

Polk Power Station Phase II Reclaimed Water Pipeline

Request for SCA Modification—Chapter 9.0



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LIST OF ACRONYMS AND ABBREVIATIONS

DHR	Division of Historical Resources
DRI	development of regional impact
ECT	Environmental Consulting & Technology, Inc.
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FLUM	future land use map
FNAI	Florida Natural Areas Inventory
ft	foot
ft ²	square foot
ft-amsl	feet above mean sea level
FWC	Florida Fish and Wildlife Conservation Commission
GIS	geographic information system
HDD	horizontal directional drilling
LDC	land development code
MGD	million gallons per day
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
PAR	Public Access Reuse
Partnership	Regional Reclaimed Water Partnership Initiative
PCU	Polk County Utilities
PPS	Polk Power Station
PPSA	Florida's Electrical Power Plant Siting Act
PUD	planned unit development
RARE	Roadless Area Review and Evaluation
RDA	Rural Development Area
SDA	Suburban Development Area
SR	State Road
SWFWMD	Southwest Florida Water Management District
SWUCA	Southern Water Use Caution Area
Tampa Electric	Tampa Electric Company
TIITF	Florida Board of Trustees of the Internal Improvement Trust Fund
TSDA	Transit Supportive Development Area
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
WTS	wetlands treatment system
WWTP	wastewater treatment plant

9.0 PHASE II RECLAIMED WATER PIPELINE CORRIDOR MODIFICATION

Tampa Electric Company (Tampa Electric) certified the Polk Power Station (PPS) in 1994 through Florida's Electrical Power Plant Siting Act (PPSA), Case No. PA 92-32. Tampa Electric has been

approved to expand the current power generation facility and, as a result, will need additional cooling water for the facility located south of Mulberry in Polk County (see Figure 9.0.0-1). Tampa Electric has been a key member of a unique partnership, the Regional Reclaimed Water Partnership Initiative (Partnership), also comprised of the Southwest Florida Water Management District (SWFWMD), the Cities of Lakeland and Mulberry, and Polk County. The purpose of the partnership is to provide water resource benefits to each participant by using an underutilized water source to its maximum benefit. Previously, in September 2011, a reclaimed pipeline from the City of Lakeland Wastewater Wetlands Treatment System (WTS) to Polk Power Station (PPS) was approved as a modification under the Florida Department of Environmental Protection's (FDEP's) siting rules (Section 62-17.211, Florida Administrative Code [F.A.C.]).

Tampa Electric has already completed the first phase of the partnership with the City of Lakeland to reuse their reclaimed water. In this case, the City of Mulberry and Polk County have excess secondary treated wastewater (reclaimed water), which can be used by Tampa Electric to further reduce their need for groundwater from the Southern Water Use Caution Area (SWUCA) and also reduce nutrient loading to the Alafia River.

Continuing discussions with the Partnership have resulted in the decision to connect the wastewater flows from both the Polk County Wastewater Treatment Plant (WWTP) and the City of Mulberry WWTP to the certified reclaimed pipeline corridor (see Figure 9.0.0-2).

To use the 0.8 million gallons per day (MGD) of available reclaimed wastewater from Polk County, Tampa Electric will need to construct a pipeline from the Polk County

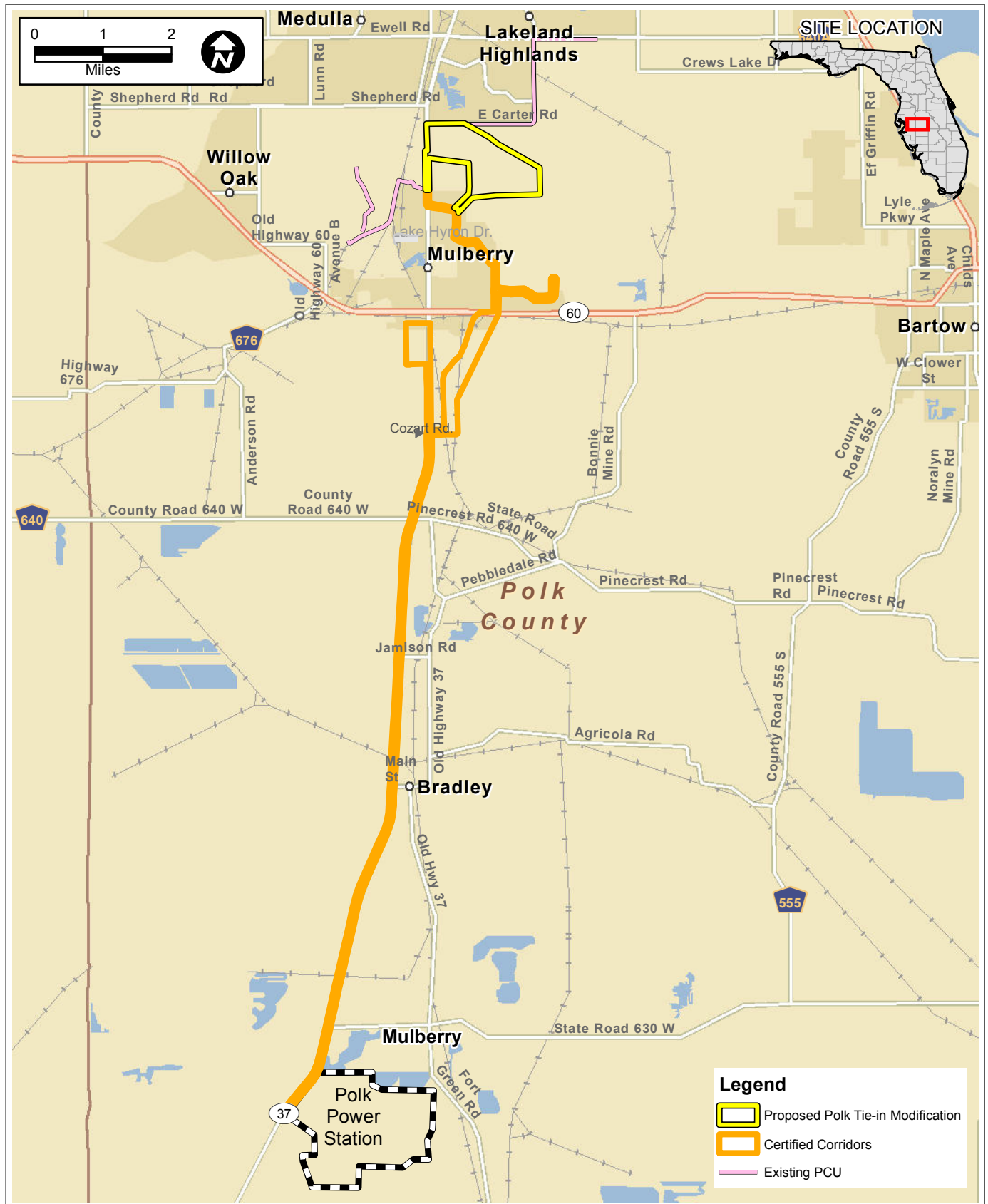


FIGURE 9.0.0-1.
PROJECT LOCATION

Sources: ESRI, 2014; ECT, 2015.



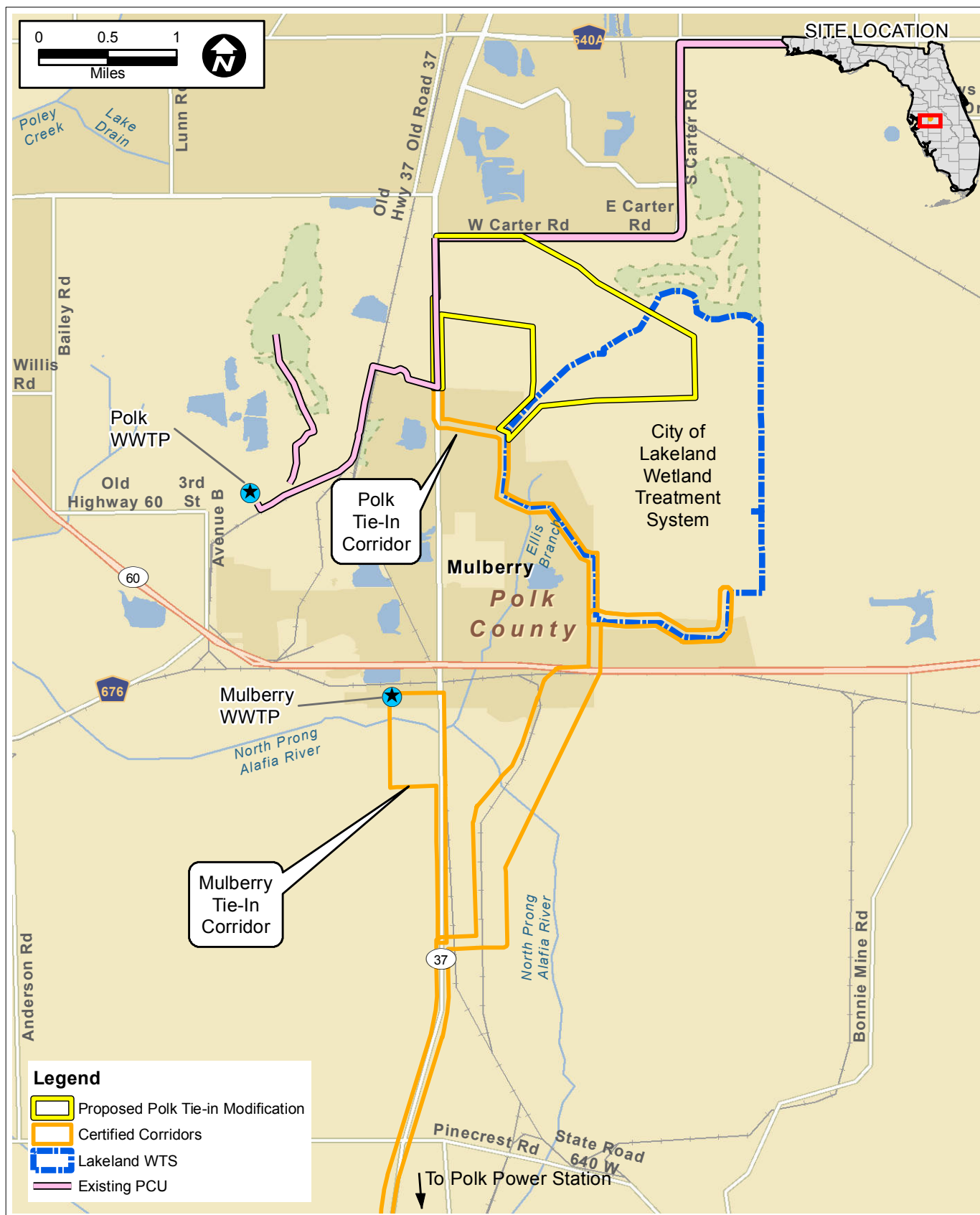


FIGURE 9.0.0-2.
LOCATION OF CERTIFIED CORRIDORS AND PROPOSED
MODIFICATION

Sources: ESRI, 2014; ECT, 2015.



Public Access Reuse (PAR) system to the existing intake structure at the Lakeland WTS. The plans are to transfer the water via underground pipeline from the PAR system to the WTS using a 16-inch diameter pipeline. The connection to the PAR system will be along State Road (SR) 37 north of the intersection with SR 60. No aboveground facilities are anticipated at the connection site.

To use the 0.4 MGD of available reclaimed wastewater from the City of Mulberry, Tampa Electric will need to construct a pipeline from the Mulberry WWTP located southwest of the SR 60 and SR 37 intersection (see Figure 9.0.0-2), to Tampa Electric's PPS site via the approved pipeline corridor certified by Tampa Electric previously, which runs in part along SR 37 south of Mulberry to PPS. The plans are to transfer the water via underground pipeline from the WWTP to PPS. The pipeline is expected to be 10 inches in diameter and will connect from the WWTP to the existing 30-inch line at SR 37 and Cozart Road.

These new reclaimed water pipelines were not certified in the original PPSA application (1994) nor in modifications submitted in 2009 and 2011 to the PPS site; therefore, these directly associated linear facilities represented a modification under FDEP's siting rules. Tampa Electric used FDEP's Application Instruction Guide: Electrical Power Plant Sites and Associated Facilities found as FDEP Form 62-16.900. This modification, which included the two reclaimed water pipelines (Polk Tie-in Corridor and Mulberry Tie-in), was filed in January 2014 and received a final order for certification on March 9, 2015.

The current modification requested in this application represents a subsequent expansion of the Polk Tie-in Corridor at the north end of the project to provide for maximum flexibility for pipe placement and allow for the possibility of a pipeline to discharge water from the PAR into Lakeland's WTS. This submittal follows the format of Chapter 9.0 of FDEP's instruction guide, which addresses electrical transmission lines and other associated linear facilities such as the proposed pipeline and modifications.

The need for the project and this modification is based on the requirement for additional and sustainable water makeup for cooling purposes for the planned future expansion of PPS. Specifically the project will:

- Promote maximum beneficial reuse of Polk County wastewater effluent.
- Help meet SWFWMD's priorities of reducing groundwater withdrawals in the SWUCA and provide a framework for future beneficial reuse of reclaimed wastewater in the SWUCA.
- Provide Tampa Electric an alternative water supply source that will minimize future groundwater withdrawals for their planned electrical generation expansion, which, in turn, will provide additional reliable electricity to the region.

9.1 MAPS

Maps are referenced and included in the text as appropriate. The exception is the required map series (aerial photographs, land use, zoning, and vegetation/land cover; Figures 9.1.0-1 through 9.1.0-4, respectively), which, due to the number of map sheets, are included at the end of this application.

9.2 OVERALL PROJECT DESCRIPTION

Tampa Electric is undertaking a preliminary engineering and piloting study for an approximately \$14-million project to develop a reclaimed water source from the City of Mulberry and Polk County for use at PPS. SWFWMD facilitated an agreement between the City of Mulberry and Tampa Electric for the City to provide at least 0.4 MGD of water from its WWTP to the PPS facility through a 2-mile-long pipeline, connecting to the existing reclaimed water pipeline to PPS. SWFWMD also facilitated an agreement between Polk County and Tampa Electric for Polk County to provide at least 0.8 MGD of water from its PAR system to the PPS facility through an approximately 2.5-mile-long, 16-inch diameter pipeline, connecting to the existing reclaimed water pipeline system at the Lakeland WTS. An additional corridor option is also being considered in the current modification to connect the PAR and discharge into the north end of the Lakeland WTS. The project was conceived as a method to offset permitted reductions in groundwater withdrawals from PPS wells, eliminate the loss of Mulberry and Polk County water through a National Pollutant Discharge Elimination System (NPDES) discharge, and maintain cooling water reservoir quantity and quality. The project has the potential to be 50 percent cofunded by SWFWMD as part of their Reclaimed Water Initiative, which seeks to encourage alternative water sources while reducing groundwater pumping.

Currently, hydraulic calculations dictate a pipeline diameter of 16 inches for the Polk County pipeline will be required to provide initial and long-term capacity. The use of variable frequency drives on the pumps will enable flows to be adjusted to meet both demand at the PPS treatment facility and future flow conditions. At the present time, it is anticipated that no pumps will be required for the connection to Polk County.

Right-of-way requirements will be small with regard to the width used for installation and operation of the pipeline. Where the proposed pipeline alignment is along a portion of public right-of-way, that right-of-way is approximately 150 feet (ft) wide. The actual trench width will be approximately 1 to 2 ft wider than the pipeline diameter. In areas where the pipeline is not along public rights-of-way and specific rights-of-way need to be acquired, it should be approximately 25 ft wide to accommodate the pipe, installation, and future maintenance. Figure 9.2.0-1 depicts a typical cross-section of the pipe installation.

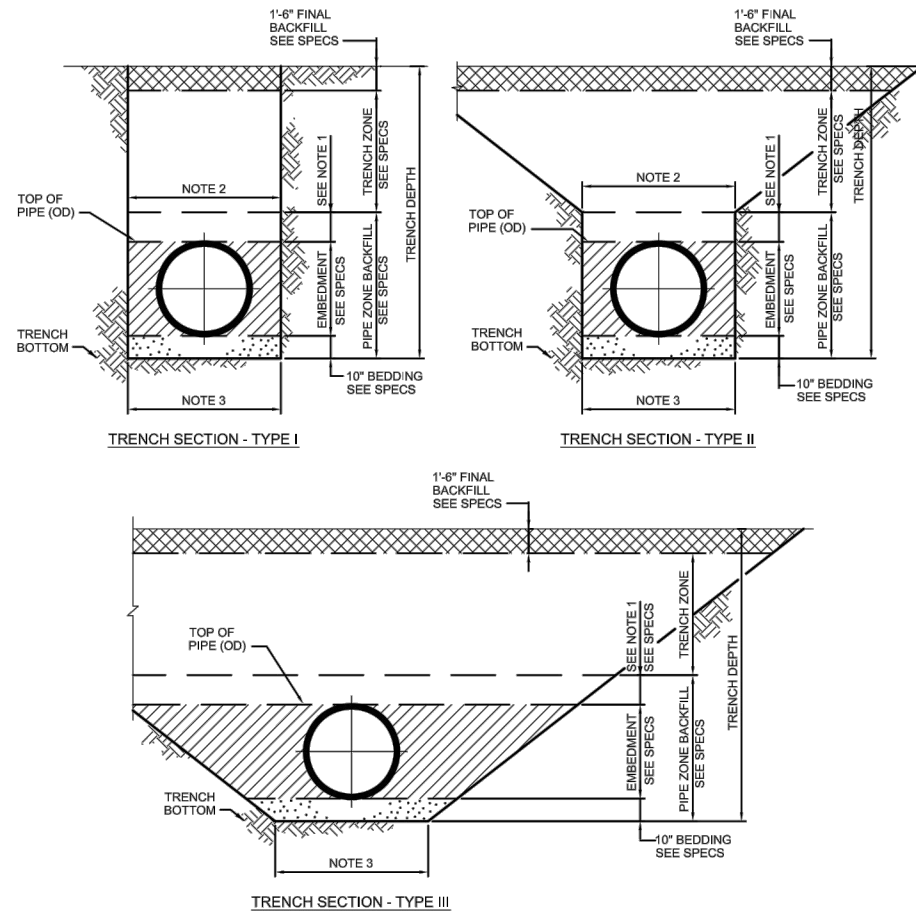
Figures 9.2.0-2 and 9.2.0-3 provide a conceptual design of the discharge structure should the option to discharge water into the north end of Lakeland WTS be pursued. The discharge structure consists of an outfall that discharges vertically into an existing wetland treatment cell. The underground 16-inch pipe turns upward via a 16-inch, 90-degree elbow with pipe restraints to counter thrust. The vertical pipe extends upwards to the existing ground surface, where it terminates at a 16-inch aluminum grating flush with the ground surface and is surrounded by a 24-inch diameter concrete collar. The aluminum grating and concrete collar is surrounded at the ground surface by an 8-ft by 8-ft (by 18-inch thick) Type I riprap apron, whose purpose is to dissipate energy and protect the surrounding wetland soil. Geotextile fabric will be placed underneath the riprap apron to prevent soil movement into or through the riprap.

9.3 CORRIDOR

9.3.1 CORRIDOR SELECTION

For the currently proposed modification to the connection to the Polk County PAR system, referred to in this document as the proposed Polk tie-in corridor modification, corridor

- A. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.
- B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.
- C. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.
- D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.
- E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.
- F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.
- G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.
- H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."
- I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.



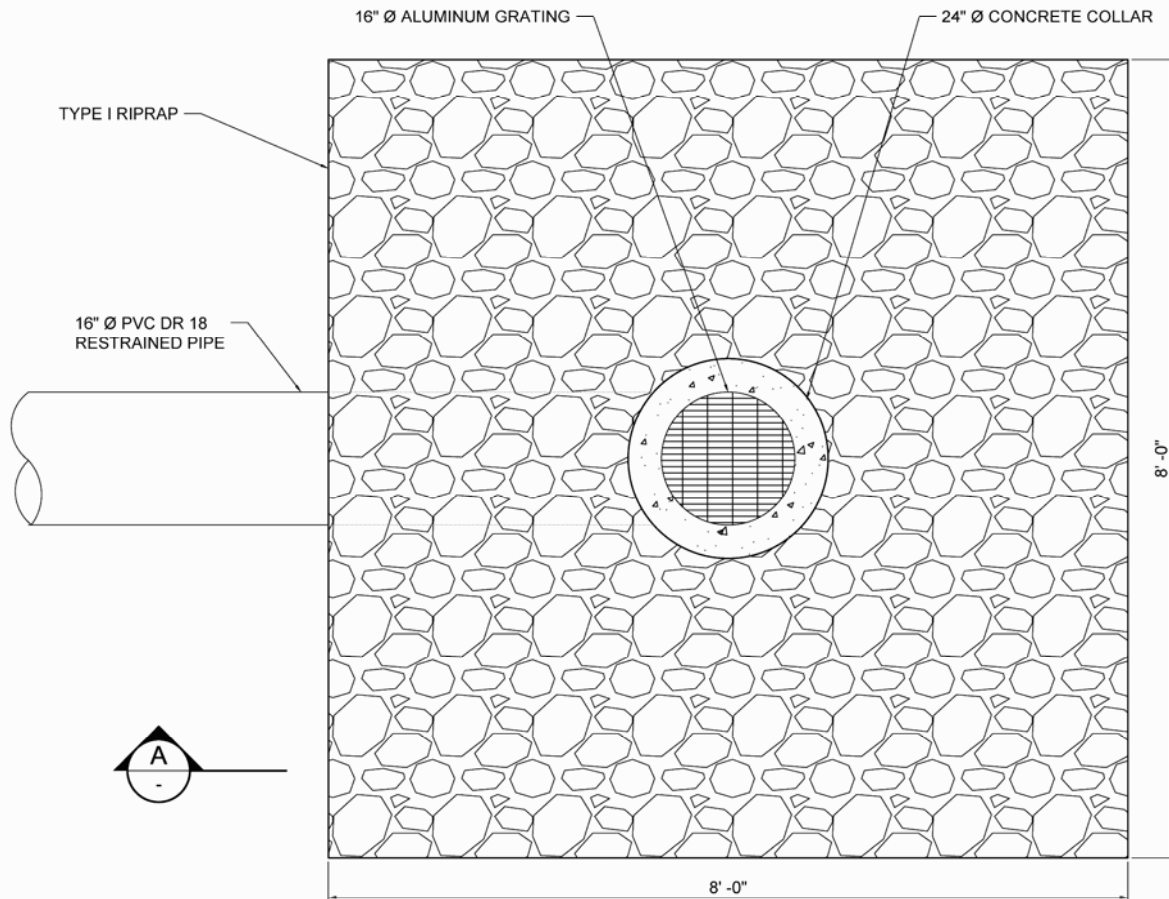
NOTES:

1. 6" MIN FOR PIPE DIAMETER < 24"
12" MIN FOR PIPE DIAMETER > 24"
2. MAX TRENCH WIDTH @ TOP OF PIPE:
OD + 36" FOR, 18" & LARGER PIPE OD
OD + 24" FOR LESS THAN 18"
3. MIN TRENCH BOTTOM WIDTH =
OD + 24" FOR MECHANICAL COMPACTION

FIGURE 9.2.0-1.
PIPELINE TRENCH DETAIL - TYPICAL

Sources: MWH, 2013; TECO, 2013.

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PLAN
SCALE: NTS

FIGURE 9.2.0-2.
POLK COUNTY DISCHARGE STRUCTURE - PLAN VIEW

Source: MWH, 2015.

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TAMPA ELECTRIC

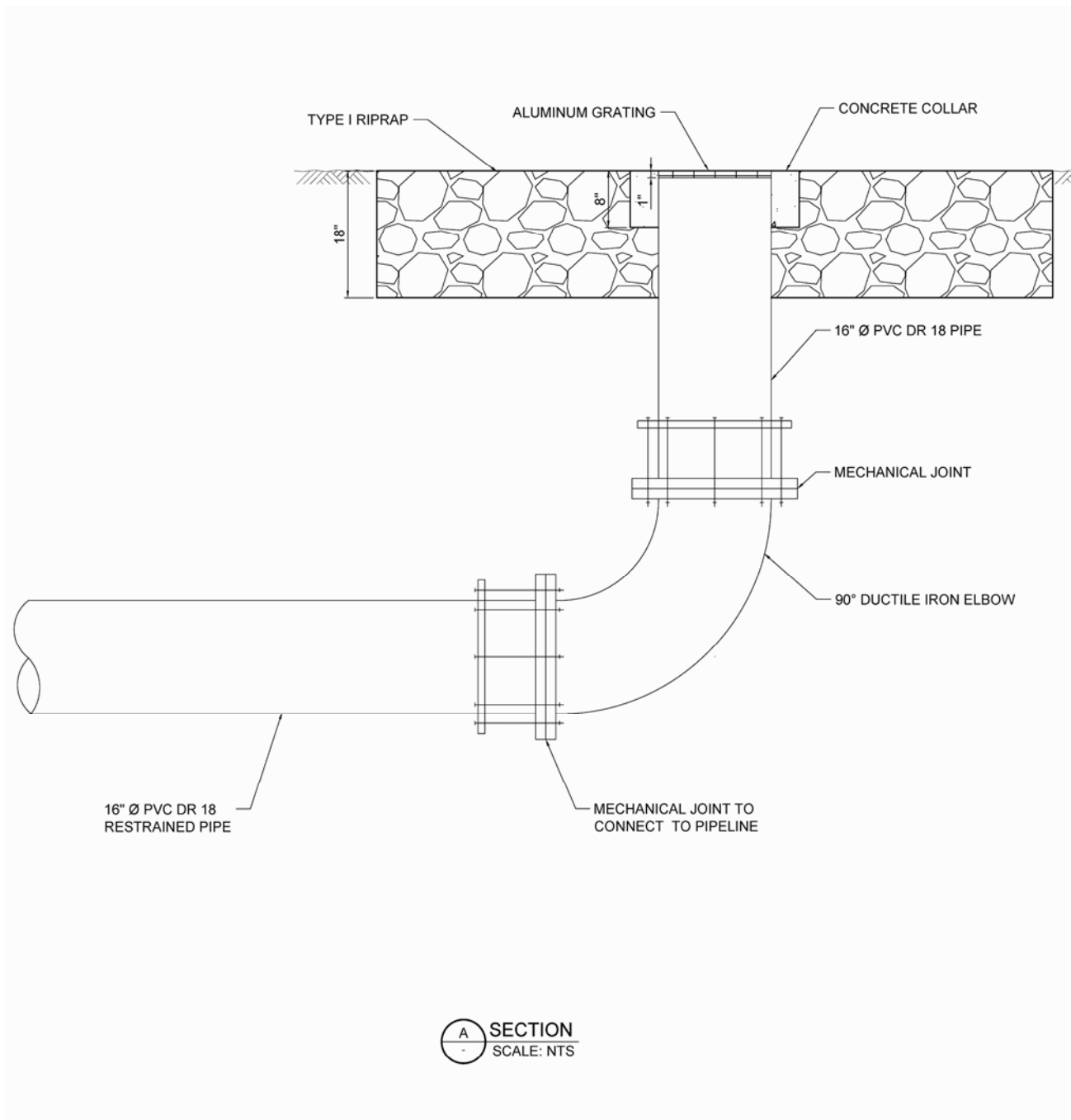


FIGURE 9.2.0-3.

