow Oak to Wheeler generally along Trapnell Road and from Wheeler to Davis generally along Martin Luther King and 301. Comments might include your preferences, specific areas or items you wish to see avoided, or information you think we may not have considered.

- 3.** Was this open house helpful? Would you like TECO to provide you additional information? Please comment on this open house and provide your contact information (name, address, phone) if you would like additional information.

Please Use the back of this sheet for additional comments.

Circle here – Over for Additional Comments – to indicate comments are on the reverse..



DAVIS-WILLOW OAK 230-KV TLSA PROJECT
TRANSMISSION LINE - ALTERNATE ROUTE MAP
HILLSBOROUGH/POLK COUNTY, FLORIDA

Sources: ESRI, Hillsborough/Polk Counties, TECO; ECT, 2006.





April 27, 2007

Dear Homeowner Association:

Tampa Electric is committed to keeping our customers and residents informed about the status of the project the company announced in February to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County. The new line, which is necessary to ensure the continued delivery of reliable and affordable electricity to our customers, will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in Temple Terrace, a span of approximately 30 miles.

At this time a route has not been selected; corridor evaluations are ongoing based on customer route selection criteria and, as a regulated utility, we must also consider other factors, such as security, system reliability and cost.

We appreciate the time and effort of the 145 residents who attended one of the four open houses or who provided us with feedback by mail, email or phone.

Listed below is a summary of your feedback on the route selection rating criteria ranked from most important to least important (**rankings: 1 – most important to 10 – least important**):

Criteria	Ranking
Minimize the number of homes within 500 feet of a particular route.	1
Maximize length of route where another linear facility exists along which Tampa Electric can locate.	2
Maximize length of route where public road right of way or established Tampa Electric corridors are available.	3
Minimize the length through existing parks, recreation areas or other designated conservation lands.	4
Minimize number of school properties within 500 feet of a particular route.	5
Minimize number of parcels or lots crossed by the route.	6
Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	7
Minimize length of forested wetlands crossed by the route.	8
Minimize cost of construction for our overall customer base.	9
Minimize length of herbaceous wetlands crossed by the route.	10

The company anticipates that a preferred route will be selected and submitted to the Florida Department of Environmental Protection by the end of August 2007 for the Transmission Line Siting Act (TLSA) Siting Board's final approval.

Tampa Electric has submitted a request for determination of need to the Florida Public Service Commission (FPSC) in April 2007. The FPSC will conduct a determination of need hearing in June 2007 and issue a Final Order.

We are committed to notifying the community in a timely manner when a significant project milestone such as the FPSC final determination of need is approved and/or the preferred corridor is selected.

Please share this information with members of your organization. If you would like to learn more about the project, visit our website at **tampaelectric.com/infrastructure/davis** or call our toll-free number: **1-877-277-4568**.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Alan Denham". The signature is fluid and cursive, with the first name "T." and last name "Denham" clearly distinguishable.

Alan Denham, Regional Manager



Dear Customer:

Tampa Electric is committed to keeping our customers and residents informed about the status of the project the company announced in February to construct a new 230-kilovolt transmission line from Polk County to Hillsborough County. The new line, which is necessary to ensure the continued delivery of reliable and affordable electricity to our customers, will connect our new Willow Oak substation, located at the intersection of State Road 60 and Turner Road in western Polk County, with our Wheeler substation in Valrico and our new Davis substation in Temple Terrace, a span of approximately 30 miles.

We appreciate the time and effort of the 145 residents who attended one of the four open houses or who provided us with feedback by mail, email or phone.

Listed below is a summary of your feedback on the route selection rating criteria (**rating criteria: 1 – most important to 10 – least important**):

Criteria	Average Ranking
Minimize the number of homes within 500 feet of a particular route.	2.81
Maximize length of route where another linear facility exists along which Tampa Electric can locate.	4.36
Maximize length of route where public road right of way or established Tampa Electric corridors are available.	4.50
Minimize the length through existing parks, recreation areas or other designated conservation lands.	4.53
Minimize number of school properties within 500 feet of a particular route.	4.88
Minimize number of parcels or lots crossed by the route.	5.03
Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	6.01
Minimize length of forested wetlands crossed by the route.	6.04
Minimize cost of construction for our overall customer base.	6.28
Minimize length of herbaceous wetlands crossed by the route.	6.52

At this time a route has not been selected; corridor evaluations are ongoing. The company anticipates that a preferred route will be selected and submitted by the end of July 2007 to the Florida Department of Environmental Protection for the TLSA siting board final approval.

Tampa Electric will also submit a request for determination of need to the Florida Public Service Commission during April 2007.

We are committed to notifying the community in a timely manner when significant project milestones are achieved.

If you would like to learn more about the project, visit our website at tampaelectric.com/infrastructure/davis or call our toll-free number: **1-877-277-4568**.

Sincerely,

Christopher A. Steele, P.E.

Chris Steele, P.E.
Project Administrator



Survey Summary Report

TLSA Open House and E-mail/U.S. Mail Resident Surveys

- Total Survey Summary – Feb. 20-March 5
- Mulberry Open House – Feb. 20, 2007
- Plant City Open House – Feb. 27, 2007
- Temple Terrace Open House – Feb. 28, 2007
- Seffner/Armwood Open House – March 1, 2007
- E-mail and U.S. Mail-sent surveys – Feb. 20-March 5

The grammar and writing style of survey respondents shown within these reports has been preserved to retain the integrity of those original survey comments.



TABULATIONS: Aggregated data arranged by mean

Willow Oak - Wheeler - Davis Project — **Total Survey Summary**

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "1 – Most Important" to "10 – Least Important". *Please use each number once*, and use the space below to provide any additional comments.

Rank*	Criteria	Aggregate mean
1 1, 1, 2, 1, 1	Minimize the number of homes within 500 feet of a particular route.	2.81
2 5, 5, 3, 2, 2	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	4.36
3 4, 3, 1, 7, 3	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	4.50
4 2, 2, 4, 5, 5	Minimize number of school properties within 500 feet of a particular route.	4.53
5 6, 4, 5, 3, 4	Minimize the length through existing parks, recreation areas or other designated conservation lands.	4.88
6 3, 6, 6, 4, 6	Minimize number of parcels or lots crossed by the route.	5.03
7 8, 10, 7, 8, 7	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	6.01
8 10, 8, 10, 8, 6	Minimize length of forested wetlands crossed by the route.	6.04
9 6, 7, 8, 10, 9	Minimize cost of construction for our overall customer base.	6.28
10 9, 9, 9, 9, 10	Minimize length of herbaceous wetlands crossed by the route.	6.52

* Ranking in red is for sum totals of combined survey responses. Smaller font, black rankings are for the individual open houses and Web and U.S. Mail survey responses (in order – Mulberry, Plant City, Temple Terrace, Seffner-Armwood, Web survey and U.S. Mail survey responses).



TABULATIONS: Mulberry Open House – February 20, 2007

16 surveys completed / 26 residents signed in - 62 percent of residents signing in at this open house completed surveys

Willow Oak - Wheeler - Davis Project Survey

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "**1 – Most Important**" to "**10 – Least Important**". *Please use each number once*, and use the space below to provide any additional comments.

Rank	Criteria	Response-number of responses
1	Minimize the number of homes within 500 feet of a particular route.	1-11, 2-1, 4-1, 5-1, 7-1 Mean – 1.71
2	Minimize number of school properties within 500 feet of a particular route.	1-9, 2-1, 3-1, 4-2, 5-1, 10-1 Mean – 2.18
3	Minimize number of parcels or lots crossed by the route.	1-9, 2-1, 3-2, 5-1, 8-2 Mean – 2.24
4	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	1-11, 4-1, 6-1, 9-1, 10-1 Mean – 2.35
5	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	1-8, 4-3, 5-1, 6-1, 9-1, 10-1 Mean – 2.94
6	Minimize cost of construction for our overall customer base.	1-5, 2-2, 4-1, 5-5, 9-1, 10-1 Mean – 3.35
7	Minimize the length through existing parks, recreation areas or other designated conservation lands.	1-3, 2-1, 3-4, 5-1, 7-2, 8-1, 10-3 Mean – 4.35
8	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	1-3, 2-2, 5-4, 6-2, 7-1, 10-3 Mean – 4.47
9	Minimize length of herbaceous wetlands crossed by the route.	1-2, 2-1, 3-1, 4-1, 5-3, 9-6, 10-1 Mean – 5.29
10	Minimize length of forested wetlands crossed by the route.	1-4, 5-3, 8-1, 9-3, 10-4 Mean – 5.53



TABULATIONS: Plant City Open House – February 27, 2007

43 surveys completed / 56 signed in - 77 percent of residents signing in at this open house completed surveys

Willow Oak - Wheeler - Davis Project Survey

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "**1 – Most Important**" to "**10 – Least Important**". *Please use each number once*, and use the space below to provide any additional comments.

