

APPENDIX A

STUDY AREA DEVELOPMENT

Study Area Development

For the Wekiva Parkway (SR 429)/SR 46 Realignment PD&E Study

The purpose of the following discussion is to describe the development of the Wekiva Parkway (SR 429) Study Area for the *Wekiva Parkway (SR 429)/SR 46 Realignment PD&E Study* being conducted by Florida Department of Transportation, District Five and the Orlando-Orange County Expressway Authority.

The alternatives for this project will be identified and evaluated in a multi-step process to allow opportunity for public and agency input throughout the study. The multi-step process involves the following steps: define the purpose and need (Section 1.3), study area development (Section 1.4), and alternatives development (Section 1.5). The following discussions summarize the process to identify the most reasonable study area for alternatives development. The purpose and need and the development of the alternatives within the study area, including the No Build Alternative, are summarized in Section 1.0 of this *Individual Section 4(f) Evaluation* report and fully documented in the Environmental Assessment prepared for this study.

1. Land Suitability Mapping (LSM)

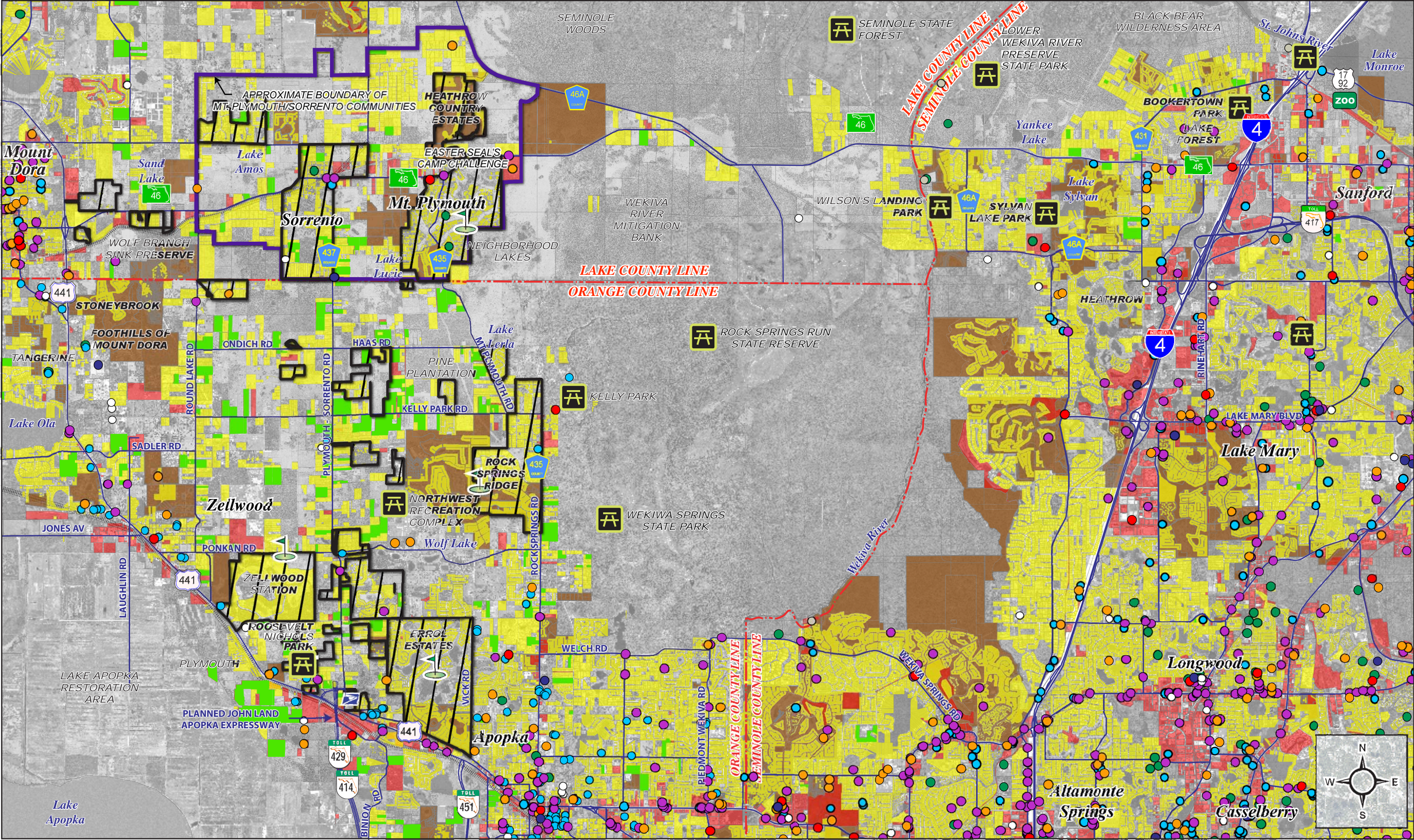
A process called land suitability mapping (LSM) was used to develop the project study area. The land suitability mapping process involves using Geographic Information System (GIS) databases to identify, map, and analyze sensitive environmental features. In addition to GIS databases, information was obtained from several other sources including field reviews, agency coordination, and previous engineering and planning studies such as the *SR 429 (Western Expressway) Northern Extension Concept Development and Feasibility Study*.