POLK COUNTY DISCHARGE STRUCTURE - SECTION VIEW

Source: MWH, 2015.

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selection considerations involved avoiding the congested areas in the central business district of Mulberry, residential developments, and wetlands to the extent practicable.

A regional screening map was developed to identify potential siting constraints and opportunities within the area between the desired end points of the corridor. Table 9.3.1-1 lists the types of resources mapped. Using siting opportunities, such as other linear facilities, the regional screening map allows a visual representation of where potential siting constraints are located. Constraints are resources that could present issues with or hindrances to siting such a facility. They may include such things as residences, airports, parks, preserves, endangered species locations, or large wetlands. While not necessarily considered a fatal flaw to siting a pipeline, particularly a water pipeline, siting constraints can potentially pose engineering and design challenges, economic uncertainties, or permitting issues. Figure 9.3.1-1 shows the regional screening map of the study area.

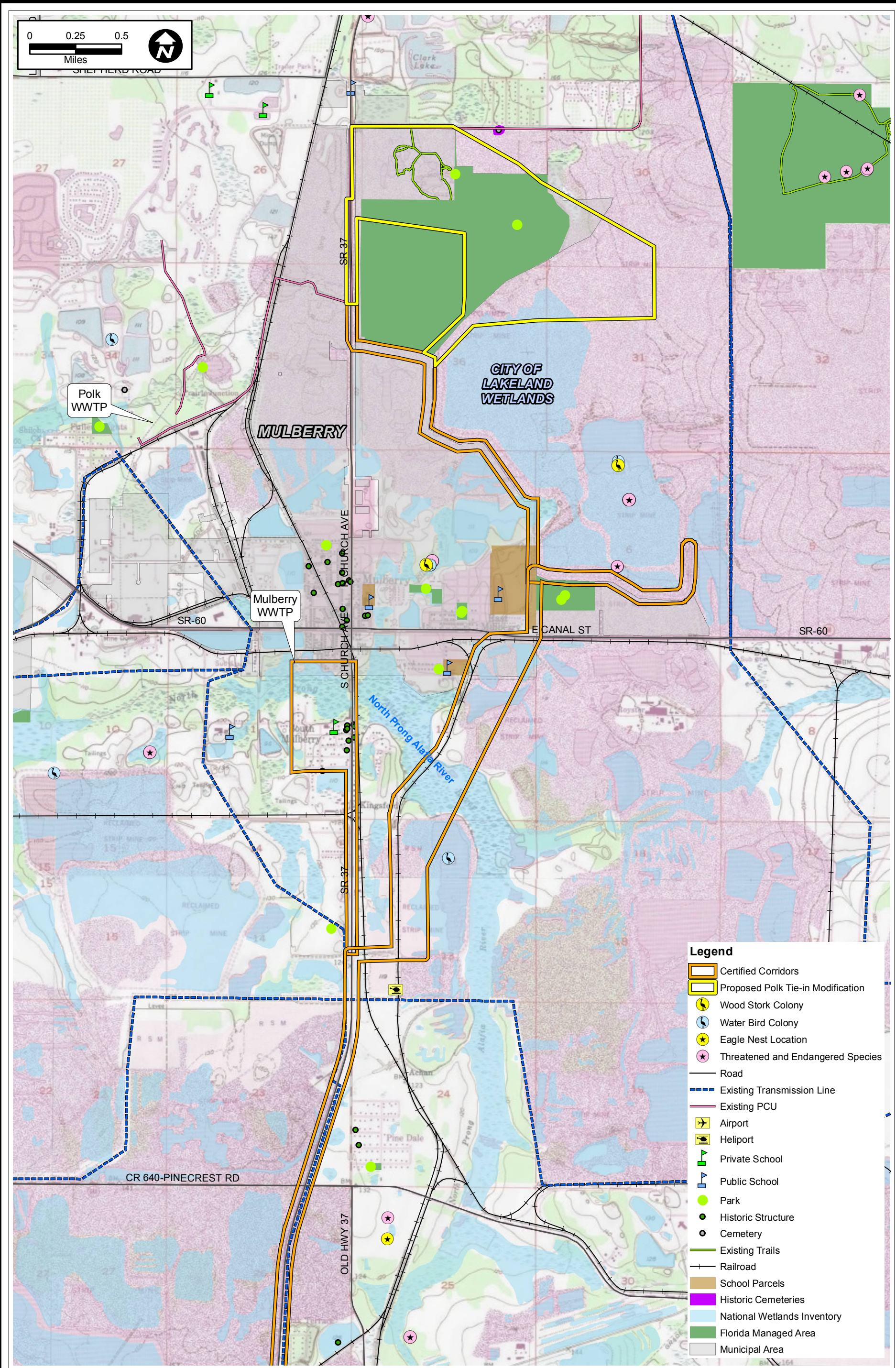
Much of the study area is former phosphate-mined lands. Therefore, large ponds remaining after mining preclude placement of the pipeline in and adjacent to the water bodies. SR 37 provides a major siting opportunity for a portion of the corridor. Tampa Electric's consultants, along with environmental, engineering, and real estate staff, looked at various options within the study area.

To provide Tampa Electric with greater flexibility in selecting a right-of-way, the corridors were made much wider than the eventual right-of-way required (approximately 25 ft and possibly less where public right-of-way is available). The recently certified Polk tie-in corridor varied from 175 to 300 ft in width and is further expanded in this modification in two areas. First, it extends the corridor north along SR 37 to provide for more flexibility in connection points to the existing PAR. Secondly, it expands the corridor to an area nearly 1 mile wide at the northern end and 1 mile wide at the southern end to provide maximum flexibility for pipeline placement and include placement options for discharge into the north end of Lakeland WTS. The proposed corridor modification is to the north and east of an area that encompasses Florida Board of Trustees of the Internal Improvement Trust Fund (TIITF)-owned land currently leased to Polk County for recreational park space, known as the Loyce E. Harpe Park (see map, Appendix C). If site-specific issues arise,

Table 9.3.1-1. Study Area Resources Mapped

Category	Resource
Base map information	• Highways, roads, streets • County boundaries • City boundaries • Railroads, airports, heliports • Existing and proposed substations • Existing transmission lines • Existing Tampa Electric properties, rights-of-way, and easements • Water bodies, rivers, streams, canals
Land use information	• Existing and proposed development for which local approvals are pending • Existing water/wastewater infrastructure • Planned unit developments (PUDs) and developments of regional impact (DRIs) • Property boundaries • Existing schools and county school board lands • Cemeteries and historical structures and districts • National parks, wildlife refuges, estuarine sanctuaries, landmarks, or historical locations • State parks and preserves • SWFWMD-owned lands • County lands, parks, recreation areas, and mitigation lands • Privately designated wetland mitigation areas • Privately owned environmental preserves/sanctuaries
Environmental information	• Listed federal- and state-protected 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, 2015.



9-12

FIGURE 9.3.1-1.
REGIONAL SCREENING MAP

Sources: USFWS, 2010; FDOT, 2011; FWC, 2012; NWI, 2012; FAA, 2013; FGDL, 2012, 2014; FNAI, 2013, 2014; Polk County, 2014; Bureau of Archaeological Research, 2014; ECT, 2015.



Tampa Electric will then have the flexibility to adjust the right-of-way within the proposed corridor to avoid or minimize impacts in consultation with Polk County.

Currently, Loyce E. Harpe Park has eight youth fields, four adult softball fields, two covered batting tunnels, hiking and biking trails, a dog park, restrooms, paved parking areas, and a maintenance building. Concept plans for future improvements, copies of which are provided in Appendix C, depict additional park amenities, including additional parking, a bike/skate park, tennis/pickleball courts, football field, sand volleyball court, additional shelters and restrooms, a disc golf course, a pump track, and additional roads, including a proposed paved road providing access to the future Se7en Wetlands Park to the south.

9.3.2 CORRIDOR DESCRIPTION

Figure 9.3.2-1 illustrates the proposed pipeline corridor modification at a scale of 1 inch equaling 1 mile. The proposed modification is depicted on Florida Department of Transportation (FDOT) Polk County maps, which also reflect major geographic features and roads. Also shown are existing electric transmission lines located within 5 miles of the proposed corridor.

The proposed modification extends the recently certified Polk tie-in corridor approximately 0.5 mile north along SR 37, north of the Paradise Lakes Planned Unit Development (PUD) and former Reservation Golf Course to connect to the existing PCU pipeline along SR 37 at a point to be determined. Similarly, the proposed Polk Tie-in corridor modification expands north to Carter Road, opening up an area from south of the northern boundary of the land owned by TIITF, north to Carter Road, and eastward approximately 0.5 mile before turning southeast at the park entrance road and traversing obliquely south and east toward the northern edge of and into the Lakeland WTS. This proposed corridor expansion excludes a majority of the reservoirs and wetlands in the TIITF area. This expansion provides for maximum flexibility to avoid wetlands, park facilities, and other sensitive areas in TIITF lands by opening to approximately 1 mile wide in several areas. This 1-mile width in select locations also offers the opportunity to collocate with existing roads for access. Figure 9.1.0-1 (two pages) depicts this corridor on recent aerial photographs (FDOT, 2014)



Sources: Polk County, 2013; FDOT, 2003, 2005; ECT, 2015.

at a scale of 1 inch equals 1,000 ft. Information gathered from field reconnaissance confirms that currently available aerial photographs represent current conditions in the area with the clarification that an area of the park is under construction east of the existing dog park and that the Reservation Golf Course and clubhouse are inactive.

9.3.3 ALTERNATE CORRIDORS

Tampa Electric is not proposing an alternate corridor to its proposed corridor modification. Tampa Electric believes it can minimize impacts from the project given the width and flexibility provided by the proposed modification as described.

9.3.4 ACCESS ROADS

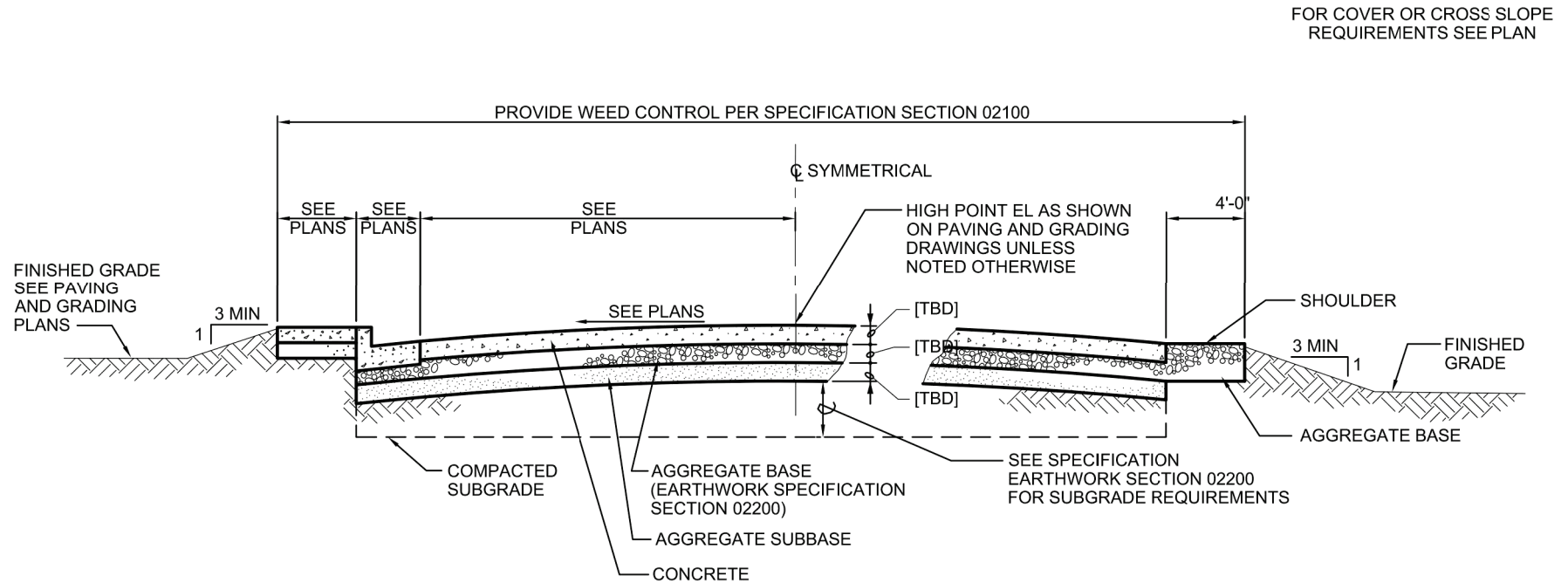
Tampa Electric does not anticipate permanent access roads along the proposed pipeline modification area at this time. Figure 9.3.4-1 depicts a typical, temporary construction road detail if such access roads are needed.

Access during construction will be located primarily via the Carter Park Entrance Road and the existing unpaved roads branching off from that road. One area where additional access may be required is at the Lakeland WTS terminus. Both concept plans for future improvements to Loyce E. Harpe Park depict a paved access road from this park to the WTS. This future access presents a collocation opportunity.

After the pipeline has been constructed, all areas that have been disturbed during construction will be restored to their existing condition.

9.3.5 COST PROJECTIONS

The cost for both the Mulberry and Polk Tie-in pipelines is expected to be \$12.9 million, with a potential for 50 percent being funded by SWFWMD through its Reclaimed Water Initiative.



NOTES:

1. DETAILS SHOWN ARE TYPICAL ROAD SECTIONS UNLESS INDICATED OTHERWISE.
2. SEE GENERAL NOTES FOR DIMENSION REQUIREMENTS.

FIGURE 9.3.4-1.
ACCESS ROAD CROSS-SECTION - TYPICAL

Sources: MWH, 2013; TECO, 2013.



9.3.6 SOCIAL AND POLITICAL ENVIRONMENT OF THE CORRIDOR AREAS

9.3.6.1 Governmental Jurisdictions

The proposed corridor modification is located within Polk County and the incorporated city of Mulberry. Figure 9.3.6-1 shows the modification area at a scale of 1 inch equals 2 miles, in relation to the governmental jurisdictions within 5 miles of the edge of the proposed corridor modification. The City of Lakeland owns land within the corridor associated with the WTS. Although owned by Lakeland, the land is subject to Polk County land use designations. The Loyce E. Harpe Park is owned by TIITF and is leased to Polk County for recreational park space. Also in the vicinity is the proposed future Seven Wetlands Park (to be located within the Lakeland WTS).

The following federal, state, and local jurisdictional areas were researched, and none were found to occur within 5 miles of the edge of the proposed corridor modification:

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

9.3.6.2 Zoning and Land Use Plans Comprehensive Plan

The proposed modified corridor crosses an unincorporated area of Polk County and the incorporated city of Mulberry. The Local Government Comprehensive Planning and Land Development Regulation Act of 1985 (Chapter 163, Florida Statutes) requires all counties and municipalities within the state to prepare comprehensive plans. Figure 9.1.0-2 depicts

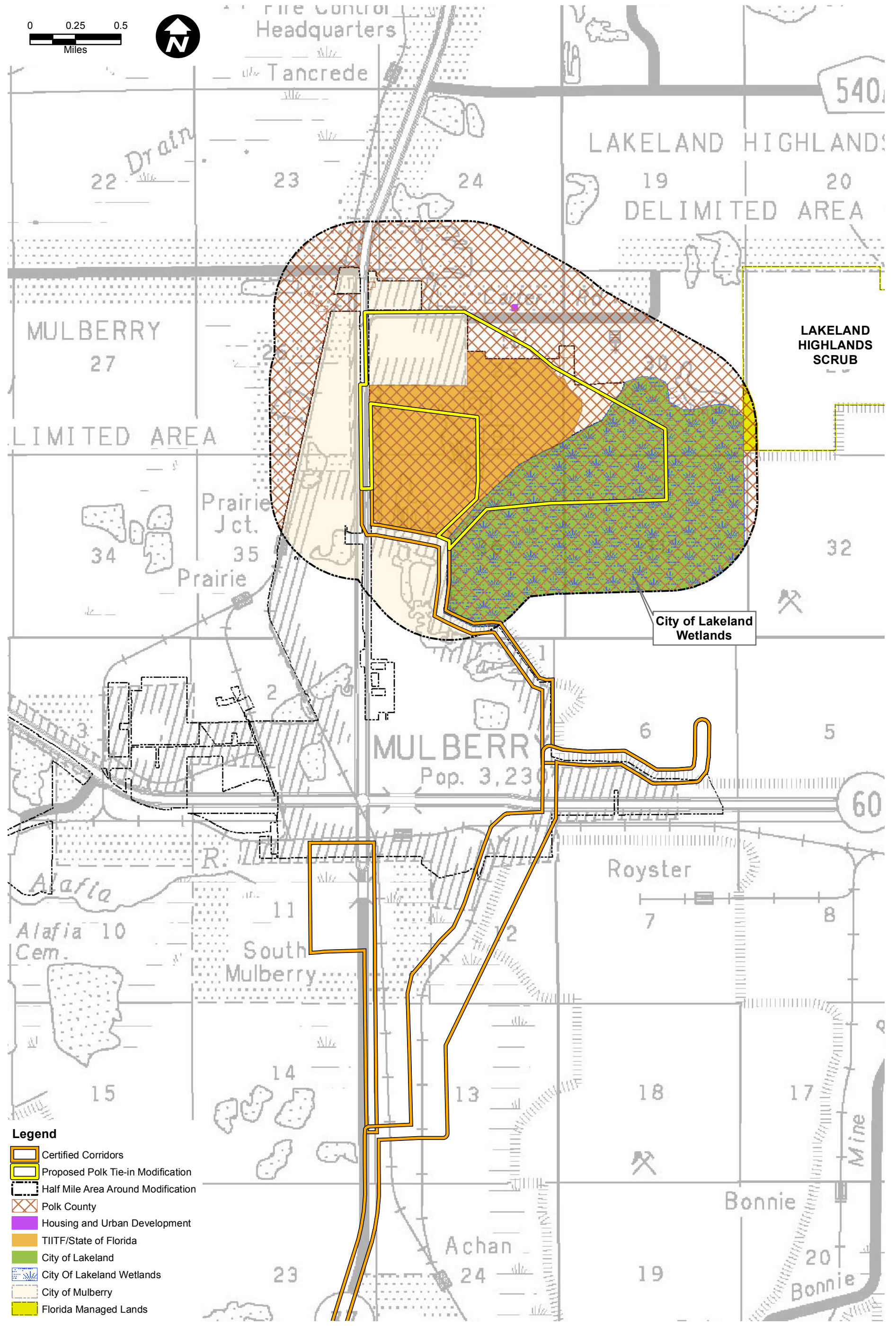


FIGURE 9.3.6-1.
GOVERNMENTAL JURISDICTIONS WITHIN 0.5 MILE OF PROPOSED CORRIDOR
MODIFICATION

Sources: FDOT, 2003, 2005; Polk County, 2014; ECT, 2015.



the proposed corridor modification and 0.25-mile buffer at a scale of 1 inch equals 1,000 ft in relation to the adopted future land use maps of the local government affected. Appendix A contains reproductions of relevant portions of the county's and the city's future land use maps.

The following lists the future land use map categories crossed by the corridor modification and/or are located in the 0.25-mile buffer as shown on Figure 9.1.0-2:

- Polk County—Proposed Modification to the Polk tie-in:
 - o Residential Low-1 (RL-1).
 - o Residential Low-2 (RL-2).
 - o Residential Low-3 (RL-3).
 - o Residential Low-4 (RL-4).
 - o Community Activity Center (CAC).
 - o Development of Regional Impact (DRI).
 - o Institutional-2 (INST-2).
- City of Mulberry—Proposed Modification to the Polk tie-in:
 - o Outdoor Recreation (OR).
 - o Conservation (CN).
 - o Low-Density Residential (LDR).
 - o High-Density Residential (HDR).
 - o Manufactured Home (MH).
 - o Highway Commercial (HC).

Descriptions of the future land use categories crossed by the proposed corridor modification and/or located in the 0.25-mile buffer in the two jurisdictions are provided in the following subsections.

Polk County

- Residential Low (RL-1)—This land use classification is to provide areas for low-density residential development in the urban areas of the unincorporated county. Densities are allowed up to and including five dwelling units per acre.

This classification is characterized by single-family, duplex units and small-scale multifamily units. The minimum lot size is 40,000 square feet (ft²).

- Residential Low (RL-2)—This land use classification is to provide areas for low-density residential development in the urban areas of the unincorporated county. Densities are allowed up to and including five dwelling units per acre. This classification is characterized by single-family, duplex units and small-scale multifamily units. The minimum lot size is 15,000 ft².
- Residential Low (RL-3)—This land use classification is to provide areas for low-density residential development in the urban areas of the unincorporated county. Densities are allowed up to and including five dwelling units per acre. This classification is characterized by single-family, duplex units and small-scale multifamily units. The minimum lot size is 10,000 ft².
- Residential Low (RL-4)—This land use classification is to provide areas for low-density residential development in the urban areas of the unincorporated county. Densities are allowed up to and including five dwelling units per acre. This classification is characterized by single-family, duplex units and small-scale multifamily units. The minimum lot size is 6,000 ft².
- Community Activity Center (CAC)—Community activity centers are intended to accommodate the shopping needs of the surrounding area and generally include a shopping center and other commercial and office uses. The maximum floor area ratio is 0.3 unless developed as a PUD.
- Development of Regional Impact (DRI)—This designation on the Polk County Future Land Use Map is not a land use category. It is an identification of an area subject to a Development Order with specifically approved uses. The DRI located west of SR 37 is known as Imperial Lakes, and it is approved for residential, commercial, office, and golf course uses.
- Institutional-2 (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 health care facilities. The maximum floor area ratio is 0.75.

City of Mulberry

- Outdoor Recreation (OR)—Permitted uses in this land use designation include publicly and privately owned properties that are open to recreational use by the general public. One residential unit per 10 acres is allowed for a caretaker, and up to 2,000 square feet (ft²) of nonresidential building is allowed per acre.
- Conservation (CON)—This land use category is used to protect natural resources, lake water quality, and groundwater quality and includes wetlands and 100-year floodplains. Agricultural, residential, commercial, and industrial uses are not allowed. Limited recreational uses are allowed.
- Low-Density Residential (LDR)—This land use category permits development of one dwelling unit on a minimum lot size of 7,500 ft² and a maximum of five dwelling units per acre.
- High-Density Residential (HDR)—Single-family dwelling units, duplexes, and multifamily dwelling units are allowed. The maximum number of single-family dwelling units per acre is seven with a minimum lot size of 6,000 ft². Duplexes must have a minimum of a 7,500-ft² lot size, and multifamily units must have a minimum lot size of 10,000 ft². Up to 16 multifamily units are allowed per acre.
- Manufactured Home (MH)—Permitted uses include manufactured homes and noncommercial recreational facilities. The maximum number of dwelling units per acre is eight. Commercial uses are allowed (lower order services such as professional offices, banks, grocery, drug stores, and convenience stores) up to 25 percent of the total site.
- Highway Commercial (HC)—Allowed uses in this land use designation include offices, retail, wholesale, and indoor recreation such as bowling alleys and skating rinks. The maximum floor area ratio is 3.0.

Future Land Use Element

Polk County

The proposed pipeline corridor modification traverses unincorporated portions of west-central Polk County. There are five distinct development areas that combine with future land use categories to guide development within unincorporated Polk County.

The area of Polk County encompassing the Lakeland WTS and Loyce E. Harpe Park are located in the Rural Development Area (RDA). The RDA provides areas for rural activities such as agricultural uses, mining activities, and rural residential uses.

Within a portion of the northeastern portion of the proposed corridor modification and within the 0.25-mile buffer area, the portion of Polk County located in the Residential Low land use categories is located in the Transit Supportive Development Area (TSDA). TSDAs are those areas where the availability of infrastructure and other community facilities and services supports the location of higher density and intensity compact, mixed-use development. These areas must be supported by existing or planned urban level services programmed for the 10-year planning horizon and capable of supporting transit service.

The buffer area located east of SR 37 is located in an Urban Growth Area. Urban Growth Areas are located adjacent to TSDAs and/or municipal areas where growth is likely to take place. These areas are located where existing infrastructure can support higher density and compact mixed-use development.

The Polk County Comprehensive Plan identifies pipelines as utility use (Future Land Use Element Policy 2.125-D1b). Pipelines are considered a permitted use throughout Polk County in all land use classifications.

Future Land Use Element Policy 2.125-D2 is titled Utilities Development Controls. Utilities are allowed in non-RDA areas provided that the scale of such facilities are related to the surrounding land uses and are designed to preserve the character of residential neighborhoods. The policy states, in Part c, “[t]he development of utility facilities shall be per-

mitted in the RDA, 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 pipeline is planned to assist in the provision of a regional service (ultimately the production of electricity).

Policy 2.102-A8 addresses public facilities and utilities siting. The policy states that, “[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.”

Policy 2.123.-C2 allows development within wetlands, as determined by appropriate regulatory agencies, for utility transmission and collection lines.

City of Mulberry

The comprehensive plan does not provide a definition for utilities. The Future Land Use Element does not contain any specific policies that address pipelines. Objective 7 states that, “[t]he City shall ensure the availability of suitable land for utility facilities necessary to support proposed development.”

Zoning and Land Use Districts

Polk County

Development within the unincorporated areas of Polk County is controlled and guided by three levels of development controls: development areas (e.g., RDA and TSDA); future land uses (e.g., Residential Low, Community Activity Center, Institutional-2, etc.); and special-area overlay districts and areas. The proposed pipeline corridor study areas are located in the following special-area overlay districts and areas:

- Floodplain-protection areas.
- Wetland-protection areas.
- Aquifer-protection areas.
- Polk Green Districts.
- Transit corridors and centers.

