

4.0 Avoidance Alternative

4.1 Avoidance Alternative Analysis

The alternatives development process for the Wekiva Parkway included a focus on avoidance of Section 4(f) resources. During the screening of the Initial Alternatives it was noted that several public parks, recreation facilities and conservation areas were located within or close to the project study area. Those potential Section 4(f) resources in Orange County include the Northwest Recreation Complex, Roosevelt Nichols Park and two Orange County “GreenPLACE” conservation parcels, as well as several potential historic sites. **Exhibit 4-1** shows the locations of those resources in relation to the Strite House and Bock House properties.

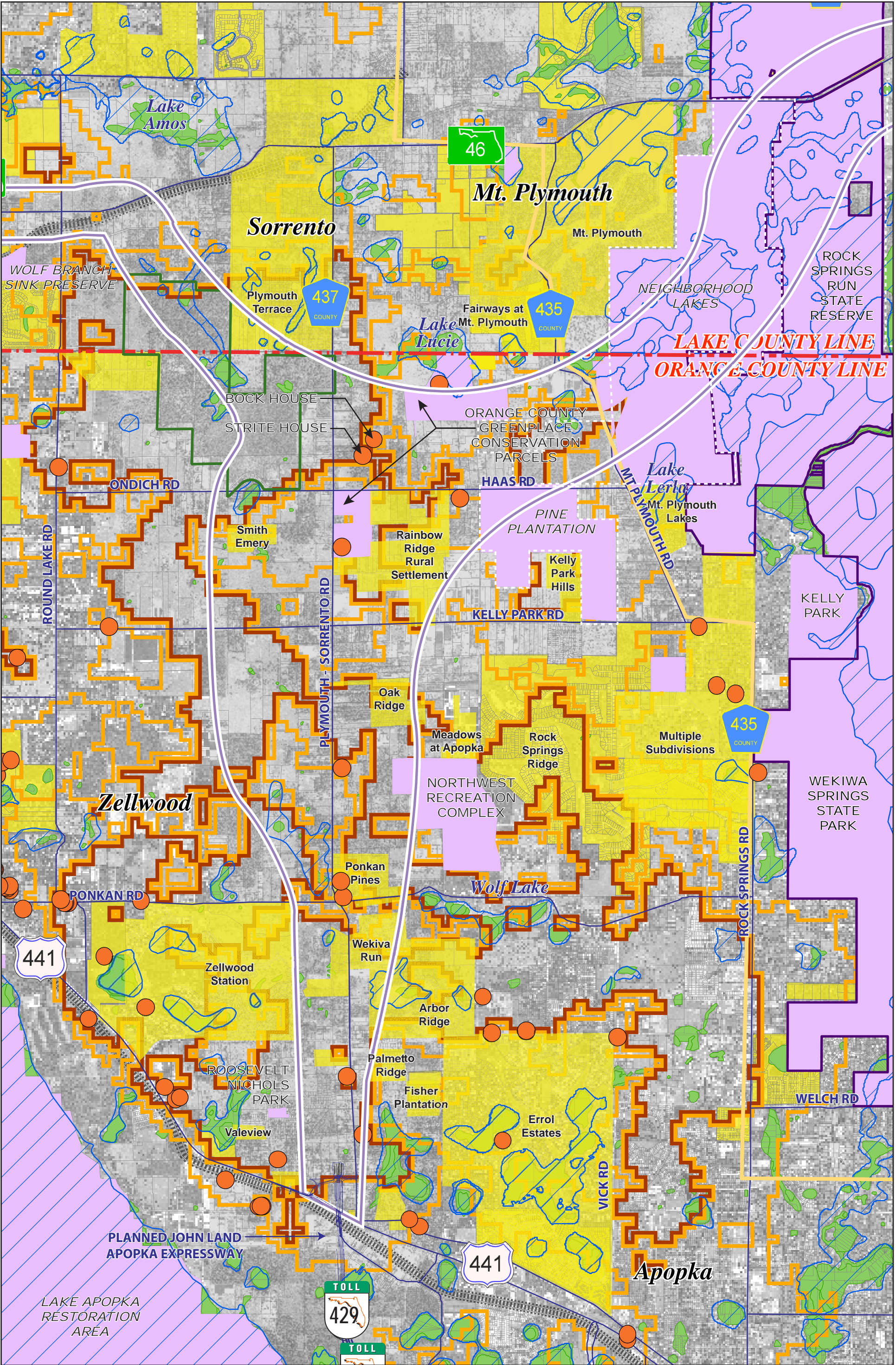
During the course of the Initial Alternatives evaluation, several potential alignments were eliminated due to their impacts to Section 4(f) properties and during this period the study team became aware of the two potentially eligible historic sites discussed in previous sections. This prompted modifications of some of the Initial Alternatives to establish options to impacting any Section 4(f) resource.

As part of the modifications of the Initial Alternatives, Orange County Alternative 1 was developed to avoid direct use impacts to the Northwest Recreation Complex, Roosevelt Nichols Park, and the Orange County “GreenPLACE” conservation parcels. In addition, Orange County Alternative 2 (hereinafter referred to as “Alternative 2”) was developed as a result of this effort to avoid direct use impacts to the Bock House and Strite House properties. Both Alternatives 1 and 2 were identified as Viable Alternatives during the screening process. **Exhibits 4-2 and 4-3** show the locations of Alternatives 1 and 2, respectively, in relation to the Bock House and the Strite House.