Rank	Criteria	Response-number of responses
1	Minimize the number of homes within 500 feet of a particular route.	1-24, 2-5, 3-1, 4-1, 5-5, 8-2, 9-2, 10-2 Mean – 2.79
2	Minimize number of school properties within 500 feet of a particular route.	1-7, 2-7, 3-9, 4-3, 5-7, 6-1, 8-2, 9-2, 10-4 Mean – 4.07
3	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	1-9, 2-5, 3-2, 4-5, 5-5, 6-6, 7-3, 8-2, 9-2, 10-3 Mean – 4.44
4	Minimize the length through existing parks, recreation areas or other designated conservation lands.	1-3, 2-7, 3-6, 4-6, 5-2, 6-3, 7-3, 8-1, 10-4 Mean – 4.60
5	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	1-9, 2-5, 3-6, 4-7, 5-1, 6-4, 7-6, 8-1, 9-4, 10-3 Mean – 4.79
6	Minimize number of parcels or lots crossed by the route.	1-4, 2-2, 3-5, 4-4, 5-6, 6-4, 7-9, 8-8, 10-4 Mean – 5.30
7	Minimize cost of construction for our overall customer base.	1-4, 2-5, 3-3, 4-2, 5-6, 6-6, 7-3, 8-4, 10-9 Mean – 5.58
8	Minimize length of forested wetlands crossed by the route.	1-3, 3-2, 4-6, 5-6, 7-4, 8-11, 9-5, 10-5 Mean – 6.37
9	Minimize length of herbaceous wetlands crossed by the route.	1-2, 3-3, 4-2, 5-4, 6-5, 7-2, 8-3, 9-15, 10-6 Mean – 7.02
10	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	1-2, 2-3, 3-1, 4-1, 5-4, 6-3, 7-5, 8-5, 9-3, 10-15 Mean – 7.09



TABULATIONS: Temple Terrace Open House – February 28, 2007

15 surveys completed / 23 residents signed in – 65 percent of residents signing in at this open house completed surveys

Willow Oak - Wheeler - Davis Project Survey

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "**1 – Most Important**" to "**10 – Least Important**". *Please use each number once*, and use the space below to provide any additional comments.

Rank	Criteria	Response-number of responses
1	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	1-8, 2-1, 4-2, 5-1, 7-1, 8-2 Mean – 3.07
2	Minimize the number of homes within 500 feet of a particular route.	1-5, 2-1, 3-3, 4-3, 5-1, 7-1, 10-1 Mean – 3.33
3	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	1-4, 2-3, 3-2, 4-1, 5-1, 6-1, 7-2, 9-1 Mean – 3.60
4	Minimize number of school properties within 500 feet of a particular route.	1-4, 2-1, 3-2, 4-1, 5-1, 6-1, 7-2, 9-3 Mean – 4.53
5	Minimize the length through existing parks, recreation areas or other designated conservation lands.	1-2, 2-1, 3-2, 4-2, 5-2, 6-3, 8-2, 10-1 Mean – 4.80
6	Minimize number of parcels or lots crossed by the route.	1-2, 2-1, 3-2, 5-2, 6-4, 7-1, 8-1, 10-2 Mean – 5.27
7	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	1-2, 3-1, 4-3, 5-2, 6-2, 7-1, 8-2, 9-1, 10-1 Mean – 5.40
8	Minimize cost of construction for our overall customer base.	1-2, 2-1, 4-1, 5-5, 7-2, 10-4 Mean – 5.80
9	Minimize length of herbaceous wetlands crossed by the route.	1-2, 2-2, 5-2, 6-1, 7-1, 8-3, 9-3, 10-1 Mean – 6.00
10	Minimize length of forested wetlands crossed by the route.	1-3, 3-1, 5-1, 6-1, 7-1, 8-3, 9-2, 10-3 Mean – 6.40



TABULATIONS: Seffner/Armwood Open House – March 1, 2007

52 surveys completed / 79 residents signed in - 66 percent of residents signed in at this open house completed surveys

Willow Oak - Wheeler - Davis Project Survey

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "**1 – Most Important**" to "**10 – Least Important**". *Please use each number once*, and use the space below to provide any additional comments.

Rank	Criteria	Response-number of responses
1	Minimize the number of homes within 500 feet of a particular route.	1-30, 2-4, 3-5, 4-5, 5-2, 6-1, 8-1, 10-5 Mean – 2.52
2	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	1-12, 2-6, 3-6, 4-2, 5-5, 7-3, 8-2, 9-3, 10-5 Mean – 3.63
3	Minimize the length through existing parks, recreation areas or other designated conservation lands.	1-6, 2-3, 3-2, 4-10, 5-7, 6-8, 7-3, 8-3, 10-5 Mean – 4.54
4	Minimize number of parcels or lots crossed by the route.	1-7, 2-5, 3-5, 4-5, 5-3, 6-5, 7-4, 8-2, 9-3, 10-6, 11-1 Mean – 4.60
5	Minimize number of school properties within 500 feet of a particular route.	1-6, 2-8, 3-4, 5-11, 6-4, 7-4, 8-1, 9-5, 10-5 Mean – 4.69
6	Minimize length of forested wetlands crossed by the route.	1-9, 2-3, 3-4, 4-1, 5-3, 6-6, 7-7, 8-5, 9-4, 10-4 Mean – 4.75
7	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	1-13, 2-3, 3-2, 4-6, 5-1, 6-2, 8-6, 9-6, 10-8 Mean – 4.77
8	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	1-9, 2-3, 3-3, 4-6, 5-4, 7-5, 8-3, 9-5, 10-8 Mean – 4.85
9	Minimize length of herbaceous wetlands crossed by the route.	1-7, 2-2, 3-4, 4-2, 5-3, 6-5, 7-3, 8-10, 9-5, 10-5 Mean – 5.23
10	Minimize cost of construction for our overall customer base.	1-2, 2-1, 3-3, 4-2, 5-3, 6-3, 7-3, 8-4, 9-2, 10-21 Mean – 6.44



TABULATIONS: Web survey and U.S. Mail survey responses

14 Web form surveys submitted / 2 U.S. Mail surveys received

Willow Oak - Wheeler - Davis Project Survey

Section 1.

Below is a list of the criteria that Tampa Electric is considering in the route selection process. Please rank the criteria from "1 – Most Important" to "10 – Least Important". *Please use each number once*, and use the space below to provide any additional comments.

Rank	Criteria	Response-number of responses
1	Minimize the number of homes within 500 feet of a particular route.	1-6, 2-4, 3-1, 5-2, 6-1, 7-1, 9-1, 10-1 Mean – 3.47
2	Maximize length of route where another linear facility exists along which Tampa Electric can locate.	1-2, 2-4, 3-3, 4-1, 5-1, 7-1, 8-1, 9-2, 10-2 Mean – 4.76
3	Maximize length of route where public road right of way or established Tampa Electric corridors are available.	1-3, 2-2, 3-2, 4-1, 5-2, 6-1, 7-2, 8-1 9-1, 10-2 Mean – 4.94
4	Minimize the length through existing parks, recreation areas or other designated conservation lands.	3-4, 4-5, 5-1, 6-3, 7-1, 8-3 Mean – 5.06
5	Minimize number of school properties within 500 feet of a particular route.	2-1, 3-3, 4-3, 5-4, 6-1, 7-2, 8-1, 9-1, 10-1 Mean – 5.39
6	Minimize number of parcels or lots crossed by the route.	1-2, 2-2, 4-2, 5-2, 6-4, 8-2, 9-1, 10-2 Mean – 5.47
7	Minimize number of wading bird colonies or eagle nests within 0.5 miles of the route.	1-1, 2-2, 3-3, 5-1, 6-2, 7-2, 8-3, 9-2, 10-1 Mean – 5.71
8	Minimize length of forested wetlands crossed by the route.	1-1, 2-3 5-1, 6-2, 7-2, 8-5, 10-3 Mean – 6.35
9	Minimize cost of construction for our overall customer base.	1-2, 3-1, 4-2, 5-1, 7-2, 8-2, 9-3, 10-4 Mean – 6.76
10	Minimize length of herbaceous wetlands crossed by the route.	2-1, 4-1, 5-1, 6-2, 7-3, 8-1, 9-5, 10-3 Mean – 7.47