The proposed corridor modification does not intersect the Green Swamp protection area, wellfield-protection districts, mineral-resource protection overlay, redevelopment districts overlay, historical preservation sites overlay, airport-buffer district, military compatibility zones resource protection district, or SR 17 Ridge Scenic Highway overlay. Figure 9.1.0-3 at the end of this text provides copies of the overlay districts that are intersected by the proposed corridor.

Floodplain-Protection Areas—Portions of the proposed corridor modification intersect Flood Zone A areas in the unincorporated Polk County. The objective of the floodplain-protection area overlay is to limit development within areas subject to flooding to activities and intensities that will not enlarge the offsite floodplain, alter the natural function of the floodplain, and not be more than a minimal risk to loss of property and life. There are specific land development code (LDC) regulations addressing riverine, lake, and other floodplains.

Wetland-Protection Areas—Wetland-protection areas are associated with wetlands and water bodies in Loyce E. Harpe Park. Wetland-protection areas are established in the Future Land Use Element of the comprehensive plan to limit development and redevelopment activities to activities and intensities that will have minimal impact on the natural function of the wetlands. Wetland impacts, where unavoidable and properly mitigated, are allowed for the placement of utility transmission lines. Applicable permits are required prior to Polk County issuing a final development order. Construction techniques should not alter the natural retention and filtering capacities of wetlands.

Aquifer-Protection Areas—The entirety of the unincorporated area of the proposed corridor modification is located in an aquifer-protection area (Floridan Vulnerable). A small area along a portion of the northeastern limits of the corridor modification intersects the Floridan More Vulnerable zone. The overlay map excludes the city limits of Mulberry. The aquifer-protection areas are established to protect these areas from direct contamination and protect the natural recharge function. Land development regulations have been promulgated to minimize the threat of contamination through restrictions on hazardous materials

and require that postdevelopment runoff volumes not exceed predevelopment runoff volumes, stormwater be treated, and subsurface storage and flow simulate predevelopment natural conditions.

Polk Green Districts—The entire area of the Lakeland WTS and the southern portion of Loyce E. Harpe Park in the vicinity of the proposed Polk tie-in and subsequent modification area are shown as potential network connections. The northern portion of the park is shown as an existing natural area. The Polk Green Districts overlay is established to designate lands that are desirable for future acquisition (or other property acquisition measures) to provide for the preservation of open space, habitat protection, linear parkways, and recreation areas. Proposed development within the districts will be reviewed under Polk County’s development review procedures. Policy 2.124-E10 addresses multiuse trails and gives funding priority to such trails that connect population centers to natural areas.

Transit Corridors and Centers—The right-of-way of SR 37 extending approximately 0.25 mile to either side of the roadway are identified as within a transit corridor. The northwestern portion of the proposed corridor modification is located in the transit corridor. The Polk County Comprehensive Plan Transportation Element identifies this area as Category 1. This category describes fixed-route services operating within an urbanized area and providing access to the central business district and intense commercial corridors. The emphasis is on local circulation and land access.

City of Mulberry

The City of Mulberry has established zoning districts. The intersection of the proposed Polk tie-in modification and the associated 0.25-mile buffers with the zoning classifications is shown at a scale of 1 inch equals 1,000 ft in Figure 9.1.0-3. The proposed modification and/or the 0.25-mile buffer areas cross the following zoning districts:

- Conservation (CN).
- Outdoor Recreation (O-R).
- Single-Family Residential (R1-L).
- Multiple-Family Residential (R1-H).
- Manufactured Home Planned Development (MH).
- Planned Development (PD).
- Highway Commercial (C-2).
- Central Business District (C-1).

The Planned Development zoning district (currently undeveloped land) located adjacent to the Lakeland WTS is identified as having a maximum development density of 343 dwelling units, a density of 4.4 dwelling units per acre.

Land Development Code

Polk County

The Polk County LDC defines transmission lines, including water distribution lines, and utility pipelines as a Class I utility (see page 10-66 of the Polk County LDC, adopted March 1, 2000, and revised June 2004). Class I utilities are permitted in all land use districts (Table 2.1 of the LDC: Use Table for Standard Land Use Districts).

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 pursuant to Section 620, C.2c.

City of Mulberry

The LDC defines essential services as “[t]he erection, construction, alteration or maintenance, by private utilities or municipal or other governmental agencies, of underground or overhead gas, electrical, steam or water transmission or distribution systems, collection, communication, 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 or for the public health or safety or general welfare, but not including buildings.” The proposed pipeline meets the definition of essential services.

A review of the LDC finds no further reference to essential services. The table of permitted uses in Section 2.04.01 of the LDC does not identify utilities, pipelines, or similar uses. Power stations and telephone switching stations are allowed in every zoning district except for Conservation and Outdoor-Recreation.

Section 3.06.02.03 of the LDC addresses noise. This section addresses operation by identifying maximum sound levels for various octave bands adjacent to residential uses and to industrial and commercial uses. Other objectionable noises due to intermittence, beat frequency, or shrillness will be muffled or eliminated so as to not become a nuisance to adjacent uses.

Section 5.03.00 of the LDC addresses wetlands protection. This section establishes two zones for the protection of wetlands: the wetland zone defined as the landward extent of the wetland and the upland zone, which extends from a minimum of 40 ft from the landward extent up to 200 ft. Section 5.03.05(E) is an exemption for utility crossings.

Section 5.04.00 of the LDC addresses lake (pit) protection. It is the purpose of this section to maintain pit water quality and reduce nutrient loading. A shoreline protection zone extends 40 ft landward from the ordinary high-water line. Development within the shoreline protection zone will be designed, constructed, and maintained to avoid adverse impacts to the pits. Compliance with this mandate includes:

- Maintaining natural drainage patterns to the maximum extent feasible.
- Minimizing the amount of fill to accommodate the permitted development.
- Minimizing environmental damage.
- Maintaining 50 percent of the natural vegetation within the 40-ft protection zone.
- Planting buffers if no natural vegetation is present such that 40 percent of the protection zone is covered.
- Limiting the removal of vegetation to the minimum necessary to complete the permitted development.
- Restoring any portion of the vegetation in the protection zone damaged or removed during construction by replanting native grasses and ground cover or other appropriate plantings.

9.3.6.3 Easements, Title, Agency Works

Easements may be necessary for the pipeline to cross lands for which the title is held by TIITF, Polk County, the City of Mulberry, or the City of Lakeland within the proposed 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 Polk County and the City of Mulberry. Additionally, the proposed corridor modification crosses SR 37. Crossings of SR 37 will conform to specifications contained in FDOT's Utility Accommodation Manual (2010).

Table 9.3.6-1 presents a list of potential lands and roads for which crossing approvals would normally be required.

9.3.6.4 Vicinity Scenic, Cultural and Natural Landmarks

No resources considered regionally scenic, cultural, or natural landmarks occur within the corridor.

9.3.6.5 Archaeological and Historic Sites

Tampa Electric conducted a Master Site File search through the Division of Historical Resources (DHR) of the corridor modification area proposed in this application (see Appendix B). For the modification study area, the Master Site File search resulted in one archaeological site, one survey, one cemetery, one resource group, and no historic structures within 0.5 mile of the proposed corridor modification. There are no archaeological or historic structures located within the proposed corridor.

DHR will review these results and make an assessment as to potential impacts to these known, as well as potentially unknown, locations. DHR may request, as a condition of certification, a cultural resources assessment be conducted along areas of the final right-of-way that have a likelihood of containing archaeological artifacts.

Table 9.3.6-1. Possible Easements, Titles, and Crossing Approvals Expected to Be Required for Pipeline Construction in the Proposed Corridor Modification Area

Facility/Lands	Agency	Approval
<u>Roads</u>		
SR 37	FDOT	Right-of-way use or crossing permit
Carter Road	Polk County	Right-of-way use
Carter Park Entrance Road	Polk County	Right-of-way use or crossing permit
<u>Parks</u>		
Loyce E. Harpe Park	TIITF (leased to Polk County)	Easement or permit
(Future) Seven Wetlands Park	City of Lakeland	Easement or permit

Source: ECT, 2015.

9.3.7 BIOLOGICAL AND PHYSICAL ENVIRONMENT OF THE CORRIDOR MODIFICATION AREA

9.3.7.1 Land Use/Vegetation

The existing land use and vegetation cover types occurring within and for 0.5 mile adjacent to either side of the proposed corridor modification area (study area) were acquired from the current SWFWMD geographic information system (GIS) database (2011), overlain on 2014 FDOT aerial photographs at a scale of 1 inch equals 1,000 ft. These land use/cover types were classified using the Florida Land Use, Cover, and Forms Classification System (FLUCFCS) (FDOT, 1999), Categories II and III. Figure 9.1.0-4 (provided at the end of this document) illustrates the various land use/vegetation types within the study area, and the following subsections provide descriptions of the major land use and vegetation cover classes mapped within the study area. Although the data provided by SWFWMD were originally generated in 2006, the vegetation/land use covers depicted are representative of current resources.

Land Use

Land uses mapped by SWFWMD along the proposed corridor modification area consist of residential, commercial and services, mining, open land, recreation, and utilities. Where field experience differed markedly from the land uses identified by SWFWMD, land use categories were updated or otherwise changed. According to the FLUCFCS, these categories include low-density residential (110), medium-density residential (120), mobile home park (132), commercial and services (140), reclaimed land (165), institutional (170), recreational (180), golf courses (182), open land (190), cropland and pastureland (210), other open lands (rural) (260), and transportation (810). Of these land use classifications, reclaimed land is one of the dominant land uses within the Polk tie-in corridor modification area.

The cropland and pastureland (210) use classification is typically associated with cattle grazing on open fields of pasture grasses. No cropland (row crops) is apparent as the result of a review of aerial photographs. There are a few areas mapped as pasture within the study area. The areas designated by SWFWMD as Category 210 within Loyce E. Harpe Park have been changed to recreational (180).

Residential (110, 120, and 132) and commercial and services (140) land use categories make up a significant portion of the study area. Most of these areas are associated with development along SR 37 and small areas in the city of Mulberry located in the southwestern and northeastern portions of the study area. Although not all roads are mapped as transportation (810) on Figure 9.1.0-4, the study area crosses or encompasses portions of several roadways, particularly SR 37 and Carter Road.

Vegetation

The proposed corridor modification will be located within or adjacent to the SR 37 road right-of-way for some of its length, then will cross previously mined land, now a part of Loyce E. Harpe Park. The majority of the road right-of-way is maintained grassy areas with ditches. In addition to the maintained right-of-way, a few natural communities will be traversed or are located within 0.5 mile adjacent to the proposed corridor. These vegetation cover classes include mixed rangeland (330), hardwood conifer mixed forest (434), stream and lake swamps (bottomland) (615), wetland forested mixed (630), freshwater marsh (641), wet prairies (643), and emergent aquatic vegetation (644). Although not technically vegetation communities, lakes (520), reservoirs (530), and intermittent ponds (653) are also included and described, along with the dominant vegetation types, in the following subsections. Finally, although not mapped as streams and waterways (511), there are a few named and unnamed natural drainage crossings that are typically associated with the stream and lake swamp (615) classification.

Upland Community

There are two minor-occurring upland natural communities within or adjacent to the proposed corridor modification area.

Mixed Rangeland (330)—Mixed rangeland occurs in very few locations throughout the proposed modification and 0.5-mile adjacent area. This community typically includes more than one-third intermixture of grassland and shrub-brushland each occurring together. The grassland component of the mixture is generally treeless and occupied by grasses, rushes, sedges, and other herbs. Some shrubs would be expected to occur and would include saw palmetto, wax myrtle, and Brazilian pepper.

Hardwood Conifer Mixed Forest (434)—This forest community is found in some areas near the proposed corridor. However, it is not dominated by either pines or hardwoods; that is, neither conifers nor hardwoods comprise 66-percent canopy dominance. The hardwood component of the canopy is primarily live oak (*Quercus virginiana*), water oak (*Q. nigra*), laurel oak (*Q. laurifolia*), or diamond-leaved oak (*Q. hemispherica*). Cabbage palm (*Sabal palmetto*), sweetgum (*Liquidambar styraciflua*), hackberry (*Celtis laevigata*), pignut (*Carya glabra*), 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 (*Baccharis halimifolia*), and/or American beautyberry (*Callicarpa americana*). These communities in the study area have been disturbed due to residential development or previous mining activities.

Wetland/Surface Water Communities

Wetlands are present within or adjacent to the study area encompassing the proposed corridor modification, which is to be expected considering the prevalence of wetlands in central Florida. Four wetland community types and three surface water features have been identified within the study area.

Lakes (520)—This category includes natural inland water bodies or nonflowing wetlands of natural depressions lacking persistent emergent vegetation except around the perimeter. Islands within lakes that are too small to delineate are included in the water area. The only natural lake identified in the study area is found outside the proposed modification corridor boundary.

Reservoirs (530)—This surface water category refers to artificial impoundments of water. Reservoirs within the study area typically result from impoundments created from phosphate mining activities.

Stream and Lake Swamps (615)—This bottomland community is dominated by hardwood tree species such as laurel oak, pop ash (*Fraxinus caroliniana*), elm (*Ulmus americana*), American hornbeam (*Carpinus caroliniana*), water hickory (*Carya aquatica*), black

gum (*Nyssa sylvatica*), red maple (*Acer rubrum*), 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 occur in the northern portion of the study area.

Wetland Forested Mixed (630)—The wetland forested mixed community is dominated by a canopy composed of hardwoods and conifers, including sweetbay, laurel oak, loblolly bay (*Gordonia lasianthus*), bald cypress (*Taxodium ascendens*), slash pine, and swamp tupelo (*Nyssa sylvatica* var. *biflora*), with an understory of wax myrtle and root sprouts of sweetbay. The herbaceous layer is mostly ferns, including toothed midsorus fern (*Blechnum serrulatum*), Virginia chain fern, and royal fern (*Osmunda regalis*). Found outside the modification boundary, this community was identified at the easternmost edge of the study area.

Fresh Water Marsh (641)—Fresh water 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 (*Pontedaria 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. This wetland type is found at several locations within the study area.

Wet Prairie (643)—This classification includes areas exhibiting hydric soils supporting a variety of grasses, sedges, and rushes. It is found in only a few locations in the study area and is distinguished from freshwater marshes in that the depth and duration of ponding is less. Typical vegetation includes cordgrass, yellow-eyed grasses (*Xyris* spp.), redtop

panicgrass (*Panicum rigidulum*), rosette grasses (*Dichanthelium* spp.), various sedges (*Cyperus* spp., *Carex* spp.), spike rushes, maidencane, and meadow beauties (*Rhexia* spp.). This wetland type is also found throughout the study area but is less common than fresh-water marsh.

Emergent Aquatic Vegetation (644)—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 advena*), among others. Areas mapped as emergent aquatic vegetation are uncommon within the study area.

Intermittent Ponds (653)—This category of wetland is defined as a water body that exists only for a portion of the year. It may be referred to as a seasonal water body. Its existence relies on water received directly from precipitation, runoff, or spring flow. Many upland perennial plants are unable to withstand the duration of inundation, while many wetland plants are unable to withstand desiccation. Wetland plants may also be nutrient-limited within small drainage basins. Intermittent pond habitats favor annual plants with some uniquely adapted perennials that suffer extensive mortality. A few small such communities occur within the study area.

9.3.7.2 Affected Waters and Wetlands

The proposed corridor modification physiography is characterized by topography that is nearly flat. Typical elevations in the study area range from approximately 150 feet above mean sea level (ft-amsl) in the developed areas of Loyce E. Harpe Park to approximately 120 ft-amsl at the surface of the water bodies.

Surface water bodies and wetlands crossed by the proposed modification were identified using 1:24,000 U.S. Geological Survey (USGS) topographic maps, National Wetlands Inventory (NWI) maps, SWFWMD land use/land cover maps, and recent aerial photographs (2014).

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

Water Bodies

Several small reclaimed phosphate ponds, intermittent ponds, and reservoirs are located within the proposed modification area. The remainder of waters crossed by the proposed corridor includes minor drainages and roadside ditches.

Many of the ditches and roadside swales crossed or within the proposed corridor modification area (such as along SR 37) are intermittent, carrying water only during the rainy summer season. These intermittent ditches are neither navigable nor generally used for recreational purposes.

Wetlands

Given the shallow groundwater table in places, flat topography, and varying soil conditions, there are various types of wetlands within the study area. As described in Section 9.3.7.1, these wetland types include bottomland swamps, fresh water marshes, wet prairies, and emergent aquatic vegetation. The hydrologic regime of these wetlands varies from semipermanently flooded to seasonally flooded, depending on their landscape position and the extent of drainage improvements within the immediate area. Extensive, former phosphate mining activities in and near the study area have altered the natural hydrologic regime of some of the wetlands.

Since some of the proposed corridor modification area follows along SR 37, most water bodies that will be crossed have already been impacted by previous development such as

filling, bridging, or culverting 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 pipe may be required in jurisdictional wetlands or reservoirs. Detailed design information will be provided to the appropriate regulatory agencies as postcertification submittals (see Section 9.4.2) to ensure that drainage patterns and characteristics are not further altered from the predevelopment condition.

9.3.7.3 Ecology

An area including the proposed corridor modification and 1,500 ft beyond either edge of the modification area 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), Florida Department of Agriculture and Consumer Services (FDACS), or 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 proposed corridor study area as residents, migrants, or transients determined on previous identifications in Polk County and the presence of suitable habitat within the proposed modification area. The lists of plant and animal species identified as potentially occurring within or adjacent to the proposed corridor modification 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 (2014). Florida Natural Areas Inventory's (FNAI)'s database (2015) 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 proposed modification area 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 proposed corridor modification area.

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 was evaluated for the species identified as potentially occurring in or adjacent to the proposed modification area. The following subsections present individual discussions of the species.

Plant Species

Fifteen plant species listed as endangered and four species listed as threatened by USFWS are known to occur in Polk County (2015); 44 plant species are listed as endangered and 31 as threatened by the state of Florida (Wunderlin and Hansen, 2008) in Polk County.

Based on the results of an FNAI search of element occurrences, no state- or federally regulated plant species are known to occur within the proposed modification area. Due to the habitat specificity of most listed species known to occur in Polk County (e.g., restricted to sand pine scrub or other scrub habitats) and the disturbed condition of virtually all the habitats crossed by the area within the proposed corridor modification area, no federally listed species and nine state-listed as endangered and nine state-listed as threatened plant species are considered to have a reasonable likelihood for occurrence within the modification area. In addition, six species listed as commercially exploited by FDACS have the potential to occur within the proposed modification area (Table 9.3.7-1). Given the known range of these species and presence of potential habitat on or adjacent to the proposed modification area, there is a possibility that some or all of these species could occur within or near the proposed modification area.

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,

Table 9.3.7-1. Listed Plant Species Known to Occur in Polk County with Potential to Occur Within the Proposed Corridor Modification Area

Scientific Name	Common Name	Florida Designated Status USDA/FDACS*	Preferred Habitat	Potential for Occurrence
<i>Calopogon multiflorus</i>	Manyflowered grasspink	E	Damp pinelands, meadows	Low
<i>Matalea floridana</i>	Florida milkvine/Florida spiny-pod	E	Mesic hammock, sandhill	Low
<i>Pecluma plumula</i>	Plume polypody	E	Hammocks, floodplains	Low
<i>Pecluma ptilodon</i>	Comb polypody	E	Upland mixed forest	Low
<i>Spiranthes brevilabris</i>	Small ladiestresses	E	Dry to moist roadsides and fields	Moderate
<i>Thelypteris serrata</i>	Toothed lattice-vein fern	E	Swamps, floodplains	Moderate
<i>Tillandsia fasciculata</i>	Giant airplant/cardinal airplant	E	Hammocks, cypress swamps, floodplains	Moderate
<i>Tillandsia utriculata</i>	Spreading airplant/giant airplant	E	Hammocks, floodplains, mixed forest	Moderate
<i>Calamintha ashei</i>	Ashe's savory	T	Disturbed areas such as fire lanes, road shoulders, and abandoned fields	Low
<i>Coelorachis tuberculosa</i>	Piedmont jointgrass	T	Karst areas in Florida and Alabama; abundant on margins or shallow of lakes and ponds or in wet savanna swales	Low
<i>Gonolobus suberosus</i>	Angularfruit milkvine	T	Rich woods	Moderate
<i>Harrisella porrecta</i>	Threadroot orchid	T	Hammocks, floodplains, swamps, old orange groves	Moderate
<i>Pteroglossaspis ecristata</i>	Giant orchid	T	Scrub, sandhill, disturbed areas with xeric soils	Low
<i>Sacoila lanceolata</i>	Leafless beaked ladiestresses	T	Open pastures, roadsides, wet pine flatwoods	High
<i>Tillandsia balbisiana</i>	Northern needleleaf	T	Floodplain forest, cypress swamps	Low
<i>Zephyranthes atamasca</i> var. <i>treatiae</i>	Treat's zephyrlily	T	Floodplain forest, swamps, acid peaty soils	Moderate
<i>Zephyranthes simpsonii</i>	Simpson's zephyrlily	T	Roadsides, wet flatwoods, meadows	High
<i>Encyclia tampensis</i>	Butterfly orchid	CE	Hammocks, swamps, floodplains	Moderate
<i>Epidendrum conopseum</i>	Green-fly orchid	CE	Cypress and hardwood swamps, moist hammocks	Moderate
<i>Lycopodium cernuum</i>	Nodding club-moss	CE	Wet depressions, ditches, moist areas	High
<i>Osmunda cinnamomea</i>	Cinnamon fern	CE	Swamps, hydric hammocks, floodplains, marshes	High
<i>Osmunda regalis</i>	Royal fern	CE	Swamps, floodplains	High
<i>Rhapidothylus hystrix</i>	Needle palm	CE	River bluffs, ravine slopes, hammocks, bottomland	Moderate

*No federally listed species expected within the proposed corridor modification area.

E = endangered.

T = threatened.

CE = commercially exploited.

Sources: FDACS, 2015.

FNAI, 2015.

ECT, 2015.

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 proposed corridor modification area, land use and land cover classification maps were obtained from SWFWMD (2011). These maps identified natural community systems as well as developed lands in various stages of disturbance. Using the SWFWMD classification (see Section 9.3.7.1), community systems identified in the proposed corridors that serve as the principal wildlife habitat types include forested mixed uplands, upland hardwood forests, and wetlands such as freshwater marshes, emergent wetlands, bottomland swamps, and mine ponds. Habitats such as transportation rights-of-way, mined lands, and landscaped residential and commercial 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 residential areas offer little habitat value to native vegetation and wildlife. Such areas occur primarily in the areas of SR 37 and Carter Road and away from the proposed modification. In contrast, the undeveloped habitats in and along the proposed corridor include a variety of upland and wetland communities representing a wide range of habitat values for specific plant and wildlife species.

The status and potential for occurrence of species recommended for study (i.e., species listed as endangered, threatened, or of special concern) in the study area were determined by a habitat analysis, literature survey, agency data, and ground surveys. A total of 23 vertebrate species, including 6 reptiles and amphibians, 14 birds, and 2 mammals, were identified as species occurring or possibly occurring in the study area for the current modification. The status and potential for occurrence of these vertebrate species in and along the proposed corridor modification area are summarized in Table 9.3.7-2 and discussed in the following paragraphs.

Table 9.3.7-2. Listed Wildlife Species Potentially Occurring in the Tampa Electric Reclaimed Water Pipeline Corridor Modification Study Area

Common Name	Scientific Name	Designated Status*		Likelihood of Occurrence within Proposed Corridor Modification
		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—wetlands and water bodies throughout the corridor areas
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	—	Moderate—wherever gopher tortoises are found
Gopher tortoise	<i>Gopherus polyphemus</i>	—	T	High—may be found in more xeric portions of study area
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	—	SSC	Low—no suitable habitat found in corridor areas; no records exist within study area (FNAI)
Short-tailed snake	<i>Stilosoma extenuatum</i>	—	T	Low—no suitable habitat found in corridor areas; no records exist within study area (FNAI)
<u>Birds</u>				
Limpkin	<i>Aramus guarauna</i>	—	SSC	Moderate—riverine system habitat present in corridor areas; however, no records exist from study area (FNAI)
Florida burrowing owl	<i>Athene cunicularia floridana</i>	—	SSC	Low—prefers dry, well drained pastures; no records exist for study area (FNAI)
Crested caracara	<i>Caracara cheriway</i>	T	—	Low—could be observed foraging along open areas within corridors
Little blue heron	<i>Egretta caerulea</i>	—	SSC	High—suitable habitats along proposed modification area; wading bird colonies known within 0.5 mile of the previously certified corridor, and individual records exist within Lakeland WTS (FNAI)
Snowy egret	<i>Egretta thula</i>	—	SSC	High—suitable habitats along proposed modification area; wading bird colonies known within 0.5 mile of the previously certified corridor, and individual records exist within the Lakeland WTS (FNAI)

Table 9.3.7-2. Listed Wildlife Species Potentially Occurring in the Tampa Electric Reclaimed Water Pipeline Corridor Modification Study Area (Continued, Page 2 of 3)

Common Name	Scientific Name	Designated Status*		Likelihood of Occurrence within Proposed Corridor Modification
		USFWS	FWC	
Tricolored heron	<i>Egretta tricolor</i>	—	SSC	High—suitable habitats along proposed modification area; wading bird colonies known within 0.5 mile of the previously certified corridor, and individual records exist within Lakeland WTS (FNAI)
White ibis	<i>Eudocimus albus</i>	—	SSC	High—suitable habitats along proposed modification area; wading bird colonies known within 0.5 mile of the previously certified corridor, and individual records exist within Lakeland WTS (FNAI)
Whooping crane	<i>Grus Americana</i>	E	E	Unlikely—While experimental nonmigratory populations exist in Florida., whooping cranes have a limited range and only inhabit shallow marshes and open grasslands
Florida sandhill crane	<i>Grus canadensis pratensis</i>	—	T	Moderate—wet pastures and marshes along proposed modification area
Bald eagle‡	<i>Haliaeetus l. leucocephalus</i>	—	—	Moderate—numerous phosphate lakes exist in the area for foraging; listed because of protective buffers afforded active nest sites
Wood stork	<i>Mycteria americana</i>	T	—	High—suitable habitats along proposed modification area; wading bird colonies known within 0.5 mile of the previously certified corridor, and individual records exist within Lakelands WTS (FNAI)
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	—	Low—suitable old growth pine trees absent from corridor areas
Roseate spoonbill	<i>Platalea ajaja</i>	—	SSC	Low—more coastal species, but could be found foraging inland
Everglades snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E	—	Low—lack of suitable habitat within corridors

Table 9.3.7-2. Listed Wildlife Species Potentially Occurring in the Tampa Electric Reclaimed Water Pipeline Corridor Modification Study Area (Continued, Page 3 of 3)

Common Name	Scientific Name	Designated Status*		Likelihood of Occurrence within Proposed Corridor Modification
		USFWS	FWC	
<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 corridors; no records exist for study area (FNAI)

* E = endangered.