As depicted in **Exhibit 4-3**, Alternative 2 would have no direct use impact on either the Bock House property or the Strite House property. Alternative 2 would not use either of the two houses or properties because the alignment of Alternative 2 is both further west and further north than Alternative 1. Alternative 2 would result in increased traffic noise at the two Section 4(f) properties compared to the No Build condition (see Subsection 4.1.4 - Noise Impacts). Alternative 2 would be a “proximity” avoidance alternative which would require realignment and relocation of Boch Road and construction of additional associated bridging in order to achieve total avoidance of both Section 4(f) properties. Alternative 2 would have environmental, community disruption, social, and cost impacts which are summarized below. **Exhibits 4-4 and 4-5** show the locations of the comparative impacts for Alternatives 1 and 2, respectively, within the limits of the alignment variations between the two alternatives.

4.1.1 Impacts on Florida Scrub Jay Habitat

In the area northwest of the Plymouth Sorrento Road/Ondich Road intersection, the alignment of the avoidance alternative (Alternative 2) is located west of Alternative 1, which would impact an additional 24.4 acres of Florida Scrub Jay habitat area. The upland scrub habitat is located west of Plymouth Sorrento Road and north of Ondich Road (the upland scrub habitat is shown on **Exhibits 4-4 and 4-5**). The Florida Scrub Jay is a Federal and State

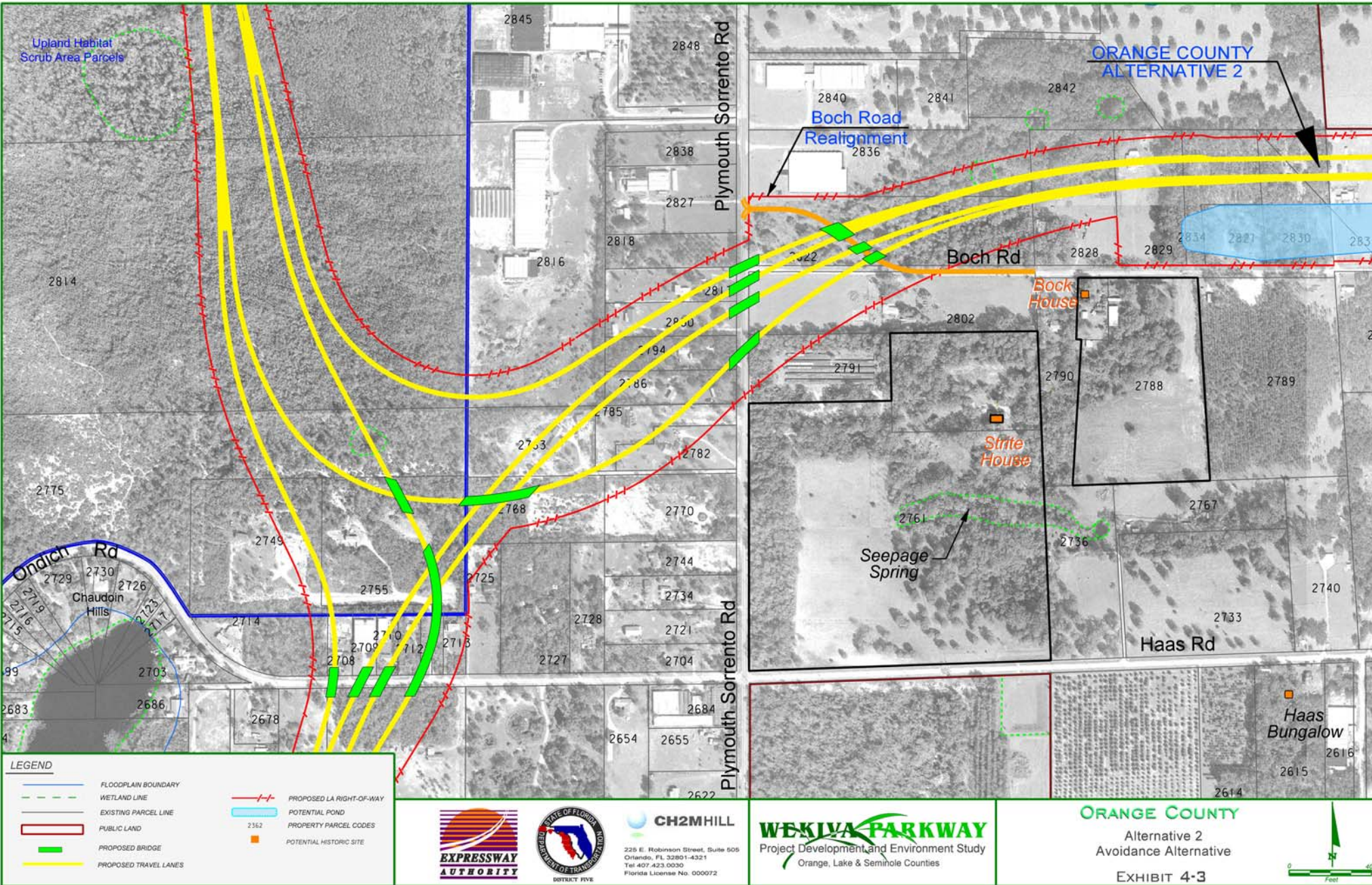
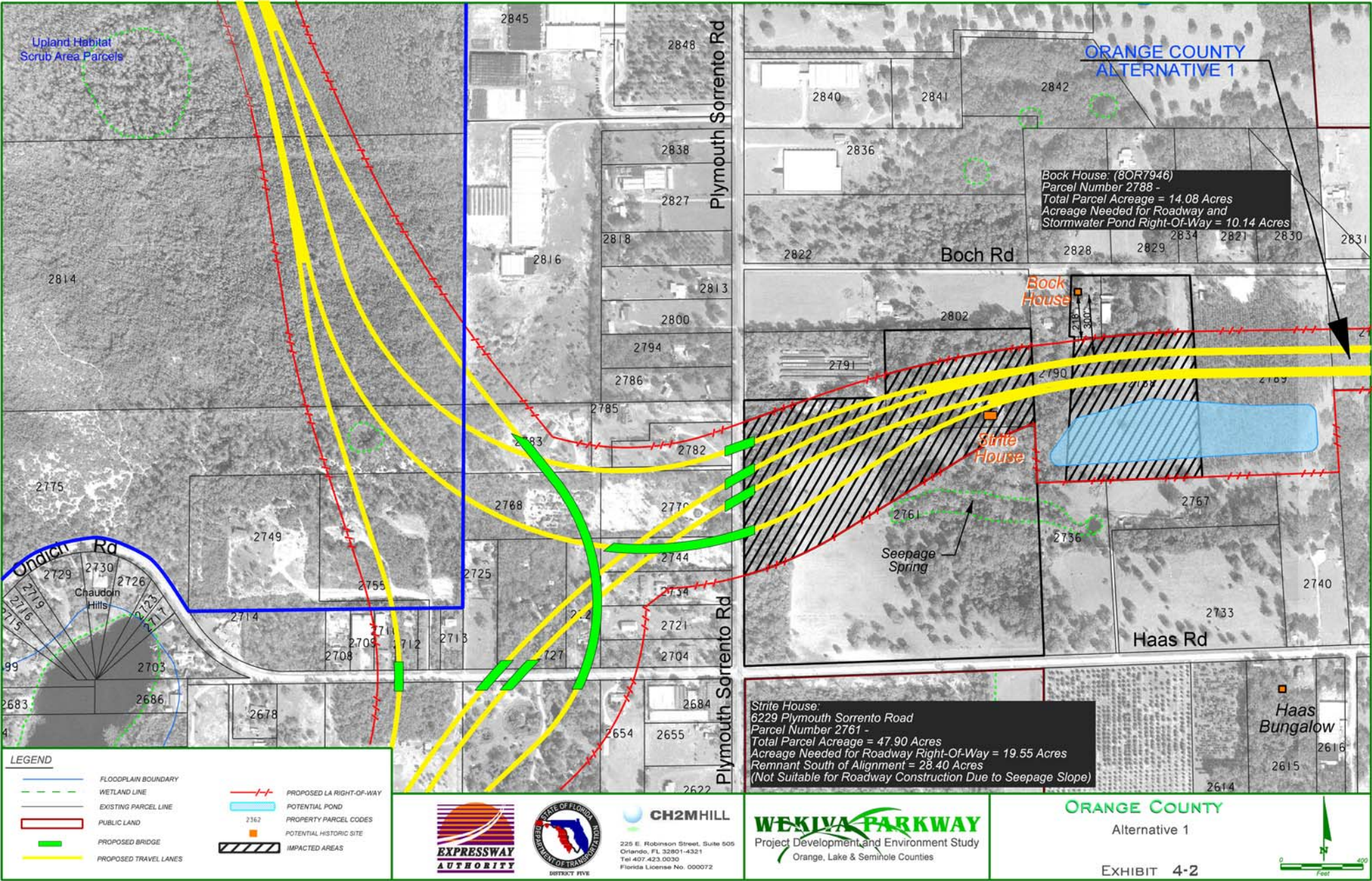