The identification of a study area was preceded by a comprehensive data collection and mapping effort to identify social, cultural, natural and physical environmental features. The general aerial base map for the development of the Wekiva Parkway study area showing the connection points based on traffic needs and systems connections, consistent with constraint concerns, is shown in **Exhibit A-1**. The following sections discuss the major constraints within this region.

1.1. Social Environment

The social environment characteristics within the study area include existing residential neighborhoods and developments, conservation/recreational lands, foliage nurseries and community facilities. In general, the study area has experienced tremendous growth in recent years as the Orlando metropolitan area spreads outward. Since 2005, several new subdivisions were built and developments were approved primarily east of Plymouth Sorrento Road. These characteristics within the study area are graphically illustrated on **Exhibit A-2**.

 Connection Points
 City Limits



LEGEND

- Cemeteries
- Boat Ramps

- Culture Centers/Churches
- Law Enforcement
- Schools

- Neighborhood Community Parks
- Firestations
- Social Services

- Residential
- Commercial
- Planned or Developing Communities

- Foliage & Landscape Nurseries
- Golf Courses
- Post Office

- Parks & Recreation
- Major Orange and Lake County Neighborhoods

Exhibit A-2
Social Environment

The majority of the study area falls within unincorporated portions of Orange, Seminole and Lake Counties. The Cities of Apopka, Mount Dora, Lake Mary and Sanford are within or adjacent to the study area. Other unincorporated communities and/or major developments include: Plymouth, Tangerine, Sorrento, Mt. Plymouth, Stoneybrook, Foothills of Mount Dora, Zellwood Station, Errol Estates, Rock Springs Ridge, Heathrow Country Estates, Lake Forest, and Heathrow. In an effort to preserve and protect the historical nature, existing development patterns and community cohesiveness of rural communities, Orange County has identified several Rural Settlements and Preservation Districts including Zellwood Station, Zellwood, Tangerine, Rainbow Ridge, and North Apopka/Wekiva. Much of the remaining areas consist of low density residential, agricultural, and State owned conservation and recreation lands, including Rock Springs Run State Reserve, Seminole State Forest, and Lower Wekiva River Preserve State Park.

Foliage nurseries collectively define the unique character and identity of the City of Apopka, also known as the “Indoor Foliage Capital of the World.” The majority of the foliage nurseries are located along and east of Plymouth Sorrento Road.

Community facilities are located throughout the study area including Wolf Lake Elementary, Wolf Lake Middle School, the Northwest Recreation Complex/ Apopka Little League Park, Kelly Park/Rock Springs, Wilson’s Landing, Roosevelt Nichols Park, Lake Sylvan Park, Bookertown Park, Errol Estates Country Club golf course, and Rock Springs Ridge Golf Club.

1.2. Cultural Environment

The primary resources include several public conservation lands, proposed conservation lands, trails, parks and recreation, and historic and archaeological resources. The cultural environment resources within the study area are illustrated on **Exhibit A-3**. The Wekiva-Ocala Greenway project boundary is shown on Exhibit 1-1 of the *Individual Section 4(f) Evaluation* report.