T = threatened.

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

SSC = species of special concern.

†FNAI 2013 records search of rare element occurrences for the study area.

‡The bald eagle has been delisted; however, it is included due to federal protection and recommended nesting buffers.

Sources: FWC, 2013.

USFWS, 2013.

FNAI, 2013.

ECT, 2015.

Amphibians

Gopher Frog (*Rana capito*)—The gopher frog is a state-listed species of special 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 proposed corridor modification wherever gopher tortoise habitats may be found, there is a low likelihood this species may be present.

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 within the proposed corridor modification.

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 low likelihood it would be found along the proposed corridor modification. Both USFWS and FWC list the indigo snake as a threatened species. No FNAI records were found for this species in the proposed modification area.

Gopher Tortoise (*Gopherus polyphemus*)—The gopher tortoise's range in Florida includes the entire study area. It is likely to be found in more xeric habitats along the proposed corridor modification. Since it prefers burrows in sunny locations, any xeric habitats along existing road rights-of-way may be particularly suited to this species. These drier habitats are limited within the proposed modification area; however, the tortoise has a high likelihood of occurrence where suitable habitat is present. FWC currently lists the gopher tortoise as threatened.

Florida Pine Snake (*Pituophis melanoleucus muigitus*)—The Florida pine snake prefers longleaf pine/xeric oak woodlands. No such habitats are found in the corridor modification

area. FNAI (2013) shows no records for this species for the study area; therefore, its likelihood of occurrence in the corridor modification area is considered low.

Short-Tailed Snake (*Stilosoma extenuatum*)—The short-tailed snake is generally restricted to sandhill communities, which are xeric habitats. No xeric habitats are present in the corridor modification area. FNAI (2013) indicates no records for this species in the proposed modified corridor; therefore, it has a low likelihood of occurrence.

Birds

Limpkin (*Aramus quarauna*)—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 proposed corridor modification area is considered moderate due to the presence of water bodies within the proposed corridor modification area.

Burrowing Owl (*Athene cunicularia floridana*)—The burrowing owl is listed as a species of special concern by FWC and prefers xeric pastures with low vegetation. The proposed corridor modification crosses little or no such habitat, so its likelihood of occurrence is considered low. No records exist for the study area for the modification (FNAI, 2013).

Crested Caracara (*Caracara cheriway*)—This bird is listed as threatened by both agencies. The bird is more commonly observed in open cabbage palm prairies and grasslands of Central Florida. While nesting habitat is relatively scarce along the proposed corridor modification, there is a low possibility the bird could be observed foraging along the open habitats and roadway along the proposed modified corridor.

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 proposed modified 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 salt-water systems. It may occur in wetlands within the proposed corridor modification area.

Tricolored Heron (*Egretta tricolor*)—The tricolored heron (formerly called Louisiana heron) is a species of special concern as listed by FWC. This species prefers estuarine habitats but can be found foraging in almost any wetland system. It may occur in the proposed corridor modification area.

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 within the area of the proposed corridor modification.

Florida Sandhill Crane (*Grus canadensis pratensis*)—The Florida sandhill crane is listed as threatened by FWC. It prefers marshes for nesting and pastures and wet prairies or farm fields for foraging. Given the habitats found within the proposed modification of the corridor, its likelihood of occurrence is considered moderate.

Bald Eagle (*Haliaeetus leucocephalus*)—The bald eagle has been delisted by both the state and federal agencies; however, it is discussed here because it is afforded protection through various federal acts and nest buffer guidelines. The eagle is making a comeback in population numbers in the United States, and, in Florida, eagle nests are becoming more common. No active eagle nests are known to occur in or within 0.5 mile of the proposed corridor. Due to the proximity to numerous lakes and wetlands, the possible presence of the bald eagle in the corridor modification area is considered moderate.

Wood Stork (*Mycteria americana*)—The wood stork was downlisted in June 2014 by USFWS from an endangered to a threatened species; however, it remains endangered according to FWC. This large bird prefers nesting in cypress swamps. Two known historical nesting colonies (FWC Colony Nos. 616039 and 616114) are found south of the proposed modification area in the Lakeland WTS. Both colonies are located in Mulberry area

(USFWS, 2010). Figure 9.1.0-4 shows these two locations. Individuals of the species almost certainly would be found foraging in marshes, ditches, and phosphate ponds in the nearby proposed corridor modification area.

Red-Cockaded Woodpecker (*Picoides borealis*)—The red-cockaded woodpecker is listed as federally endangered. Its unique habitat requirements include old-age pine trees inflicted with red-heart disease, which allows the birds to form cavities in living trees. Since no old-age pine stands are found in the proposed modified corridor, the bird's likelihood of occurrence is low.

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 (2013) does not report any occurrences in proximity to the study area; therefore, the likelihood of occurrence for the roseate spoonbill is considered low.

Everglades Snail Kite (*Rostrhamus sociabilis plumbeus*)—This endangered bird prefers habitats consisting of slow-moving water with emergent vegetation (such as maidencane or sawgrass). It is typically found in the Lake Okeechobee area southward through the Everglades. Although FNAI lists a few historical sitings north of the PPS site (near the intersection of SR 37 and Bethlehem Road, approximately 12.5 miles to the south), its likelihood of occurrence in the study area is considered low.

Wading Bird Colonies

FWC (1999), USFWS (2010), and FNAI (2013) do list known locations of several wading bird colonies in the study area, in addition to the two wood stork colonies discussed previously. While none are recorded as occurring within the proposed corridor modification area, one is shown to occur within 0.5 mile of the recently certified Polk Tie-in corridor within the Lakeland WTS (see Figure 9.1.0-4): Colony No. 616039 located within the Lakeland WTS east of the certified corridor and south of the proposed modification. Because these nests were last reported active in 1999 by FWC, it is unknown if they are currently active, but historical colonies can be reformed from year to year.

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. While gopher tortoises potentially exist within the proposed modified corridor area, the Florida mouse's likelihood of occurrence is considered low. FNAI (2013) 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 areas and along the proposed modified 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 are not common along the proposed corridor modification area. FNAI (2013) shows no records of this species within the study area.

9.3.7.4 **Other Environmental Factors**

The preceding subsections present relevant environmental information regarding the biological and water resources within and near the reclaimed water pipeline proposed modified corridor. No additional information has been determined necessary to describe environmental characteristics of this corridor modification.

9.4 **EFFECTS OF RIGHT-OF-WAY PREPARATION AND PIPELINE CONSTRUCTION**

9.4.1 **CONSTRUCTION TECHNIQUES**

The proposed pipeline corridor and modification follows existing SR 37 for a portion of the proposed Polk tie-in corridor modification. Clearing and grubbing may be required on the pipeline for up to approximately 2,000 linear ft of alignment from the connection to the existing PAR pipeline along SR 37 to the Carter Park Entrance Road within Loyce E. Harpe Park. Field reconnaissance indicates public right-of-way along SR 37 is approximately 150 ft wide and covered by short grass.

Pipeline construction methods for most of the corridor's extent will consist of open cut (dig trench, place pipe, backfill, and restore) installation. Some sections of the alignment requiring special crossings will use trenchless jack-and-bore or horizontal directional drilling

(HDD) techniques. Special crossings may include pipeline installations crossing under surface or subsurface features that are to be left undisturbed (wetlands, river/stream crossings, roadways, intersections, densely located existing utilities). A single, trenchless crossing is anticipated for the PAR to Lakeland WTS pipeline. It is anticipated that this crossing will be performed by HDD to cross below a 48-inch culvert that intersects the pipe alignment in Loyce E. Harpe Park. Decisions regarding the installation method will be made during final design and may be influenced by the results of competitive bidding. Construction limits for special crossings will be defined in the pipeline construction drawings. It is likely that jack-and-bore installation will be employed where it is feasible to install a bore pit. Drawings, fracture mitigation plans, depths, and borehole diameters will be determined after the design is complete and a construction contractor is selected.

A traditional jack-and-bore installation requires a bore pit to accommodate the boring rig. Any bore pit in this area of Florida would require dewatering. Dewatering plans would be developed once design is complete and a construction contractor selected.

Since the bore rig for directional drills sits above grade, other underground utilities are less likely to interfere with the rig. Also, directional drills can be made deeper than traditional jack-and-bores, which allows directional drills to be more suitable for river crossings and other long drills. The extra depth allows for increased safety during day-to-day operations. HDD uses a precise guidance system that allows the bores to be accurate over a long distance.

Construction equipment will include loaders, graders, dump trucks, directional drilling machines, asphalt paving machines, compactors, pipe handling equipment, and watering trucks.

Construction activities will generally include the ongoing/progressive installation of pipe, valves, and restoration along the full route. Typically, a pipe crew can install approximately 200 ft per day on average; therefore, the full length of pipeline may require approximately 120 crew-days. With two crews, this would take approximately 3 months working straight

through. A third or fourth crew would probably be working in parallel for restoration, special crossings, etc. When installation is complete, the pipeline would be pressure-tested for final acceptance. It is reasonable to consider a total construction period of 6 to 7 months for submittals, mobilization, installation, testing, acceptance, and weather/other delays. However, the timetable could change depending on the final pipeline alignment with respect to adjacent utilities, wetlands, number of roadway crossings, weather delays, etc.

Construction equipment will include loaders, graders, dump trucks, directional drilling machines, asphalt paving machines, compactors, pipe handling equipment, and watering trucks.

The proposed discharge to the Lakeland WTS consists of an outfall that discharges vertically into an existing wetland treatment cell. The underground 16-inch pipe turns upward via a 16-inch, 90-degree elbow with pipe restraints to counter thrust. The vertical pipe extends upward to the existing ground surface, where it terminates at a 16-inch aluminum grating flush with the ground surface and is surrounded by a 24-inch diameter concrete collar. The aluminum grating and concrete collar is surrounded at the ground surface by an 8-ft by 8-ft (by 18-inch thick) Type I riprap apron, whose purpose is to dissipate energy and protect the surrounding wetland soil. Geotextile fabric will be placed underneath the riprap apron to prevent soil movement into or through the riprap. Figures 9.2.0-2 and 9.2.0-3 provide details of this discharge structure.

Access roads are not required where the corridor follows public road rights-of-way, or where the corridor follows paved or unpaved roads within Loyce E. Harpe Park. While it is not anticipated that permanent access roads will be needed along the pipeline corridor at this time, temporary access roads may be needed in and around the area of the Lakeland WTS. Figure 9.3.4-1 depicts a typical construction road detail.

9.4.2 ENVIRONMENTAL RESOURCE PERMIT

Currently certification is sought for a corridor modification in which narrow rights-of-way will be later identified. Once the corridor modification is certified, a right-of-way identified and acquired, and detailed designs finalized, Tampa Electric will provide the information

normally found in an environmental resource permit application to the reviewing agencies as a postcertification condition, as authorized by Section 62-17.191, F.A.C.

9.4.3 SOLID WASTES

Solid wastes generated from right-of-way clearing and pipeline construction typically consist of cleared vegetation and construction-related debris. Solid wastes will be collected and removed for disposal in compliance with state and local landfill regulations, chipped and spread over the right-of-way, or piled and burned within the right-of-way, if allowed and in compliance with local burning ordinances.

9.4.4 CHANGES TO VEGETATION, WILDLIFE, AND AQUATIC LIFE

Impacts on terrestrial and aquatic systems and species associated with pipeline 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 was minimized or avoided to restrict any potential impacts to sensitive habitats and/or endangered and threatened species associated with pipeline construction and maintenance. Where the proposed modified corridor follows along SR 37, it is not anticipated that pipeline construction or maintenance will have any significant impact on native vegetation, wildlife, or aquatic life. The remaining areas that could be potentially crossed by the pipeline include a number of natural and disturbed upland and wetland community types. Design options will be explored to minimize wetland impacts and provide environmental benefits.

No listed species are anticipated to be impacted by the narrow right-of-way. If the listed gopher tortoise is present along the right-of-way, Tampa Electric will acquire the necessary approvals from FWC to either permanently or temporarily relocate the affected tortoises. No other listed species will be adversely affected by construction of this facility.

9.4.5 IMPACT ON HUMAN POPULATIONS

Pipeline construction occurs as a series of tasks generally accomplished in sequence by different specialized crews. Tasks (where necessary) include clearing of right-of-way, excavation, construction of access roads, and cleanup activities. Construction of the pipeline is expected to take approximately 6 to 7 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). Inconveniences experienced by residents and recreational facility visitors near the pipeline will be primarily confined to noise from machinery used intermittently at various locations along the rights-of-way during construction and minor traffic/trail disruptions due to use of heavy equipment along road rights-of-way and trails. The construction and associated noise-producing activities are intermittent in nature and will take place only during normal daylight working hours, unless otherwise directed by local permitting agencies.

The only residential areas in the vicinity of the proposed corridor modification are the Paradise Lakes Mobile Home Park located west of SR 37 and residential homes located along the northern side of West Carter Road. The remainder of the corridor is characterized by commercial uses along the eastern side of SR 37, undeveloped land, wetlands/lakes, and recreational lands. In the area of the mobile home park, the recently certified Polk tie-in corridor and the proposed corridor modification area are collocated with SR 37. The proposed corridor modification does not extend north of West Carter Road. In the area of the commercial uses, it is anticipated that the pipeline would be collocated with SR 37 and/or West Carter Road.

Impacts to the human population attributable to construction and possible maintenance of the proposed pipeline will be minimal because of the avoidance of much of the existing development in the area by the proposed corridor modification, collocation with SR 37 where possible, and the short duration of construction activities in any one location. Recreational users of Loyce E. Harpe Park may encounter short-term disruptions to some park activities such as hiking and off-road biking.

9.4.6 IMPACT ON REGIONAL SCENIC, CULTURAL, AND NATURAL LAND-MARKS

No such resources are known to occur within the proposed corridor or modification area; therefore, no impacts are anticipated.

9.4.7 IMPACT ON ARCHAEOLOGICAL AND HISTORICAL SITES

As discussed in Section 9.3.6.5, according to DHR's Master Site File, there are several known archaeological/historical features found in the certified corridor, but none within the current Polk tie-in corridor modification area proposed in this application. Every effort will be made to avoid archaeological/historical sites.

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 rights-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.

9.5 POSTCONSTRUCTION IMPACTS AND EFFECTS OF MAINTENANCE

9.5.1 MAINTENANCE TECHNIQUES

A water pipeline typically requires little maintenance. Other than monitoring flow rates and operating pressure, water pipeline maintenance activities include:

- Monthly windshield inspection of the pipeline to look for evidence of leaks exhibited by seepage and/or depressions along the alignment.
- Monthly inspection of the air release valves to ensure proper operation.
- Exercising of valves on a monthly basis. Depending on the number of valves implemented into the final design, this activity could take approximately 2 days.

- Pipeline pigging. However, due to the characteristics of the water, pipeline pigging may not be required. A more thorough analysis of the need for pigging should be done during design activities.

Where the eventual pipeline right-of-way will follow a public road right-of-way, it will be maintained according to standards as FDOT currently maintains it.

Maintenance manpower requirements should be likewise minimal. The windshield inspection and inspection of air release valves can be accomplished by a single person in 1 day.

Telemetry will provide a general view of pipeline health through monitoring of flow rates, pump speed, system pressure, etc. Such monitoring could be accomplished during the normal course of control room activities.

9.5.2 MULTIPLE USES

Tampa Electric rights-of-way are frequently used for other purposes compatible with the operation and maintenance of pipelines. Multiple use of a pipeline right-of-way typically includes grazing, limited 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 pipeline facilities. In most cases, Tampa Electric obtains an easement for the construction, maintenance, and operation of its pipeline, as well as the rights of ingress and egress to that line from any other party that 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 pipeline facilities.

9.5.3 CHANGES IN SPECIES POPULATIONS

Section 9.3.7 discusses the status and potential for occurrence of important species in and along the proposed corridor modification area. It is anticipated that any impacts will be temporary in nature. The absence of significant impacts to important species is not coinci-

dental, as efforts were made during the corridor selection study to avoid potentially sensitive habitats as much as practicable. The avoidance of ecologically unique or valuable habitats was achieved through collocating the corridor within existing public roadway rights-of-way and other linear features or traversing previously mined phosphate lands. A wide corridor within the Loyce E. Harpe Park and Se7en Wetlands area is proposed to provide maximum flexibility to avoid sensitive areas with placement of the final pipeline alignment. Tampa Electric will acquire the necessary approvals from FWC to either permanently or temporarily relocate any affected tortoises found within Loyce E. Harpe Park and the Se7en Wetlands area. Such alignment will be identified in consultation with Polk County and any other affected agencies/local governments.

No changes in local species populations are expected as a result of pipeline presence and maintenance. Displacement of individuals from the immediate right-of-way area that may occur during construction activities will be temporary. 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. These displaced species are expected to reinhabit the right-of-way areas after construction. No animal or plant species are expected to be permanently displaced from the pipeline right-of-way area.

Due to necessary maintenance practices in the right-of-way, a decrease in structural diversity may occur in formerly forested areas (i.e., permanent loss of a tree canopy layer), which are limited in the proposed corridor. Because most of the corridor follows existing road rights-of-way and previously disturbed lands, clearing of canopy vegetation will be minimal. The long-term effects of this pipeline and associated maintenance should not adversely affect regional populations of any listed species. Through a vegetation maintenance program and proper culverting of access roads if needed, both existing habitat and hydrology will be maintained.

9.5.4 EFFECTS OF PUBLIC ACCESS

A significant portion of the proposed pipeline corridor modification follows public road rights-of-way where access is currently not prohibited. Where the pipeline corridor crosses public roadways, trenchless jack-and-bore installations have been proposed to keep the roadway in service and eliminate potential public access issues. Where Tampa Electric crosses private ownerships, Tampa Electric will install locked gates where the right-of-way enters and exits through existing fencing. That way, no new public access will be allowed along these portions of the right-of-way except by Tampa Electric maintenance crews. No such restrictions to public access are proposed for existing and proposed parkland where public access is or will be available.

9.5.5 OTHER POSTCONSTRUCTION EFFECTS

No other postconstruction effects are anticipated. Water pipelines are unobtrusive once constructed, and no other effects are anticipated.

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9.1 MAPS

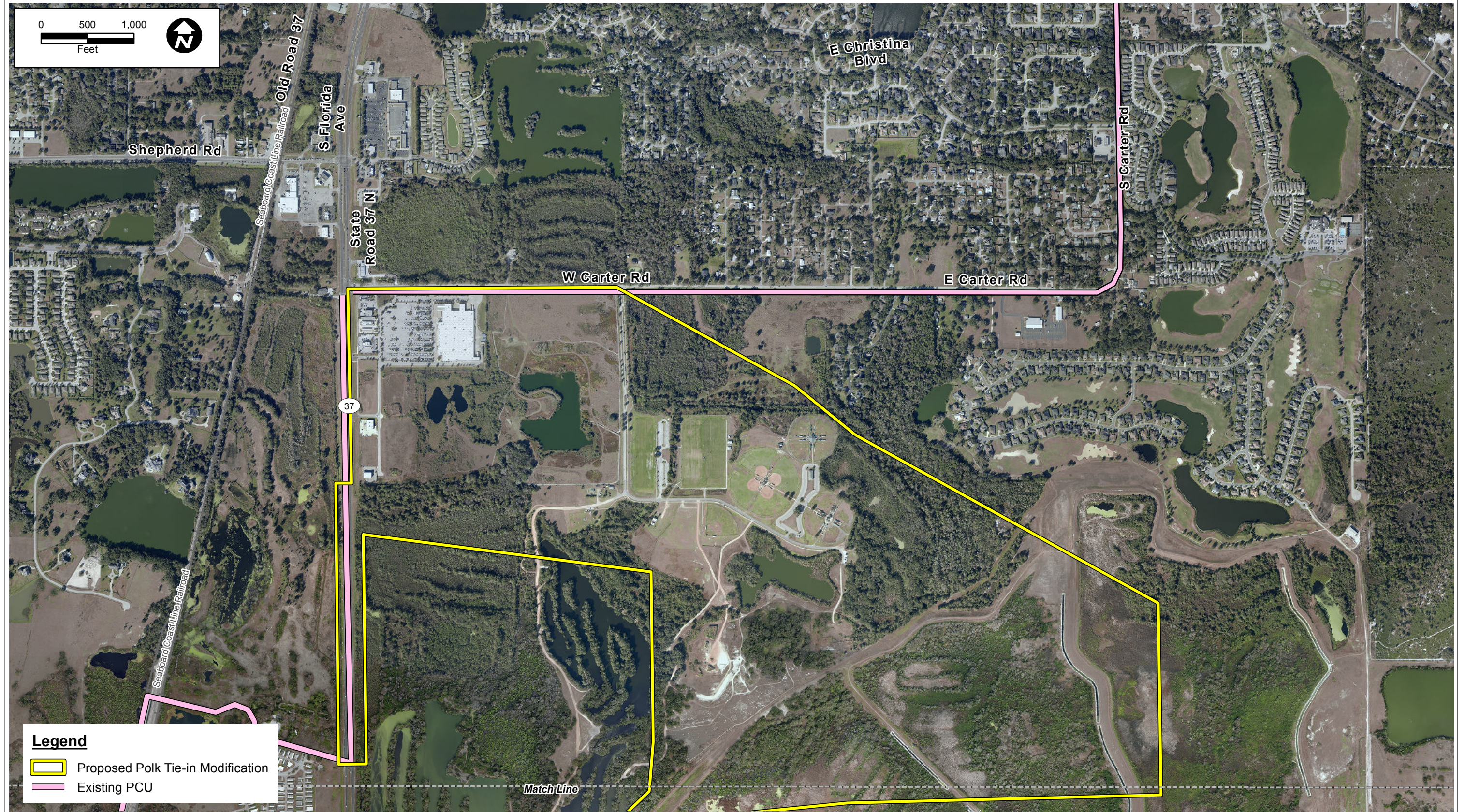


FIGURE 9.1.0-1.
2014 AERIAL OF PROPOSED POLK TIE-IN CORRIDOR MODIFICATION

SHEET 1 OF 2



Sources: FDOT Imagery, 2014; ECT, 2015.



FIGURE 9.1.0-1.
2014 AERIAL OF PROPOSED POLK TIE-IN CORRIDOR MODIFICATION

SHEET 2 OF 2



Sources: FDOT Imagery, 2014; ECT, 2015.

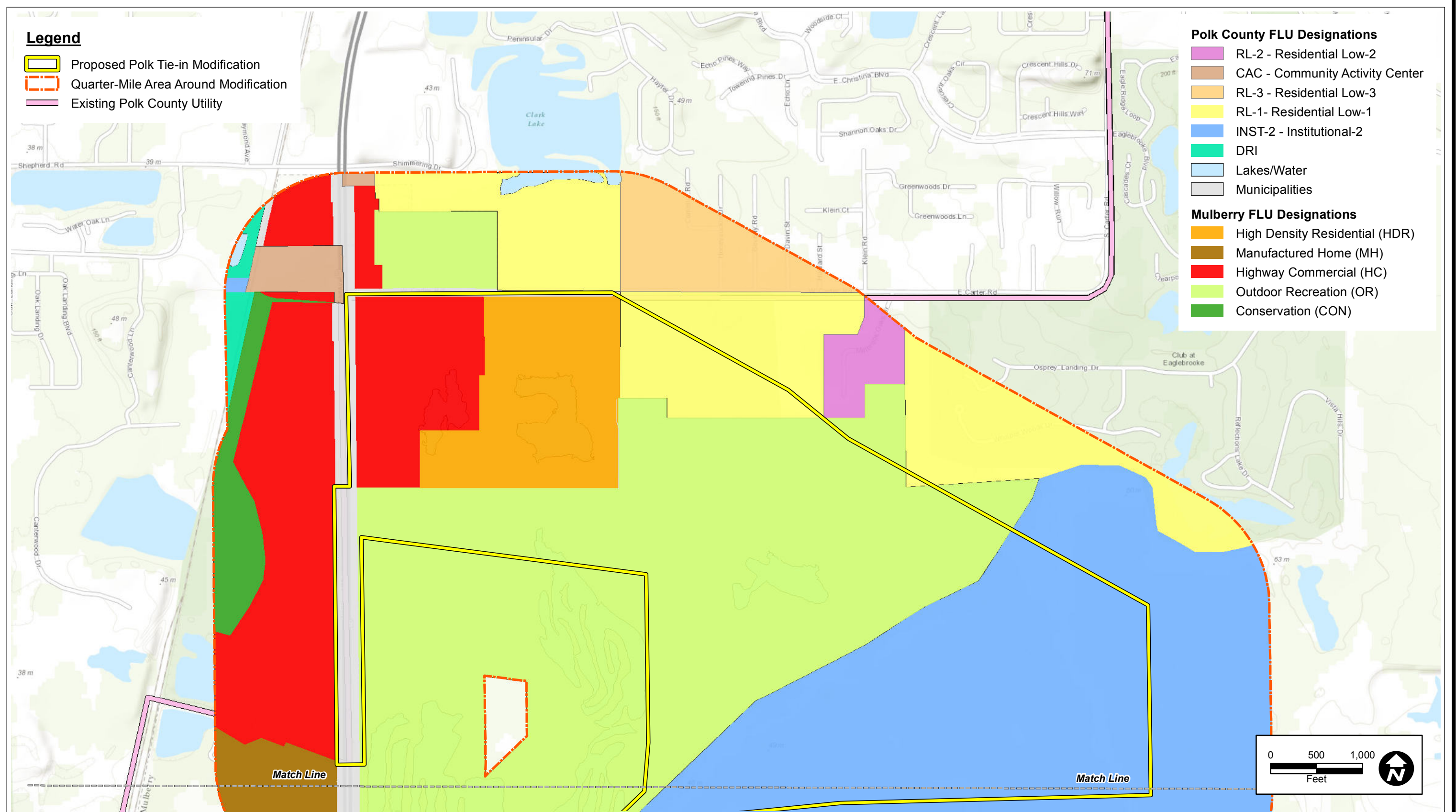


FIGURE 9.1.0-2.
FUTURE LAND USE (FLU) DESIGNATIONS WITHIN ONE QUARTER-MILE OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 1 OF 2



Sources: City of Mulberry, 2012; ESRI, 2013; Polk County, 2013; ECT, 2015.