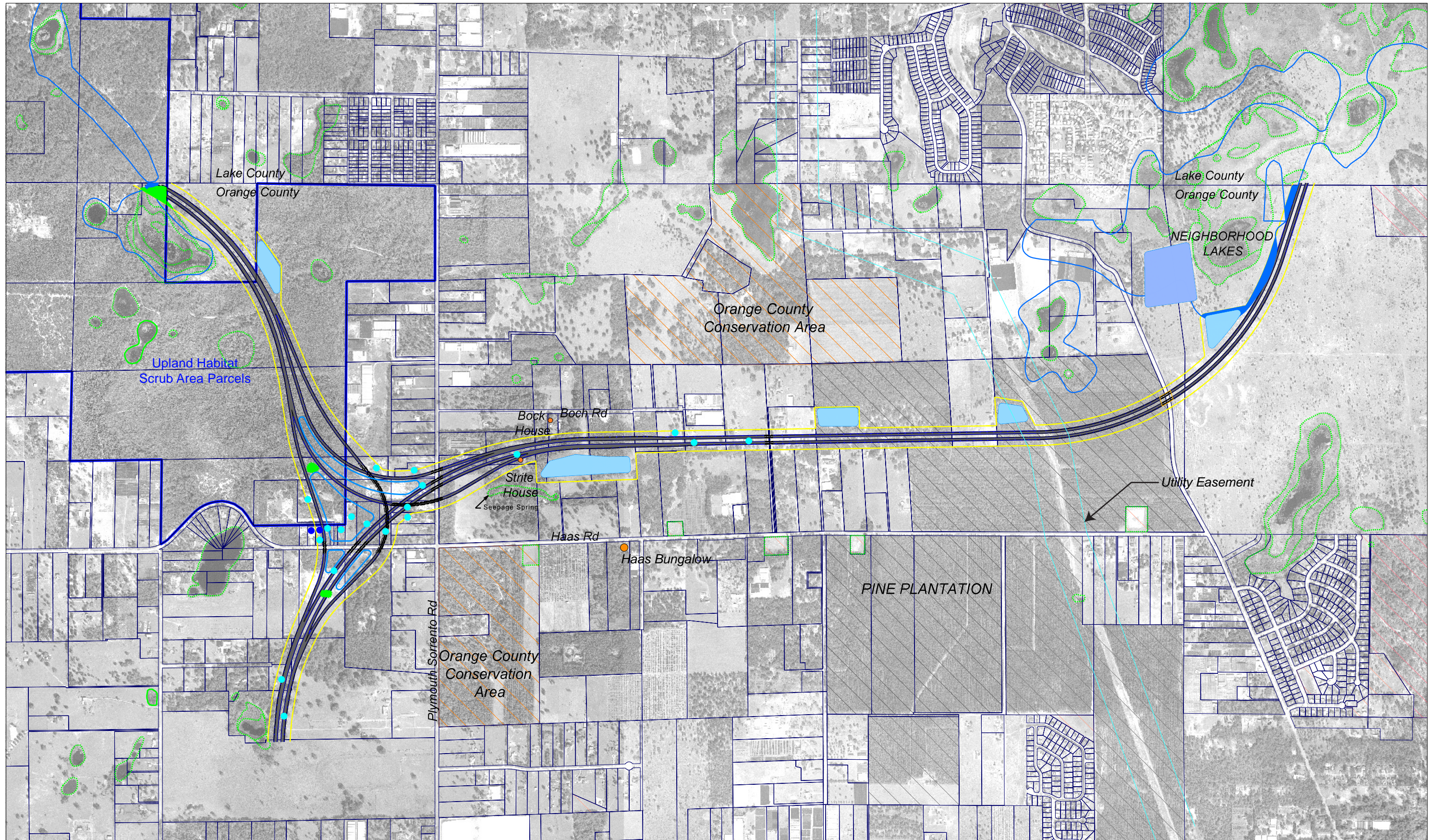
LEGEND

- Wekiva Parkway Study Area
- Public Conservation/Park & Recreation Lands
- State Park Boundary
- Floodplains
- Existing and Planned Neighborhoods
- Wekiva River Protection Area
- Wetland
- Potential Historic Sites
- Recharge Rate 12- 20 in/yr
- Recharge Rate > 20 in/yr
- Upland Habitat Scrub Parcels

Exhibit 4-1
Composite Constraints Map
Orange County

WEKIVA PARKWAY
Project Development and Environment Study





LEGEND

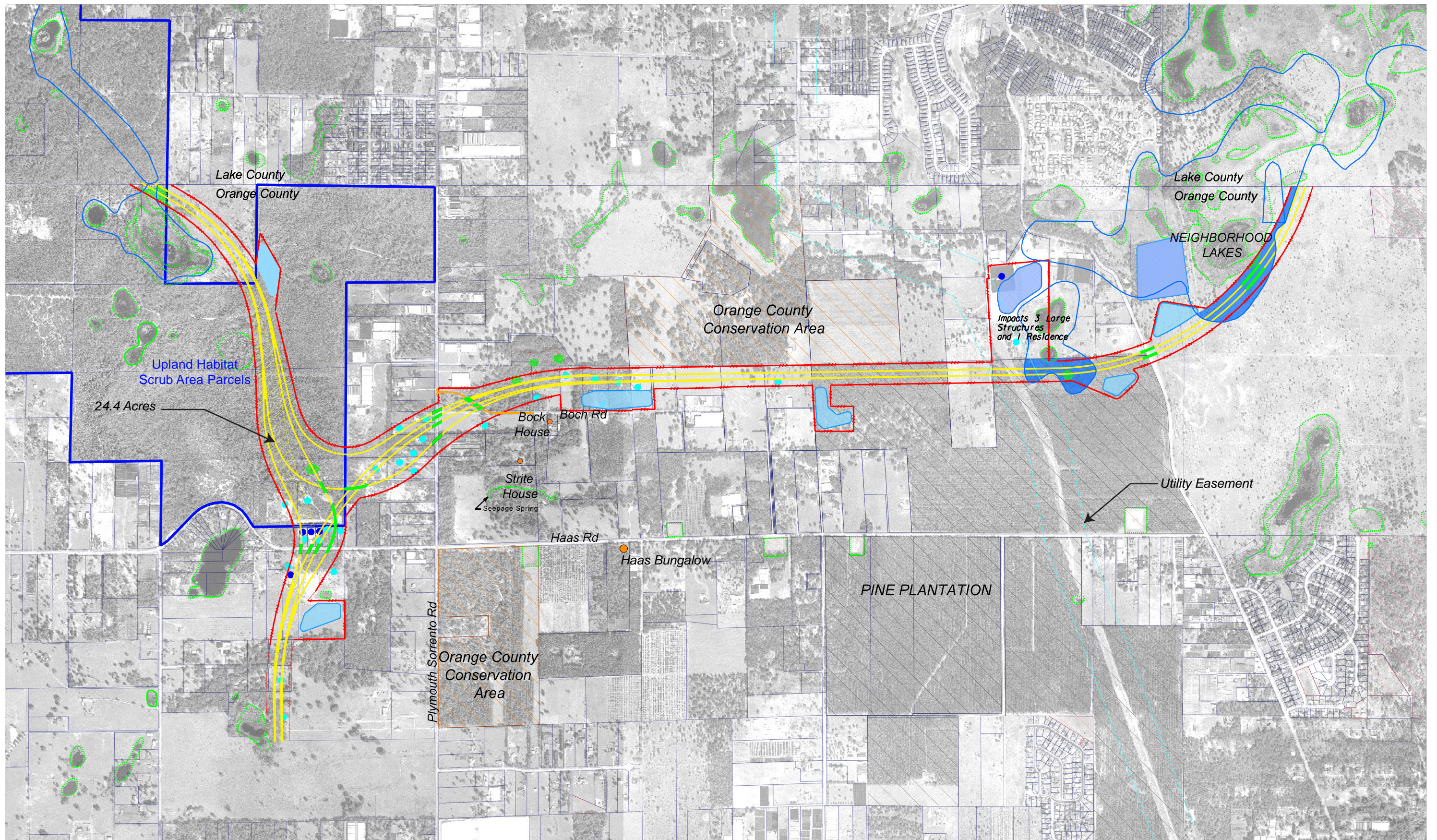
	RESIDENTIAL DISPLACEMENTS		POTENTIAL HISTORIC SITE
	PLANT NURSERY DISPLACEMENTS		WETLAND IMPACT AREA
	FLOODPLAIN IMPACT AREA		STORMWATER POND
			FLOODPLAIN COMPENSATION POND

