

**Florida Department of Transportation
PROJECT REEVALUATION FORM**

I. GENERAL INFORMATION (Originally approved document)

- a. Reevaluation Phase: PE Design & Design Change
- b. Document Type and Date of Approval: EA/FONSI 12/23/1999
- c. Project Numbers: 0042 226 I & 0042 269 I 242526-1 & 242483-1
Federal Aid Financial Project
- d. Project Local Name, Location and limits: State Road 400 (I-4 from west of CR 532 (Osceola Polk Line Road) to west of SR 528 (Beachline Expressway)
- e. Segments of Highway Being Advanced: Same: State Road 400 (I-4) from west of CR 532 (Osceola Polk Line Road) to east of SR 522 (431456-1) and SR 400 (I-4) from east of SR 522 to west of SR 528 (Beachline Expressway) (242484-8) -now called the I-4 Beyond the Ultimate(BtU) Segment 1
- f. Planning Consistency Form: 242484-8 & 431456-1

242484-8:

Currently Adopted CFP-LRTP	COMMENTS				
Y/N	Technical Report # 3, Plan Development & Cost Feasible Projects, Page 27, Table 7				
PHASE	Currently Approved TIP	Currently Approved STIP	TIP/STIP \$	TIP/STIP FY	COMMENTS
PE	Yes, Approved December 2014	Yes, Approved October 2014	\$12,814,863	FY 2014/15-2015/16	Planning is consistent across LRTP, TIP, and STIP. TIP Page III-2 on the Interstate Highway Projects for Orange County. STIP Report Pg. 293. FY 15 = \$2,094,127 & FY 16 = \$10,720,736
R/W	NA	NA	NA	NA	NA
Construction	NA	NA	NA	NA	NA

**Include pages from TIP/STIP/LRTP*

431456-1:

Currently Adopted CFP-LRTP	COMMENTS				
Y/N	Technical Report # 3, Plan Development & Cost Feasible Projects, Page 27, Table 7				
PHASE	Currently Approved TIP	Currently Approved STIP	TIP/STIP \$	TIP/STIP FY	COMMENTS
PE	Yes, Approved December 2014	Yes, Approved October 2014	\$9,237,153	FY 2014/15-FY 2015/16	Planning is consistent across LRTP, TIP, and STIP. TIP Page III-3 on the Interstate Highway Projects for Orange County. STIP Report Pg. 374. FY 15 = \$2,800,436 & FY 16 = \$6,436,717
R/W	NA	NA	NA	NA	NA
Construction	NA	NA	NA	NA	NA

**Include pages from TIP/STIP/LRTP*

- g. Name of Analyst(s): Kristee Booth & Catherine Owen
- h. County: Polk, Osceola & Orange

II. CONCLUSION AND RECOMMENDATION

The above environmental document has been reevaluated as required by 23 CFR 771 or the Project Development and Environment (PD&E) Manual of the FDOT. Through the reevaluation, it was determined that no substantial changes have occurred to the social, economic, or environmental impacts of the proposed action that would significantly affect the quality of the human environment. Therefore, the original Administration Action remains valid.

It is recommended that the project identified herein be advanced to the next phase of project development.

REVIEWER SIGNATURE BLOCK

Environmental Administrator

_____/_____/_____
Date

III. FHWA CONCURRENCE BLOCK

Federal Highway Administration, Division Administrator

_____/_____/_____
Date

IV. CHANGE IN IMPACT STATUS OR DOCUMENT COMPLIANCE

	YES	NO	COMMENTS
A. SOCIAL IMPACTS			
1. Land Use Changes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #42</u>
2. Community Cohesion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
3. Relocation Potential	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #42</u>
4. Community Services	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
5. Title VI Consideration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
6. Controversy Potential	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
7. Utilities and Railroads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #45</u>
B. CULTURAL IMPACTS			
1. Section 4(f) Lands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
2. Historic Sites/Districts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>See Section V, page #39</u>
3. Archaeological Sites	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>See Section V, page #39</u>
4. Recreation Areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
5. Pedestrian/Bicycle Facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
C. NATURAL ENVIRONMENT			
1. Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #38</u>
2. Aquatic Preserves	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
3. Water Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
4. Outstanding Fla. Waters	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
5. Wild/Scenic Rivers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
6. Floodplains	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #37</u>
7. Coastal Zone Consistency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
8. Coastal Barrier Islands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
9. Wildlife and Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #38</u>
10. Essential Fish Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
11. Farmlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
12. Visual/Aesthetics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
D. PHYSICAL IMPACTS			
1. Noise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #40</u>
2. Air	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
3. Construction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
4. Contamination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>See Section V, page #41</u>
5. Navigation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

V. EVALUATION OF MAJOR DESIGN CHANGES AND REVISED DESIGN CRITERIA

(e.g. Typical Section Changes, Alignment Shifts, Right-of-way Changes, Bridge to Box Culvert, Drainage Requirements, Revised Design Standards).

This reevaluation is to open the design phase and document design changes made to the I-4 Beyond the Ultimate (BtU) Segment 1 project. The segment that comprises the I-4 BtU Segment 1 PD&E Study Update Project (432100-1) limits are from west of CR 532 (Osceola Polk Line Road) to west of SR 528 (Beachline Expressway). This correlates with the original EA/FONSI project limits. The I-4 BtU Segment 1 has been split into two design projects.

- **431456-1:** From west of CR 532 (Osceola Polk Line Road) to east of SR 522 (Osceola Parkway)
- **242484-8:** From east of SR 522 (Osceola Parkway) to west of SR 528 (Beachline Expressway)

This reevaluation includes environmental and engineering analysis of the original design concept, which showed six general use lanes (GUL) and four special use lanes (SUL) from CR 532 to southwest of World Drive (6+4), six GUL and two High Occupancy Vehicle (HOV) lanes from southwest of World Drive to northeast of Lake Avenue (6+2) and six GUL and 4 HOV lanes from northeast of Lake Avenue to SR 528 (Beachline Expressway) (6+4), to the current proposed design (from west of CR 532 to west of SR 528 / Beachline Expressway), which includes six GULs and four express lanes (EL) operating under a variable price toll plan (6+4) as well as interchange modifications, grade-separated ramps, ramp-to-ramp auxiliary lanes, intersection modifications and/or other improvements. The typical sections and interchange layouts are attachments to the reevaluation. Other changes being reanalyzed include stormwater management (drainage requirements and pond site changes), access plan and interchange configurations. Commitment compliance was also reviewed and updated as part of this reevaluation. See below for the details of the design changes. Discussion of the potential environmental impacts is found with each change and a general discussion of impacts can be found later in the reevaluation. The Planning Consistency Form for each design segment has been provided and the required TIP, STIP, and LRTP pages are attached.

*Note on Lake Avenue: The original name was Street B, which was renamed to Lake Avenue. Orange County subsequently reevaluated the PD&E to relocate this overpass to the current location and configuration with the street name of Wildwood; then after construction the name was changed again to Fenton Street, and now it is called Daryl Carter Parkway.

Design Changes:

Typical Section

The original Project Development and Environment (PD&E) Study proposed two typical sections providing 6 General Use Lanes (GUL) and two or four special use / HOV lanes.

Typical Section 1: This mainline typical section was proposed from CR 532 / Osceola Polk Line Road to southwest of World Drive and again from northeast of Lake Avenue to SR 528 (Bee Line Expressway) and would provide six GUL and four special use / HOV lanes within a minimum of 424 feet of right-of-way. All HOV lanes are HOV3+ (vehicles with three or more occupants).

Typical Section 2: This mainline typical section was proposed from southwest of World Drive to north east of Lake Avenue and would provide six GUL and two special use / HOV lanes within a minimum 400 feet of right-of-way. Both HOV lanes are HOV 3+ (vehicles with three or more occupants).

Both typical sections provide a design speed of 70 mph, and had the following additional common features:

- 12-foot outside and inside (median) shoulders
- 10-foot paved outside and inside (median) shoulders
- 12-foot paved shoulders on the inside of the general use lanes and on the outside (right) of the special use/HOV lanes
- A 3.9-foot barrier wall between the general use lanes and special use / HOV lanes
- A 44-foot wide future transit corridor

*Note: as a primary goal, the project is being designed to match Segment 2 of the I-4 BtU from SR 528 to Kirkman Road and the I-4 Ultimate project from Kirkman Road to SR 434. During a design re-evaluation for the I-4 Ultimate project in 2005, the Special Use Lanes (which were described as HOV lanes) were converted to tolled-Express Lanes. Since no existing HOV lanes were present on I-4, this change was approved by FHWA for the project moving forward. For Segment 1, the same situation occurs: there are no HOV lanes on I-4 to be considered, so the design change from Special Use Lanes to tolled-Express Lanes is similarly being proposed.