APPENDIX C

APPENDIX C

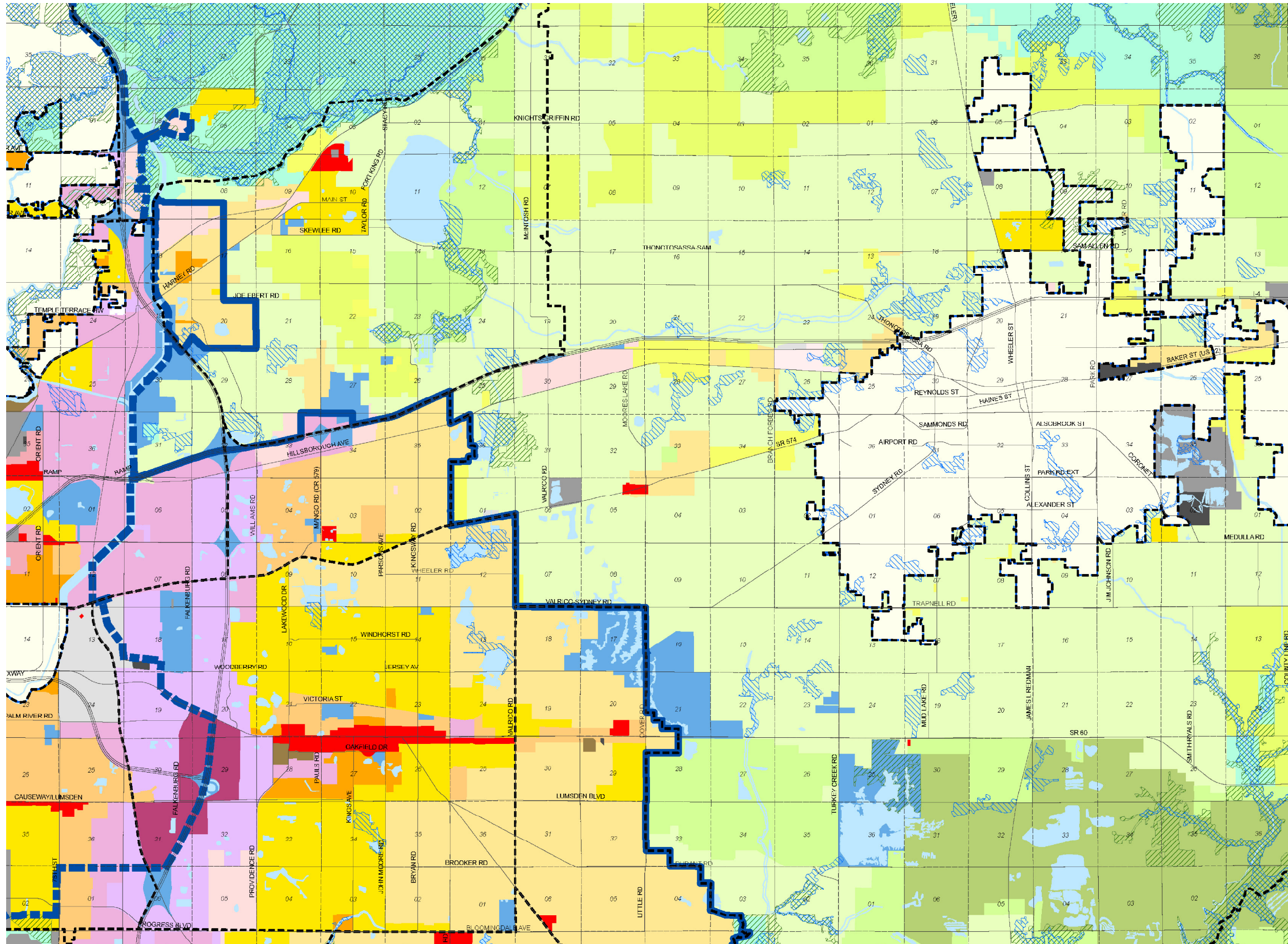
AGENCY CONTACTS

APPENDIX C
AGENCY CONTACTS

<u>Date</u>	<u>Person(s)</u>	<u>Agency</u>	<u>Subject</u>
February to September 2007	Ann Sheller	City of Temple Terrace	Land use updates
February 19, 2007	Erik Peterson	Polk County	Land use information
February 19, 2007	Alan Klose	CFRPC	Land use information
February 20, 2007	William Lamboy	Hillsborough County	Land use data
March 7, 2007	David Johnson	Hillsborough County	Platted subdivisions
March 21, 2007	Curtis Knowles	Polk County	Airport zoning
March 21, 2007	—	City of Mulberry	Land use information
April 12, 2007	Julie Ham	City of Plant City	Land use information
May 9, 2007	Janet Ryder	USFWS	Eagle nest
August 16, 2007	Stephanie Rousseau	FWC	Project introduction and listed species
August 7, 2007	Mike Halpin Ann Seiler Karen Skinner	FDEP Siting Office	Project introduction and corridor discussion

APPENDIX D

FUTURE LAND USE MAPS



**ADOPTED 2015 FUTURE LAND USE
UNINCORPORATED HILLSBOROUGH COUNTY
UNINCORPORATED COUNTY-WIDE**
EFFECTIVE: JUNE 22, 2007
ORIGINALLY ADOPTED: OCTOBER 27, 1994

LEGEND

UNINCORPORATED HILLSBOROUGH COUNTY

AGRICULTURAL - MINING - 100	(25 FAR)
AGRICULTURAL - 1/10	(25 FAR)
AGRICULTURAL / RURAL - 1/5	(25 FAR)
PLANNED ENVIRONMENTAL COMMUNITY - 1/2	(25 FAR)
AGRICULTURAL ESTATE - 1/2.5	(25 FAR)
RESIDENTIAL - 1	(25 FAR)
RESIDENTIAL - 2	(25 FAR)
RESIDENTIAL PLANNED - 2	(25 FAR)
RESIDENTIAL - 4	(25 FAR)
RESIDENTIAL - 6	(25 FAR)
RESIDENTIAL - 8	(25 FAR)
RESIDENTIAL - 12	(25 FAR)
RESIDENTIAL - 16	(25 FAR)
RESIDENTIAL - 20	(25 FAR)
NEIGHBORHOOD MIXED USE - 4(3)	(35 FAR)
SUBURBAN MIXED USE - 6	(35 FAR)
COMMUNITY MIXED USE - 12	(50 FAR)
URBAN MIXED USE - 20	(1.0 FAR)
REGIONAL MIXED USE - 35	(2.0 FAR)
OFFICE COMMERCIAL - 20	(75 FAR)
RESEARCH CORPORATE PARK	(1.0 FAR)
LIGHT INDUSTRIAL PLANNED	(50 FAR)
LIGHT INDUSTRIAL	(50 FAR)
HEAVY INDUSTRIAL	(50 FAR)
PUBLIC / QUASI-PUBLIC	
NATURAL PRESERVATION	
CITRUS PARK VILLAGE (See Citrus Park Village Plan - Sub-Area Map)	
WATER	

ENVIRONMENTALLY SENSITIVE AREAS

- SIGNIFICANT WILDLIFE HABITAT
- WETLANDS

ROADS AND BOUNDARY LINES

- COOKROACH BAY AQUATIC PRESERVE BOUNDARY
- COUNTY BOUNDARY
- JURISDICTION BOUNDARY
- TAMPA SERVICE AREA
- URBAN SERVICE AREA
- EXISTING MAJOR ROAD NETWORK
- LIMITED ACCESS ROADS
- PLANNING AREA BOUNDARY
- COASTAL HIGH HAZARD AREA BOUNDARY

LOCATOR MAP



CREDITS

2005 FUTURE LAND USE: Hillsborough County City-County Planning Commission. Originally Adopted: October 27, 1994. Jurisdictional areas established by the amendments. Effective to present.
URBAN SERVICE AREA BOUNDARIES: Hillsborough County City-County Planning Commission. Effective to present.
SOUTH FLORIDA WILDLIFE HABITAT: Hillsborough County Planning and Growth Management. Effective to present.
WETLANDS: Southeast Florida Water Management District. Wetland features over 40 acres extracted from 2004 Land Use Land Cover.
MAJOR ROADS: Metropolitan Planning Organization 2010 Long Range Transportation Plan. See Adopted MPO Long Range Transportation Plan for specific representations.
CHECK: Tampa Bay Regional Planning Council, June 12, 2008. The Coastal High Hazard Area as shown on the Future Land Use map is a general depiction and not 100% accurate. The use of the word "general" is intended to indicate that the map is not a final product and is not intended to be used for legal purposes. The map is intended to provide a general overview of the future land use plan and is not intended to be used for legal purposes. The map is intended to provide a general overview of the future land use plan and is not intended to be used for legal purposes.
ACCURACY: It is intended that the accuracy of the data may vary with U.S. map accuracy standards. However, such accuracy is not guaranteed by the Hillsborough County City-County Planning Commission.
REPRODUCTION: This map may not be reproduced in part or full for sale or use without specific approval of the Hillsborough County City-County Planning Commission.