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WEKIVA PARKWAY
Project Development and Environment Study
Orange, Lake & Seminole Counties

ORANGE COUNTY
Alternative 1
Alternative 1 Impacts
EXHIBIT 4-4

1/4 Mile



LEGEND RESIDENTIAL DISPLACEMENTS PLANT NURSERY DISPLACEMENTS FLOODPLAIN IMPACT AREA POTENTIAL HISTORIC SITE WETLAND IMPACT AREA STORMWATER POND FLOODPLAIN COMPENSATION POND ADDITIONAL IMPACTS TO UPLAND HABITAT/SCRUB AREA PARCELS		 225 E. Robinson Street, Suite 505 Orlando, FL 32801-4321 Tel 407.423.0030 Florida License No. 000072 DISTRICT FIVE	WEKIVA PARKWAY Project Development and Environment Study Orange, Lake & Seminole Counties	ORANGE COUNTY Alternative 2 Avoidance Alternative Impacts EXHIBIT 4-5	
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listed threatened species by both the U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC). The Alternative 1 alignment through this sensitive habitat area minimizes impacts as it is aligned further to the east and, thereby, maximizes the habitat potential for Florida Scrub Jays by providing the largest contiguous area feasible to the west of the roadway alignment. As requested by the USFWS and documented under “Measures to Minimize Projects Effects” in the *Endangered Species Biological Assessment* prepared for the Wekiva Parkway PD&E Study, the alignment was shifted to the east to avoid the area where scrub jays and nests were found.

4.1.2 Floodplain Impacts

Since the alignment of Alternative 2 from the vicinity of the Plymouth Sorrento Road/Boch Road intersection on to the east is located north of Alternative 1, the avoidance alternative would impact an additional 14.1 acres of floodplain (see **Exhibit 4-5**). That would require mitigation through provision of compensating storage which necessitates acquisition of additional right-of-way. Absence of mitigation would result in flooding of areas adjacent to the floodplain impact. It is also important to note that within this floodplain, Alternative 2 impacts Hardwood-Conifer Mixed Forest and Freshwater Marsh which provide diverse species habitat.

4.1.3 Community Disruption

In the vicinity of Boch Road, Alternative 2 would result in the displacement of seven additional residential dwellings – about 20% of the residences within a relatively small cluster of about 35 homes in a rural setting (see **Exhibit 4-5**). It would also displace three additional businesses. This community disruption is expected to generate a high degree of public controversy, based upon comments received at public workshops on the alternatives.

4.1.4 Noise Impacts

For Alternative 2, increased noise levels at the Bock House and Strite House properties are anticipated compared to the No Build condition due to increased traffic. **Table 4-1** summarizes the projected noise levels for Alternative 2. The potential noise effects for Alternative 1 are summarized in Section 3.1 of this document.

As shown in Table 4-1, the projected noise levels for Alternative 2 do not exceed or approach the FHWA Noise Abatement Criteria as defined in Table 1, 23 CFR Part 772. The projected traffic noise levels for the Bock House (59.5 dBA) and the Strite House (58.2 dBA) are lower than the 67 dBA threshold for residential areas under FHWA noise abatement criteria and the 66 dBA FDOT approach criteria.

The traffic noise level for Alternative 2 is projected to result in an increase of 16.8 dBA at the Bock House and 8.7 dBA at the Strite House as compared to the No Build condition. Based on FDOT noise analysis guidelines, a projected increase in noise level of 15 dBA or greater would require consideration of noise abatement measures for the Bock House. The cost reasonableness of noise abatement for the Bock House under Alternative 2 was analyzed in compliance with FDOT guidelines. The results of that analysis indicate noise abatement for the Bock House would not be considered cost reasonable under FDOT criteria. Due to the sparsely populated rural area in which the Bock House is located, it does not meet the cost reasonable test for a noise barrier.

Table 4-1: Existing and Projected Noise Levels – Alternative 2 (Avoidance Alternative)

Evaluation Criteria	Bock House	Strite House	Exceeds or Approaches FHWA Noise Abatement Criteria¹ (Yes/No)
Projected (2032 Build) noise level	59.5 dBA	58.2 dBA	No
Existing noise level	42.7 dBA	49.5 dBA	No
Projected (2032 No Build) noise level	42.7 dBA	49.5 dBA	No
Projected increase in noise level	16.8 dBA ²	8.7 dBA	N/A
Distance from edge of travel lanes	460 ft.	923 ft.	N/A

Notes:

¹FHWA Noise Abatement Criteria is 67.0 dBA for residential areas (Activity Category B). Per FDOT guidelines, the approach criteria is 1.0 dBA less (66.0 dBA).