The boundaries of the Wekiva River Protection Area (WRPA) extend from CR 435 in Orange County to Orange Boulevard in Seminole County. The 1988 *Wekiva River Protection Act* ensures that the rural density and character of the lands within the WRPA is preserved. The majority of the publicly held conservation and recreation lands within the study area are located within the WRPA including Kelly Park/Rock Springs, Wekiwa Springs State Park, Rock Springs Run State Reserve, Seminole State Forest, and Lower Wekiva River Preserve State Park. Vast areas of floodplains and wetlands including the Wekiva Swamp south of SR 46, and Seminole Swamp, north of SR 46 are located within the WRPA, primarily west of the Wekiva River. The Lake Apopka Restoration Area was acquired as part of the Lake Apopka Restoration Project which includes marsh and floodplain restoration to improve the water quality in Lake Apopka.

A desktop review of historical literature and data was conducted to identify any potential historic sites within the study area. This data was updated with the examination of the Florida Master Site File and relevant Cultural Resource Assessment Survey (CRAS) reports for the Orange County portion of the study area. In accordance with the procedures contained in 36 CFR Part 800, a CRAS will be conducted for this project.

Potential Section 4(f) Resources

Potential Section 4(f) resources are defined as public park and recreation lands, wildlife and waterfowl refuges, and historic/archaeological sites of significance protected under Section 4(f) of the U.S. Department of Transportation Act (USDOT) of 1966 [Title 49, USC, Section 303] and [Title 23, USC, Section 138]; as amended. Impacts to Section 4(f) resources must be avoided unless there is no feasible and prudent avoidance alternative to use of land and all possible planning to minimize harm is implemented or there is a *de minimus* impact on the property. The applicability of eligible Section 4(f) resources is determined by FHWA.

Environmental resources such as public parks and recreational facilities, public conservation lands and NRHP eligible historic and archaeological resources may be determined to be eligible Section 4(f) resources. Potential Section 4(f) resources within the study area include the following existing public conservation lands:

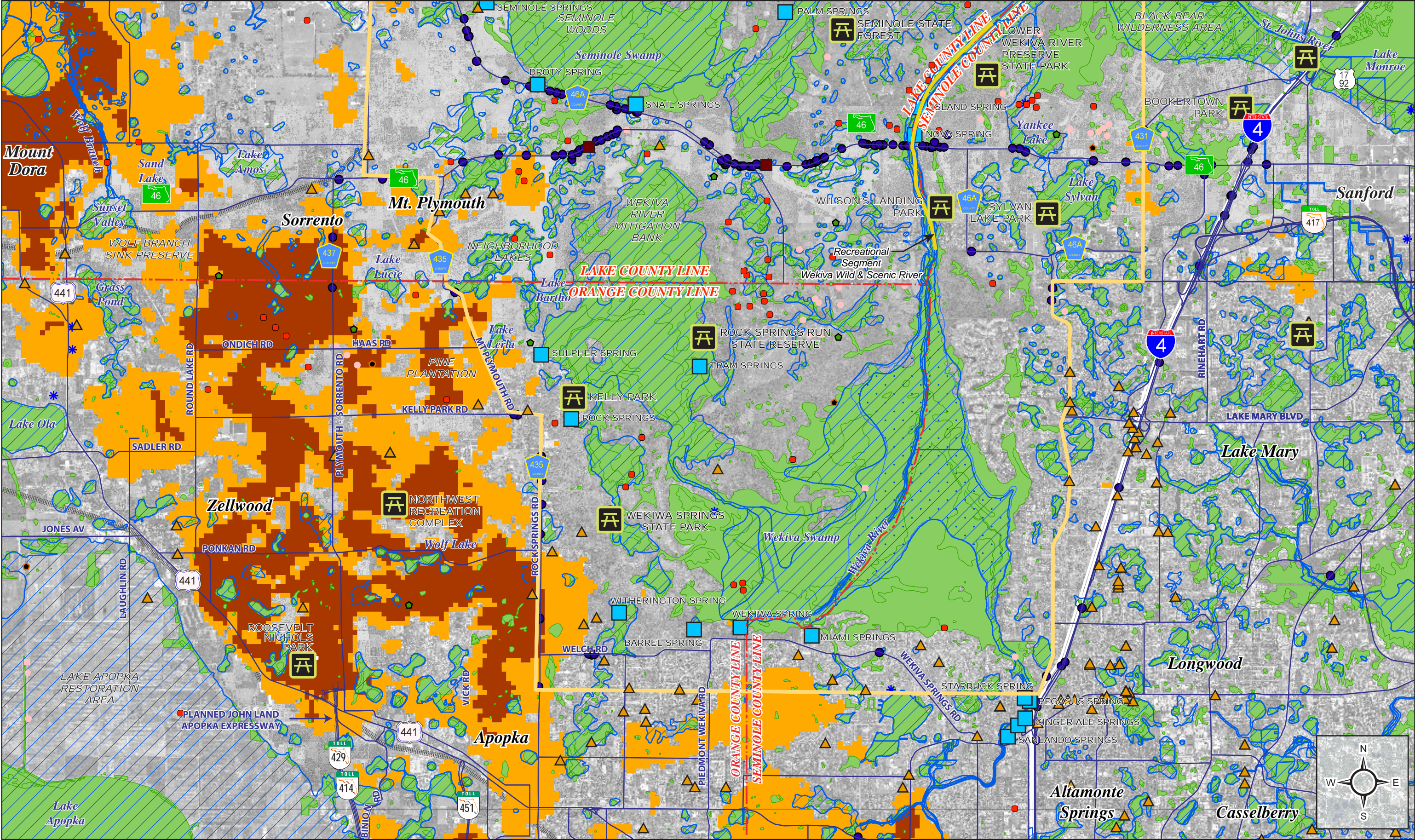
- Kelly Park/Rock Springs
- Northwest Recreation Complex/Apopka Little League
- Roosevelt Nichols Park
- Wekiwa Springs State Park
- Rock Springs Run State Reserve
- Seminole State Forest
- Lower Wekiva River Preserve State Park
- Wilson's Landing
- Lake Sylvan Park
- Black Bear Wilderness Area
- Bookertown Park
- Wekiva Wild & Scenic River
- Wekiva River Aquatic Preserve
- St. Johns River Aquatic Preserve