I-4 BtU Modified Build

The recommended general mainline typical section for I-4 BtU Segment 1 will have a total of ten dedicated lanes (6 general use lanes + 4 express lanes), a 44' future rail corridor in the median and a design speed of 70 miles per hour (mph) within a minimum 300-foot right-of-way. Auxiliary lanes are also shown in the proposed typical sections and vary from one to three lanes. All typical sections provide a design speed of 70 mph. Other common features of the typical sections include:

- 12-foot express and general use lanes;
- 4-foot paved inside and 10-foot outside shoulders for express lanes
- 10-foot paved inside and 12-foot paved outside shoulders for general use lanes;
- A 2 foot wide barrier wall between the general use and express lanes.

While the overall typical section remains consistent throughout Segment 1, there are some areas along the Segment 1 corridor that will have special sections. Special cross sections were developed to meet the needs of the project due to right-of-way constraints, existing utility easements or other design considerations along the corridor. These special sections may include Collector – Distributor (C-D) roads, braided ramp systems, elevated express lanes or elevated general use lanes. Additionally, the median width may vary in certain locations to accommodate changes in the horizontal alignment due to

crossroad support structures, water crossings or other features. In the area between World Drive and SR 417, the median is considerably wider than 44 feet to accommodate a future high speed rail station. The special sections along the Segment 1 corridor are identified as follows:

- I-4 Eastbound elevated express lanes between East of SR 429/ Western Beltway and West of World Drive
- C-D system (Eastbound and Westbound) between World Drive and SR 417
- I-4 Eastbound elevated general use lanes with an at grade C-D Road between SR 536 and SR 535
- I-4 Westbound elevated general use lanes between SR 536 and East of Daryl Carter Parkway with an at grade C-D Road between SR 536 and Central Florida Parkway
- I-4 Westbound with an elevated C-D Road between west of Central Florida Parkway and SR 528

The mainline typical section (three general use lanes and two express lanes in each direction) will be mostly consistent with the approved typical section that is being implemented for the I-4 Ultimate section from SR 435 (Kirkman Road) to SR 434 (432193-1). The typical section was designed to be contained within the existing right-of-way to the greatest extent possible, though a small amount of right-of-way acquisition will be required (2.64 acres). The mainline proposes impacts to floodplains (46.02 acre feet) which will be offset via floodplain compensation ponds, and impacts to wetlands (112.95 acres) and surface waters (46.05 acres) which will be mitigated for satisfying the requirements of Part IV Chapter 373, F.S. and 33 U.S.C.s.1344. There are no proposed impacts to listed species with the proposed mainline. Contamination involvement for the mainline includes 3 medium risk sites and 1 high risk site (for details see Contamination section). No potential impacts to cultural or historical sites are proposed (SHPO concurrence obtained 6/23/16; for details see Cultural Resources Assessment Update section). The proposed project was evaluated for noise impacts where the results predict that 102 noise sensitive receptors will be impacted. Three noise barriers were determined to be reasonable and feasible to provide abatement at the impacted locations as detailed in the *Noise Study Report* (December 2015) prepared for the project (for details see Noise Impact Analysis section).

Interchanges

Original PD&E Study:

The original PD&E Study proposed design concepts for the following interchange configurations:

- CR 532
- Western Beltway (SR 429)
- World Drive
- Southern Connector (SR 417)
- US 192 (SR 530)
- Osceola Parkway

- SR 536
- SR 535
- Lake Avenue (now Daryl Carter Parkway)
- Central Florida Parkway

CR 532 – This interchange will not be modified beyond its current full diamond configuration. However, dual left turn lanes are planned on the westbound off-ramp approach and for the eastbound CR 532 to eastbound I-4 turning movement.

Western Beltway (SR 429) – Due to the limited access nature of both I-4 and the Western Beltway, no at-grade ramp terminal intersections were part of this proposed new interchange. The Preferred Build Alternative is a fully-directional interchange, with all ramps having a design speed of 50 mph.

World Drive – The existing interchange configuration and collector-distributor (CD) system will not be modified as part of the project.

Southern Connector (SR 417) – The existing interchange configuration will not be modified as part of the project.

US 192 (SR 530) – The Preferred Build Alternative modifies this interchange to a three-level diamond. This interchange allows the US 192 through movement to be free of at-grade intersections. Only the turning movements to and from I-4 will have to through at-grade intersections.

Osceola Parkway – Osceola Parkway currently crosses over I-4 without access. However, another project will construct a full access interchange at this location which will be completed prior to the improvements within this study. The eastbound I-4 to Osceola Parkway movements will be accommodated by a loop ramp in this design project. Traffic desiring access to eastbound Osceola Parkway would be required to make a left turn at an at-grade intersection. A diamond ramp was considered for this movement in the previous study, but would result in significant right-of-way impacts. This movement will be modified by the Preferred Build Alternative by adding the diamond ramp as a part of the aerial CD roadway.

SR 536 – This interchange is not being modified from its current configuration. This interchange is similar to a full cloverleaf type interchange, with the exception that the eastbound SR 536 to eastbound I-4 movement is accommodated with a flyover.

US 192 to SR 536 Braided Ramps and CD system – The Preferred Build Alternative includes an eastbound aerial CD roadway between US 192 and Osceola Parkway. The eastbound entrance ramp from Osceola Parkway is braided with the eastbound exit ramp to SR 536. For the westbound direction, a continuous CD system is provided from SR 536 to US 192.

SR 535 – The traffic analyses showed the need for dual left turn lanes on the northbound approach to the SR 535 / westbound ramps intersection.

SR 535 to Lake Avenue CD system – The eastbound entrance loop and diamond ramps from SR 535 begin a CD system which extends to Lake Avenue. A slip ramp is provided from the general use lanes to the CD road for eastbound traffic exiting at Lake Avenue. A CD system is also provided in the westbound direction between Lake Avenue and SR 535. Westbound traffic exiting at SR 535 will use a slip ramp which connects to the CD road. Also, the traffic analysis shows the need for dual left turn lanes at the SR 535 / I-4 westbound ramps intersection.

Lake Avenue (now Daryl Carter Parkway) – The Preferred Build Alternative provides a full access interchange at Lake Avenue. This proposed interchange is essentially a diamond interchange for eastbound traffic. A diamond ramp is provided for westbound traffic exiting the general use lanes. A loop ramp provides access for all movements from Lake Avenue to westbound I-4.

Central Florida Parkway – The Preferred Build Alternative modifies this interchange to include ramp movement to and from the northeast along I-4. This interchange continues the westbound Central Florida Parkway to westbound I-4 flyover ramp movement, but requires that the existing structure be replaced due to mainline widening impacts to the bridge piers.

Interim Changes to the I-4 Corridor since the PD&E Study Preferred Build Alternative Approval:

Tradition Boulevard was constructed as a part of the Reunion Resort over I-4, approximately 2 miles north of CR 532.

SR 429 / Western Beltway was constructed with the terminus of the road occurring at the junction with I-4. This includes a 3-way (“Y”) stack freeway-to-freeway interchange at I-4 with no at-grade ramp terminal intersections.

The US 192 interchange was modified to include the proposed US 192 through movements without at-grade intersections. Additional flyover ramps were constructed for movements to and from I-4 from US 192.

Braided ramps were constructed including an eastbound off ramp to Osceola Parkway, an eastbound off ramp to SR 536 with on ramp from Osceola Parkway, westbound off ramps to SR 536, Osceola Parkway, and US 192 with on ramps beginning from SR 536.

A full access interchange at Osceola Parkway was constructed per the original PD&E Study Preferred Build Alternative.

Interchange improvements were made at the SR 535 interchange, including dual eastbound on ramps from southbound SR 535, dual left and right turns from westbound I-4 to SR 535, and westbound on ramps that merge into a braided ramp system on westbound I-4 from SR 535.

Daryl Carter Parkway was constructed as an overpass (formerly called Lake Avenue) with no access from I-4.

The westbound flyover on-ramp from Central Florida Parkway was constructed.