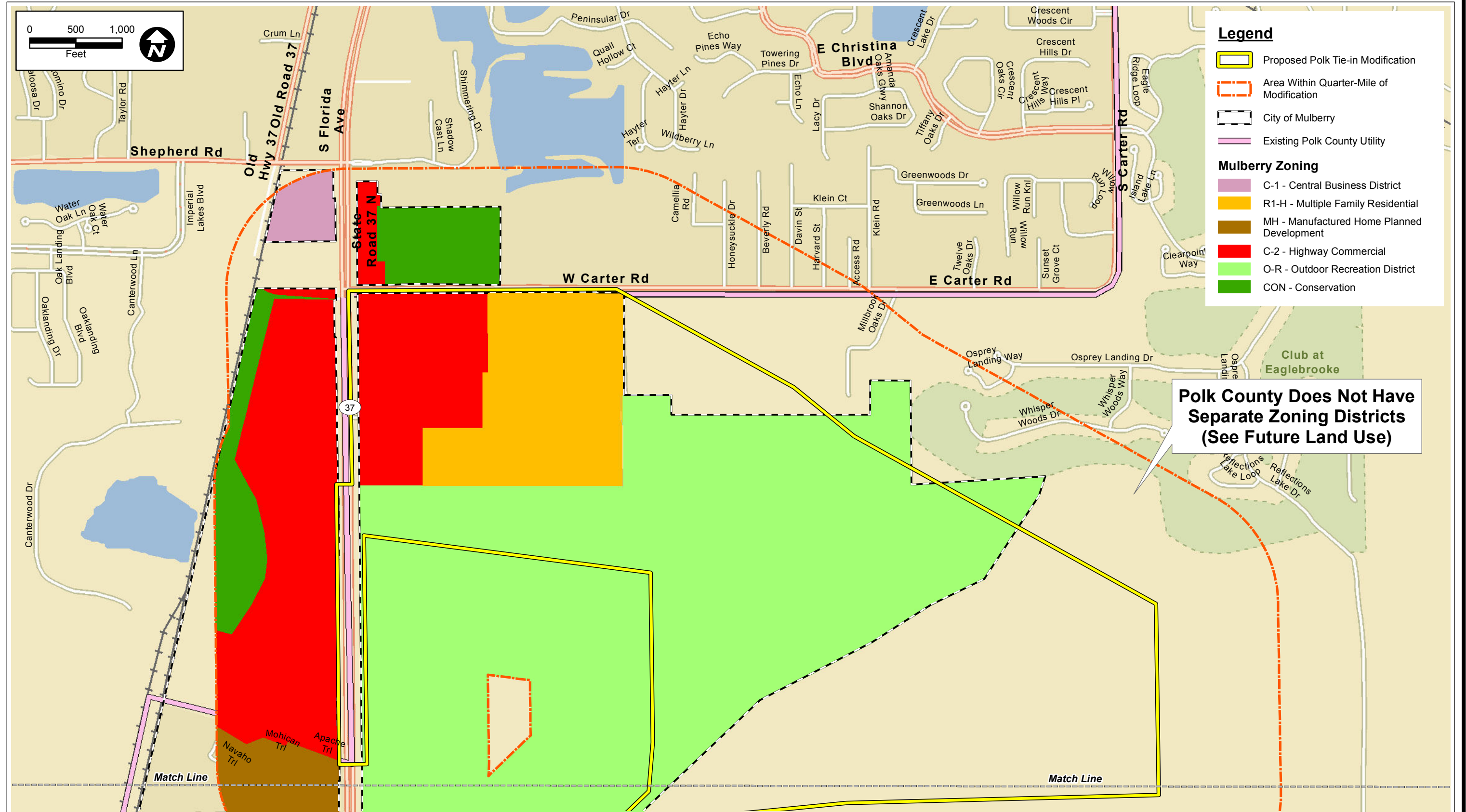


FIGURE 9.1.0-3.
ZONING DISTRICTS WITHIN ONE QUARTER-MILE OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 1 OF 12

Sources: City of Mulberry, 2012; Polk County, 2013; ECT, 2015.



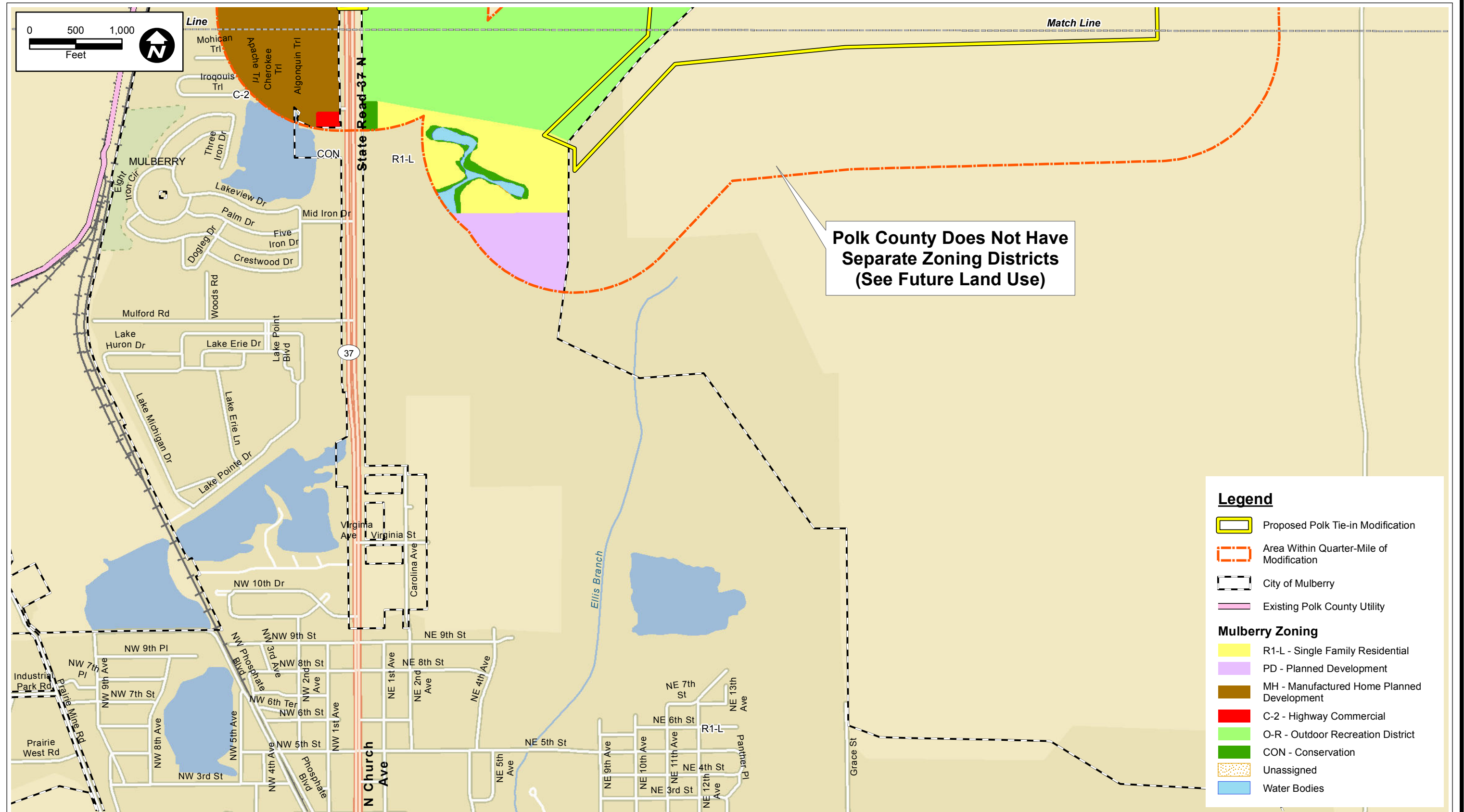


FIGURE 9.1.0-3.
ZONING DISTRICTS WITHIN ONE QUARTER-MILE OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 2 OF 12

Sources: City of Mulberry, 2012; Polk County, 2013; ECT, 2015.



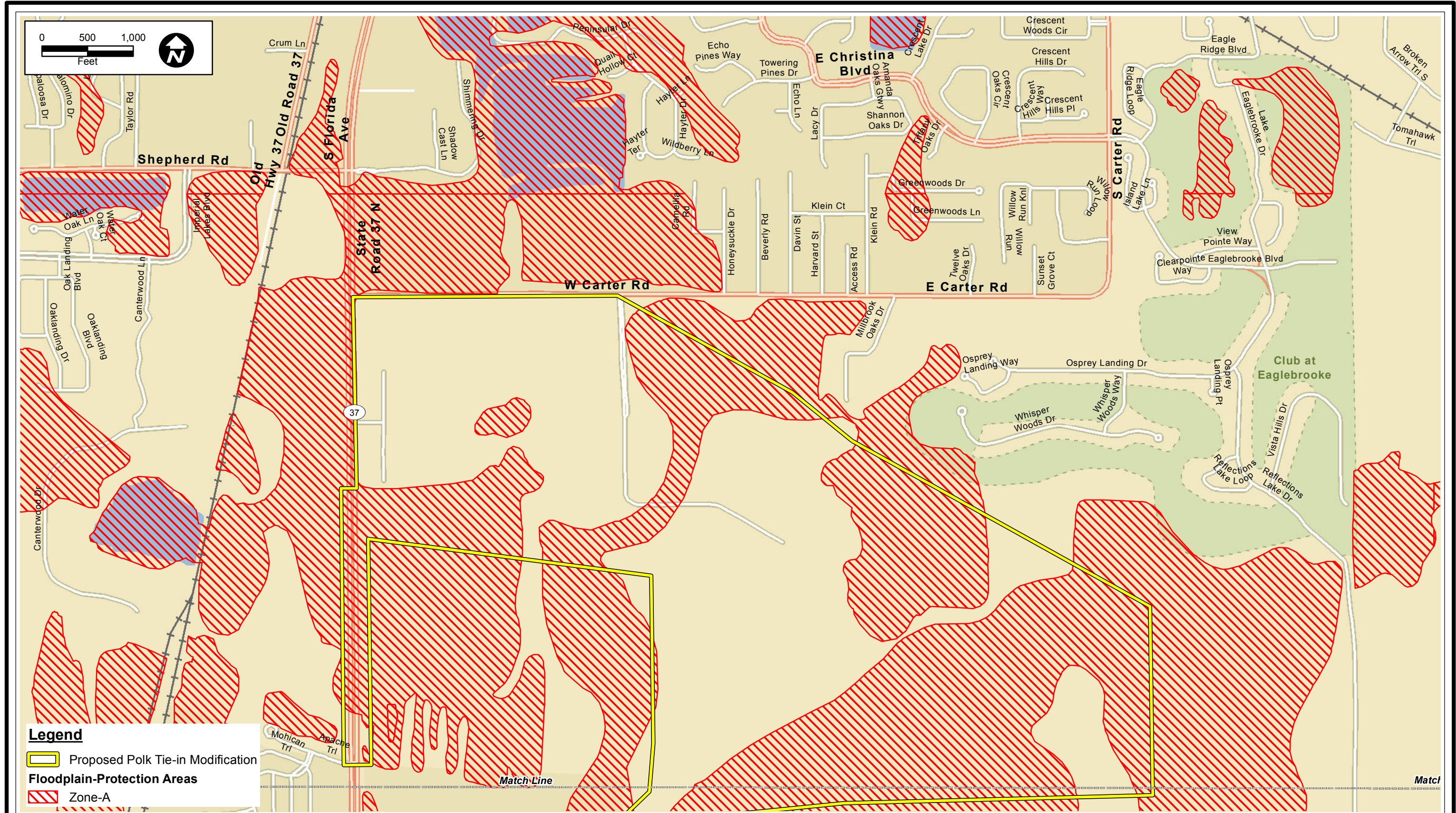


FIGURE 9.1.0-3.
POLK COUNTY FLOODPLAIN OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 3 OF 12



Sources: Polk County, 2012; ECT, 2015.

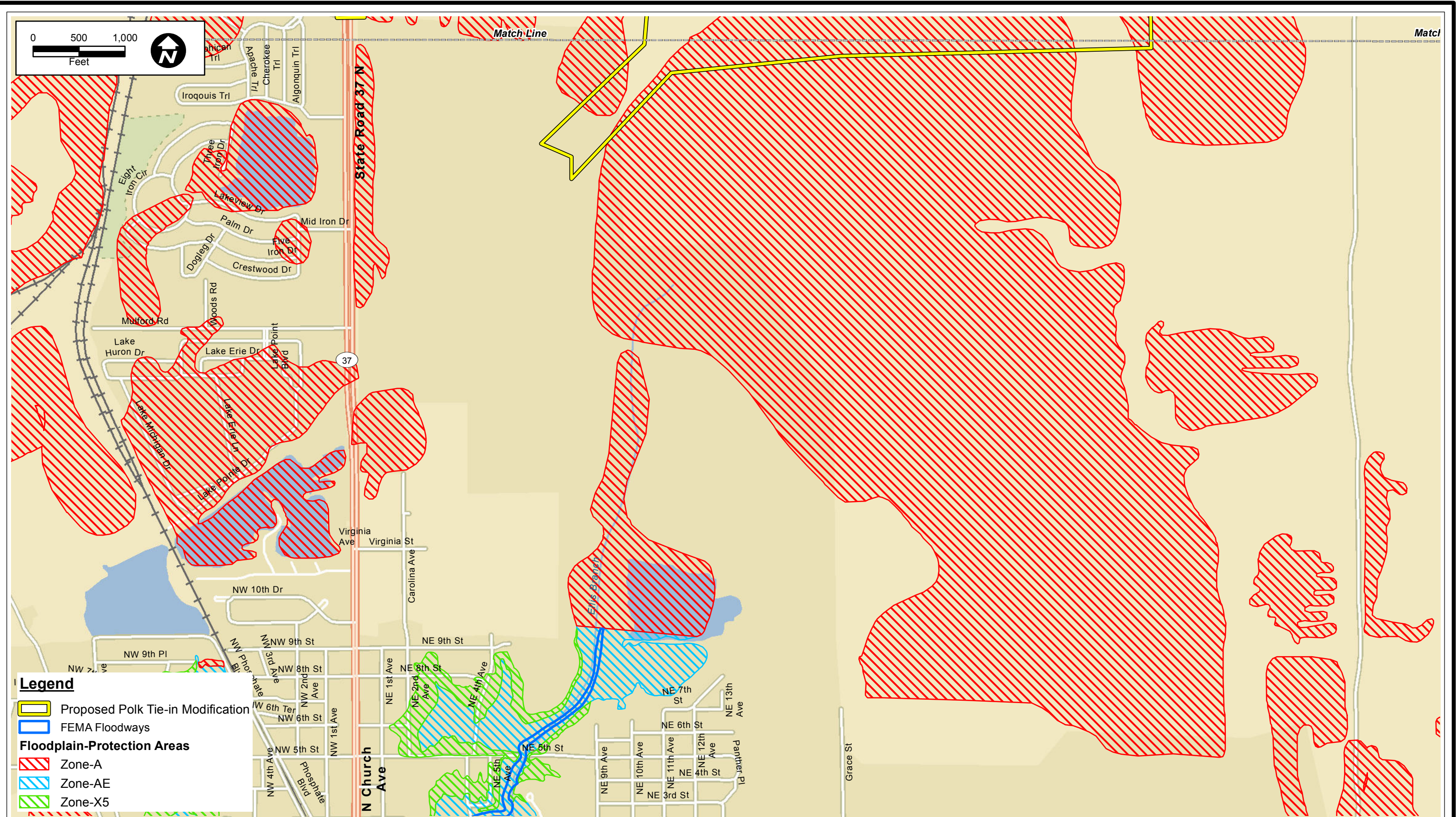


FIGURE 9.1.0-3.

POLK COUNTY FLOODPLAIN OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 4 OF 12



Sources: Polk County, 2012; ECT, 2015.

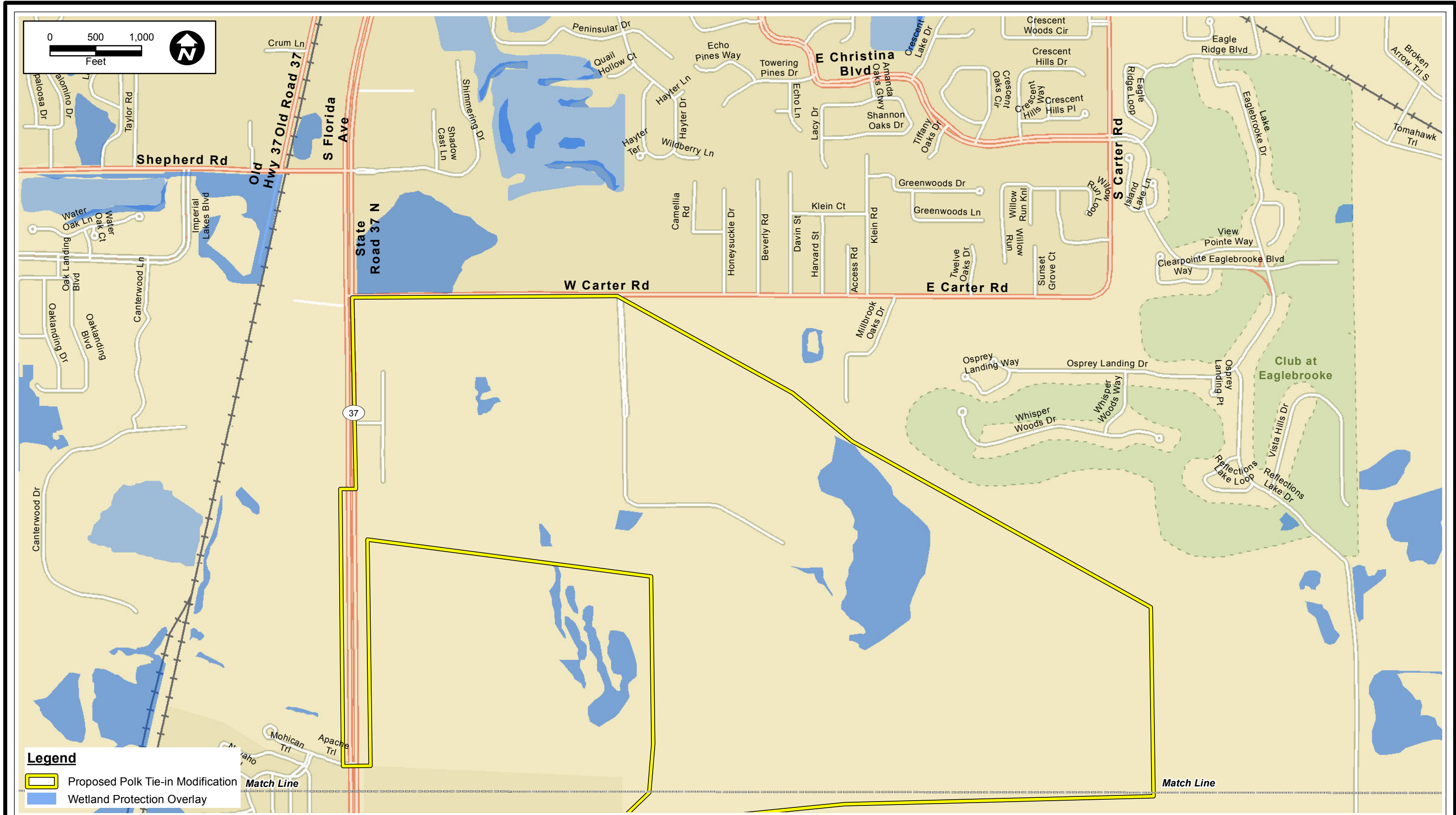


FIGURE 9.1.0-3.
POLK COUNTY WETLAND PROTECTION OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 5 OF 12



Sources: Polk County, 2012; ECT, 2015.

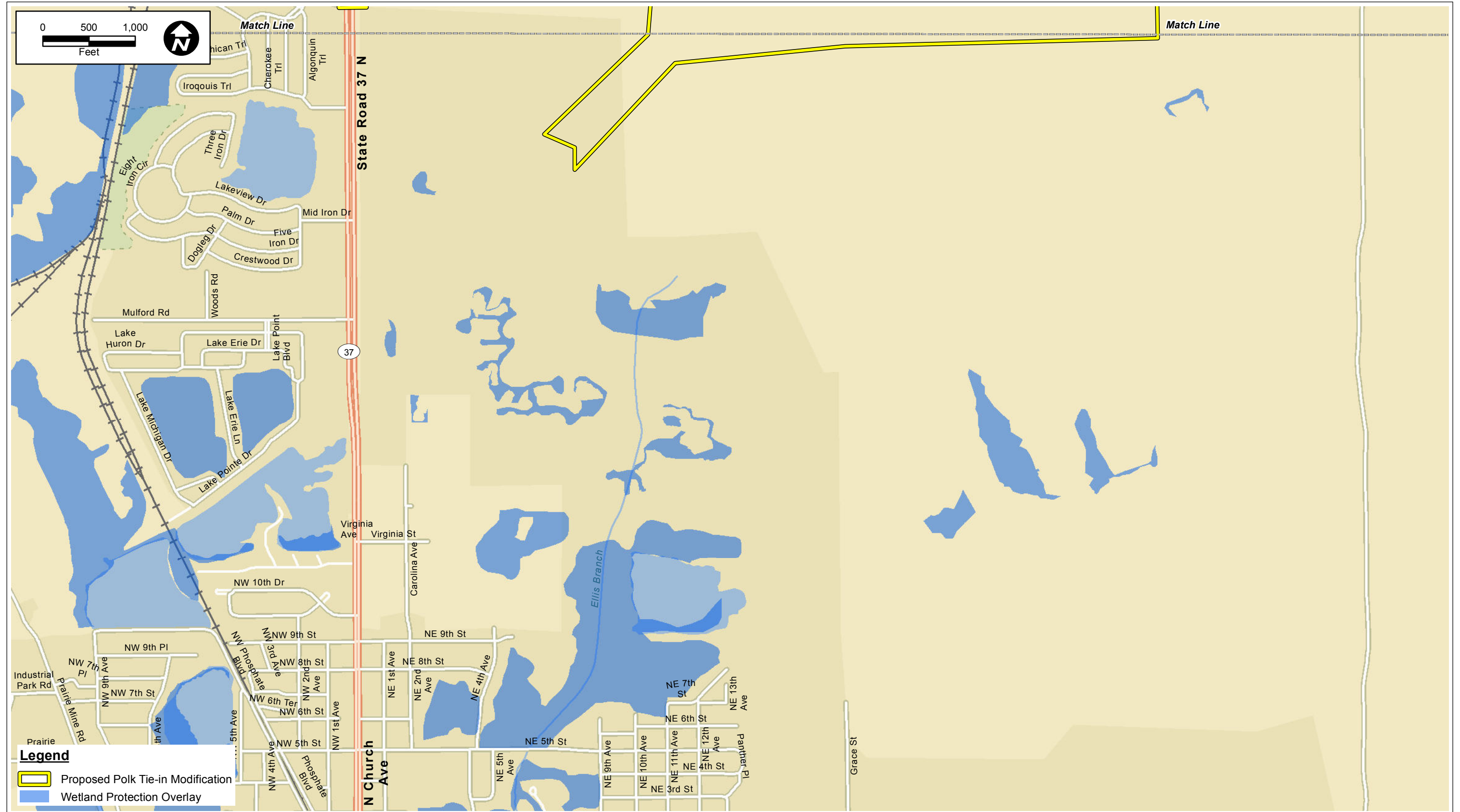


FIGURE 9.1.0-3.
POLK COUNTY WETLAND PROTECTION OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 6 OF 12



Sources: Polk County, 2012; ECT, 2015.

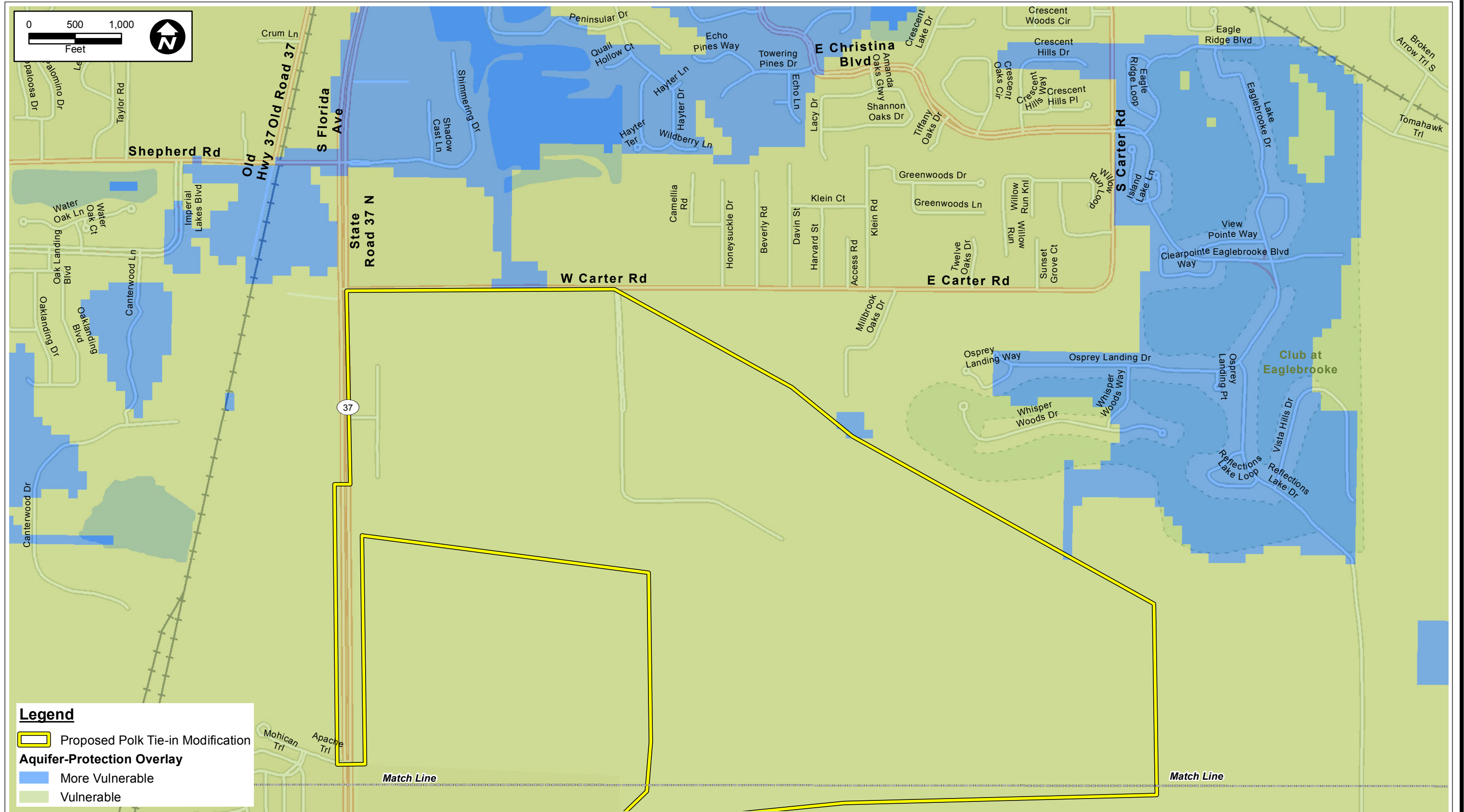


FIGURE 9.1.0-3.