Planned public park and recreation lands, wildlife and waterfowl refuges, and historic/archaeological sites may also be determined eligible Section 4(f) resources if they are publicly owned, formally designated and considered significant resources. Changes in public ownership and land uses for these planned developments will be monitored during the PD&E Study to determine potential Section 4(f) applicability.

1.3. Natural Environment

The natural environment constraints include numerous lakes, floodplains, wetlands, the Wekiva River Basin ecosystem and springshed, public conservation lands, numerous karst features including sinkholes and springs, and a natural wildlife area that connects to the Ocala National Forest. The natural environment resources within the study area are illustrated on **Exhibit A-4**. Given the preponderance of springs in the Wekiva basin special considerations were given to the high recharge areas primarily in Northwest Orange County recognizing the recharge areas are an integral component to the area springshed and the ultimate continued function of the spring systems. The critical area of recharge is shown in Exhibit A-4 in red and orange.

Wekiva River and its tributaries of Rock Springs Run, Seminole Creek, and Black Water Creek are included in the designations of the Wekiva River Aquatic Preserve, Outstanding Florida Water, and State and National Wild & Scenic River. Several springs and seepage springs are located within the study area, particularly along the western boundary of the WRPA. Wolf Branch Sink is a unique geologic feature known as a “stream to sinkhole” system, with a direct connection to the Floridan Aquifer.



LEGEND

- Black Bear Road Kill
- Gopher Tortoise
- Aquatic Preserve
- Floodplain
- Wetland
- Springs/Seepage
- Wildlife Crossing
- Sinkhole
- Bald Eagle
- Black Bear Observed
- Threatened and Endangered Species
- Wekiva River Protection Area
- Recharge Rate 12-20 in/yr
- Recharge Rate > 20 in/yr

Exhibit A-4
Natural Environment

The existing SR 46 area is located within an area of higher ground within the WRPA. The area west of the WRPA is on an upland ridge between several large lakes to the west and the WRPA to the east. The sandy soils of this upland area provide critical recharge to the Wekiva springshed.

The 100-yr floodplain areas are located mainly within the wetland areas shown in Exhibit A-4. The floodplains of the Wekiva River, the St. Johns River, and Yankee Lake north of SR 46, are interconnected. Natural lands in the region between the rivers include Lower Wekiva Preserve State Park, Seminole County's Yankee Lake Regional Wastewater Treatment Facility and Black Bear Wilderness Area, and lands of the St. Johns River Water Management District. The historical connection with Sylvan Lake, south of SR 46 is maintained by cross drains.