REFERENCE INFORMATION



0 6,000 12,000 24,000 36,000 48,000 Feet

Print Date: Jul 23, 2007

THE PLANNING COMMISSION

For more information about our organization visit website: www.theplanningcommission.org

For more information about our organization visit website: www.theplanningcommission.org

APPENDIX E

EMF CALCULATIONS

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Willow Oak - Davis 230 kV Transmission Line

Name of Transmission Line/InterestPoint

Tampa Electric Company

P.O. Box 111, Tampa, Florida 33601-0111

Name and Address of Facility (Utility) Owner

Black & Veatch

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Authorized Agent

January 01, 2009

Date of Proposed Construction

Jim Brooks

201 South Orange Avenue, Suite 500, Orlando, FL, 23801

Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Figure 1	75	2.4	29	0.6	0	134.8	0

Substations

None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Details for CrossSection: **Figure 1- Willow Oak - Davis 230 kV Line**

1

Circuit Name

230 kV

Rated Voltage

NEW CIRCUIT

New/Existing

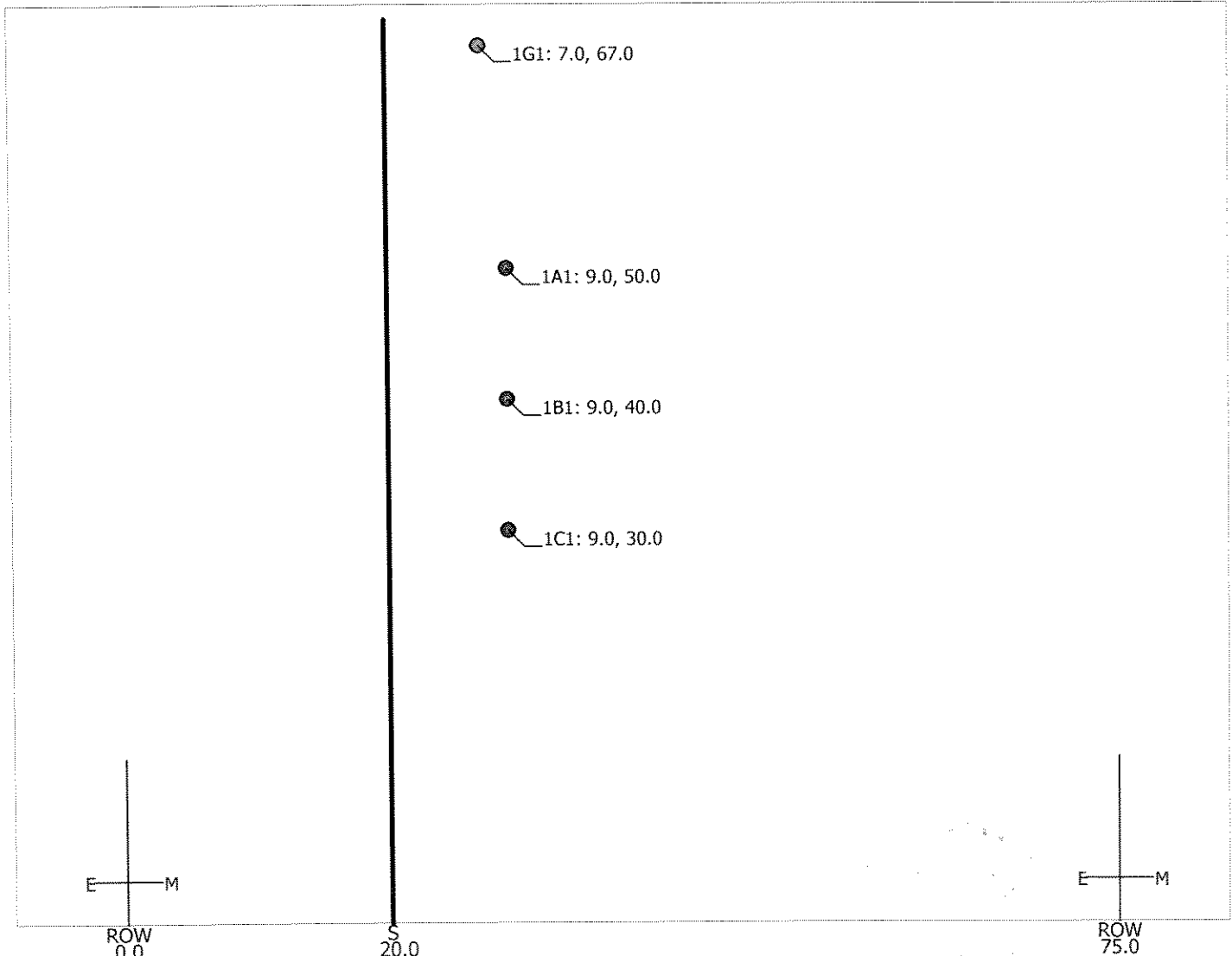
Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
1A1	29.00	9.00	50.00	1	1.50	0.00	246.0	0	2560
1B1	29.00	9.00	40.00	1	1.50	0.00	246.0	120	2560
1C1	29.00	9.00	30.00	1	1.50	0.00	246.0	240	2560
1G1	27.00	7.00	67.00	1	0.36	0.00	0.0	0	0

Points of Interest

None

Phase Configuration

All Measurements in Feet



Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 1- Willow Oak - Davis 230 kV Line**

Circuit Name	Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
					# of	Diameter (in)	Spacing (in)			
1	1A1	29.00	9.00	50.00	1	1.50	0.00	246.0	0	2560
1	1B1	29.00	9.00	40.00	1	1.50	0.00	246.0	120	2560
1	1C1	29.00	9.00	30.00	1	1.50	0.00	246.0	240	2560
1	1G1	27.00	7.00	67.00	1	0.36	0.00	0.0	0	0

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
0.00	0.60	134.78	28.00	2.36	235.64	62.00	0.41	120.22
75.00	0.08	83.55	29.00	2.36	235.87	63.00	0.38	116.83
-4.00	0.42	120.22	30.00	2.36	235.64	64.00	0.34	113.54
-3.00	0.46	123.71	31.00	2.34	234.98	65.00	0.31	110.36
-2.00	0.50	127.29	32.00	2.32	233.88	66.00	0.28	107.27
-1.00	0.55	130.99	33.00	2.29	232.35	67.00	0.25	104.27
0.00	0.60	134.78	34.00	2.25	230.43	68.00	0.22	101.38
1.00	0.65	138.66	35.00	2.20	228.12	69.00	0.20	98.57
2.00	0.70	142.65	36.00	2.14	225.46	70.00	0.17	95.86
3.00	0.76	146.72	37.00	2.08	222.48	71.00	0.15	93.23
4.00	0.82	150.89	38.00	2.01	219.20	72.00	0.13	90.69
5.00	0.88	155.13	39.00	1.94	215.67	73.00	0.11	88.23
6.00	0.95	159.45	40.00	1.87	211.90	74.00	0.10	85.85
7.00	1.02	163.83	41.00	1.79	207.94	75.00	0.08	83.55
8.00	1.09	168.27	42.00	1.71	203.82	76.00	0.07	81.33
9.00	1.16	172.75	43.00	1.63	199.56	77.00	0.06	79.18
10.00	1.24	177.26	44.00	1.55	195.21	78.00	0.05	77.10
11.00	1.31	181.77	45.00	1.47	190.77	79.00	0.04	75.09
12.00	1.39	186.29	46.00	1.39	186.29			
13.00	1.47	190.77	47.00	1.31	181.77			
14.00	1.56	195.21	48.00	1.23	177.26			
15.00	1.64	199.56	49.00	1.16	172.75			
16.00	1.72	203.82	50.00	1.08	168.27			
17.00	1.80	207.94	51.00	1.01	163.83			
18.00	1.87	211.90	52.00	0.94	159.45			
19.00	1.95	215.67	53.00	0.88	155.13			
20.00	2.02	219.20	54.00	0.81	150.88			
21.00	2.08	222.48	55.00	0.75	146.72			
22.00	2.14	225.46	56.00	0.70	142.65			
23.00	2.20	228.12	57.00	0.64	138.66			
24.00	2.25	230.43	58.00	0.59	134.78			
25.00	2.29	232.35	59.00	0.54	130.99			
26.00	2.32	233.88	60.00	0.50	127.29			
27.00	2.34	234.98	61.00	0.45	123.71			