I-4 BtU Segment 1 Reevaluation:

The recommended alternative for the I-4 BtU Segment 1 provides grade separations and/or interchanges at fourteen locations (see attachments for plan sheet layout):

- CR 532/Osceola-Polk Line Road (Diverging Diamond Interchange),
- Tradition Boulevard (overpass),
- SR 429/Daniel Webster Western Beltway (Systems 3-leg Directional Interchange),
- Old Lake Wilson Road (overpass),
- Reedy Creek (I-4 overpass)
- World Drive (Partial Cloverleaf Interchange),
- SR 417/Central Florida Greenway (Systems Partial Y Interchange),
- US 192/SR 530 (Partial Cloverleaf Interchange),
- W. Osceola Parkway (Partial Cloverleaf Interchange),
- Bonnet Creek (I-4 overpass)
- SR 536 (Epcot Center/World Center Drive) (Partial Cloverleaf Interchange)
- SR 535 (Modified Diamond Interchange)
- Daryl Carter Parkway (Diverging Diamond Interchange),
- Central Florida Parkway (Diamond Interchange)

CR 532 Interchange

Two interchange alternatives were evaluated for CR 532.

Alternative 2 (Recommended Alternative; see attachment) proposes modifying the existing diamond interchange to a diverging diamond interchange (DDI). A DDI is designed so that each direction of the crossing roadway traffic is split and then crosses over itself. The traffic will temporarily drive on the left hand side of the roadway and then cross back over on the other side of the interchange. In order to avoid wrong way movements through this type of interchange, the opposite directions of the roadway are intersected at an angle that is large enough to appear to the driver as if they are making a through movement and that the other side of the roadway is an intersecting street. This design changes the signal operations at the ramp terminals from three-phase to two-phase cycles, as the left turn movements from the crossroad to the on ramps are now free flow movements. The existing single lane off ramps will diverge into four lanes accommodating dual left turn lanes and dual right lanes onto CR 532. The I-4 off-ramp movements will be signalized since there are only two receiving through lanes in each direction on CR 532. Bike lanes have been provided along CR 532 through the interchange. In this alternative, the existing I-4 eastbound off ramp is shifted to the south and the widening of the ramp will require additional right-of-way (0.31 acres).

This alternative has minor environmental impacts including 2.3 acre-feet of floodplain impacts (mitigation will be provided via the creation of a 4.56 acre floodplain compensation pond). No wetland

impacts or listed species involvement is anticipated. No contamination will be impacted by the interchange. No cultural resources will be impacted (SHPO Concurrence Letter dated 6/23/16).

SR 429 / Western Beltway Interchange

One interchange alternative was evaluated for the SR 429 interchange. The proposed alternative (see attachment) would leave the overall existing horizontal geometry as it is, in a three leg directional interchange configuration. Each of the general use lane ramps would remain the same with new ramps being added to provide connections to the express lanes in each direction. The eastbound general use exit ramp will shift north east of the existing condition will be a parallel cross road exit ramp. The existing single lane I-4 eastbound general use lane exit ramp will combine with a new eastbound express lane exit ramp to begin SR 429 northbound. The existing single lane I-4 eastbound ramp from SR 429 southbound will connect to the I-4 eastbound general use and express lanes. The new eastbound general use on ramp will connect further south from the existing condition due to the widening. The existing single lane I-4 westbound ramp to SR 429 northbound will remain connected to the I-4 westbound general use lanes. The existing off ramp will be modified to connect to I-4 further southwest of the existing condition. A new exit ramp will connect the westbound express lanes to SR 429 northbound. The existing I-4 westbound 2-lane on ramp from SR 429 southbound which converges to a single lane will become a 3-lane on ramp which will diverge, with two lanes connecting to the westbound general use lanes and one lane connecting to the express lanes. This ramp will connect to I-4 northeast of the existing condition. No additional right-of-way will need to be purchased in order to construct this alternative.

This alternative has minor environmental impacts including 29.42 acre-feet of floodplain impacts, which will be compensated via a floodplain compensation pond of 16.1 acres. Three of the pond sites within the interchange contain medium risk contamination sites that may be involved with the improvements. No wetland impacts are proposed, though the floodplain compensation pond (FPC 105A) has been determined to have an active population of sand skinks via a cover board survey. Coordination with USFWS has determined that approximately 10.0 acres of occupied skink habitat exists. FDOT has proposed mitigation at a 2:1 ratio to offset the impacts, and consultation with USFWS to provide a Biological Opinion (BO) was completed with the issuance of the BO dated August 26, 2016. No cultural resources will be impacted (SHPO Concurrence Letter dated 6/23/16).

World Drive Interchange

One interchange alternative was evaluated for World Drive (see attachment). The alternative would leave the overall existing horizontal geometry as it is, in a partial cloverleaf configuration. The single lane I-4 eastbound off ramp to eastbound World Drive will continue to connect to the eastbound C-D road. The single lane I-4 eastbound loop off ramp to westbound World Drive will continue to connect to the eastbound C-D road. The C-D road and the off ramp to eastbound and westbound World Drive will be shifted further to the southeast than the existing condition due to the widening of I-4. The existing 2-lane eastbound on ramp from World Drive will continue to connect to the eastbound C-D road at approximately the same location as existing today. The existing 2-lane I-4 westbound off ramp to westbound World Drive will continue to connect to the westbound C-D road at approximately the same location as existing today. The existing single lane I-4 westbound off ramp to eastbound World Drive will continue to connect to the westbound C-D road at approximately the same location as existing today. The existing single lane westbound on ramp from World Drive will continue to connect to the westbound

C-D road at approximately the same location as existing today. No additional right-of-way will need to be purchased in order to construct this alternative.

No environmental impacts are anticipated with this proposed interchange. There are no proposed wetland impacts, no listed species involvement, and no contamination has been identified at this interchange. No cultural resources will be impacted (SHPO Concurrence Letter 6/23/16).

SR 417 Interchange

One interchange alternative was evaluated for SR 417 (see attachment). The proposed alternative would leave the overall existing horizontal geometry as it is, in a partial interchange configuration. The existing 2-lane eastbound off ramp will continue to connect the eastbound C-D road to the beginning of northbound SR 417. The existing 2-lane on ramp will continue to connect the SR 417 southbound terminus to the westbound C-D road. Two new single lane ramp structures bridging over the I-4 eastbound lanes will provide direct connections from SR 417 southbound to the I-4 westbound express lanes and from I-4 eastbound express lanes to SR 417 northbound. The existing SR 417 southbound bridge over I-4 will be replaced due to conflicts with the existing substructure and the proposed I-4 widening. No additional right-of-way will need to be purchased in order to construct this alternative.

No environmental impacts are anticipated with this proposed interchange. There are no wetland impacts, no listed species involvement, and no contamination identified for this interchange. Cultural resources will not be impacted (SHPO Concurrence Letter dated 6/23/16).

US 192/SR 530 Interchange

One interchange alternative was evaluated for US 192/SR 530 (see attachment). The alternative would leave the overall existing horizontal geometry as it is, in a partial cloverleaf interchange configuration with loop ramps in the southwest and northeast quadrants. The existing 2-lane I-4 eastbound off ramp will continue to connect to eastbound SR 530 and to the loop ramp to westbound SR 530 but will diverge from I-4 further northeast of the existing condition. The existing 2-lane on ramp will continue to connect the merged ramps from eastbound SR 530 and westbound SR 530 to I-4 eastbound as a parallel entrance. The new connection point will be located further southwest of the existing condition. The existing 2-lane I-4 westbound off ramp will diverge further southwest than the existing condition on I-4 and will continue to connect to westbound SR 530 and to the loop ramp to eastbound SR 530. The existing single lane westbound on ramp will continue to connect to the merged ramps from SR 530 eastbound and the SR 530 westbound flyover ramp. This ramp will have a parallel-type entrance and will connect to I-4 further northeast of the existing condition. No additional right-of-way will need to be purchased in order to construct this alternative.

No impacts are anticipated to wetlands and listed species. One medium risk contamination site was identified in this interchange that could possibly be impacted. Cultural resources will not be impacted (SHPO Concurrence Letter dated 6/23/16).

Osceola Parkway Interchange

Three interchange alternatives were evaluated for Osceola Parkway.