² FDOT noise analysis guidelines require consideration of noise abatement measures when the projected noise level increases by 15.0 dBA or more as compared to the No Build condition. Due to the sparsely populated area, this location would not be considered cost reasonable under FDOT criteria.

During the field review for the *CRAS* and the *CRAS Addendum*, it was noted the Bock House appeared uninhabited due to overgrown vegetation (trees, branches, etc.) obtruding the house. A recent field review conducted in April 2010 confirmed that the Bock House still appears uninhabited and is overgrown with vegetation. The Bock House property is designated residential land use and the exterior activities, if the property is inhabited, are anticipated to be consistent with those in a residential home (gardening and family recreation). The increased projected noise levels are not anticipated to impair these residential activities. The Bock House property was determined to be potentially NRHP eligible due to the early Cracker architecture of the structure, the historical association with early settlers in the area, and the property's characteristics of an early Cracker farmstead. These attributes are not anticipated to be affected by the projected noise level increases associated with Alternative 2. The projected noise level increase for the Strite House is below 15 dBA and, per FDOT criteria, does not require consideration of noise abatement. Based on this noise analysis, the proximity impacts due to noise are not anticipated to substantially impair the protected features, activities or attributes of either the Bock House or the Strite House.

4.1.5 Increased Right-of-Way and Construction Costs

Preliminary estimates of project costs for this evaluation have three major components: right-of-way acquisition, residential/business displacements, and construction.

Comparative cost estimates for Alternatives 1 and 2 were calculated in the area of variation between the two alignments from near Plymouth Sorrento Road on to the east toward the Orange County/Lake County line.

The estimated cost for right-of-way acquisition and residential/business displacements for Alternative 1 is \$9.6 million (2008 dollars). For Alternative 2, the estimated cost for right-of-way and residential/business displacements is \$14.0 million (2008 dollars). That is a delta for right-of-way related costs of \$4.4 million for Alternative 2, which is a 46% increase over

Alternative 1. This does not include costs that would have to be paid for business damages. Alternative 2 would require additional right-of-way to be acquired for the realignment of Boch Road and for floodplain impact compensating storage. As mentioned previously, seven additional residential dwellings and three additional businesses would be taken by Alternative 2.

For Alternative 1, the estimated construction cost is \$52.2 million (2008 dollars). The estimated cost for construction of Alternative 2 is \$66.2 million (2008 dollars). That is a cost delta for construction of \$14.0 million for Alternative 2, which is a 27% increase over Alternative 1. This additional cost is due to the required realignment and relocation of Boch Road and the associated additional bridge structures, and the creation of floodplain compensating storage areas.

In summary, the estimated total additional cost for Alternative 2 is \$18.4 million (i.e., \$61.8 million for Alternative 1 versus \$80.2 million for Alternative 2). That is a composite construction and right-of-way cost delta of 30% for the avoidance alternative.

4.1.6 Individual and Composite Impacts of the Avoidance Alternative

4.1.6.1 Individual Impacts on Functionality

Impact on Florida Scrub Jay Habitat

The Endangered Species Act of 1973, as amended, requires Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. As shown on **Exhibit 4-5**, Alternative 2 is aligned further west than Alternative 1 and would likely have more negative effects on the habitat area due to the specific flight, feeding and nesting characteristics of the Florida Scrub Jay. That conclusion is based upon the opinion of biologists after site visits to the habitat area during the alternatives analysis; this included a site visit with the USFWS. As previously mentioned, the Alternative 1 alignment was shifted to the east as a measure to minimize project effects at the request of the USFWS. More detailed information is provided in the *Environmental Assessment* and in the *Endangered Species Biological Assessment* prepared for this PD&E Study.

For this analysis, further coordination with the USFWS regarding their concerns was undertaken since, in their concurrence letter on Alternative 1, the USFWS specifically addressed avoidance of this Florida Scrub Jay habitat area. Copies of the USFWS concurrence letter on Alternative 1 dated January 15, 2008, the FDOT request for opinion letter to USFWS on Alternative 2 dated March 31, 2009, and the USFWS response letter dated April 24, 2009 are provided in **Appendix B**.

In their concurrence letter of January 15, 2008, the USFWS stated that Alternative 1 “may affect, but is not likely to adversely affect, the Florida Scrub Jay”. The USFWS indicated in their opinion letter of April 24, 2009 that since Alternative 2 (the avoidance alternative) would be located west of Alternative 1, it may encroach on Florida Scrub Jay foraging opportunities. Additionally, the potential alignment shift also caused the USFWS to express concerns about increased roadside mortalities due to Florida Scrub Jay flight and feeding characteristics in roadside habitats. Since the Florida Scrub Jay is a threatened and declining species, the USFWS stated that selection of Alternative 2 would require re-initiation of consultation under Section 7 of the Endangered Species Act.

In walking transects of the Florida Scrub Jay habitat area by study team ecologists in 2005 and 2006, a total of nine birds were observed in three separate portions of the habitat area west of the alignment alternatives. An active Scrub Jay nest was observed in 2006 in the sighting area which is closest to the alignment alternatives. Since Alternative 2 would be approximately 400 feet closer than Alternative 1 to that Scrub Jay sighting area (see **Exhibit 4-6**), and would require an additional 24.4 acres of habitat area, there is potential for severe impact to this threatened species which is endemic only to Florida and is protected under the Endangered Species Act. That protection requires Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species.