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Willow Oak - Davis 230 kV Transmission Line

Name of Transmission Line/InterestPoint

TECO

P.O. Box 111, Tampa, Florida 33601-0111

Name and Address of Facility (Utility) Owner

Black & Veatch

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Authorized Agent

January 01, 2009

Date of Proposed Construction

Jim Brooks

201 South Orange Ave, Suite 500, Orlando, FL, 32801

Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Jim Brooks

Signature and Seal of Professional Engineer

10/1/07

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Figure 2	75	1.1	26	0.4	0	146.1	0

Substations

None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Willow Oak - Davis 230 kV Transmission Line

Name of Transmission Line/Interest Point

TECO

P.O. Box 111, Tampa, Florida 33601-0111

Name and Address of Facility (Utility) Owner

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201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Authorized Agent

January 01, 2009

Date of Proposed Construction

Jim Brooks

201 South Orange Ave, Suite 500, Orlando, FL, 32801

Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Figure 3	75	0.3	38	0.1	75	117.2	0

Substations

None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Details for CrossSection: **Figure 3- Willow Oak - Davis 230 kV Line**

230kV

Circuit Name

230 kV

Rated Voltage

NEW CIRCUIT

New/Existing

Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
1A1	29.00	9.00	90.00	1	1.50	0.00	246.0	0	2560
1B1	29.00	9.00	80.00	1	1.50	0.00	246.0	120	2560
1C1	29.00	9.00	70.00	1	1.50	0.00	246.0	240	2560
1G1	27.00	7.00	106.00	1	0.36	0.00	0.0	0	0

69 kV

Circuit Name

69 kV

Rated Voltage

NEW CIRCUIT

New/Existing

Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
2A1	23.00	3.00	61.00	1	1.20	0.00	74.0	0	1380
2B1	23.00	3.00	54.00	1	1.20	0.00	74.0	120	1380
2C1	23.00	3.00	47.00	1	1.20	0.00	74.0	240	1380

Dist1

Circuit Name

0 kV

Rated Voltage

NEW CIRCUIT

New/Existing

Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
3A1	22.00	2.00	26.00	1	0.68	0.00	15.0	0	540
3B1	22.00	2.00	23.00	1	0.68	0.00	15.0	120	540
3C1	22.00	2.00	20.00	1	0.68	0.00	15.0	240	540
3G1	22.00	2.00	18.00	1	0.72	0.00	0.0	0	0

Dist2

Circuit Name

0 kV

Rated Voltage

NEW CIRCUIT

New/Existing

Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
4A1	18.00	-2.00	26.00	1	0.68	0.00	15.0	0	540
4B1	18.00	-2.00	23.00	1	0.68	0.00	15.0	120	540
4C1	18.00	-2.00	20.00	1	0.68	0.00	15.0	240	540
4G1	18.00	-2.00	18.00	1	0.72	0.00	0.0	0	0

Points of Interest

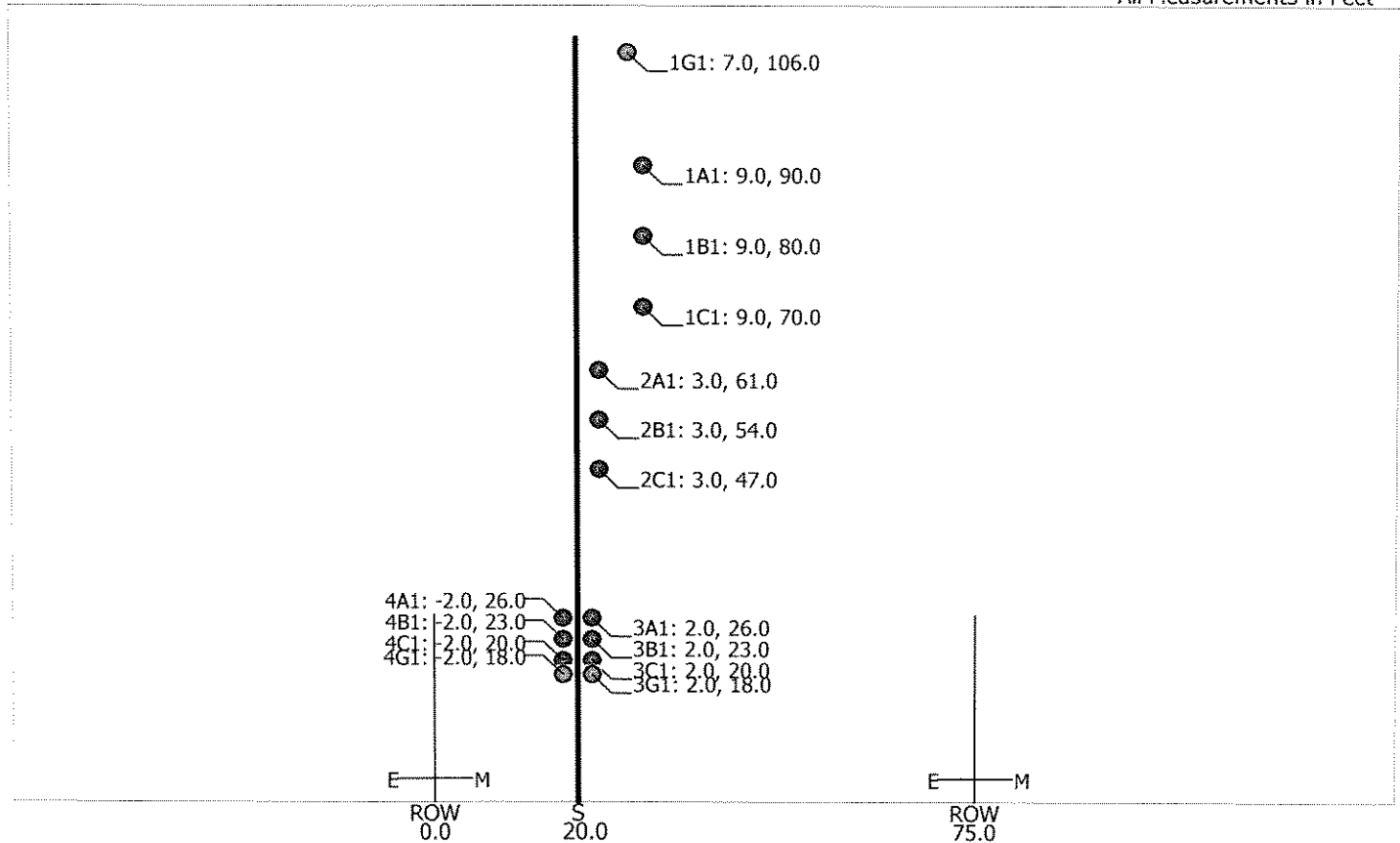
None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Phase Configuration

All Measurements in Feet



Jim Brink
10/1/07

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **15** Conductors (**12** Energized Phases)
 E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 3- Willow Oak - Davis 230 kV Line**

Circuit Name	Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
					# of	Diameter (in)	Spacing (in)			
230kV	1A1	29.00	9.00	90.00	1	1.50	0.00	246.0	0	2560
230kV	1B1	29.00	9.00	80.00	1	1.50	0.00	246.0	120	2560
230kV	1C1	29.00	9.00	70.00	1	1.50	0.00	246.0	240	2560
230kV	1G1	27.00	7.00	106.00	1	0.36	0.00	0.0	0	0
69 kV	2A1	23.00	3.00	61.00	1	1.20	0.00	74.0	0	1380
69 kV	2B1	23.00	3.00	54.00	1	1.20	0.00	74.0	120	1380
69 kV	2C1	23.00	3.00	47.00	1	1.20	0.00	74.0	240	1380
Dist1	3A1	22.00	2.00	26.00	1	0.68	0.00	15.0	0	540
Dist1	3B1	22.00	2.00	23.00	1	0.68	0.00	15.0	120	540
Dist1	3C1	22.00	2.00	20.00	1	0.68	0.00	15.0	240	540
Dist1	3G1	22.00	2.00	18.00	1	0.72	0.00	0.0	0	0
Dist2	4A1	18.00	-2.00	26.00	1	0.68	0.00	15.0	0	540
Dist2	4B1	18.00	-2.00	23.00	1	0.68	0.00	15.0	120	540
Dist2	4C1	18.00	-2.00	20.00	1	0.68	0.00	15.0	240	540
Dist2	4G1	18.00	-2.00	18.00	1	0.72	0.00	0.0	0	0