Alternative 3 (Recommended Alternative; see attachment) maintains the partial cloverleaf configuration with loop ramps in the southwest and northeast quadrants and proposes the realignment of Bonnet Creek

(C-1 Drainage Canal), resulting in numerous new bridge structures within this interchange. Bonnet Creek will be realigned in order to move the I-4 bridges out from underneath the Osceola Parkway bridges. The realignment of Bonnet Creek will be accomplished in coordination with the Reedy Creek Improvement District. The creek is a channelized body of water with control structures located throughout, and is a main component of the Walt Disney World Resort Drainage System. The realigned Bonnet Creek will follow a north/south alignment through the interchange crossing under Osceola Parkway 500 feet east of the existing crossing location and again crossing I-4 approximately 1,300 feet north of the existing crossing location. The braided ramp system between Osceola Parkway and SR 535 will be maintained with some modifications. The existing I-4 westbound to Osceola Parkway westbound will be maintained as it is today as a 2-lane off ramp. The existing I-4 westbound to Osceola Parkway eastbound will be maintained as it is today as a 1-lane off ramp. The existing I-4 eastbound to Osceola Parkway westbound will be a 1-lane off ramp, the eastbound movement to Osceola Parkway, which is a stop condition today, will be removed and provided as a separate single lane off ramp. The I-4 eastbound express lane to Osceola Parkway eastbound will be a 1-lane off ramp as well, and will merge with the general use one lane off ramp. Improvements to the Osceola Parkway westbound to I-4 eastbound ramp have also been identified, providing a larger turning radius at this location, as shown in the concept plans. This alternative will require additional right-of-way (8.35 acres), including that which is required for the realignment of Bonnet Creek.

No environmental impacts are anticipated with this proposed interchange. There are no proposed wetland impacts (Bonnet Creek is not a jurisdictional wetland), no listed species involvement, and no contamination was identified for this interchange. No cultural resources will be impacted (SHPO Concurrence Letter dated 6/23/16).

SR 536 Interchange

One interchange alternative was evaluated for SR 536 (see attachment). The proposed alternative would leave the overall existing horizontal geometry as it is, in a partial cloverleaf interchange configuration with loop ramps in the southwest, northeast, and northwest quadrants. The existing 2-lane off ramp from I-4 eastbound will diverge off further northeast than the existing condition and will continue to connect to eastbound SR 536 and the loop ramp to westbound SR 536. It will also be extended to the east of the loop ramp to provide a direct connection to the eastbound express lanes. The existing 2-lane on ramp to I-4 eastbound will merge onto I-4 further southeast than the existing condition and continue to connect to westbound SR 536 and eastbound SR 536. A new single lane ramp will be added to connect eastbound and westbound SR 536 directly to the eastbound express lanes. The existing 2-lane I-4 westbound off ramp will diverge off of I-4 further northwest than the existing condition and will continue to connect to westbound SR 536 and a C-D roadway. The 2-lane westbound I-4 off ramp will split, the left lane will continue to westbound SR536 and the right lane will go to a future proposed road to Buena Vista Drive (Downtown Disney Area). The C-D road merges with ramps from the westbound express lanes, from westbound SR 536, to eastbound SR 536, and from eastbound SR 536 before merging back with westbound I-4. This ramp will merge onto I-4 westbound further north than the existing condition. A new single lane ramp will directly connect the westbound express lanes to westbound SR 536 and the C-D roadway which will provide access to eastbound SR 536. No additional right-of-way will be required to build this interchange.

No environmental impacts are anticipated with this proposed interchange other than floodplains. No wetland impacts, listed species, or contamination will be impacted by this interchange. Floodplain impacts are proposed for this interchange (8.89 acre-feet) which will be offset via a floodplain compensation pond. Cultural resources will not be impacted (SHPO Concurrence Letter 6/23/16).

SR 535 Interchange

Four interchange alternatives were evaluated for SR 535.

Alternative 4 (Recommended Alternative; see attachment) is a modified diamond configuration, which will impact the entire Crossroads Shopping Plaza to the northwest of the current interchange. This alternative will provide a one-way loop road connection to Hotel Plaza Boulevard and a new I-4 westbound off ramp to southbound SR 535 in the northeast quadrant. SR 535 northbound traffic will bridge over and circumnavigate the new loop road to access Hotel Plaza Boulevard, eliminating the existing north to west left turn movements. Additionally, the Hotel Plaza Boulevard eastbound dual left turn lane will be elevated and under signal control at the merge with the SR 535 northbound through lanes. A new westbound C-D road will provide a new two lane off ramp that will diverge into two separate ramps; the right split will be a free flow left turn bridging over SR 535 northbound lanes to provide access to SR 535 southbound and the left split will be at grade signalized dual right turn lanes onto SR 535 northbound.

Similar to the Hotel Plaza Boulevard grade separated intersection, the intersection at the I-4 eastbound off ramp and Vineland Road will also be grade separated. The I-4 eastbound off ramp will connect to SR 535 at grade, SR 535 southbound will cross over the intersection and westbound Vineland Road to southbound SR 535 will also cross over the SR 535 northbound travel lanes. Further south along SR 535, improvements are also proposed at the Meadow Creek Drive intersection. An additional left turn lane is proposed on the west leg to accommodate eastbound to northbound SR 535 left turn traffic. A bicycle lane is also provided along both sides of SR 535.

The Palm Parkway intersection with SR 535 lies north of the Hotel Plaza Boulevard intersection. Improvements are also required at this intersection; as a result all left turns at the Palm Parkway and SR 535 intersection will be prohibited. Left turning traffic will now need to continue straight through the intersection and make a U-turn or turn right onto the intersecting roadway and make a U-turn. Additionally, further north along SR 535, a new quadrant road is proposed to connect to the south leg of the SR 535 and Vinings Way Boulevard intersection. The quadrant road will run parallel to and west of SR 535, connecting Vinings Way Boulevard to Palm Parkway. The quadrant road is needed since the left turns have been prohibited at SR 535 and Palm Parkway. Additional right-of-way will be required to build this interchange (20.42 acres).

There are no proposed wetland and listed species impacts. Floodplain impacts are proposed (2.87 acre-feet) that will be offset via a floodplain compensation pond. One medium risk contamination site was identified for this interchange. Cultural resources will not be impacted (SHPO Concurrence Letter dated 6/23/16).

Daryl Carter Parkway (formerly Lake Drive) Interchange

Three interchange alternatives were evaluated for Daryl Carter Parkway.

Alternative 3 (Recommended Alternative; see attachment) proposes a Diverging Diamond Interchange (DDI). The westbound C-D road provides a 1-lane off ramp from westbound I-4 which diverges to access Daryl Carter Parkway northbound to the right and Daryl Carter Parkway southbound to the left. The I-4 westbound on ramp from Daryl Carter Parkway will connect to the I-4 elevated westbound general use lanes. A single lane off ramp from I-4 eastbound which diverges to two lanes will provide access to Daryl Carter Parkway from I-4 eastbound. The 2-lane I-4 eastbound on ramp from Daryl Carter Parkway will connect to the I-4 eastbound general use lanes; this ramp will be braided in order to eliminate weaving and conflicts with vehicles exiting to Central Florida Parkway. The I-4 westbound general use lanes will bridge over the Daryl Carter Parkway interchange. The I-4 westbound viaduct will begin just east of Daryl Carter Parkway and terminate just east of SR 536. Additional right-of-way will be required to build this interchange (20.56 acres).

A federally listed plant species, the scrub lupine, was identified in the pasture east of I-4 at this interchange location and could be impacted. Consultation with USFWS relating to listed species for I-4 BtU Segment 1 was completed and a Biological Opinion dated August 26, 2016 addressed the potential impacts. Conservation Measure 2 from the BO addressed the scrub lupine. FDOT will be working with the conservation staff from Bok Tower Gardens prior to project construction to collect and relocate the individual scrub lupine plants and seeds (if possible). Bok Tower Gardens participates in the Rare Plant Conservation Program which is a national coalition dedicated to conserving and restoring the rare native plants of the United States of America. When a rare plant population is being impacted by development or other activities, the Rare Plant Conservation Program helps prevent loss of its unique germplasm by collecting seeds or living plants. This will satisfy the requirements of USFWS as documented in the Biological Opinion. There are no wetland impacts at this interchange. One medium risk contamination site was identified in this interchange that could be impacted. Cultural resources will not be impacted (SHPO Concurrence Letter 6/23/16).

An interim build condition for the Daryl Carter Parkway Interchange has been proposed to create an alternative connection to the heavily utilized I-4/SR 535 interchange area prior to the opening of the I-4 BtU Modified Build alternative. An evaluation of the interim build condition at the I-4/Daryl Carter Parkway interchange was conducted for 2020 to be consistent with the assumption that the I-4 BtU Modified Build alternative would be open in 2020. A sensitivity analysis was also conducted to confirm the 2020 analysis findings in the event that the I-4 BtU project is not open until 2030.

The recommended Interim Build alternatives include a diverging diamond interchange (DDI) configuration and a westbound C-D system, consistent with the Modified Build alternative of the I-4 BtU project. The Interim Build alternative assumes existing configurations (i.e., do not assume BtU improvements) at the adjacent ramp junctions.