Impact on Floodplains

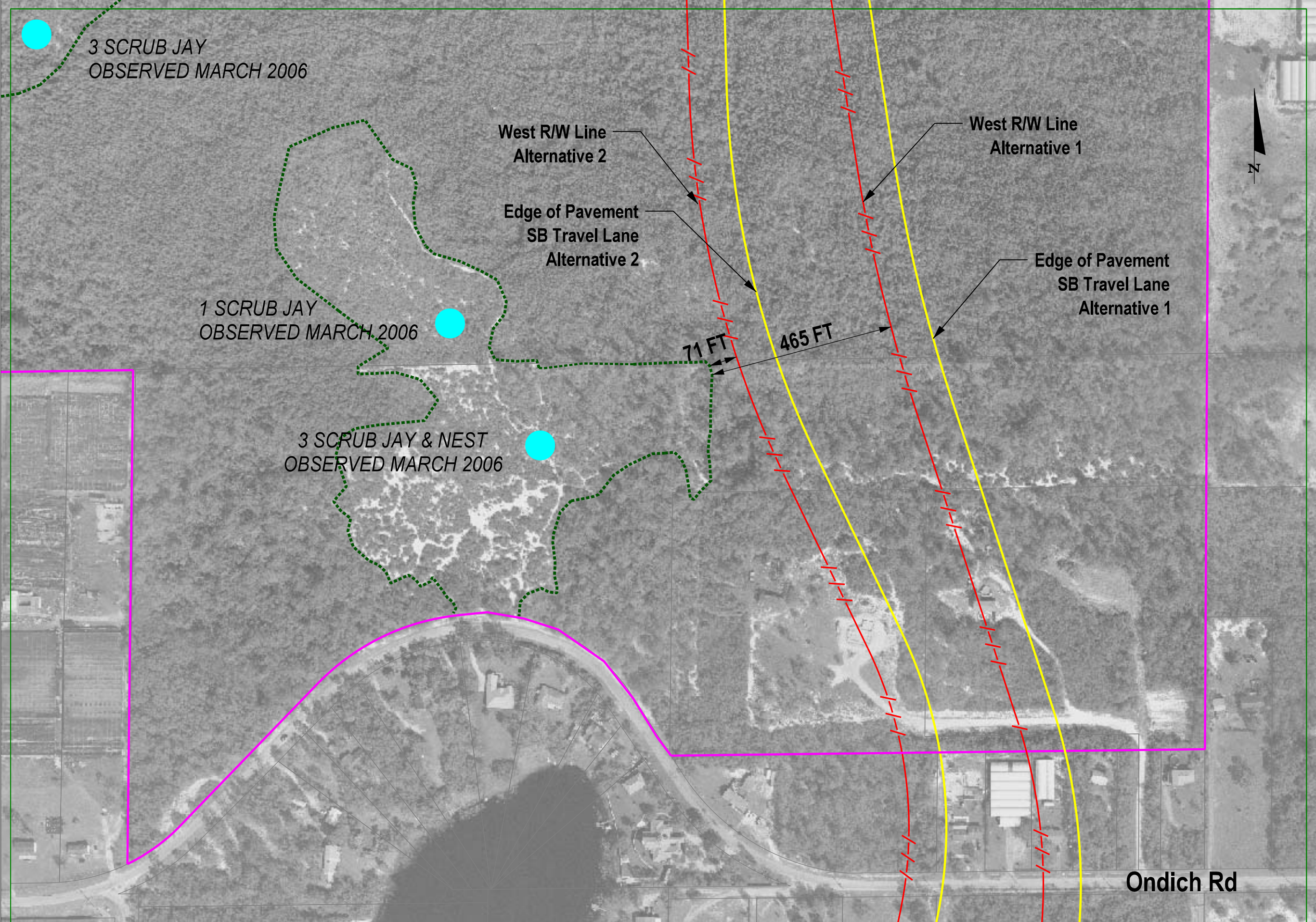
Protection of floodplains is required by Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection", and Federal-Aid Policy Guide 23 CFR 650A. The intent of these regulations is to avoid or minimize highway encroachments within floodplains. Also, FHWA's Technical Advisory T6640.8A, "Guidance for Preparation and Processing of Environmental and Section 4(f) Documents" provides guidelines for assessing highway impacts on floodplains to comply with 23 CFR 771 and the regulations cited above. Therefore, seeking to avoid or minimize impacts to floodplains is a part of the alternatives analysis screening criteria. Alternative 1 would not impact the floodplain discussed below.

Alternative 2 (the avoidance alternative) would cause impacts to an additional 14.1 acres of designated floodplain. This would necessitate the creation of compensating storage areas for mitigation, which would require acquisition of additional right-of-way. Absence of mitigation would result in flooding of areas adjacent to the floodplain impact. A portion of the impacted floodplain area is classified as Hardwood-Conifer Mixed Forest, a natural association of trees that provides diverse habitat for wildlife. This mature growth condition and habitat could not be replicated in the created compensating storage areas. Alternative 2 also impacts Freshwater Marsh within the floodplain, so species that are both upland and wetland dependent would be affected. At this time, it is unknown what the required environmental mitigation would be to compensate for the loss of this forested floodplain. Also, a portion of the impacted floodplain has been designated as a conservation area by the Orange County Environmental Protection Division. It is unknown at this time what the environmental mitigation required to compensate for the loss of this designated conservation area might be.

4.1.6.2 Composite Impacts

The composite additional impacts of Alternative 2 are listed below.