POLK COUNTY AQUIFER PROTECTION OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 7 OF 12



Sources: Polk County, 2012; ECT, 2015.

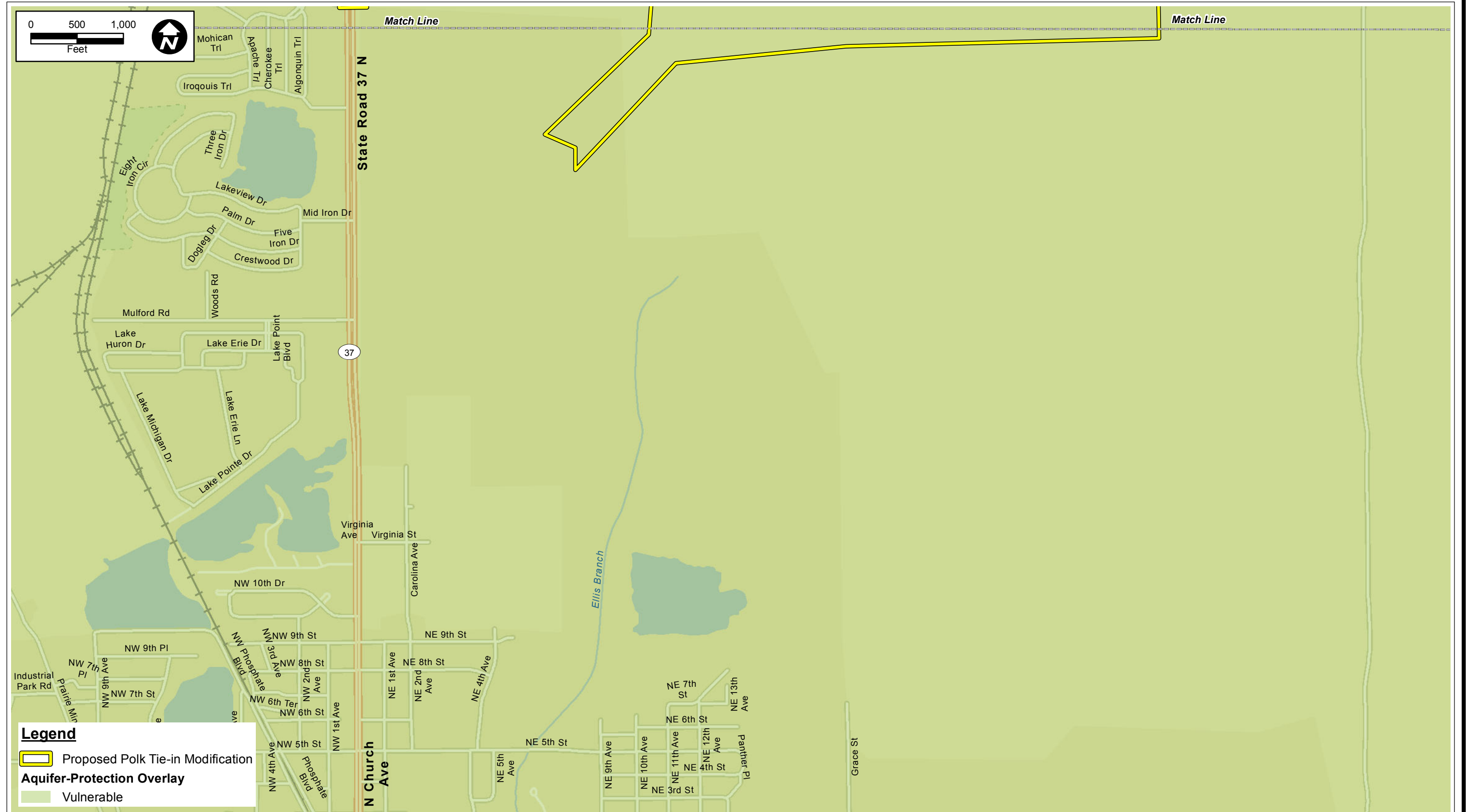


FIGURE 9.1.0-3.
POLK COUNTY AQUIFER PROTECTION OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 8 OF 12



Sources: Polk County, 2012; ECT, 2015.

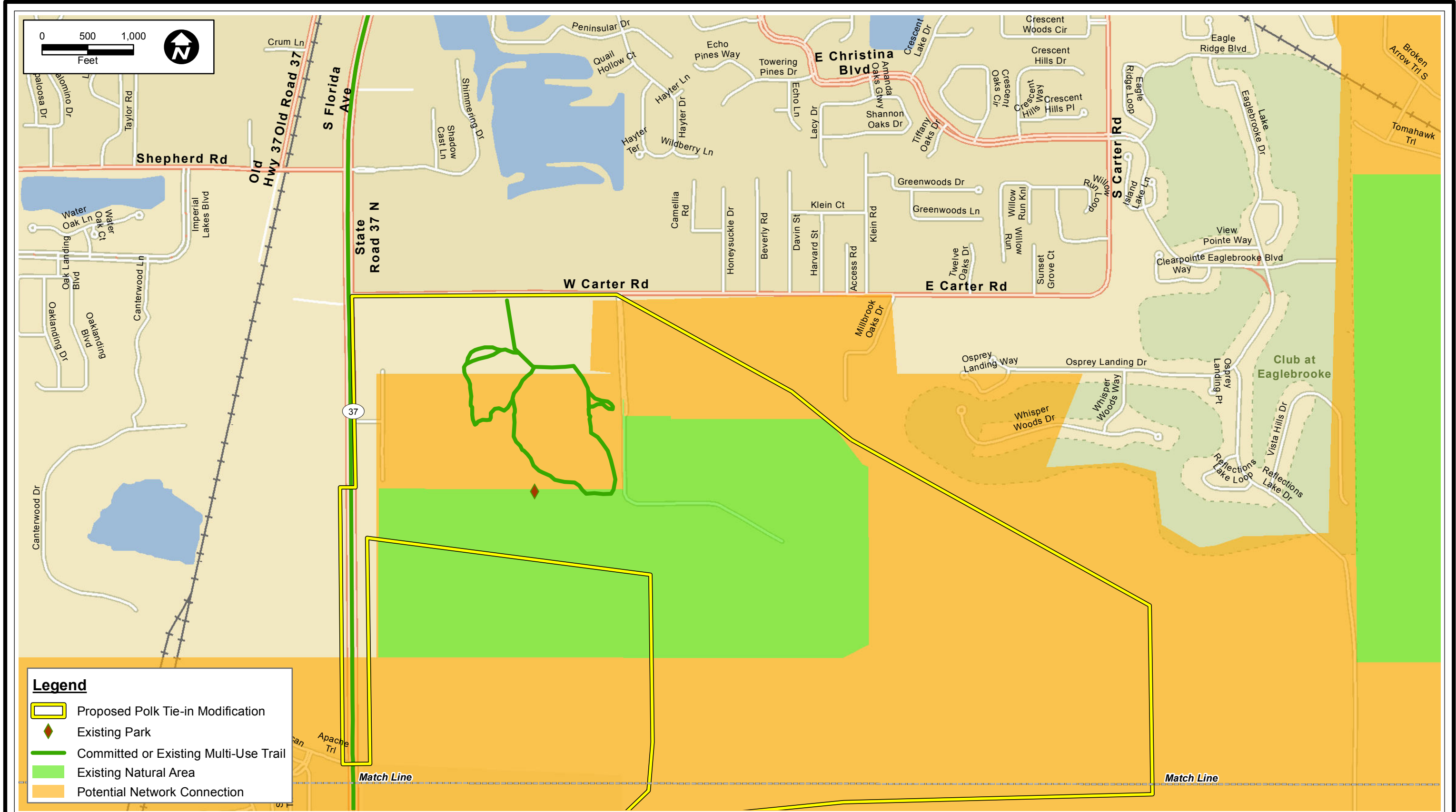


FIGURE 9.1.0-3.
POLK COUNTY GREEN DISTRICTS OVERLAY OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 9 OF 12



Sources: Polk County, 2012; ECT, 2015.

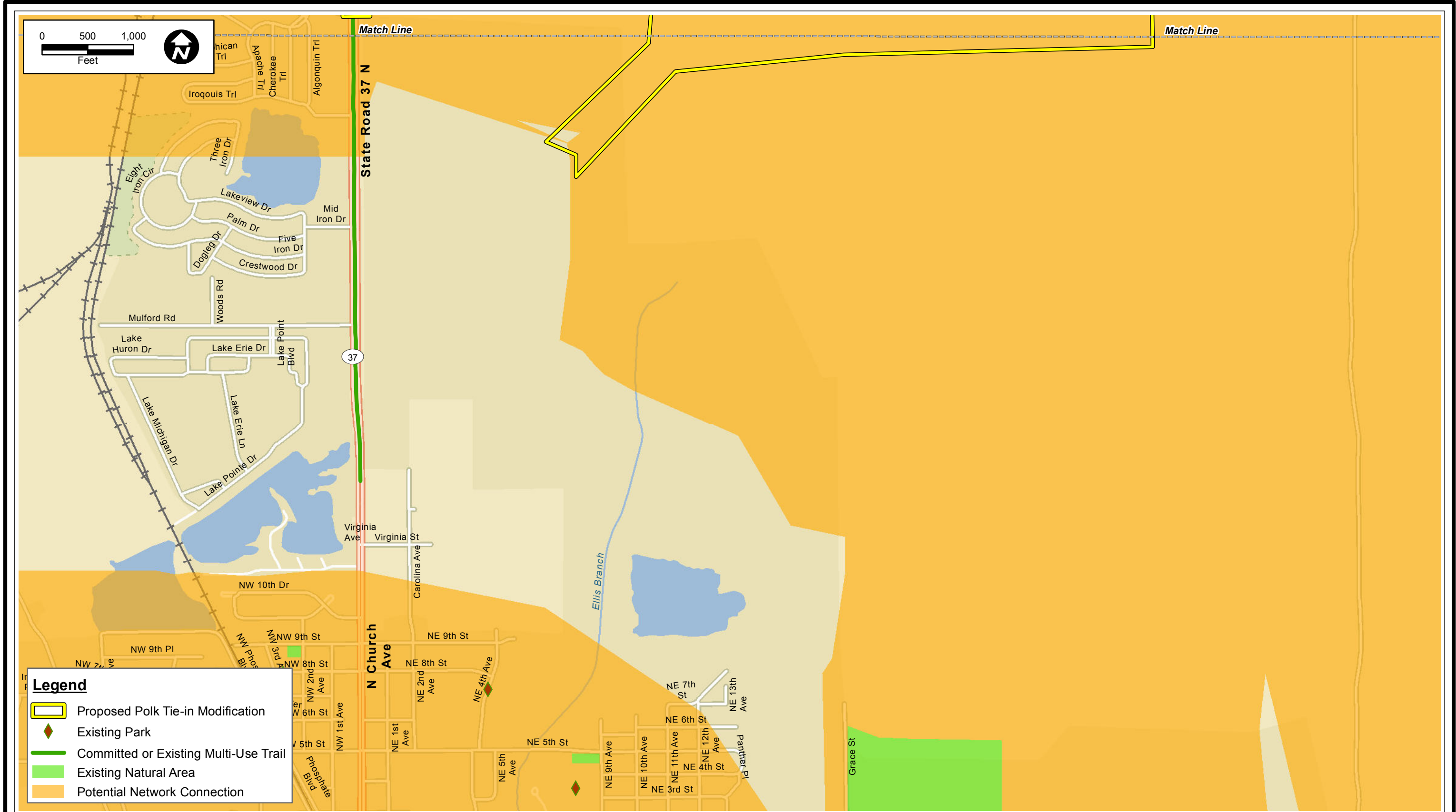


FIGURE 9.1.0-3.
POLK COUNTY GREEN DISTRICTS OVERLAY OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 10 OF 12



Sources: Polk County, 2012; ECT, 2015.

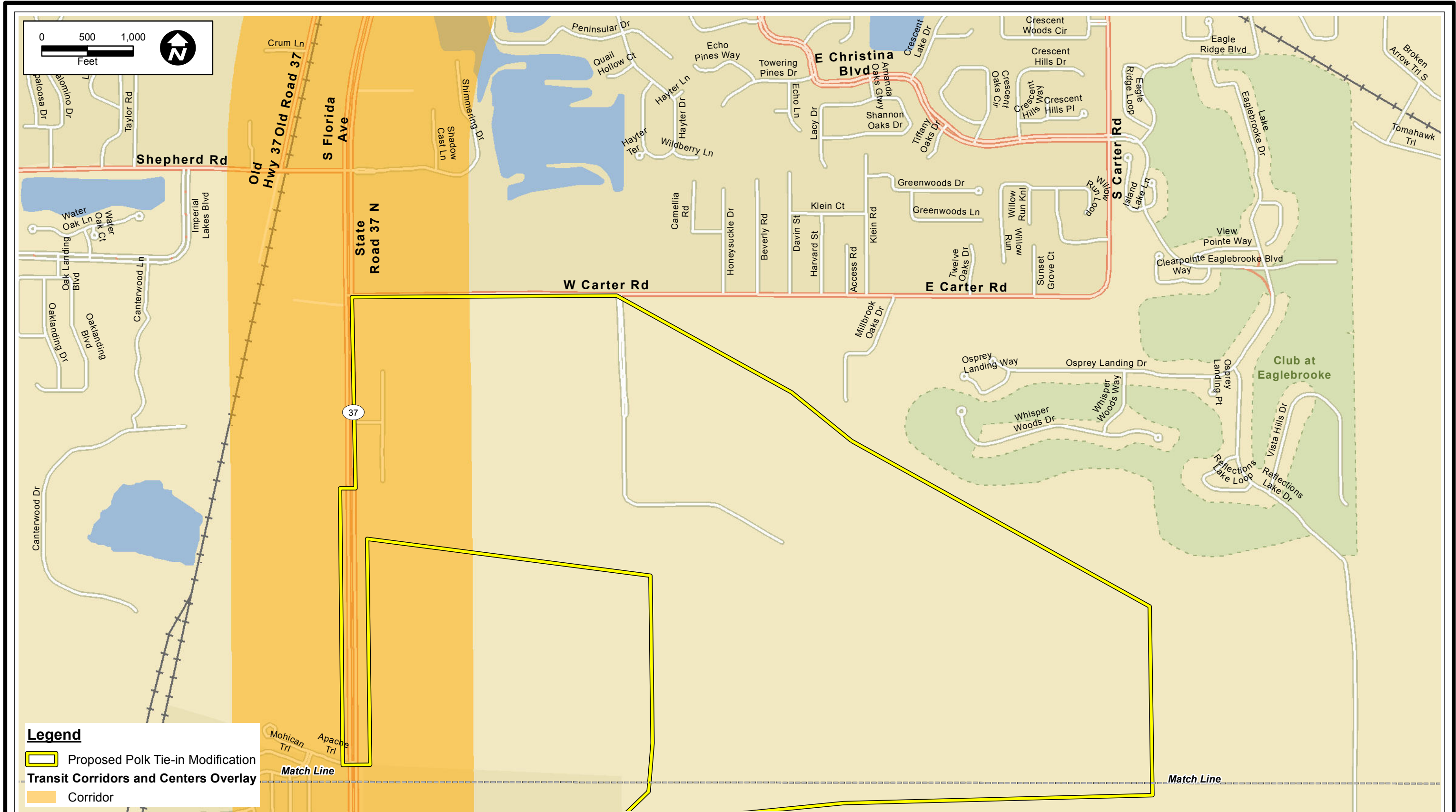


FIGURE 9.1.0-3.
POLK COUNTY TRANSIT CORRIDORS AND CENTERS OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 11 OF 12

Sources: Polk County, 2012; ECT, 2015.



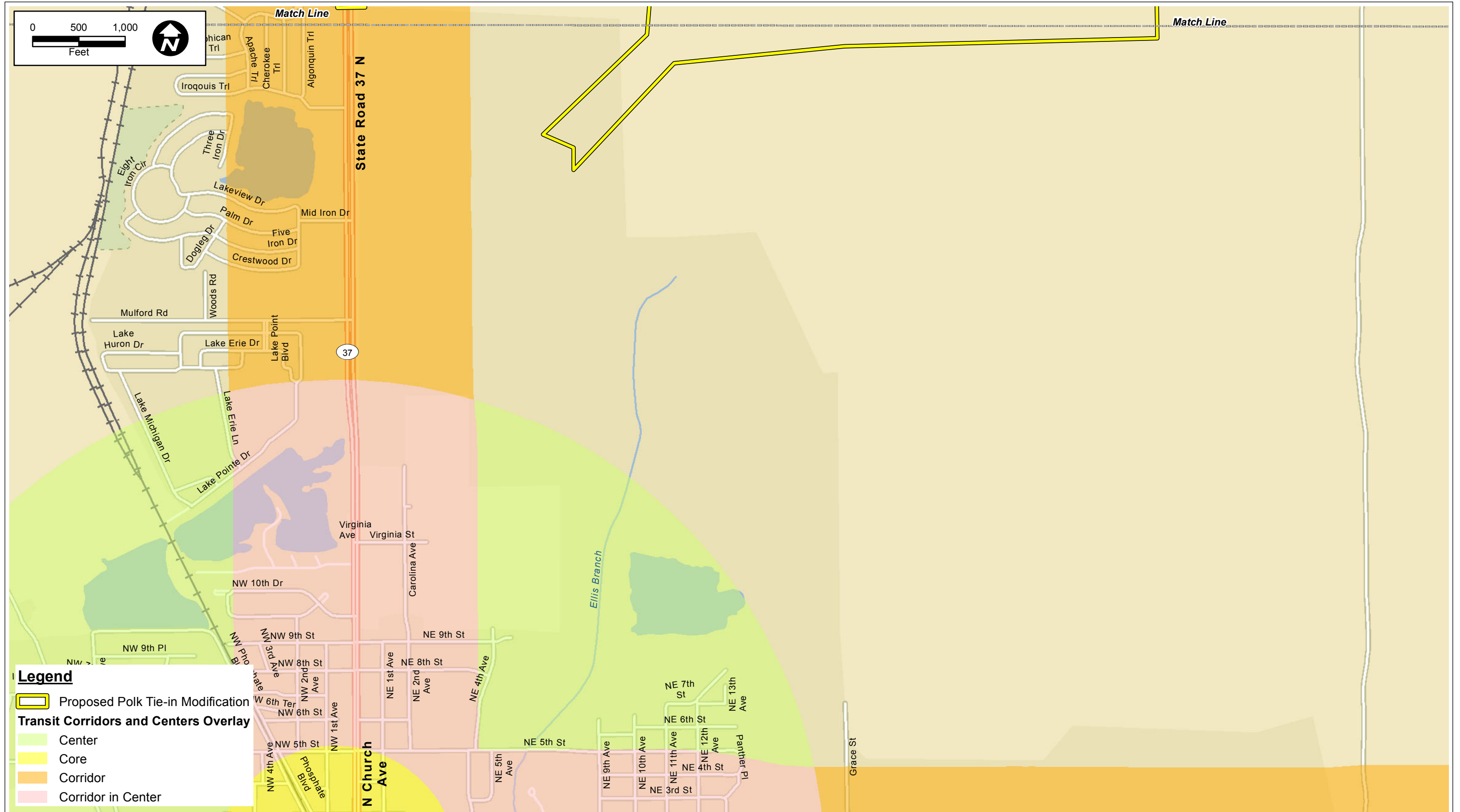


FIGURE 9.1.0-3.
POLK COUNTY TRANSIT CORRIDORS AND CENTERS OVERLAY DISTRICT OF PROPOSED POLK TIE-IN MODIFICATION

SHEET 12 OF 12

Sources: Polk County, 2012; ECT, 2015.



LEVEL 3 CODE	DESCRIPTION
110	RESIDENTIAL, LOW DENSITY <LESS THAN TWO DWELLING UNITS PER ACRE>
120	RESIDENTIAL, MEDIUM DENSITY <TWO-FIVE DWELLING UNITS PER ACRE>
130	RESIDENTIAL, HIGH DENSITY
132	MOBILE HOME UNITS
140	COMMERCIAL AND SERVICES
165	RECLAIMED LAND
170	INSTITUTIONAL
180	RECREATIONAL
182	GOLF COURSES
190	OPEN LAND
210	CROPLAND AND PASTURELAND
260	OTHER OPEN LANDS <RURAL>
330	MIXED RANGELAND
434	HARDWOOD - CONIFEROUS MIXED
520	LAKES
530	RESERVOIRS
615	STREAMS AND LAKE SWAMPS (BOTTOMLAND)
630	WETLAND FORESTED MIXED
641	FRESHWATER MARSHES
643	WET PRAIRIES
644	EMERGENT AQUATIC VEGETATION
653	INTERMITTENT PONDS
810	TRANSPORTATION

FIGURE 9.1.0-4.
VEGETATION AND LAND USE KEY FOR
PROPOSED POLK TIE-IN MODIFICATION

Sources: SWFWMD, 2013; ECT, 2015.



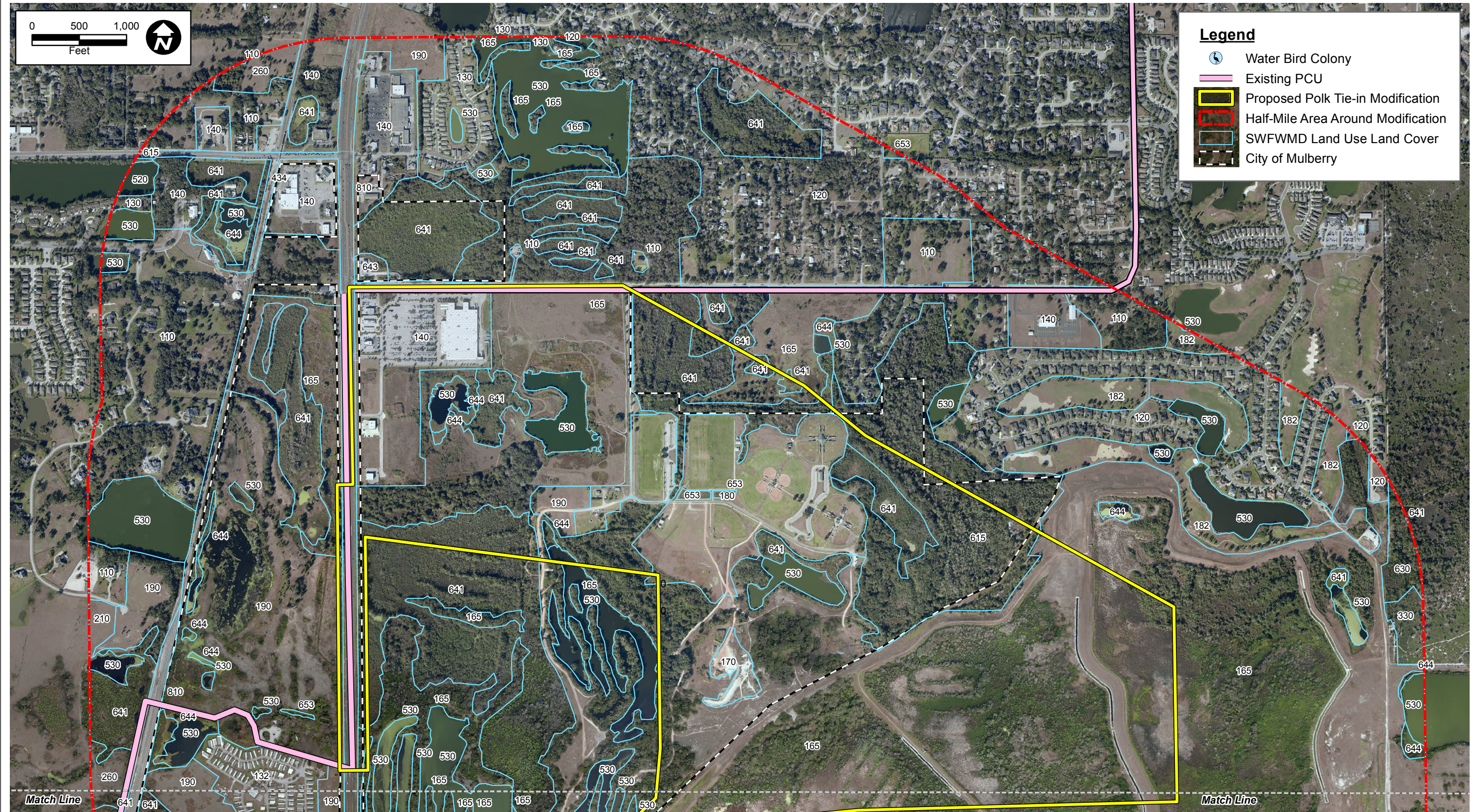


FIGURE 9.1.0-4.
VEGETATION AND LAND USE WITHIN 0.5 MILE OF PROPOSED POLK TIE-IN MODIFICATION

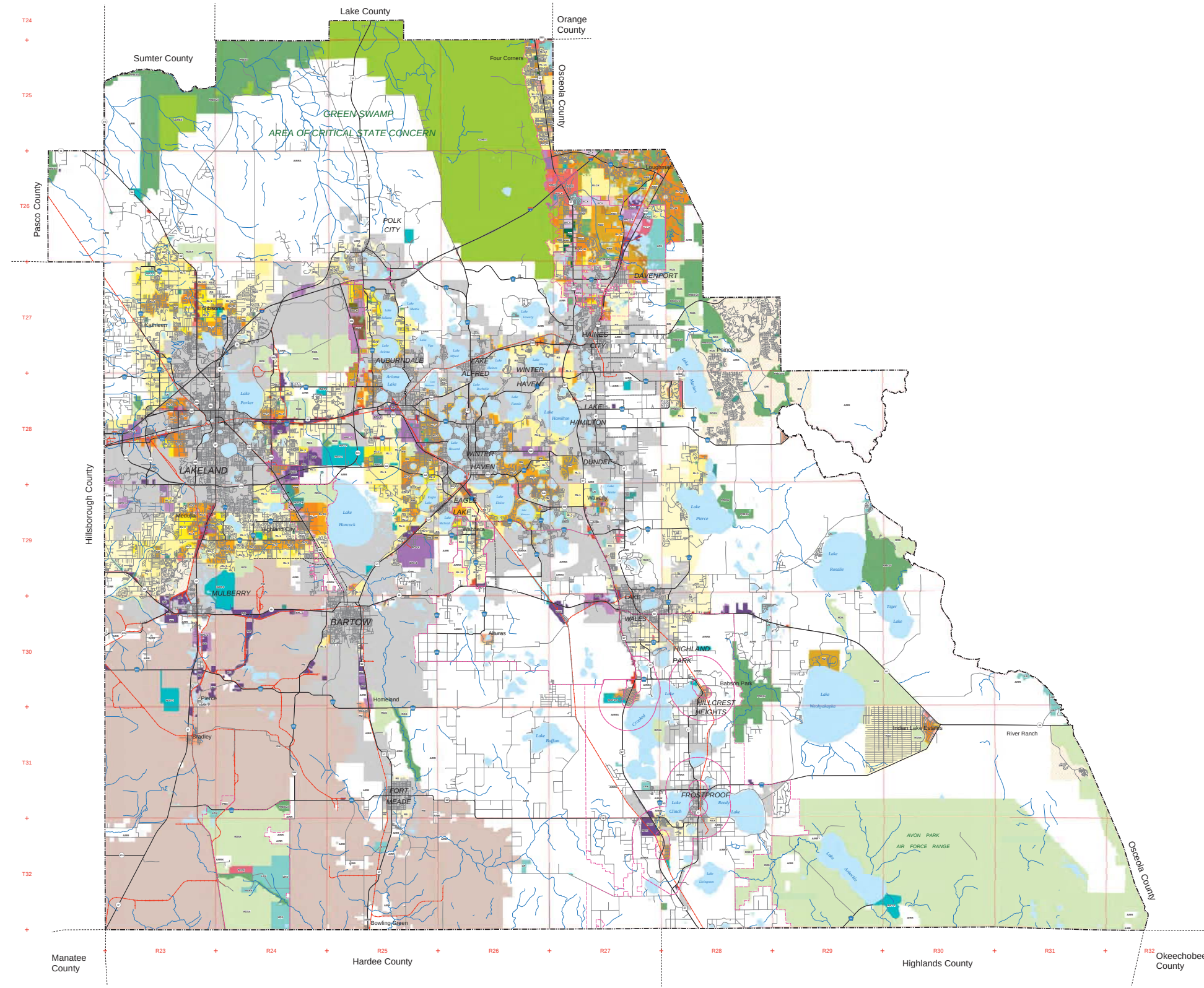
SHEET 1 OF 2

Sources: SWFWMD, 2011; FDOT Imagery, 2014; ECT, 2015.