The recommended alternative is a $\frac{3}{4}$ interchange concept that includes one eastbound off-ramp, one eastbound on-ramp, and one westbound off-ramp at Daryl Carter Parkway with no west-bound on-ramp from Daryl Carter Parkway to I-4, and maintains the existing ramp configurations at SR 535.

The interim interchange project has not yet received approval from FHWA and funding has not yet been secured but is ongoing. Phasing of the construction will be determined once FHWA approval has been granted and the funding source has been solidified.

Central Florida Parkway Interchange

One Interchange alternative was evaluated for Central Florida Parkway (see attachment). The alternative would modify the existing partial interchange into a diamond interchange with a flyover ramp. The existing single lane I-4 eastbound off ramp will diverge off of I-4 further northeast than the existing condition and continue to connect to Central Florida Parkway. A new 2-lane on ramp will connect Central Florida Parkway to I-4 eastbound and will merge onto I-4 at the SR 528/I-4 interchange. A new 2-lane off ramp will connect I-4 westbound to Central Florida Parkway. This ramp will connect to westbound I-4 at the SR 528/I-4 interchange. The existing westbound Central Florida Parkway flyover ramp will continue to merge with the single lane ramp from eastbound Central Florida Parkway then become a braided ramp with a C-D road and continue to connect to westbound I-4 as a single lane on ramp further to the west of the existing connection. Additional right-of-way will be required to build this interchange (3.32 acres).

No wetlands or listed species will be impacted. One medium risk contamination site identified for this interchange that could be impacted. Cultural resources will not be impacted (SHPO Concurrence Letter dated 6/23/16).

Drainage

The original PD&E Study designed the stormwater management system to meet the South Florida Water Management District criteria based upon the Management and Storage of Surface Waters Permit Information Manual, Volume IV (April 1996). The project was divided into 20 basins, and 31 recommended pond sites were proposed. Of these pond sites, 12 were anticipated to have wetland impacts and 3 were expected to have potential listed species impacts (from gopher tortoise burrows), while there was no potential contamination or cultural/historic site involvement.

Stormwater management for the recommended alternative for I-4 BtU Segment 1, the current project reevaluation, will involve collection of runoff by storm sewer systems or roadside ditches and routing to existing or proposed stormwater ponds. There are a total of 39 basins within the project limits which will require 74 existing or proposed ponds to achieve water quality treatment and attenuation of project runoff. Additionally, 13 floodplain compensation ponds are proposed to compensate for floodplain impacts. The I-4 BtU Segment 1 project was designed using the South Florida Water Management District Basis of Review for Environmental Resource Permits (2012) and the 2015 FDOT Drainage Design Manual.

There are 36 basins within the project that discharge to either Davenport Creek, a tributary of Davenport Creek, adjacent wetlands or Bonnet Creek, which ultimately discharges to the Reedy Creek Drainage Basin. The basin limits start at west of CR 532 (Osceola/Polk County Line) and end just east of the SR 535 Interchange. A combination of 70 existing and proposed pond sites will provide water quality treatment and peak discharge attenuation from the beginning of the project to east of the SR 535 Interchange. All of the basins are open and treatment will be provided in wet detention ponds. This section of I-4 includes interchanges with CR 532, SR 429/Western Beltway, World Drive, SR 417, SR 530, Osceola Parkway, SR 536 and SR 535. Most of the existing interchange ponds will be used and re-graded as necessary, supplemented by additional ponds requiring the acquisition of right-of-way.

The remaining 3 basins within the project discharge to Black Lake, adjacent ditches or Big Sand Lake, which ultimately discharge to the Shingle Creek Drainage Basin. A combination of 4 existing and proposed pond sites will provide water quality treatment and peak discharge attenuation from east of the SR 535 Interchange to west of the SR 528 Interchange. This section of I-4 includes the interchange with Daryl Carter Parkway (formerly Lake Drive) and Central Florida Parkway. Generally, the proposed pond sites are the existing ponds, the Daryl Carter Parkway overpass ponds, and the remnant area between I-4 and Turkey Lake Road. There will be floodplain impacts from the proposed improvements. Further details are documented in the *Pond Siting Report* (March 2016) prepared for this study update and reevaluation.

The I-4 BtU Segment 1 proposed pond sites and pond changes are as follows:

Pond Site FPC 100

Pond Site FPC 100 is located to the west of I-4, south of the Champions Gate interchange, north of Ronald Reagan Parkway. This is a proposed new floodplain compensation pond providing 6.41 acre-feet of compensation volume which did not have an equivalent pond site in the original PD&E Study. The existing site is an active cattle pasture with fallow citrus trees, some scrub live oak and some cabbage palm, with prickly pear, beauty berry, Bahia grass, and various weedy herbaceous species. The eastern portion of the site consists of a portion of a forested wetland system that continues off site. The pond site proposes minor wetland impacts (2.14 acres), has no listed species involvement, and no cultural resource impacts (SHPO Concurrence Letter 6/23/16). The site was given a medium risk contamination rating based upon its potential historical involvement in citrus operations. The pond site will require right-of-way acquisition.

Pond Site 100

Pond Site 100 is located to the east of I-4, just north of the Ronald Reagan Parkway overpass and includes an existing pond which will be enlarged to meet the needs of the basin. The existing pond is about half open water and half cattails and is surrounded by primrose, maidencane, torpedo grass, salt bush, and wax myrtle. This pond site was not proposed to be involved in the original PD&E Study. The use of this site for a pond will involve wetland impacts (3.6 acres) and surface water impacts (0.19 acres), though it has no listed species involvement, no cultural resource impacts (SHPO Concurrence Letter 6/23/16), and no contamination impacts. The pond site will not require right-of-way acquisition.

Pond Site FPC 101A

Pond Site FPC 101A is located to the east of I-4, southeast of the Osceola Polk Line Road/Champions Gate Boulevard. This is a proposed new floodplain compensation pond providing 2.78 acre-feet of compensation volume with no equivalent in the original PD&E Study. The existing site is an active cattle pasture comprised primarily of a few scattered fallow citrus trees, some scrub live oak and some cabbage palm, with prickly pear, lantana, blue lupine, Bahia grass, and various weedy herbaceous species. The southern portion of the proposed site is a wetland comprised primarily of laurel oak, slash pine, sweet bay, and cypress. The use of this pond will involve wetland impacts (1.02 acres), but has no listed species involvement or cultural resource impacts (SHPO Concurrence Letter 6/23/16). The pond site could impact contamination (given a medium ranking) due to its historical involvement in citrus operations. The pond

site will require right-of-way acquisition.

Pond Site 101A

Pond Site 101A is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the southwest quadrant. This is an existing pond that is proposed to be reconfigured which occurs in the same general location as Pond Site 57.6 from the original PD&E Study. The pond site is primarily maintained open water with a fountain in the middle and St. Augustine grass around the banks. There are no wetland impacts, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and no contamination involvement. Several burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101B

Pond Site 101B is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the southwest quadrant. This is a proposed new pond site that occurs in the same general location as Pond Site 57.6 from the original PD&E Study. The pond site is primarily mowed St. Augustine grass with a few planted cabbage palms. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource impacts (SHPO Concurrence Letter dated 6/23/16) and no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101C

Pond Site 101C is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the northwest quadrant. This is a proposed new pond site which did not have an equivalent pond site in the original PD&E Study. The pond site is primarily mowed St. Augustine grass with a few planted cabbage palms. No environmental impacts will occur from the new pond. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource impacts (SHPO Concurrence Letter dated 6/23/16), and no contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101D

Pond Site 101D is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the northwest quadrant. This is an existing pond that is proposed to be reconfigured occurring in approximately the same location as Pond Site 57.8 from the original PD&E Study. The pond site is primarily maintained open water with a fountain and St. Augustine grass with some planted cabbage palms on the banks. The pond site will have no environmental impacts. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource impacts (SHPO Concurrence Letter dated 6/23/16), and no contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101E

Pond Site 101E is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4

interchange in the southeast quadrant. This is a proposed new pond site which did not have an equivalent pond site in the original PD&E Study. The pond site is primarily mowed Bahia grass with portions of compacted milled asphalt. The existing ramp from I-4 eastbound to Osceola Polk Line Road/Champions Gate Boulevard is located within the footprint of this proposed pond site. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource impacts (SHPO Concurrence Letter dated 6/23/16), and no contamination impacts. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101F

Pond Site 101F is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the southeast quadrant. This is a proposed new pond site which did not have an equivalent pond site in the original PD&E Study. The pond site is primarily mowed Bahia grass. A portion of the existing ramp from I-4 eastbound to eastbound Osceola Polk Line Road/Champions Gate Boulevard is located within the footprint of this proposed pond site. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and no contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 101G