A desktop review of GIS databases and Strategic Habitat Conservation Areas was conducted for potential threatened and endangered species occurrences and species habitat within the study area. These sites, as shown on Exhibit A-4, of approximate locations of threatened and endangered species occurrences are primarily near the conservation lands. An Endangered Species Biological Assessment will be prepared as part of the PD&E study.

1.4. Physical Environment

The primary physical constraints include utilities, railroads, and potential contamination sites. Major utilities within the study area include natural gas transmission lines, overhead electric transmission lines, the Plymouth Regional Water Plant, and Seminole County's Yankee Lake Regional Wastewater Treatment Facility.

Florida Gas Transmission has 24 inch and 26 inch gas transmission lines that generally run from northwest to southeast within an easement west of and adjacent to Mt. Plymouth Road (CR 435). Overhead electric and cable lines are also located within the easement. 12 inch and 26 inch gas transmission lines run parallel to SR 46 from Mount Plymouth to west of Orange Boulevard in Seminole County. The gas transmission lines then turn to the north within a Progress Energy electric transmission line easement and continue across the St. Johns River into Volusia County.

There are two railroad lines within the study area. An inactive railroad line owned by CSX and leased by Florida Central Railroad is located in west Lake County. Many sections of the former railroad area that extended north of the current terminus have been sold. An active railroad line owned and operated by CSX is located in the vicinity of US 17-92 in the northeastern portion of the study area. The railroad crosses the St. Johns River west of the I-4 St. Johns River Bridge.

Many potential contamination sites were identified in the study area, none of which were identified as major constraints. As part of the Contamination Screening Evaluation Report for this PD&E study, various agricultural sites will need to be analyzed further to determine if any residual pesticide or herbicides in soils are a concern for potential contamination.

2. Study Area Guiding Principles

The recommended study area is intended to meet the purpose and need of the project and minimize impacts to the social, cultural, natural and physical environment.

A study area is a large area that is wide enough to contain several options for transportation improvements. The following “Guiding Principles” were used to identify the general study area within which a range of alternatives would be evaluated:

- Follows, where feasible, existing road alignments through environmentally sensitive areas;
- Minimizes direct impacts to wetlands;
- Minimizes impacts on springshed and ground water recharge areas;
- Serves an identified long-term regional transportation need;
- Attempts to improve the connectivity of existing wildlife areas;
- Relieves or removes traffic demands on SR 46 and provides a North-South connection from SR 46 to US 441 with limited interchanges;
- Minimizes impacts to habitat and species;
- Avoids, or mitigates if required, impacts on conservation lands and their proper management;
- Seeks to minimize impacts on existing neighborhoods and residential communities; and,
- Does not encourage or promote additional development from already approved land uses.