APPENDIX A

FUTURE LAND USE MAPS



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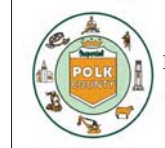
2030 COMPREHENSIVE PLAN MAP SERIES Future Land Use

- CC - Convenience Center
- NAC - Neighborhood Activity Center
- CAC - Community Activity Center
- TC - Town Center
- RAC - Regional Activity Center
- HIC - High-Impact Commercial Center
- TCC - Tourism Commercial Center
- LCC - Linear Commercial Corridor
- CE - Commercial Enclave
- OC - Office Center
- EC - Employment Center
- BPC-1 - Business Park Center-1
- BPC-2 - Business Park Center-2
- IND - Industrial
- PM - Phosphate Mining
- LR - Leisure Recreation
- PI - Professional Institutional
- INST-1 - Institutional-1
- INST-2 - Institutional-2
- IAC - Interchange Activity Center
- ROS - Recreation and Open Space
- PRESV - Preservation
- CORE - Conservation Core
- MU - Mixed Use
- RCC - Rural Cluster Center (Non-Residential)
- RCC-R - Rural Cluster Center (Residential)
- RS - Residential-Suburban
- RL-1 - Residential Low-1
- RL-2 - Residential Low-2
- RL-3 - Residential Low-3
- RL-4 - Residential Low-4
- RM - Residential Medium
- RH - Residential High
- AVRR - Agriculture/Residential-Rural
- PRE-DRI & DRI - Development of Regional Impact
- SAP - Selected Area Plan

- Green Swamp Areas**
- GSACSC - Green Swamp Area of Critical State Concern
 - RIDGE-SPA - Ridge Special Protection Area
 - RURAL-SPA - Rural Special Protection Area
 - PC-SPA - Polk City Special Protection Area

- General Map Legend**
- Interstate
 - US
 - State Road
 - County
 - Local Roads
 - Proposed Roads
 - Railroads
 - Streams
 - Municipalities
 - County Boundary
 - Township Range

COMPREHENSIVE PLAN POLK COUNTY, FLORIDA February 11, 2015 GENERALIZED FUTURE LAND USE



**POLK COUNTY
BOARD OF COUNTY COMMISSIONERS**

Prepared by: IT/GIS Division
CPMS Managed by: Office of Planning and Development

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Date: 2/11/2015

**2030 COMPREHENSIVE PLAN MAP SERIES
FUTURE LAND USE/PARCEL BASE MAP**

SECTION 1-36 TOWNSHIP 29 RANGE 23

LAND USE LEGEND

-  CC - Convenience Center
 -  NAC - Neighborhood Activity Center
 -  CAC - Community Activity Center
 -  TC - Town Center
 -  RAC - Regional Activity Center
 -  HIC - High-Impact Commercial Center
 -  TCC - Tourism Commercial Center
 -  LCC - Linear Commercial Corridor
 -  CE - Commercial Enclave
 -  OC - Office Center
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 -  IAC - Interchange Activity Center
 -  ROS - Recreation and Open Space
 -  PRESV - Preservation
 -  CORE - Conservation Core
 -  MU - Mixed Use
 -  RCC - Rural Cluster Center (Non-Residential)
 -  RCC-R - RCC - Rural Cluster Center (Residential)
 -  RS - Residential-Suburban
 -  RL-1 - Residential Low-1
 -  RL-2 - Residential Low-2
 -  RL-3 - Residential Low-3
 -  RL-4 - Residential Low-4
 -  RM - Residential Medium
 -  RH - Residential High
 -  A/RR - Agriculture/Residential-Rural
 -  PRE-DRI & DRI - Development of Regional Impact
 -  SAP - Selected Area Plan
 -  Southeast SAP Village Center Core
 -  Southeast SAP Village Center
- Green Swamp Areas**

Green Swamp Areas

-  GSACSC - Green Swamp Area of Critical State Concern
-  RIDGE-SPA - Ridge Special Protection Area
-  RURAL-SPA - Rural Special Protection Area
-  PC-SPA - Polk City Special Protection Area

Development Areas

-  Transit Supportive Development Areas - TSDA
-  Urban Growth Areas - UGA
-  Suburban Development Areas - SDA
-  Utility Enclave Areas - UEA
-  Neighborhood Utility Service Areas - NUSA

Note: "X" Indicates Extra Development Standards

GENERAL LEGEND

-  Interstate Highways
  Parcels
 U.S. Highways
  County Boundary
 State Highways
  Sections
 County Roads
  Township/Range
 Local Roads
  Lakes/Water
 Proposed Roads
  Municipalities
 Railroads

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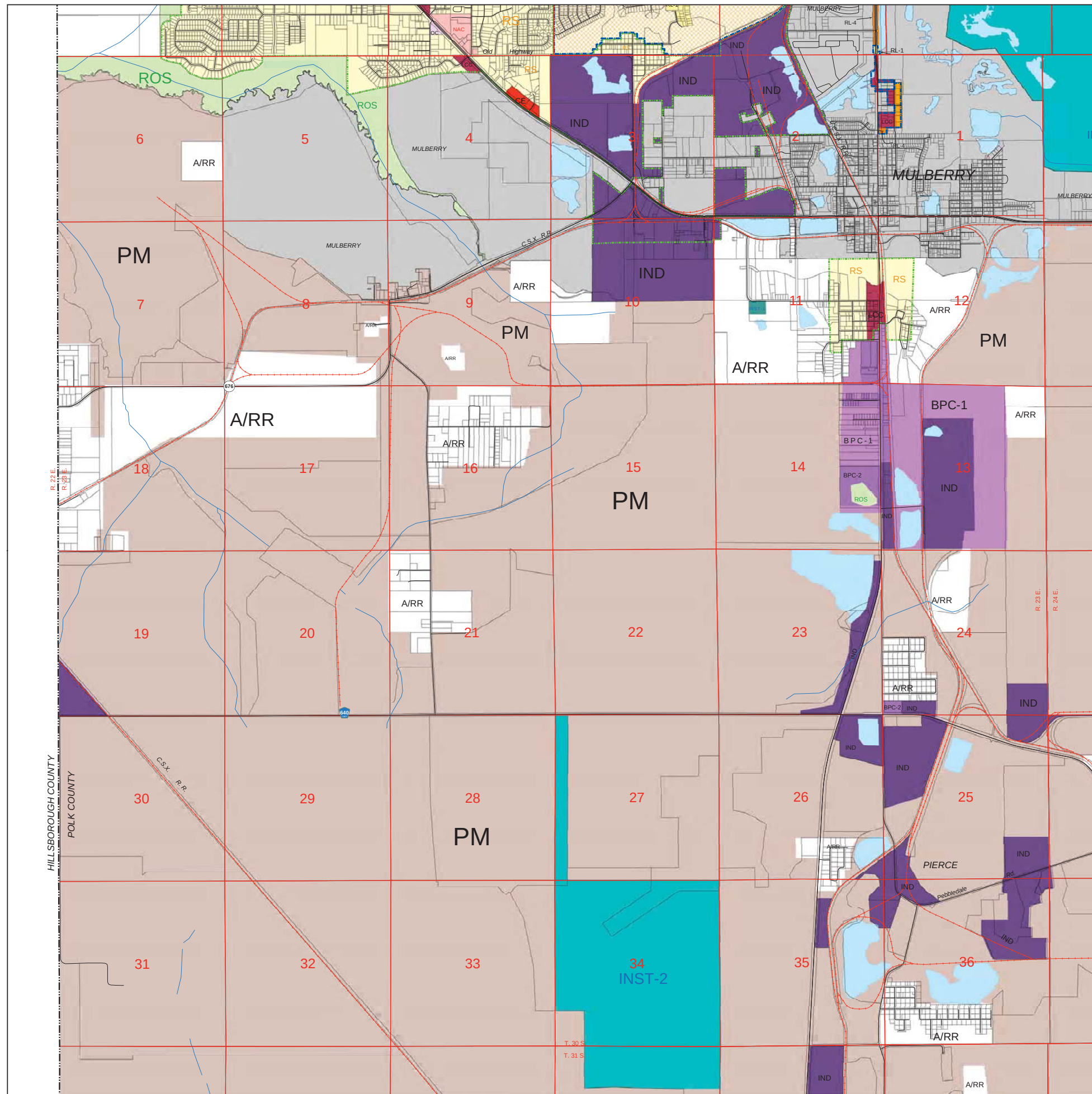
GENERALIZED MAP



TWN 29 RNG 23

**2030 COMPREHENSIVE PLAN MAP SERIES
FUTURE LAND USE/PARCEL BASE MAP**

SECTION 1-36 TOWNSHIP 30 RANGE 23



LAND USE LEGEND

- CC - Convenience Center
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- Urban Growth Areas - UGA
- Suburban Development Areas - SDA
- Utility Enclave Areas - UEA
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Note: "X" Indicates Extra Development Standards

GENERAL LEGEND

- Interstate Highways
- U.S. Highways
- State Highways
- County Roads
- Local Roads
- Proposed Roads
- Railroads
- Parcels
- County Boundary
- Sections
- Township/Range
- Lakes/Water
- Municipalities

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GENERAL LEGEND

	Interstate Highways		Parcels
	U.S. Highways		County Boundary
	State Highways		Sections
	County Roads		Township/Range
	Local Roads		Lakes/Water
	Proposed Roads		Municipalities
	Railroads		

- ### GENERAL LEGEND
- | | | | |
|---|---------------------|---|-----------------|
|  | Interstate Highways |  | Parcels |
|  | U.S. Highways |  | County Boundary |
|  | State Highways |  | Sections |
|  | County Roads |  | Township/Range |
|  | Local Roads |  | Lakes/Water |
|  | Proposed Roads |  | Municipalities |
|  | Railroads | | |



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0 0.5 1 Miles



TWN 30 RNG 23

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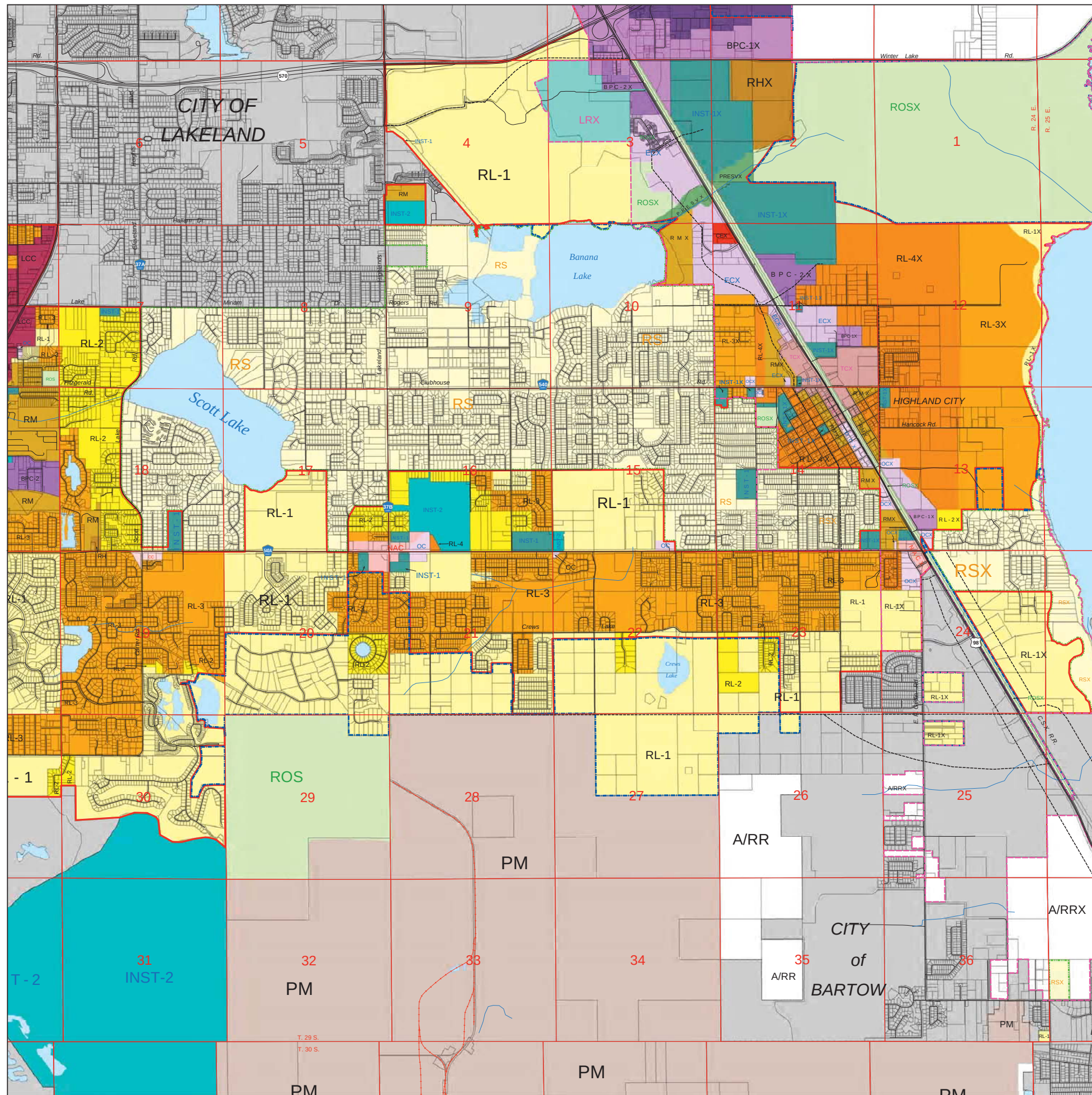


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**2030 COMPREHENSIVE PLAN MAP SERIES
FUTURE LAND USE/PARCEL BASE MAP**

SECTION 1-36 TOWNSHIP 29 RANGE 24



LAND USE LEGEND

- ### LAND USE LEGEND

	CC - Convenience Center
	NAC - Neighborhood Activity Center
	CAC - Community Activity Center
	TC - Town Center
	RAC - Regional Activity Center
	HIC - High-Impact Commercial Center
	TCC - Tourism Commercial Center
	LCC - Linear Commercial Corridor
	CE - Commercial Enclave
	OC - Office Center
	EC - Employment Center
	BPC-1 - Business Park Center-1
	BPC-2 - Business Park Center-2
	IND - Industrial
	PM - Phosphate Mining
	LR - Leisure Recreation
	PI - Professional Institutional
	INST-1 - Institutional-1
	INST-2 - Institutional-2
	IAC - Interchange Activity Center
	ROS - Recreation and Open Space
	PRESV - Preservation
	CORE - Conservation Core
	MU - Mixed Use
	RCC - Rural Cluster Center (Non-Residential)
	RCC-R - RCC - Rural Cluster Center (Residential)
	RS - Residential-Suburban
	RL-1 - Residential Low-1
	RL-2 - Residential Low-2
	RL-3 - Residential Low-3
	RL-4 - Residential Low-4
	RM - Residential Medium
	RH - Residential High
	A/R - Agriculture/Residential-Rural
	PRE-DRI & DRI - Development of Regional Impact
	SAP - Selected Area Plan
	Southeast SAP Village Center Core
	Southeast SAP Village Center
Green Swamp Areas	
	GSACSC - Green Swamp Area of Critical State Concern
	RIDGE-SPA - Ridge Special Protection Area
	RURAL-SPA - Rural Special Protection Area
	PC-SPA - Polk City Special Protection Area
Development Areas	
	Transit Supportive Development Areas - TSDA
	Urban Growth Areas - UGA
	Suburban Development Areas - SDA
	Utility Enclave Areas - UEA
	Neighborhood Utility Service Areas - NUSA

Note: "X" Indicates Extra Development Standards

GENERAL LEGEND

	Interstate Highways		Parcels
	U.S. Highways		County Boundary
	State Highways		Sections
	County Roads		Township/Range
	Local Roads		Lakes/Water
	Proposed Roads		Municipalities
	Railroads		

GENERAL LEGEND

- ### GENERAL LEGEND
- | | | | |
|---|---------------------|---|-----------------|
|  | Interstate Highways |  | Parcels |
|  | U.S. Highways |  | County Boundary |
|  | State Highways |  | Sections |
|  | County Roads |  | Township/Range |
|  | Local Roads |  | Lakes/Water |
|  | Proposed Roads |  | Municipalities |
|  | Railroads | | |

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GENERALIZED MAP

0 0.5 1 Miles

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**2030 COMPREHENSIVE PLAN MAP SERIES
FUTURE LAND USE/PARCEL BASE MAP**

SECTION 1-36 TOWNSHIP 30 RANGE 24

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GENERAL LEGEND

	Interstate Highways		Parcels
	U.S. Highways		County Boundary
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	County Roads		Township/Range
	Local Roads		Lakes/Water
	Proposed Roads		Municipalities
	Railroads		

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GENERAL LEGEND

	Interstate Highways		Parcels
	U.S. Highways		County Boundary
	State Highways		Sections
	County Roads		Township/Range
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	Proposed Roads		Municipalities
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TWN 30 RNG 24

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GENERALIZED MAP

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GENERALIZED MAP

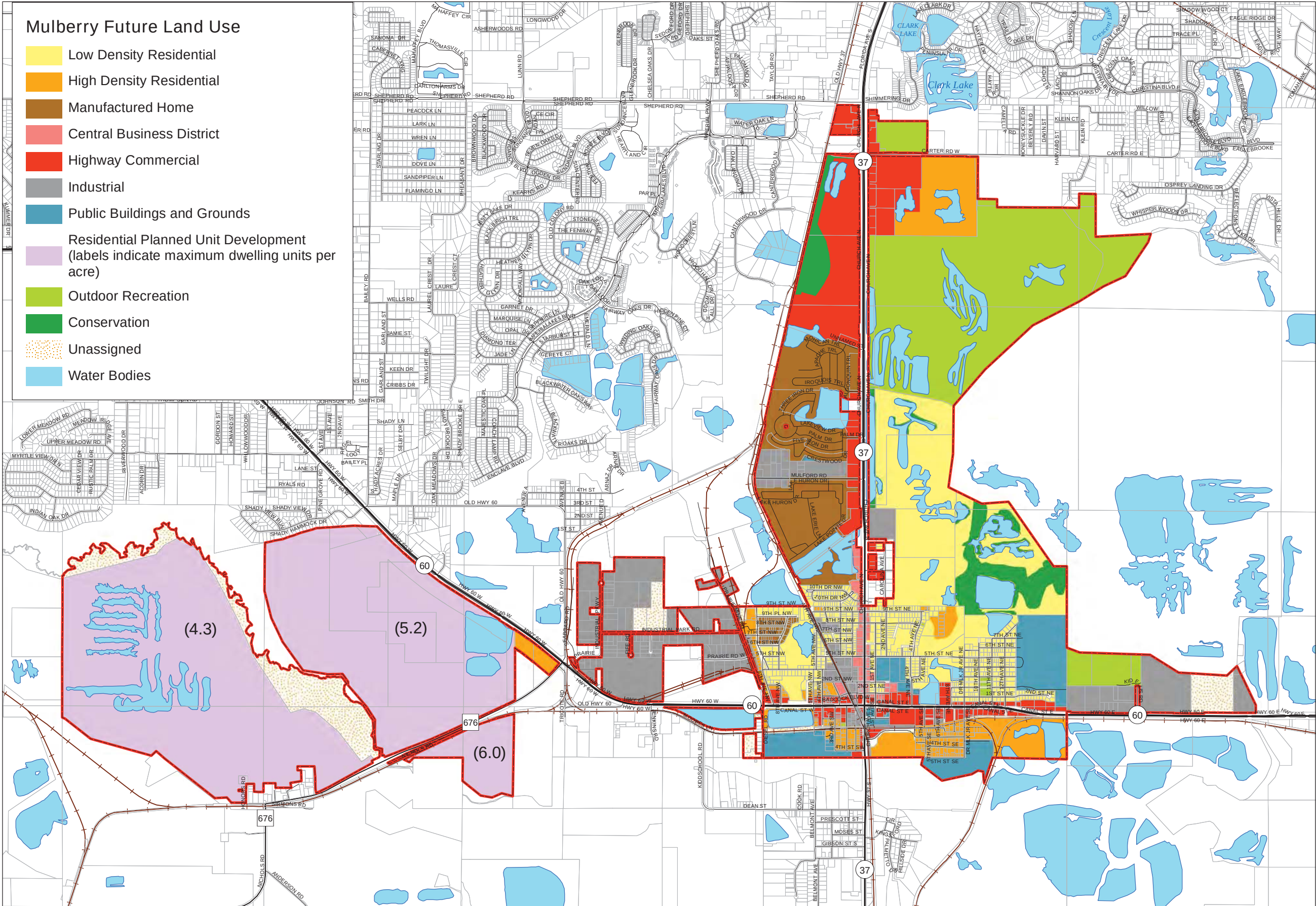
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CITY OF MULBERRY - 2030 FUTURE LAND USE MAP



Legend

- Mulberry City Boundary
- Parcels
- US Highways
- State Roads
- County Roads
- Local Roads
- Railroads
- Water Bodies

North arrow pointing North (N), South (S), East (E), and West (W).

Scale bar: 0, 1/4, 1/2, 1 Miles



City of Mulberry
104 S. Church Ave., P.O. Box 707
Mulberry, FL 33860
Phone: (863) 425-1125
www.cityofmulberry.com



CENTRAL FLORIDA REGIONAL PLANNING COUNCIL
555 East Church Street, Bartow, FL 33830-3931
P.O. Box 2089, Bartow, FL 33831-2089
(863) 534-7130 - SUNCOM 515-2025
Fax (863) 534-7138 - Toll Free (800) 297-8041
www.cfrpc.org

Updated per
Ordinance no. 8-2012
August 7, 2012

DISCLAIMER:
The information on this map should be considered conceptual and subject to change. This map is not a survey.

Data Sources:
Central Florida Regional Planning Council
Florida Department of Transportation
Polk County Property Appraiser
City of Mulberry

APPENDIX B

DHR REPORTS



Florida Master Site File TRS Search

Preliminary Investigation of Previously Recorded Cultural Resources

To request a search for previously recorded cultural resources, fill in the **Township** (circle North or South), **Range** (circle East or West), & **Section** number(s) of your project area.

Please include a photocopy of the appropriate USGS quad map with your project area clearly marked.