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
0.00	0.12	117.16	17.00	0.22	184.14	40.00	0.28	114.80	63.00	0.19	73.14
75.00	0.12	60.66	18.00	0.23	185.60	41.00	0.28	111.82	64.00	0.18	71.98
-4.00	0.10	104.40	19.00	0.24	186.35	42.00	0.27	109.01	65.00	0.18	70.85
-3.00	0.10	107.35	20.00	0.24	186.36	43.00	0.27	106.37	66.00	0.17	69.74
-2.00	0.11	110.46	21.00	0.25	185.64	44.00	0.27	103.88	67.00	0.16	68.65
-1.00	0.11	113.72	22.00	0.25	184.20	45.00	0.27	101.53	68.00	0.16	67.59
0.00	0.12	117.16	23.00	0.25	182.08	46.00	0.27	99.31	69.00	0.15	66.54
1.00	0.12	120.77	24.00	0.26	179.35	47.00	0.26	97.21	70.00	0.15	65.52
2.00	0.13	124.55	25.00	0.26	176.08	48.00	0.26	95.22	71.00	0.14	64.51
3.00	0.13	128.51	26.00	0.26	172.36	49.00	0.26	93.33	72.00	0.14	63.52
4.00	0.14	132.63	27.00	0.27	168.28	50.00	0.25	91.52	73.00	0.13	62.55
5.00	0.15	136.90	28.00	0.27	163.94	51.00	0.25	89.79	74.00	0.13	61.59
6.00	0.15	141.30	29.00	0.27	159.42	52.00	0.25	88.13	75.00	0.12	60.66
7.00	0.16	145.82	30.00	0.27	154.82	53.00	0.24	86.54	76.00	0.12	59.73
8.00	0.16	150.40	31.00	0.27	150.20	54.00	0.24	85.01	77.00	0.11	58.83
9.00	0.17	155.01	32.00	0.27	145.63	55.00	0.23	83.53	78.00	0.10	57.94
10.00	0.18	159.58	33.00	0.28	141.16	56.00	0.23	82.09	79.00	0.10	57.06
11.00	0.18	164.05	34.00	0.28	136.83	57.00	0.22	80.71			
12.00	0.19	168.34	35.00	0.28	132.67	58.00	0.22	79.36			
13.00	0.20	172.37	36.00	0.28	128.69	59.00	0.21	78.05			
14.00	0.21	176.06	37.00	0.28	124.92	60.00	0.20	76.78			
15.00	0.21	179.30	38.00	0.28	121.35	61.00	0.20	75.54			
16.00	0.22	182.02	39.00	0.28	117.98	62.00	0.19	74.32			

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Willow Oak - Davis 230 kV Transmission Line

Name of Transmission Line/Interest Point

TECO

P.O. Box 111, Tampa, Florida 33601-0111

Name and Address of Facility (Utility) Owner

Black & Veatch

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Authorized Agent

January 01, 2009

Date of Proposed Construction

Jim Brooks

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Figure 4	125	2.9	29	1.1	0	133.3	0

Substations

None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Details for CrossSection: **Figure 4- Willow Oak - Davis 230 kV Line**

Near Apt
Circuit Name

230 kV
Rated Voltage

NEW CIRCUIT
New/Existing

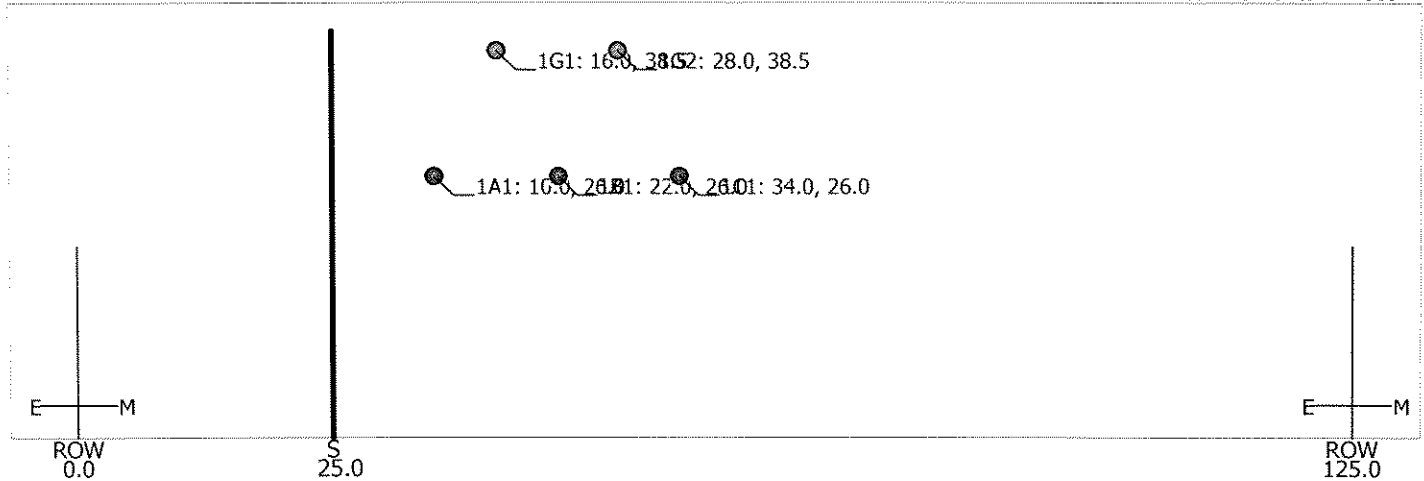
Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
1A1	35.00	10.00	26.00	1	1.50	0.00	246.0	0	2560
1B1	47.00	22.00	26.00	1	1.50	0.00	246.0	120	2560
1C1	59.00	34.00	26.00	1	1.50	0.00	246.0	240	2560
1G1	41.00	16.00	38.50	1	0.36	0.00	0.0	0	0
1G2	53.00	28.00	38.50	1	0.36	0.00	0.0	0	0

Points of Interest

None

Phase Configuration

All Measurements in Feet



Jim Brooker
10/1/07

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **5** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: Figure 4- Willow Oak - Davis 230 kV Line

Circuit Name	Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
					# of	Diameter (in)	Spacing (in)			
Near Apt	1A1	35.00	10.00	26.00	1	1.50	0.00	246.0	0	2560
Near Apt	1B1	47.00	22.00	26.00	1	1.50	0.00	246.0	120	2560
Near Apt	1C1	59.00	34.00	26.00	1	1.50	0.00	246.0	240	2560
Near Apt	1G1	41.00	16.00	38.50	1	0.36	0.00	0.0	0	0
Near Apt	1G2	53.00	28.00	38.50	1	0.36	0.00	0.0	0	0