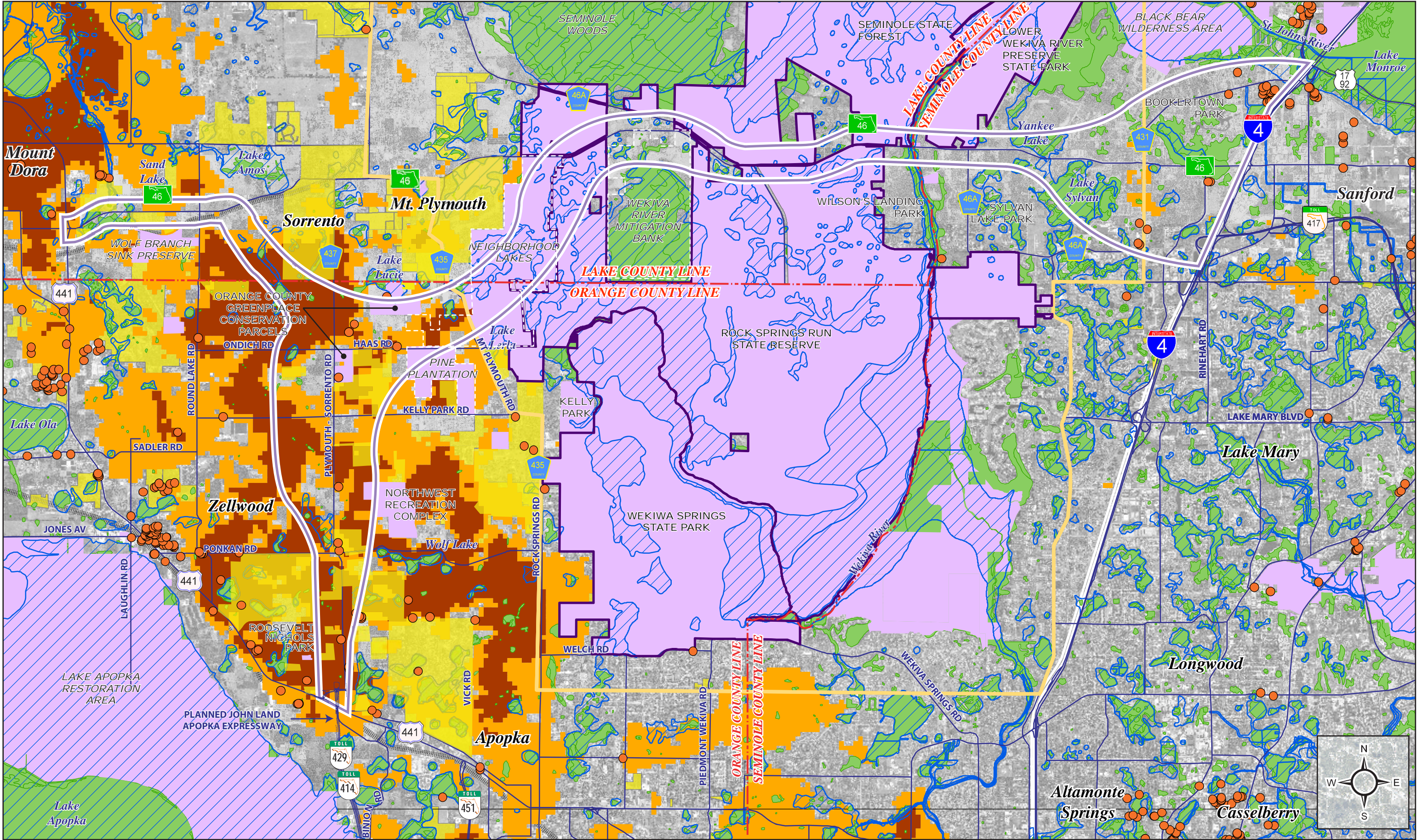
3. Composite Constraint Mapping

The major features from the social, cultural, and natural environmental constraints were layered together to create a composite area map showing the major constraints and areas of concern (**Exhibit A-5**). Areas without major constraints represent the most reasonable areas for alternatives development. These areas have fewer environmental constraints compared to other locations.

Exhibit A-5 illustrates the specific areas and resources that are unique to this region and the Wekiva River Basin ecosystem:

- public parks, conservation and recreations areas (potential Section 4(f) involvement),
- archaeological and historic sites (potential Section 106 and Section 4(f) involvement),
- threatened and endangered species habitat (potential Section 7 involvement),
- wetlands,
- floodplains,
- neighborhoods and developing communities, and
- extensive critical recharge areas and springsheds.

Based on the extensive coordination and evaluations performed for this study, the Wekiva Parkway Study Area, as shown in Exhibit A-5, was recommended for further analysis in the next step of the alternatives development process. *The Wekiva Parkway Study Area represents the location that best meets the purpose and need of the proposed project while minimizing impacts to the environment.*



LEGEND

- Wekiva Parkway Study Area
- Public Conservation/Park & Recreation Lands

- Existing and Planned Neighborhoods (Orange and Lake Counties)
- Wekiva River Protection Area
- Wetland

- Potential Historic Sites
- Recharge Rate 12- 20 in/yr
- Recharge Rate > 20 in/yr

- Floodplains
- State Park Boundary

Exhibit A-5
Composite Constraints Map

4. Study Area Coordination

The Wekiva Parkway study area was developed through extensive evaluations and analyses conducted by the Wekiva Basin Area Task Force, the SR 429 Northwest Extension Working Group, and the Wekiva Basin Coordinating Committee.

The *Wekiva Parkway (SR 429)/SR 46 Realignment PD&E* study area is a combination of two previous studies: the Western Beltway and the SR 429 Northwest Extension. The purpose and need for those studies was previously documented by FDOT and the Expressway Authority and were presented to the Wekiva Basin Area Task Force, the Wekiva Basin Coordinating Committee, the East Central Florida Planning Council, and the Florida Department of Community Affairs.