- Environmental: 24.4 acres of additional impact to habitat area of the Florida Scrub Jay (a threatened species under the Endangered Species Act) with adverse affects requiring re-initiation of USFWS consultation, and 14.1 acres of impact to a designated floodplain which contains mature, natural forest;
- Community Disruption: displacement of an additional 7 homes and 3 businesses, which is expected to generate public controversy. In addition, access to Boch Road would need to be altered with Alternative 2; and



— Boundary of the Upland Habitat/Scrub Area Parcels
- - - Prime Scrub Jay Habitat

- Cost: estimated cost delta of 30% (\$18.4 million) in additional right-of-way acquisition and construction costs for the Boch Road realignment/relocation and the associated additional bridges, as well as for the creation of floodplain compensating storage areas. This estimate does not include costs that would have to be paid for business damages, and does not include any additional mitigation compensation costs for impacts to the forested portion of the floodplain or to the designated conservation area in the floodplain.

A critical point for consideration in the cumulative impact associated with Alternative 2 is that the displacement of an additional seven homes and three businesses is a significant number given the low density, rural nature of this part of the study area. That is about 20% of the homes in this residential cluster. These impacts will affect the community cohesion of the Boch Road area. The fragmentation of Scrub Jay habitat is also a concern for the viability of the species in this area.

Given that the historic resources impacted by Alternative 1 are in private ownership, the final disposition of these structures is uncertain regardless of decisions on the alignment of the Wekiva Parkway. The potential for future protection of the structures is purely speculative and avoidance of the structures with Alternative 2 would have added community effects, additional critical habitat impacts and significant additional costs.

4.1.7 Summary Comparison of Impacts

A summary of the comparative impacts of Alternative 1 and Alternative 2 is presented on **Table 4-2**. Depictions of Alternatives 1 and 2 are shown in the previously presented **Exhibits 4-4** and **4-5**, respectively.

4.2 Consideration of SHPO Comments

As mentioned previously in Section 2.0, there has been on-going coordination and correspondence between the SHPO and FHWA regarding this proposed project. The September 10, 2008 letter from the SHPO to FHWA which is provided in Appendix B states..."the Strite House was not identified until 2008 but the Preferred Alternative (Alternative 1) was chosen in 2007 indicating that this property was not taken into consideration during the decision making process. Alternative 2, which would effectively avoid both houses, appears to be a prudent and feasible alternative when comparing the overall impacts and costs".

Actually, the Strite House was identified as a potential historic resource in the *Cultural Resource Assessment Survey* (February 2007) prepared for the Wekiva Parkway PD&E Study. The house cannot be seen from public right-of-way, and several denials of access by the property owner in 2006 and 2007 eventually necessitated a certified letter from FDOT on January 10, 2008 stating that access for evaluation was required. Therefore, the cultural resource survey of the Strite House could not be accomplished until February 20, 2008. Subsequently the *Addendum to the Cultural Resource Assessment Survey* (March 2008) was completed to document the potential eligibility of the Strite House for NRHP listing.

Table 4-2: Summary of Alternative 1 and Alternative 2 Impact Comparison

Evaluation Criteria		Alternatives	
		1	2 (Avoidance)
Social Environment	Bock House Land Area Required (acres)	10.2 acres	0
	Strite House Land Area Required (acres)	19.5 acres	0
	Historic Structures Affected	3 (Strite House, garage, water tower)	0
	Residential Displacements	19 (includes Strite House)	26
	Business Displacements (Plant/Foliage Nurseries)	2	5
	Total ROW Required (acres)	268	302
	Number of Impacted Parcels	49	54
Natural Environment	Floodplain Impact (acres)	5.4	19.5
	Wetlands Impact (acres)	2.0	3.0
	Potential for Severe Florida Scrub Jay Habitat Impact (<i>species listed by USFWS & FWC as Threatened under Endangered Species Act</i>)	Low	High (additional 24.4 acres and approx. 400 ft. closer to Scrub Jay sighting areas)
Project Cost	Estimated Cost for Right-of-Way and Residential/Business* Displacements (in millions, 2008 dollars) *business damages not included	\$9.6	\$14.0
	Estimated Cost for Construction (in millions, 2008 dollars)	\$52.2	\$66.2
Community	Public Controversy due to Community Disruption	Low	High
	Comments – Bock House	No direct use of contributing structures	No direct use of contributing structures or property
	Comments – Strite House	Direct use of three contributing structures	No direct use of contributing structures or property

Note: No notable differences for air and water quality were determined between the alternatives.

It should also be noted that during the initial phase of alignment analysis, alternatives avoiding the Strite property were developed due to the existence of a spring on the property which was identified as a project constraint in December 2005 by the Orange County Environmental Protection Division. Since Alternative 2 is an avoidance alternative for the Strite property, said property was taken into consideration during the initial alternatives analysis decision making process.

With regard to the SHPO comment on overall impacts and costs, clearly Alternative 2 would involve substantially more environmental and community impacts than Alternative 1 as discussed in the preceding portions of this section. Those increased environmental impacts must be viewed as inconsistent with the project's stated purpose and need to minimize impacts to natural resources and wildlife habitat. With regard to social impacts and disruption, in public meetings to receive feedback on alignment alternatives there was a high degree of community opposition to Alternative 2 due to the additional residential and business displacements and the potential impact on community cohesion. The estimated cost delta of 30% (\$18.4 million) for Alternative 2 was discussed previously in this section.

Additional coordination with the SHPO was undertaken in March of 2010. A conference call was held with SHPO staff to update them on the project and to discuss upcoming coordination and consultation activities. FHWA is engaged in on-going consultation with the SHPO as required by 36 CFR, Part 800, and regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended, regarding the potential impacts of the proposed project and its alternatives on significant historic resources. This consultation will be completed during further project development and coordination with the SHPO, and prior to completion of the final *Individual Section 4(f) Evaluation*.