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
0.00	1.05	133.25	27.00	2.83	373.56	60.00	2.64	458.46	93.00	1.10	138.03
125.00	0.31	54.05	28.00	2.85	386.42	61.00	2.72	447.52	94.00	1.05	133.25
-4.00	0.88	116.21	29.00	2.86	399.19	62.00	2.78	436.04	95.00	1.01	128.69
-3.00	0.92	120.18	30.00	2.85	411.77	63.00	2.82	424.09	96.00	0.96	124.34
-2.00	0.96	124.34	31.00	2.82	424.09	64.00	2.85	411.77	97.00	0.92	120.18
-1.00	1.01	128.69	32.00	2.78	436.04	65.00	2.86	399.18	98.00	0.88	116.21
0.00	1.05	133.25	33.00	2.72	447.52	66.00	2.85	386.42	99.00	0.85	112.42
1.00	1.10	138.03	34.00	2.64	458.46	67.00	2.83	373.56	100.00	0.81	108.80
2.00	1.15	143.05	35.00	2.55	468.75	68.00	2.80	360.71	101.00	0.78	105.34
3.00	1.20	148.31	36.00	2.44	478.34	69.00	2.76	347.93	102.00	0.74	102.03
4.00	1.26	153.82	37.00	2.31	487.16	70.00	2.70	335.29	103.00	0.71	98.87
5.00	1.31	159.61	38.00	2.18	495.17	71.00	2.64	322.87	104.00	0.68	95.84
6.00	1.37	165.68	39.00	2.03	502.32	72.00	2.58	310.70	105.00	0.66	92.94
7.00	1.44	172.05	40.00	1.88	508.61	73.00	2.50	298.83	106.00	0.63	90.16
8.00	1.50	178.73	41.00	1.72	514.02	74.00	2.43	287.29	107.00	0.61	87.50
9.00	1.57	185.73	42.00	1.56	518.56	75.00	2.35	276.12	108.00	0.58	84.95
10.00	1.64	193.08	43.00	1.40	522.25	76.00	2.27	265.32	109.00	0.56	82.50
11.00	1.71	200.77	44.00	1.24	525.09	77.00	2.19	254.91	110.00	0.54	80.15
12.00	1.79	208.83	45.00	1.10	527.10	78.00	2.10	244.90	111.00	0.52	77.90
13.00	1.86	217.26	46.00	0.97	528.30	79.00	2.02	235.29	112.00	0.50	75.74
14.00	1.94	226.08	47.00	0.87	528.70	80.00	1.94	226.08	113.00	0.48	73.66
15.00	2.02	235.29	48.00	0.97	528.30	81.00	1.86	217.26	114.00	0.46	71.66
16.00	2.10	244.90	49.00	1.10	527.10	82.00	1.79	208.83	115.00	0.44	69.74
17.00	2.19	254.91	50.00	1.24	525.09	83.00	1.71	200.77	116.00	0.43	67.89
18.00	2.27	265.32	51.00	1.40	522.25	84.00	1.64	193.08	117.00	0.41	66.12
19.00	2.35	276.12	52.00	1.56	518.56	85.00	1.57	185.73	118.00	0.40	64.41
20.00	2.43	287.29	53.00	1.72	514.02	86.00	1.50	178.73	119.00	0.38	62.76
21.00	2.50	298.83	54.00	1.88	508.61	87.00	1.44	172.05	120.00	0.37	61.17
22.00	2.58	310.70	55.00	2.03	502.32	88.00	1.37	165.68	121.00	0.36	59.64
23.00	2.64	322.87	56.00	2.18	495.16	89.00	1.31	159.61	122.00	0.35	58.17
24.00	2.70	335.29	57.00	2.31	487.16	90.00	1.26	153.82	123.00	0.33	56.75
25.00	2.76	347.93	58.00	2.44	478.34	91.00	1.20	148.31	124.00	0.32	55.38
26.00	2.80	360.71	59.00	2.55	468.75	92.00	1.15	143.05	125.00	0.31	54.05

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **5** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 4- Willow Oak - Davis 230 kV Line**

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
126.00	0.30	52.77
127.00	0.29	51.54
128.00	0.28	50.35
129.00	0.27	49.19

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Report on Compliance with Electric and Magnetic Field (EMF) Standards

Agent/Facility Information

Willow Oak - Davis 230 kV Transmission Line

Name of Transmission Line/Interest Point

TECO

P.O. Box 111, Tampa, Florida 33601-0111

Name and Address of Facility (Utility) Owner

Black & Veatch

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Authorized Agent

January 01, 2009

Date of Proposed Construction

Jim Brooks

201 South Orange Avenue, Suite 500, Orlando, FL, 32801

Name and Address of Professional Engineer

Signature of Authorized Agent

Date

Signature and Seal of Professional Engineer

Date

Field Strength Information

Transmission Lines

Cross Section	Right-of-Way (ROW) Width (ft)	Maximum Calculated Fields and Distance From ROW Left					
		Electric				Magnetic	
		Within ROW		At Edge of ROW		At Edge of ROW	
		(kV/m)	(ft)	(kV/m)	(ft)	(mG)	(ft)
Figure 5	300	2.4	159	0.1	300	13.6	300

Substations

None

Florida Department of Environmental Protection

Twin Tower Office Bldg * 2600 Blair Stone Road * Tallahassee, Florida 32399-2400

Details for CrossSection: **Figure 5- Willow Oak - Davis 230 kV Line/300' ROW**

Ckt 1

Circuit Name

230 kV

Rated Voltage

NEW CIRCUIT

New/Existing

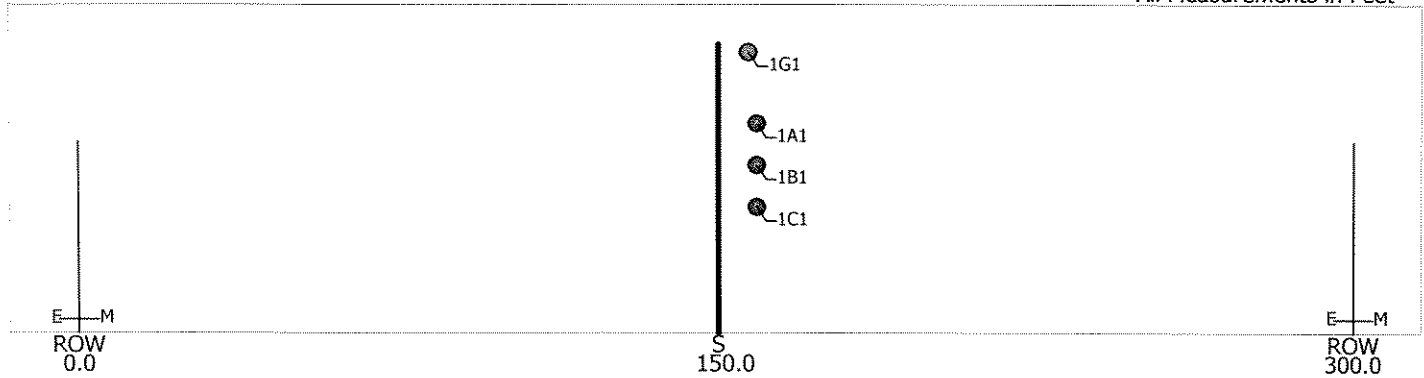
Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
				# of	Diameter (in)	Spacing (in)			
1A1	159.00	9.00	50.00	1	1.50	0.00	246.0	0	2560
1B1	159.00	9.00	40.00	1	1.50	0.00	246.0	120	2560
1C1	159.00	9.00	30.00	1	1.50	0.00	246.0	240	2560
1G1	157.00	7.00	67.00	1	0.36	0.00	0.0	0	0

Points of Interest

None

Phase Configuration

All Measurements in Feet



Jim Bricker
10/1/07

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 5- Willow Oak - Davis 230 kV Line/300' ROW**

Circuit Name	Id	Dist From Left ROW (ft)	Dist From Circuit CL (ft)	Minimum Height (ft)	SubConductors			Maximum Voltage (kV)	Angle (Degrees)	MCR (Amps)
					# of	Diameter (in)	Spacing (in)			
Ckt 1	1A1	159.00	9.00	50.00	1	1.50	0.00	246.0	0	2560
Ckt 1	1B1	159.00	9.00	40.00	1	1.50	0.00	246.0	120	2560
Ckt 1	1C1	159.00	9.00	30.00	1	1.50	0.00	246.0	240	2560
Ckt 1	1G1	157.00	7.00	67.00	1	0.36	0.00	0.0	0	0