Pond Site 101G is located within the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange in the northeast quadrant. This is a proposed new pond site which did not have an equivalent pond site in the original PD&E Study. The pond site is primarily mowed Bahia grass with portions of compacted milled asphalt. The existing ramp from Osceola Polk Line Road/Champions Gate Boulevard to eastbound I-4 is located within the footprint of this proposed pond site. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 102

Pond Site 102 is located to the east of the roadway, just north of the Osceola Polk Line Road/Champions Gate Boulevard and I-4 interchange. This is an existing pond and no modifications or expansions are proposed and corresponds to Pond Site 58.3 from the original PD&E Study. The pond site is primarily open water with mixed submerged aquatic vegetation. A mix of cattails, Carolina willow, arrowhead, pickerel weed, and wax myrtle are present along the edges, and the banks are composed of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 102

Pond Site FPC 102 is located east of I-4, along Kemp Road. This is a proposed new floodplain compensation pond providing 3.36 acre-feet of compensation volume and has no corresponding pond in the original PD&E Study. The site is entirely wooded with a mix of slash pine, red maple, sweet gum, laurel oak, and cabbage palm. This site is located next to the Austin Outdoor, Reunion Development

Parcel which has several identified contamination issues resulting in this pond site being given a medium risk rating. The pond site proposes minor wetland impacts (2.95 acres), has no listed species involvement, and no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). This pond will require additional right-of-way acquisitions.

Pond Site 103

Pond Site 103 is located to the west of I-4, between Osceola Polk Line Road/Champions Gate Boulevard and SR 429. This is an existing pond originally designed to provide floodplain compensation that has additional compensation volume for the project. It will provide 12.95 acre-feet of compensation volume and corresponds to Pond Site 58.8 in the original PD&E Study. The pond site is primarily open water with cattails and torpedo grass almost completely lining the pond out about twenty feet. Primrose, elderberry, wax myrtle, salt bush, Carolina willow, and red maple are present along the edges, and the banks are composed of mowed Bahia grass. The pond site proposes minor wetland impacts (0.21 acres). Several burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. There is no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16) and no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 103A

Pond Site FPC 103A is located east of I-4, just south of the Tradition Boulevard overpass in Reunion Resort and Davenport Creek within the Austin Outdoor, Reunion Development Parcel. This is a proposed new floodplain compensation pond providing 2.72 acre-feet of compensation volume and does not have an equivalent pond site in the original PD&E Study. The site is split by an unnamed dirt road running south to north. The site is an entirely open field with a mix of grasses and weedy herbaceous species. The pond site proposed minor wetland impacts (0.06 acres). Several burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. There is no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 104

Pond Site 104 is located along southbound SR 429, just north of the interchange with I-4. This is an existing pond and no modifications or expansions are proposed and did not have an equivalent pond site in the original PD&E Study. The pond is about half open water and half covered with cattails. It is surrounded by primrose, Carolina willow, wax myrtle, red maple, and salt bush, with mowed Bahia grass and planted sweet gum on the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 105A

Pond Site FPC 105A is located south of the interchange of SR 429 with Sinclair Road. This is a proposed

new floodplain compensation pond providing 29.99 acre-feet of compensation volume with no corresponding pond site in the original PD&E Study. The majority of the site has a moderately open canopy which consists of thinned planted pine with a few clusters of oaks. Field surveys and cover board surveys determined the presence of the federally listed sand skink. Formal consultation with the USFWS was initiated in March 2016 to determine the extent of occupied habitat and the required compensatory mitigation. It was determined that 10.0 acres of occupied sand skink habitat occur on this pond site as documented in the issued Biological Opinion dated August 26, 2016. FDOT has agreed to mitigate for the impacts at a 2:1 ratio at a USFWS approved sand skink conservation bank. Numerous (approximately 50) burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. The pond site does not propose any wetland impacts and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). The pond site was given a medium contamination risk rating for its potential historical involvement in citrus operations. Additional right-of-way will be required for this pond site.

Pond Site 105A

Pond Site 105A is located within the SR 429 and I-4 interchange in the southwest quadrant. This is an existing pond that is proposed to be re-graded and corresponds to Pond Site 59.5 from the original PD&E Study. The pond site is almost completely covered with cattails and has Carolina willow and saltbush with planted cypress and red maple around its edges. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 105B

Pond Site 105B is located within the SR 429 and I-4 interchange in the northwest quadrant. This is an existing pond that is proposed to be reduced and re-graded and corresponds to Pond Site 59.6 from the original PD&E Study. The pond site is completely dominated by cattails and has very little open water. The perimeter of the pond is primarily composed of Carolina willow, saltbush, planted cypress and red maple with cordgrass and mowed Bahia grass around its edges. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 106A

Pond Site 106A is located within the SR 429 and I-4 interchange in the southeast quadrant. This is an existing pond that is proposed to be reduced and re-graded and corresponds to Pond Site 59.5 from the original PD&E Study. The pond site is almost completely covered with cattails and has Carolina willow, saltbush, and planted cypress and red maple around its edges. The pond site does not propose any wetland impacts, has no listed species involvement, and no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). The pond site was given a medium contamination risk rating based upon its location within a delineated area of groundwater contamination plume known from the agricultural pesticide EDB. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 106B

Pond Site 106B is located to the east of the I-4 eastbound onramp to SR 429. This is an existing pond that is proposed to be reduced and re-graded with no corresponding pond site from the original PD&E Study. The pond site has some open water with mixed submerged aquatic vegetation. The perimeter of the pond is primarily composed of cattails, Carolina willow, and torpedo grass with mowed Bahia grass and planted cypress and red maple around the banks. The pond site does not propose any wetland impacts and also has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). Several burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. The pond site was given a medium contamination risk rating based upon its location within a delineated area of groundwater contamination plume known from the agricultural pesticide EDB. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 107

Pond Site 107 is located to the east of the SR 429 ramp to eastbound I-4. This is an existing pond and no modifications or expansions are proposed. It does not have a corresponding pond site in the original PD&E Study. The pond site is dominated by cattails with very little open water. The perimeter of the pond is primarily composed of cattails, Carolina willow, saltbush and dog fennel with mowed Bahia grass and planted cypress and red maple around the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 108A

Pond Site 108A is located within the SR 429 and I-4 interchange in the northeast quadrant. This is an existing pond that is proposed to be expanded and re-graded and corresponds with Pond Site 59.5 from the original PD&E Study. The pond site is primarily composed of cattails, with Carolina willow, wax myrtle, saltbush, planted cypress and red maple around its edges. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 108B

Pond Site 108B is located to the east of the ramp from southbound SR 429 to eastbound I-4. This is a proposed new pond site with no corresponding pond site in the original PD&E Study. The existing site is primarily composed of live oak, slash pine, red maple, cabbage palm, and saw palmetto with some persimmon, sand pine, beauty berry, salt bush, and Carolina willow. The pond site proposes minor wetland impacts (2.8 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 109

Pond Site 109 is located to the west of the roadway, just north of the Old Lake Wilson Road overpass. This is an existing pond that is proposed to be expanded and re-graded and corresponds to Pond Site 60.4 from the original PD&E Study. The pond is mostly open water with mixed submerged aquatic vegetation. The pond is surrounded by cattails and torpedo grass with some salt bush, wax myrtle, primrose, cogon grass and broomsedge with mowed Bahia grass on the banks and berms. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 109

Pond Site FPC 109 is located to the east of I-4, between the SR 429 and World Drive interchanges. This is an existing borrow pit that is proposed to be a floodplain compensation pond providing 24.43 acre-feet of compensation volume with no corresponding pond site in the original PD&E Study. The pond is mostly open water surrounded by some cattails, torpedo grass, and sawgrass. The wooded area around the pond is primarily composed of slash pine, sweet bay, laurel oak, red maple, and saw palmetto. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 110

Pond Site 110 is located to the west of I-4, southwest of the I-4 and World Drive interchange. This is an existing pond that is proposed to be expanded and corresponds to Pond Site 61.0 from the original PD&E Study. The pond is mostly open water surrounded by cattails and torpedo grass with some patches of arrowhead and maidencane. The banks are overgrown with a mix of slash pine, salt bush, wax myrtle, laurel oak, and red maple with patches of cogon grass and Carolina willow. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 111

Pond Site 111 is located to the east of I-4, just south of the southern terminus of Celebration Boulevard. This is an existing pond with no proposed alterations or modifications and has no corresponding pond site from the original PD&E Study. The pond site consists of open water surrounded by a mix of torpedo grass, cattails, and sedges, with some patches of Carolina willow, primrose, and wax myrtle. The banks are overgrown with a mix of salt bush, wax myrtle, red maple, cogon grass, and Caesar weed. Bahia grass dominates the upper banks surrounding the pond. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 112A