Township: 29S (North or South) **Range:** 23E (East or West)

Sections (include all affected): 25, 26, 36

County (include all affected): Polk **USGS Quad** (if known):

Township: 29S (North or South) **Range:** 24E (East or West)

Sections (include all affected): 30, 31

County (include all affected): Polk **USGS Quad** (if known):

Township: (North or South) **Range:** (East or West)

Sections (include all affected):

County (include all affected): **USGS Quad** (if known):

Township: (North or South) **Range:** (East or West)

Sections (include all affected):

County (include all affected): **USGS Quad** (if known):

Return To: Name: Jude Dawson
Organization: Environmental Consulting & Technology, Inc.
Phone: 352-248-3336 Fax:
Address: 3701 NW 98th Street
Gainesville, FL 32606
Email: jdawson@ectinc.com

Agency/Permit/Project requiring search: Polk Power Station Phase II Reclaimed Water Pipeline Project MOD

Florida Master Site File

Division of Historical Resources / R.A. Gray Building
500 South Bronough St., Tallahassee, Florida 32399-0250
Phone (850) 245-6440 / Fax (850) 245-6439 / Email sitefile@dos.state.fl.us

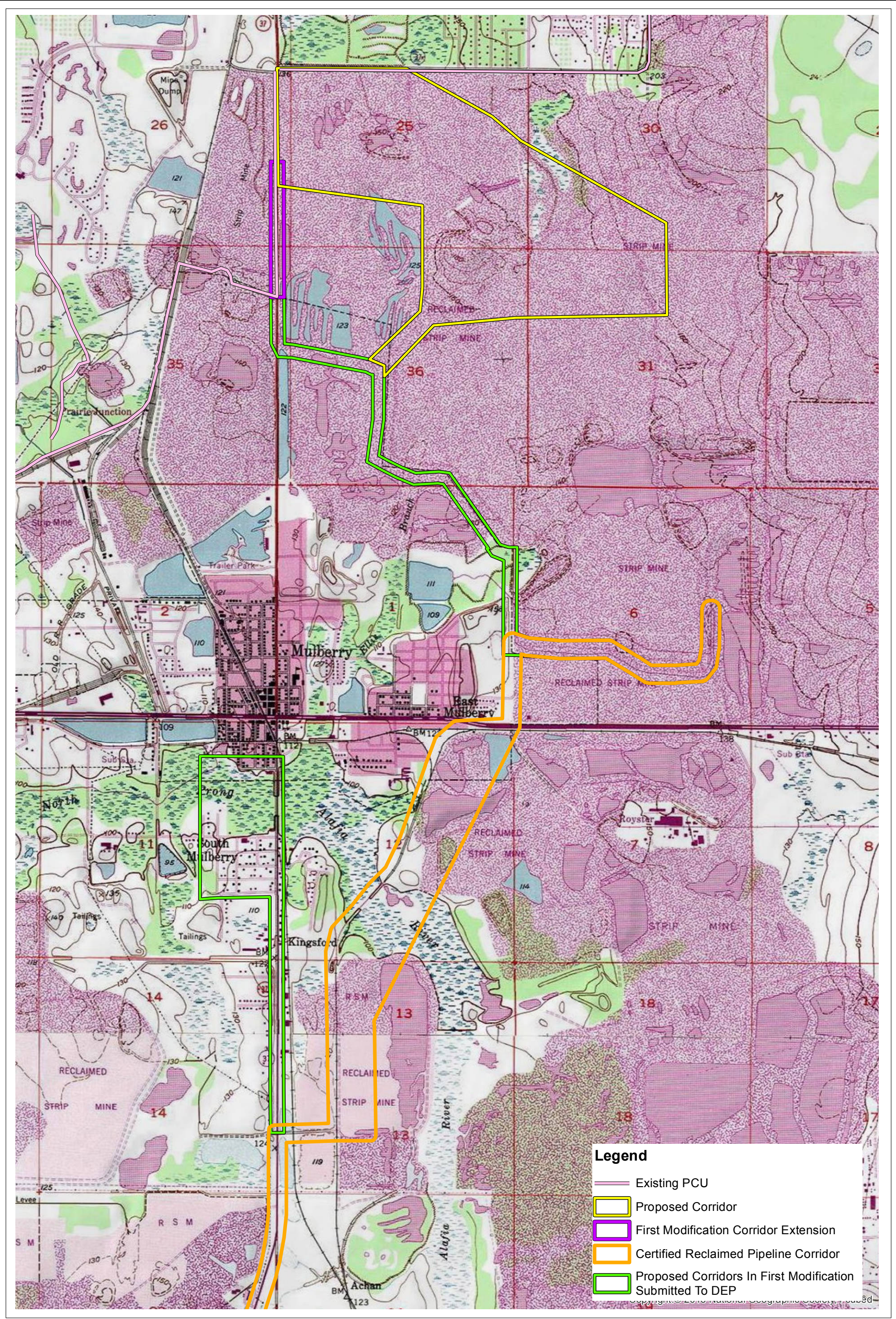
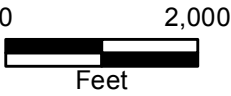


FIGURE 2.
CERTIFIED AND PROPOSED CORRIDORS

Sources: USGS Quad, Mulberry, FL, 1993; Polk county, 2014;ECT, 2014.





This record search is for informational purposes only and does NOT constitute a project review. This search only identifies resources recorded at the Florida Master Site File and does NOT provide project approval from the Division of Historical Resources. Contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333 for project review information.

February 16, 2015



Jude Dawson
Environmental Consulting & Technology, Inc.
3701 NW 98th Street
Gainesville, FL 32606
Phone: 352.428.3336
Email: jdawson@ectinc.com

In response to your inquiry of February 16, 2015, the Florida Master Site File lists one archaeological site, ten surveys, two resource groups, one bridge, one cemetery, and twenty-three standing structures, found in the following parcels of Polk County:

The portions of T29S R23E Sections 23-26, 35, & 36, T29S R24E Sections 19, & 29-32, T30S R23E Sections 01, 02, 11-14, 23, & 24, and T30S R24E Sections 05-08, & 18, indicated by the map submitted with search request (including a project area, and a ½ mile buffer).

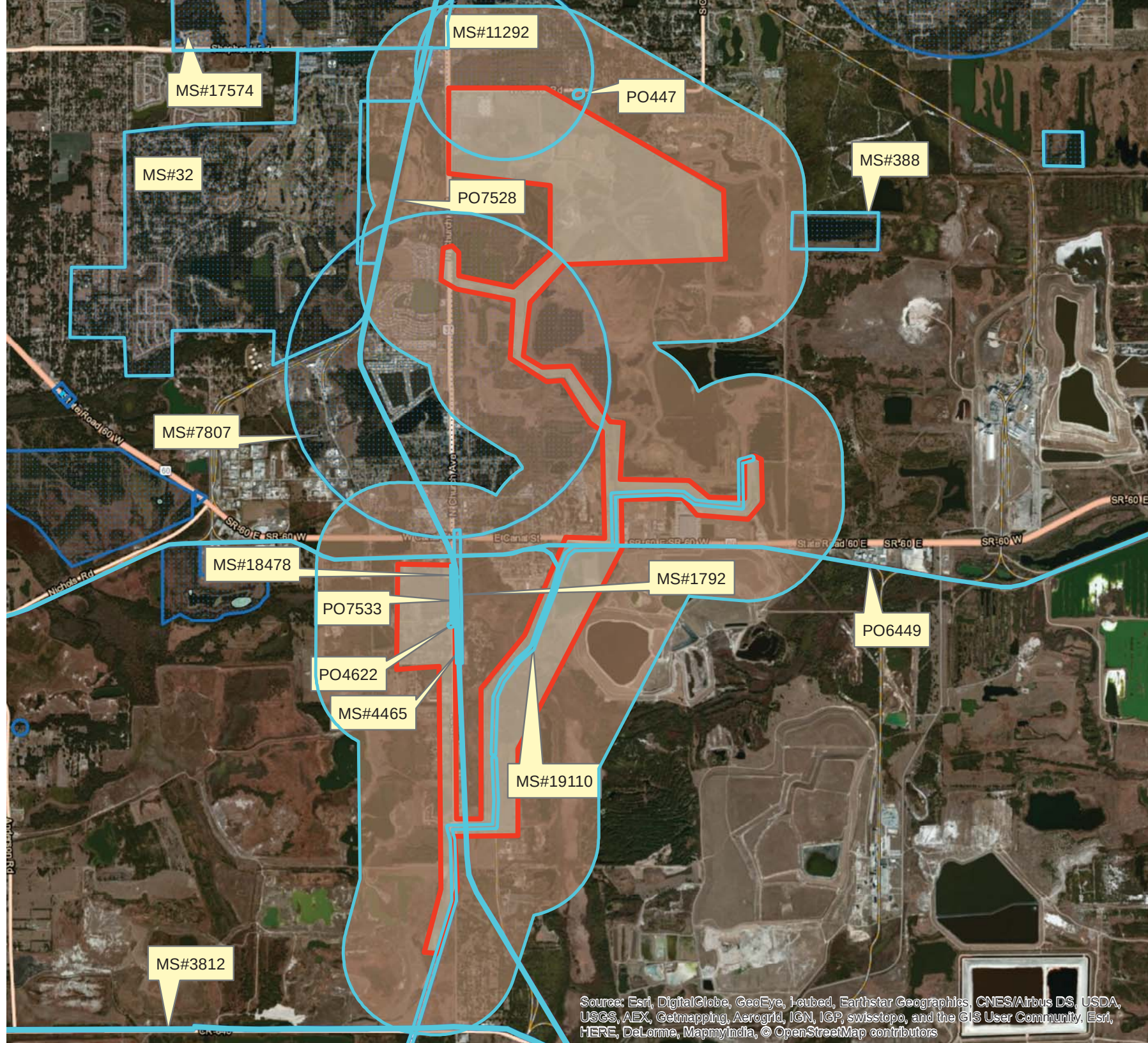
When interpreting the results of our search, please consider the following information:

- **This search area may contain *unrecorded* archaeological sites, historical structures or other resources even if previously surveyed for cultural resources.**
- **Because vandalism and looting are common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.**
- **While many of our records document historically significant resources, the documentation of a resource at the Florida Master Site File does not necessarily mean the resource is historically significant.**
- **Federal, state and local laws require formal environmental review for most projects. This search DOES NOT constitute such a review. If your project falls under these laws, you should contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333.**

Please do not hesitate to contact us if you have any questions regarding the results of this search.

Sincerely,

Gabrielle McDonnell
Archaeological Data Analyst
Florida Master Site File
Gabrielle.McDonnell@DOS.myflorida.com



SiteID	SiteName	SiteType1	SiteType2	Culture1	SurvEval	Survey Num	D_NRlisted	ShpoEval	PlotType	HumanRemns	Shape_Leng	Shape_Area
PO04622	South Mulberry	Land-terrestrial	Single artifact or isolated find	Prehistoric lacking pottery	Ineligible for NRHP	4465		Ineligible for NRHP	NORM		0.00165650088	0.00000020045

SiteID	SiteName	SurveyNum	FDOTnum	YearBuilt	Condition	Length	Engineers	Ownership	Design1	Material1	InUse	d_NRListed	ShpoEval	Shape_Leng
PO07533	Bridge # 160063		160063	c1951		285		State	Slab	Concrete	YES		Ineligible for NRHP	0.00306110600

SiteID	SiteName	SurveyNum	City	YearEstablish	Ownership	CemType1	EthnicGrp1	Status	Condition	ShpoEval	d_NRlisted	PlotType	Shape_Leng	Shape_Area
PO00447	Greenwood Cemetery	0	Mulberry	c1885	Private-individual	Unspecified	Unspecified by surveyor	Abandoned	Not maintained, but can identify	Not evaluated by SHPO		NORM	0.00303133839	0.00000068337

SiteID	SiteName	RgType	NRCategory	City	ContribCR	NonContrib	TimeSig1	TimeSig3	Narrative	HistAssc1	SurveyNum	Evaluation	d_NRListed	ShpoEval	Shape_Leng	Shape_Area
PO06449	Seaboard Coast Line Railroad Grade	Linear resource	STRU	Mulberry			Twentieth century American, 1900-present	1911-1930	_See continuation sheet.	Transportation	19110	See continuation sheet.		Insufficient Information	1.28931171505	0.00007197894
PO07528	Winston & Bone Valley RR	Linear resource	STRU	Mulberry				American 1892- present	_See continuation sheet.	Transportation	19110	See continuation sheet.		Eligible for NRHP	0.76147052348	0.00009024444

SiteID	PLOTMTHD	SiteName	Address	Destroyed	SurveyNum	YearBuilt	Style	ExtPlan	StrucSys1	ExtFabric1	ExtFabric2	ExtFabric3	StrucUse1	StrucUse2	SurvEval	SurvDist	ShpoEval	d_NRIlisted
PO00291	M	C C Pearce House	506 N Church St	NO	0	1918	Frame Vernacular			Drop siding			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00292	D	Proctor House	Dean St and Hwy 37	NO	0		Queen Anne (Revival) ca. 1880-1910			Drop siding	Wood shingles		Private residence	Abandoned or vacant	Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00295	D	Mutual Stores Inc	110 Nw 1st St	NO	0	c1910	Commercial		Masonry	Brick			Commercial		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00296	M	Central Pharmacy	111 Nw 1st Ave	NO	0		Commercial		Masonry	Brick			Commercial		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00297	D	206 North East 1st St	206 North East 1st St	NO	0		Neo-Classical Revival ca. 1880-1940			Drop siding			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00298	D	Hall House	208 Northeast 1st St	NO	0					Weatherboard, Clapboard			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00299	D	Wiggs House	400 Northwest 4th St	NO	0	c1905				Board and batten			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00300	M	107 Northwest 5th St	107 Northwest 5th St	NO	0		Frame Vernacular			Aluminum			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00301	D	McGlohan Building	1St Ave & 2nd St & Nw	NO	0					Brick			Commercial	Abandoned or vacant	Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00302	M	Goss House	500 Northwest 1st Ave	NO	0					Weatherboard, Clapboard			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00303	M	507 Northwest 1st Ave	507 Northwest Ave	NO	0		Frame Vernacular			Drop siding			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00304	M	603 Northwest 1st Ave	603 Northwest 1st Ave	NO	0		Frame Vernacular			Drop siding			Private residence		Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00307	D	15 Lemon St	15 Lemon St	NO	0		Frame Vernacular			Drop siding			Private residence	Abandoned or vacant	Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO00308	D	417 Patterson St	417 Patterson St	NO	0		Frame Vernacular			Drop siding			Private residence	Abandoned or vacant	Not Evaluated by Recorder	Not Evaluated by Recorder	Not Evaluated by SHPO	
PO05165	D	Garland Motors	1270 SR 37	NO	4465	c1925	Frame Vernacular	Irregular	Wood frame	Weatherboard, Clapboard			Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05166	D	1100 +/- State Road 37	1100 +/- SR 37	NO	4465	c1935	Masonry vernacular	Rectangular	Concrete block	Concrete block	Drop siding	Weatherboard, Clapboard	Commercial	Abandoned or vacant	Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05167	D	1064-1066 State Road 37	1064-1066 SR 37	NO	4465	c1925	Frame Vernacular	Irregular	Wood frame	Brick	Wood/plywood		Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05168	D	1060-1062 State Road 37	1060-1062 SR 37	NO	4465	c1925	Frame Vernacular	Rectangular	Wood frame	Brick	Wood/plywood		Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05169	D	1041 +/- State Road 37	1041 +/- SR 37	NO	4465	c1930	Frame Vernacular	Irregular	Wood frame	Drop siding	Asbestos shingles or siding		Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05170	D	1071 State Road 37	1071 SR 37	NO	4465	c1920	Frame Vernacular	Irregular	Wood frame	Drop siding			Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO05171	D	1073 +/- State Road 37	1073 SR 37	NO	4465	c1920	Frame Vernacular	Irregular	Wood frame	Drop siding			Private residence		Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO07294	D	370 Cameron Street, Mulberry, FL 33860	370 Cameron ST	NO		1913	Frame Vernacular		Wood frame				Private residence	Abandoned or vacant	Ineligible for NRHP	Ineligible as contributor to NR district	Ineligible for NRHP	
PO07977	D	502 NW 5th Avenue NW	502 NW 5th AVE NW	NO		1901+	Unspecified by Surveyor	Square		Wood siding			Private residence	Abandoned or vacant	Ineligible for NRHP	Ineligible as contributor to NR district	Not Evaluated by SHPO	

SurvNum	Title	Pub_Date	Author1	Author2	Sponsor	Num_New	Num_Old	CratNum	Archaeo	Struc	Marine	Cell	Shape_Leng	Shape_Area
32	Archaeological and Historical Survey of Imperial Lakes PUD	1976	Chance, Marsha A. *	Williams, Robert	URS Inc				YES	YES			0.13441390073	0.00057709997
388	Cultural Resource Survey of 120 Acres to be Mined by the W.R. Grace Co.	1979	Saunders, Rebecca A.		W R Grace Company				YES	YES			0.03796363207	0.00004055883
1792	Proposed replacement of two bridges on SR 37, North and South Forks of the Alafia River, Polk County	1988	Browning, William D.	Wiedenfeld, Melissa G.	Fla Dept of Transportation				YES	YES			0.01276683653	0.00000317703
3812	Cultural Resource Assessment Survey of the GATX Central Florida Pipeline Corridor, Polk, Osceola, and Orange Counties, Florida	1994	Janus Research		Central Florida Pipeline Co.	39	2	199401874	YES	YES			2.69390088438	0.00029514849
4465	Cultural Resource Assessment Survey for the State Road 37 Storm Water Management Facilities for Bridges #160063 and #160061, Polk County, Florida	1995	Janus Research		FL Dept. of Transportation	8		199503826	YES	YES			0.04890868724	0.00001389992
7807	Historic Properties Survey and Assessment of the One Mile Area of Potential Effects of the Proposed 180ft McKay- Mulberry (87001-4) Telecommunications Tower, Polk County, Florida	2001	Parker, Brian		Dynamic Environmental Assoc.			200107605	YES	YES		YES	0.09699015865	0.00074334854
11292	An Archaeological and Historical Survey of the Lakeland Highlands SW #1 Tower Collocation in Polk County, Florida	2005	Knowles, Jeanette		Damiano Long Engineering & Planning, LLC	0	0	200501843				YES	0.04957364613	0.00019556533
17574	Administrative Action Environmental Assessment: State Road 563 (North/South Route) from State Road 37 (South Florida Avenue) to Drane Field Road, Polk County, Florida	1993	Federal Highway Administration		Federal Highway Administration	17		199303016	YES	YES			0.16413972784	0.00149688674
18478	Memorandum, Cultural Resource Assessment Survey, Re-Evaluation of the SR 37 PD&E Study North Prong of the Alafia River Bridge No. 160063, Polk County, Florida; FPID No. 428937-1	2011	ACI	Almy, Marion		1	0	201104000	YES				0.01044387145	0.00000106996
19110	Cultural Resource Assessment Survey of the Tampa Electric Company (TEC) Polk Power Station Reclaimed Water Pipeline Project, Polk County, Florida	2012	Janus Research		Anthony N. Arcuri	0	4	201202109	YES	YES			0.45080070165	0.00010145517

APPENDIX C

LOYCE E. HARPE PARK MASTER PLAN

DESIGN APPROACH

- CLUSTER DEVELOPMENT TO:
 - UTILIZE EXISTING OPEN SPACE
 - MAXIMIZE EXISTING OVERFLOW PARKING FOR EXISTING USES
 - LOCATE ACTIVE USES CLOSE TO EXISTING ACTIVE USES
 - MINIMIZE ENVIRONMENTAL IMPACTS
 - LOWER OVERALL CONSTRUCTION COSTS
 - ALLOW FOR ELEMENT PHASING PLAN
- LOCATE PUMP TRACK CLOSE TO EXISTING MOUNTAIN BIKE TRAIL HEAD.
- PROVIDE AN ADA ACCESSIBLE PAVED SIDEWALK AND/OR MULTI-USE PATH.
- PROVIDE MULTI-USE PATH WITH EXERCISE STATIONS.
- LOCATE DISC GOLF COURSE IN NATURAL AREAS WITH LITTLE TO NO DISTURBANCE REQUIRED.
- LOCATE ROUNDABOUT WITH SIGNAGE AT THE ENTRY TO HELP DIRECT TRAFFIC TO THE DIFFERENT PARK USES
- PROVIDE A CONNECTION TO FUTURE SE7EN WETLANDS PROJECT BY CITY OF LAKE LAND.

ZONED: RESIDENTIAL LOW-1

ZONED: PHOSPHATE MINING

ZONED: PHOSPHATE MINING

SR 37/FLORIDA AVE S

CARTER ROAD

ZONED: RESIDENTIAL LOW-1

ZONED: INSTITUTIONAL-2

PROPOSED SE7EN WETLANDS EDUCATION CENTER

FUTURE SE7EN WETLANDS PROJECT BY CITY OF LAKE LAND

EXISTING SENIOR BALLFIELD
MULTI-USE PATH
(±420) GRASS PARKING SPACES WITH IMPROVED DRIVE AISLES
EXISTING PLAYGROUND
CONCESSIONS
SHELTER, TYP
TENNIS/PICKLEBALL COURTS, TYP
BIKE/SKATE PARK
MULTI-USE PATH WITH EXERCISE STATIONS
EXISTING TREE LINE, TYP

PROPOSED BRIDGE TO GRAND PAVILLION

RESTROOM FACILITY
DISC GOLF PARKING
PUMP TRACK
SHELTER, TYP.

LEGEND

- (A) 18 HOLE DISC GOLF COURSE
- (B) GRAND PAVILLION WITH RESTROOM FACILITY
- (C) TENNIS/PICKLEBALL, BIKE/SKATE PARK
- (D) PUMP TRACK
- (E) PICNIC TABLES
- (F) OPEN SPACE WITH PICNIC TABLES AND SHELTERS
- (G) MOUNTAIN BIKE EXPANSION AREA
- (H) RESTROOM FACILITY
- (I) RACQUETBALL, BASKETBALL, SAND VOLLEYBALL

- PROPERTY LINE
- PROPOSED PAVED ROAD
- PROPOSED SERVICE ROAD
- PROPOSED MULTI-USE PATH
- PROPOSED MULTI-USE PATH WITH EXERCISE STATIONS
- MOUNTAIN BIKE TRAILS

10 ac

1 ac



0 100 200 400

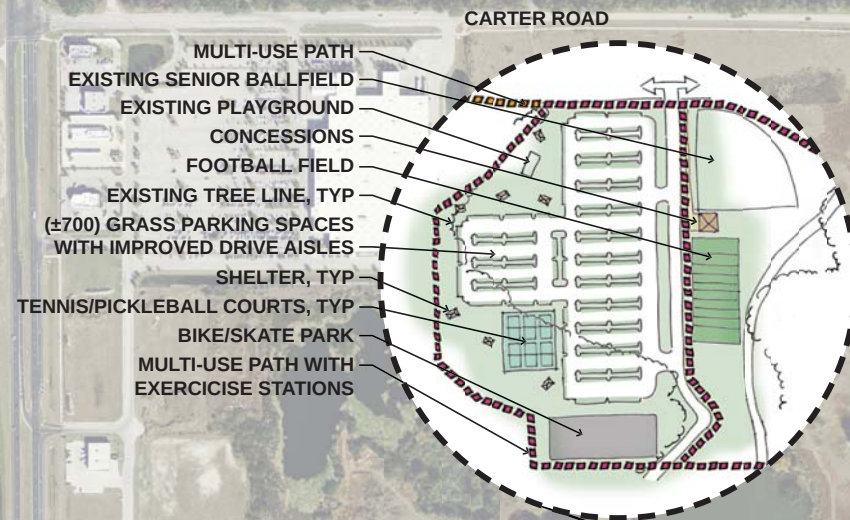


LOYCE E HARPE PARK - MASTER PLAN OPTION 1

URS

DESIGN APPROACH

- CLUSTER DEVELOPMENT TO:
 - UTILIZE EXISTING OPEN SPACE
 - UTILIZE EXISTING OVERFLOW PARKING
 - LOCATE ACTIVE USES CLOSE TO EXISTING ACTIVE USES
 - LOWER OVERALL CONSTRUCTION COSTS
 - ALLOW FOR ELEMENT PHASING PLAN
- LOCATE PUMP TRACK CLOSE TO EXISTING MOUNTAIN BIKE TRAIL HEAD.
- LOCATE FOOTBALL FIELD WITH CONCESSIONS AND ADDITIONAL PARKING CLOSE TO THE SENIOR BALLFIELD.
- PROVIDE AN ADA ACCESSIBLE PAVED SIDEWALK AND/OR MULTI-USE PATH.
- PROVIDE MULTI-USE PATH WITH EXERCISE STATIONS.
- LOCATE DISC GOLF COURSE IN NATURAL AREAS WITH LITTLE TO NO DISTURBANCE REQUIRED.
- LOCATE ROUNDABOUT WITH SIGNAGE AT THE ENTRY TO HELP DIRECT TRAFFIC TO THE DIFFERENT PARK USES
- PROVIDE A CONNECTION TO THE FUTURE SE7EN WETLANDS PROJECT BY THE CITY OF LAKE LAND.



ZONED: PHOSPHATE MINING

SR 37/FLORIDA AVE S

ZONED: RESIDENTIAL LOW-1

ZONED: RESIDENTIAL LOW-1

PROPOSED BRIDGE TO GRAND PAVILLION

MAINTENANCE AREA

RESTROOM FACILITY
DISC GOLF PARKING
PUMP TRACK
SHELTER, TYP.

PROPOSED SE7EN WETLANDS EDUCATION CENTER

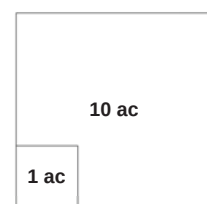
ZONED: INSTITUTIONAL-2

FUTURE SE7EN WETLANDS PROJECT BY CITY OF LAKE LAND

LEGEND

- (A) 18 HOLE DISC GOLF COURSE
- (B) GRAND PAVILLION WITH RESTROOM FACILITY
- (C) TENNIS/PICKLEBALL, FOOTBALL, BIKE/SKATE PARK
- (D) PUMP TRACK
- (E) PICNIC TABLES
- (F) OPEN SPACE WITH PICNIC TABLES AND SHELTERS
- (G) MOUNTAIN BIKE EXPANSION AREA
- (H) RESTROOM FACILITY
- (I) RACQUETBALL, BASKETBALL, SAND VOLLEYBALL

- PROPERTY LINE
- PROPOSED PAVED ROAD
- PROPOSED SERVICE ROAD
- PROPOSED MULTI-USE PATH
- PROPOSED MULTI-USE PATH WITH EXERCISE STATIONS
- MOUNTAIN BIKE TRAILS



LOYCE E HARPE PARK - MASTER PLAN OPTION 2