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
0.00	0.05	10.89	28.00	0.07	15.64	62.00	0.10	26.86	96.00	0.08	54.24
300.00	0.07	13.65	29.00	0.07	15.87	63.00	0.10	27.35	97.00	0.08	55.54
-4.00	0.05	10.39	30.00	0.07	16.09	64.00	0.10	27.85	98.00	0.07	56.90
-3.00	0.05	10.51	31.00	0.07	16.33	65.00	0.10	28.36	99.00	0.07	58.29
-2.00	0.05	10.63	32.00	0.07	16.56	66.00	0.10	28.89	100.00	0.07	59.73
-1.00	0.05	10.76	33.00	0.08	16.81	67.00	0.10	29.43	101.00	0.06	61.22
0.00	0.05	10.89	34.00	0.08	17.05	68.00	0.10	29.99	102.00	0.06	62.76
1.00	0.05	11.02	35.00	0.08	17.31	69.00	0.10	30.56	103.00	0.05	64.35
2.00	0.06	11.15	36.00	0.08	17.57	70.00	0.10	31.15	104.00	0.05	66.00
3.00	0.06	11.29	37.00	0.08	17.83	71.00	0.10	31.75	105.00	0.04	67.70
4.00	0.06	11.42	38.00	0.08	18.10	72.00	0.10	32.37	106.00	0.04	69.45
5.00	0.06	11.56	39.00	0.08	18.37	73.00	0.10	33.01	107.00	0.04	71.27
6.00	0.06	11.71	40.00	0.08	18.66	74.00	0.10	33.67	108.00	0.04	73.15
7.00	0.06	11.85	41.00	0.08	18.95	75.00	0.10	34.34	109.00	0.04	75.09
8.00	0.06	12.00	42.00	0.08	19.24	76.00	0.10	35.04	110.00	0.05	77.10
9.00	0.06	12.15	43.00	0.08	19.54	77.00	0.10	35.75	111.00	0.06	79.18
10.00	0.06	12.31	44.00	0.08	19.85	78.00	0.10	36.48	112.00	0.07	81.33
11.00	0.06	12.46	45.00	0.08	20.17	79.00	0.10	37.24	113.00	0.09	83.55
12.00	0.06	12.62	46.00	0.09	20.49	80.00	0.10	38.02	114.00	0.10	85.85
13.00	0.06	12.78	47.00	0.09	20.82	81.00	0.10	38.82	115.00	0.12	88.23
14.00	0.06	12.95	48.00	0.09	21.16	82.00	0.10	39.64	116.00	0.14	90.69
15.00	0.06	13.12	49.00	0.09	21.50	83.00	0.10	40.49	117.00	0.16	93.23
16.00	0.06	13.29	50.00	0.09	21.86	84.00	0.10	41.37	118.00	0.18	95.86
17.00	0.06	13.47	51.00	0.09	22.22	85.00	0.10	42.27	119.00	0.20	98.57
18.00	0.06	13.65	52.00	0.09	22.59	86.00	0.10	43.19	120.00	0.23	101.38
19.00	0.07	13.83	53.00	0.09	22.97	87.00	0.10	44.15	121.00	0.25	104.27
20.00	0.07	14.01	54.00	0.09	23.36	88.00	0.10	45.14	122.00	0.28	107.27
21.00	0.07	14.20	55.00	0.09	23.76	89.00	0.10	46.16	123.00	0.31	110.36
22.00	0.07	14.40	56.00	0.09	24.17	90.00	0.10	47.20	124.00	0.35	113.54
23.00	0.07	14.59	57.00	0.09	24.59	91.00	0.09	48.29	125.00	0.38	116.83
24.00	0.07	14.80	58.00	0.10	25.02	92.00	0.09	49.40	126.00	0.42	120.22
25.00	0.07	15.00	59.00	0.10	25.46	93.00	0.09	50.55	127.00	0.46	123.71
26.00	0.07	15.21	60.00	0.10	25.92	94.00	0.09	51.74	128.00	0.50	127.30
27.00	0.07	15.43	61.00	0.10	26.38	95.00	0.08	52.97	129.00	0.55	130.99

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
 E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 5- Willow Oak - Davis 230 kV Line/300' ROW**

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)	Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
130.00	0.60	134.78	172.00	1.71	203.82	214.00	0.06	66.00	256.00	0.10	26.86
131.00	0.65	138.66	173.00	1.63	199.56	215.00	0.06	64.35	257.00	0.10	26.38
132.00	0.70	142.65	174.00	1.55	195.21	216.00	0.07	62.76	258.00	0.10	25.92
133.00	0.76	146.72	175.00	1.47	190.77	217.00	0.07	61.22	259.00	0.10	25.46
134.00	0.82	150.89	176.00	1.39	186.29	218.00	0.07	59.73	260.00	0.10	25.02
135.00	0.88	155.13	177.00	1.31	181.77	219.00	0.08	58.29	261.00	0.10	24.59
136.00	0.95	159.45	178.00	1.23	177.25	220.00	0.08	56.90	262.00	0.10	24.17
137.00	1.02	163.83	179.00	1.16	172.75	221.00	0.09	55.54	263.00	0.10	23.76
138.00	1.09	168.27	180.00	1.08	168.27	222.00	0.09	54.24	264.00	0.10	23.36
139.00	1.16	172.75	181.00	1.01	163.83	223.00	0.09	52.97	265.00	0.09	22.97
140.00	1.24	177.26	182.00	0.94	159.45	224.00	0.09	51.74	266.00	0.09	22.59
141.00	1.31	181.77	183.00	0.88	155.13	225.00	0.10	50.55	267.00	0.09	22.22
142.00	1.39	186.29	184.00	0.81	150.88	226.00	0.10	49.40	268.00	0.09	21.86
143.00	1.47	190.77	185.00	0.75	146.72	227.00	0.10	48.29	269.00	0.09	21.50
144.00	1.56	195.21	186.00	0.70	142.65	228.00	0.10	47.20	270.00	0.09	21.16
145.00	1.64	199.56	187.00	0.64	138.66	229.00	0.10	46.15	271.00	0.09	20.82
146.00	1.72	203.82	188.00	0.59	134.77	230.00	0.10	45.14	272.00	0.09	20.49
147.00	1.80	207.94	189.00	0.54	130.98	231.00	0.11	44.15	273.00	0.09	20.17
148.00	1.87	211.90	190.00	0.50	127.29	232.00	0.11	43.19	274.00	0.09	19.85
149.00	1.95	215.67	191.00	0.45	123.71	233.00	0.11	42.27	275.00	0.09	19.54
150.00	2.02	219.20	192.00	0.41	120.22	234.00	0.11	41.36	276.00	0.09	19.24
151.00	2.08	222.48	193.00	0.38	116.83	235.00	0.11	40.49	277.00	0.08	18.95
152.00	2.14	225.46	194.00	0.34	113.54	236.00	0.11	39.64	278.00	0.08	18.66
153.00	2.20	228.12	195.00	0.31	110.36	237.00	0.11	38.82	279.00	0.08	18.37
154.00	2.25	230.43	196.00	0.28	107.27	238.00	0.11	38.02	280.00	0.08	18.10
155.00	2.29	232.35	197.00	0.25	104.27	239.00	0.11	37.24	281.00	0.08	17.83
156.00	2.32	233.88	198.00	0.22	101.38	240.00	0.11	36.48	282.00	0.08	17.57
157.00	2.34	234.98	199.00	0.20	98.57	241.00	0.11	35.75	283.00	0.08	17.31
158.00	2.36	235.64	200.00	0.17	95.86	242.00	0.11	35.04	284.00	0.08	17.05
159.00	2.36	235.87	201.00	0.15	93.23	243.00	0.11	34.34	285.00	0.08	16.81
160.00	2.36	235.64	202.00	0.13	90.69	244.00	0.11	33.67	286.00	0.08	16.56
161.00	2.34	234.98	203.00	0.11	88.23	245.00	0.11	33.01	287.00	0.08	16.33
162.00	2.32	233.88	204.00	0.10	85.85	246.00	0.11	32.37	288.00	0.08	16.09
163.00	2.29	232.35	205.00	0.08	83.55	247.00	0.11	31.75	289.00	0.07	15.87
164.00	2.25	230.43	206.00	0.07	81.33	248.00	0.11	31.15	290.00	0.07	15.64
165.00	2.20	228.12	207.00	0.06	79.18	249.00	0.11	30.56	291.00	0.07	15.43
166.00	2.14	225.46	208.00	0.05	77.10	250.00	0.11	29.99	292.00	0.07	15.21
167.00	2.08	222.48	209.00	0.04	75.09	251.00	0.11	29.43	293.00	0.07	15.00
168.00	2.01	219.20	210.00	0.04	73.15	252.00	0.10	28.89	294.00	0.07	14.80
169.00	1.94	215.67	211.00	0.04	71.27	253.00	0.10	28.36	295.00	0.07	14.59
170.00	1.87	211.90	212.00	0.05	69.45	254.00	0.10	27.85	296.00	0.07	14.40
171.00	1.79	207.94	213.00	0.05	67.70	255.00	0.10	27.35	297.00	0.07	14.20

Jan Breen
 10/1/07

Electric and Magnetic Field Effects

Willow Oak - Davis 230 kV Transmission Line

Units: **English** Physical System: **4** Conductors (**3** Energized Phases)
E-Field Transducer Height **3.28** ft B-Field Transducer Height **3.28** ft

CrossSection: **Figure 5- Willow Oak - Davis 230 kV Line/300' ROW**

Dist From RowLeft (ft)	Electric Field (kV/m)	Magnetic Field (mG)
298.00	0.07	14.01
299.00	0.07	13.83
300.00	0.07	13.65
301.00	0.07	13.47
302.00	0.07	13.29
303.00	0.06	13.12
304.00	0.06	12.95

Jim Brubaker
10/1/07