Pond Site 112A is located within the I-4 and World Drive interchange, in the southwest quadrant, just

south of Pond Site 112B. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water that is surrounded by torpedo grass and arrowhead with some patches of cattails, wax myrtle, primrose, and fire flag. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 112B

Pond Site 112B is located within the I-4 and World Drive interchange, in the southwest quadrant, within the ramp from westbound I-4 to southbound World Drive. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water that is surrounded by torpedo grass and arrowhead with some patches of salt bush, wax myrtle, and Carolina willow. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 112C

Pond Site 112C is located within the I-4 and World Drive interchange, in the World Drive median to the west of I-4. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water that is surrounded by torpedo grass and arrowhead, with some patches of cattails and primrose. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 112D

Pond Site 112D is located within the I-4 and World Drive interchange, in the northwest quadrant. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water with a mix of submerged aquatic vegetation. The pond is surrounded by a mix of cattails, Carolina willow, primrose and arrowhead, with some torpedo grass, cogon grass, wax myrtle, and salt bush. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 112E

Pond Site 112E is located within the I-4 and World Drive interchange, in the southwest quadrant, just west of Pond Site 112B. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water that is mostly

surrounded by torpedo grass and arrowhead with some Carolina willow, primrose, wax myrtle, and salt bush. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113A

Pond Site 113A is located within the I-4 and World Drive interchange, in the southeast quadrant. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water with a mix of submerged aquatic vegetation. The pond is surrounded by a mix of torpedo grass, primrose, and arrowhead. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113B

Pond Site 113B is located within the I-4 and World Drive interchange, in the World Drive median east of I-4. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water with a mix of submerged aquatic vegetation. The pond is surrounded by a mix of torpedo grass, cattails, and arrowhead, with some patches of Carolina willow. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113C

Pond Site 113C is located within the I-4 and World Drive interchange, within the ramp from eastbound I-4 to northbound World Drive. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water with heavy growth of hydrilla. The pond is surrounded by a mix of torpedo grass and arrowhead, with some patches of primrose and wax myrtle. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113D

Pond Site 113D is located within the I-4 and World Drive interchange, in the northeast quadrant, just north of Pond Site 113C. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site in the original PD&E Study. The pond site consists of open water with a mix of submerged aquatic vegetation. The pond is surrounded by a mix of torpedo grass, cattails, and arrowhead, with some patches of Carolina willow and wax myrtle. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no

cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113E

Pond Site 113E is located within the I-4 and World Drive interchange, in the northeast quadrant between Pond Sites 113C and 113G. This is a proposed new pond and does not have a corresponding pond site in the original PD&E Study. The current site consists entirely of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113F

Pond Site 113F is located within the I-4 and World Drive interchange, in the World Drive median to the east of I-4 and east of the eastbound on-ramp to I-4 from southbound World Drive. This is a proposed new pond and does not have a corresponding pond site in the original PD&E Study. The current site consists entirely of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 113G

Pond Site 113G is located within the I-4 and World Drive interchange, between the eastbound on-ramps to I-4 from World Drive. This is an existing pond that is proposed to be re-graded and does not have a corresponding pond site from the original PD&E Study. The pond site consists of open water surrounded by torpedo grass with some arrowhead, primrose, cattails, and Carolina willow. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 114A

Pond Site 114A is located to the west of I-4 between the interchanges at World Drive and SR 417. This is an existing pond with no proposed modifications or alterations and does not have a corresponding pond site in the original PD&E Study. The pond is dominated by white water lily with very little open water. Cattails and torpedo grass completely surround the pond with some arrowhead, slash pine, and wax myrtle present along the edges. The banks mostly consist of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 114B

Pond Site 114B is located to the west of I-4 between the interchanges at World Drive and SR 417. This is

an existing pond with no proposed modifications or expansions and does not have a corresponding pond site from the original PD&E Study. The pond site consists of open water with some patches of white water lily and is completely surrounded by cattails. Some torpedo grass, arrowhead, and sedge are present along the edges and the banks consist of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 114A

Pond Site FPC 114A is located to the west of I-4 between the interchanges at World Drive and SR 417. This is an existing floodplain compensation pond and no modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The existing floodplain compensation pond is almost completely covered by white water lily. The edges of the pond primarily consist of small patches of sedge, cattail, torpedo grass, wax myrtle and slash pine. The banks of the pond are comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 114B

Pond Site FPC 114B is located to the west of I-4 between the interchanges at World Drive and SR 417. This is an existing floodplain compensation pond and no modifications or expansions are proposed; no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water with dense patches of white water lily. The edges of the pond primarily consist of torpedo grass with some patches of pickerel weed. The banks are comprised of mowed Bahia grass with some wax myrtle and slash pine. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 114C

Pond Site FPC 114C is located to the west of I-4 between the interchanges at World Drive and SR 417. This is a proposed new floodplain compensation pond providing 39.57 acre feet of compensation volume with no corresponding pond site in the original PD&E Study. The majority of the proposed site is open pasture, but also includes a small area of cypress wetland in the southwest corner. The open pasture is primarily composed of mixed grasses and weedy herbaceous species with slash pine, longleaf pine and saw palmetto, with some red maple, Dahoon holly, sweet gum, jessamine, and wild grape vine. The cypress area of the proposed expansion area is primarily comprised of bald cypress, red maple, sweet bay, and wax myrtle. The pond site proposes minor wetland impacts (0.3 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 115

Pond Site 115 is located east of I-4, east of Celebration Boulevard. This is an existing pond and no modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The pond site consists of open water that is completely covered with duckweed and water fern with large floating patches of cattail, primrose, and sedges. The banks consist of a mix of Carolina willow, red maple, sweet gum, slash pine, wax myrtle, and mixed herbaceous species. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 116

Pond Site 116 is located west of I-4, between the interchanges at World Drive and SR 417. This is a fenced existing pond and no modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water with mixed submerged aquatic vegetation and is surrounded by dense growths of cattails. The edges of the pond are overgrown and are comprised of a mix of wax myrtle, red maple, salt bush, and elderberry with heavy growth of cogon grass along the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 117

Pond Site 117 is located within the interchange of I-4 and SR 417, just east of I-4. This is an existing pond and no modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water with mixed submerged aquatic vegetation. The edges of the pond primarily consist of mowed Bahia grass, with small patches of torpedo grass, arrowhead, southern water grass, wax myrtle, and elderberry. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 118

Pond Site 118 is located within the interchange of I-4 and SR 417, just west of I-4. This is a fenced existing pond that is proposed to be reduced and re-graded; no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water with mixed submerged aquatic vegetation. The edges of the pond primarily consist of torpedo grass and arrowhead with a mix of cogon grass, Bahia grass and broomsedge along the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 119A

Pond Site 119A is located to the west of I-4 and SR 417 interchange. This is an existing pond and no

modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water with mixed submerged aquatic vegetation. The edges of the pond primarily consist of cattails, with patches of torpedo grass, southern water grass, arrowhead, and rattlebox. The banks are comprised of mowed Bahia grass with some wax myrtle. The pond site proposes minor wetland impacts (0.01 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 119B

Pond Site 119B is located to the northwest of I-4 and SR 417 interchange. This is an existing pond and no modifications or expansions are proposed; no corresponding pond site was evaluated in the original PD&E Study. The pond consists of floating mats of sedge and cattail with very little open water. The edges of the pond consist of heavy growth of cattails with some pickerel weed, arrowhead, and bacopa. The banks are primarily comprised of mowed Bahia grass with some rattlebox and rush. The pond site proposes minor wetland impacts (0.02 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 120

Pond Site 120 is located within the interchange of I-4 and SR 417, just east of I-4. This is a fenced existing pond that is proposed to be reconfigured and no corresponding pond site was evaluated during the original PD&E Study. The pond is dominated by bulrush with very little open water and is surrounded by arrowhead with some patches of Carolina willow, cattails, pickerel weed, cordgrass, and bacopa. The banks of the pond primarily consist of Bahia grass and cogon grass, with some salt bush and wax myrtle. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 121A

Pond Site 121A is located within the interchange of I-4 and US 192, in the southwest quadrant to the west of Pond 121B. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water surrounded by cattails and torpedo grass with some patches of primrose, arrowhead, and Carolina willow. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 121B

Pond Site 121B is located within the interchange of I-4 and US 192, within the westbound ramp from I-4 to eastbound US 192. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water surrounded by cattails with some torpedo grass and primrose. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural

resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 122A

Pond Site 122A is located within the interchange of I-4 and US 192, within the eastbound ramps from I-4 to US 192. This is a proposed new pond with no corresponding pond site in the original PD&E Study. The pond site consists entirely of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement, (SHPO Concurrence Letter dated 6/23/16) and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 122B

Pond Site 122B is located within the interchange of I-4 and US 192, just east of I-4 and south of US 192. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water surrounded by cattails with some patches of sedge, white water lily and salt bush. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 122C

Pond Site 122C is located within the interchange of I-4 and US 192, along the eastbound ramp from I-4 to eastbound US 192, just south of US 192. This is a proposed new pond with no corresponding pond site in the original PD&E Study. The current site consists of mowed Bahia grass with several swales that have a mix of arrowhead, torpedo grass, cattails, and primrose. The pond site proposes minor wetland impacts (0.26 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 123

Pond Site 123 is located within the interchange of I-4 and US 192, west of I-4 and just north of US 192. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water surrounded by cattails and torpedo grass with some patches of primrose, arrowhead, and cogon grass, and mowed Bahia grass on the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 124

Pond Site 124 is located within the interchange of I-4 and US 192, between the westbound ramps from I-4 to US 192. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water surrounded by cattails and torpedo grass with some patches of primrose, arrowhead and cogon grass, with mowed Bahia grass on the

banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 125

Pond Site 125 is located within the interchange of I-4 and US 192, within the eastbound ramp from I-4 to westbound US 192. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water surrounded by cattails with patches of phragmites, torpedo grass, Carolina willow, cogon grass, primrose, wax myrtle, and salt bush. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 126

Pond Site 126 is located within the interchange of I-4 and US 192, just to the north of the eastbound ramp from I-4 to westbound US 192, east of I-4. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated in the original PD&E Study. The pond consists of open water surrounded by cattails with patches of torpedo grass, Carolina willow, wax myrtle, and salt bush. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 127

Pond Site 127 is located southwest of the westbound on-ramp from Osceola Parkway to I-4. This is an existing pond and no modifications or expansions are proposed; no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water with heavy growth of hydrilla. The edges of the pond are surrounded by torpedo grass with sparse patches of cattails, arrowhead, and rattlebox, with mowed Bahia grass on the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 128A

Pond Site 128A is located within the Osceola Parkway and I-4 interchange between Pond Sites 127 and 128B. This is an existing pond that is proposed to be re-graded and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water with a heavy growth of hydrilla that is surrounded by torpedo grass and alligator weed and sparse patches of cattails and spatterdock. The banks primarily consist of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 128B

Pond Site 128B is located within the Osceola Parkway and I-4 interchange along the westbound ramp from I-4 to eastbound Osceola Parkway. This is an existing pond and no modifications or expansions are proposed; and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water with patches of white water lily and is surrounded by torpedo grass and patches of pickerel weed. The banks primarily consist of mowed Bahia grass with some patches of planted cypress. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 129

Pond Site 129 is located northwest of the westbound ramp from I-4 to Osceola Parkway. This is an existing pond and no modifications or expansions are proposed; and no corresponding pond site was evaluated during the original PD&E Study. The pond consists of open water with dense patches of white water lily. The edges of the pond are comprised of a mix of cattails, primrose, and salt bush with some patches of wax myrtle, and mowed Bahia grass on the banks. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 130

Pond Site 130 is located within the Osceola Parkway and I-4 interchange in the northeast quadrant. This is an existing pond which is proposed to be reduced in size and partially re-graded; and no corresponding pond site was evaluated during the original PD&E Study. The pond is mostly open water with heavy growth of hydrilla and patches of white water lily. The edges of the pond are comprised of cattails, Carolina willow and primrose, with planted cabbage palm and cypress. The banks are primarily comprised of mowed Bahia grass. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 130A

Pond Site 130A is located west of I-4, just north of the Osceola Parkway interchange. This is a proposed new pond site, which is currently a channelized portion of Bonnet Creek with no corresponding pond site from the original PD&E Study. The creek is mostly open water with some primrose and torpedo grass along the edges. The banks are primarily comprised of mowed Bahia grass. Bonnet Creek will be re-routed to the east of the current location. This re-alignment of Bonnet Creek is being proposed in coordination with the Reedy Creek Improvement District which utilizes this surface water as part of its master stormwater system. The pond site proposes minor wetland impacts (0.73 acres), surface water impacts (3.73 acres), though has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 131A

Pond Site 131A is located within the braided ramps of westbound I-4, to the south of the SR 536 and I-4 interchange. This is an existing pond that is proposed to be reconfigured with no corresponding pond site from the original PD&E Study. The pond is mostly open water with heavy growth of hydrilla and is surrounded by thick growth of torpedo grass and cattails with some pickerel weed, arrowhead, and planted cypress. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 131B

Pond Site 131B is located to the east of the right-of-way, just south of the SR 536 and I-4 interchange. This is an existing pond that is proposed to be reconfigured with no corresponding pond site from the original PD&E Study. The borrow pit is mostly open water surrounded by cattails, torpedo grass, slash pine, longleaf pine, saw palmetto, beauty berry, wax myrtle, and red maple. The portions that are proposed for expansion are primarily slash pine and longleaf pine with saw palmetto and some red bay and cypress. The pond site proposes minor wetland impacts (1.24 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site FPC 132

Pond Site FPC 132 is located within the braided ramps of westbound I-4, just south of the SR 536 and I-4 interchange. This is a proposed new floodplain compensation pond with no corresponding pond site from the original PD&E Study. The existing site is mostly wetland with a mix of slash pine, pond pine, red maple, cypress, wax myrtle, primrose, and Carolina willow. Mowed Bahia grass is located along the ramp to the southwest of the forested area. The pond site proposes minor wetland impacts (1.37 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 132

Pond Site 132 is located within the SR 536 and I-4 interchange in the southwest quadrant. This is a proposed new pond site corresponding to Pond Site 66.6 from the original PD&E Study. The existing site is forested with a mix of slash pine, long leaf pine, pond pine, red maple, and red bay with an understory dominated by saw palmetto and some elderberry, wax myrtle, and various species of vines and ferns. Wetland impacts are proposed for this pond site (9.81 acres) though these wetlands have been degraded in quality as they are isolated within the footprint of the cloverleaf interchange. The pond site has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site FPC 133

Pond Site FPC 133 is located within the braided ramps of eastbound I-4, just south of the SR 536 and I-4 interchange. This is a proposed new floodplain compensation pond with no corresponding pond site from the original PD&E Study. Together with FPC 132, the two ponds provide 12.20 acre-feet of compensation volume. The existing site is mostly wetland with heavy growth of Brazilian pepper and some red maple, cabbage palm, slash pine, pond pine, saw palmetto, red bay, and salt bush with patches of wild taro, blackberry, and various species of ferns. The pond site proposes some wetland impacts (3.41 acres), though these wetlands have been degraded in quality as they are isolated within the existing footprint of the interchange. The proposed pond site has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 133

Pond Site 133 is located within the SR 536 and I-4 interchange in the southeast quadrant. This is a proposed new pond and corresponds to Pond Site 66.5 from the original PD&E Study. The existing site is forested with a mix of slash pine, long leaf pine, and red maple with an understory dominated by saw palmetto with some gallberry, St. John's wort, red root, salt bush, wax myrtle, and wild grape. Wetland impacts are proposed for this pond site (10.05 acres) though these wetlands have been degraded in quality as they are isolated within the footprint of the cloverleaf interchange. The pond site has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 134

Pond Site 134 is located within the SR 536 and I-4 interchange in the northwest quadrant. This is a proposed new pond site corresponding to Pond Site 66.7 from the original PD&E Study. The existing site is forested with a mix of pond pine and slash pine, with some red maple, red bay, sweet bay, and wax myrtle. The understory is dominated by saw palmetto with some Brazilian pepper, Chinese tallow, cogon grass, Carolina willow, and elderberry. Wetland impacts are proposed for this pond site (11.58 acres) though these wetlands have been degraded in quality as they are isolated within the footprint of the cloverleaf interchange. The pond site has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 135

Pond Site 135 is located within the SR 536 and I-4 interchange in the northeast quadrant. This is a proposed new pond site corresponding to Pond Site 66.8 from the original PD&E Study. The existing site is forested with a mix of slash pine, pond pine, red maple, and red bay with an understory dominated by saw palmetto and some gallberry, St. John's wort, red root, Brazilian pepper, salt bush, wax myrtle, and blackberry. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 136B

Pond Site 136B is located on the east side of the right-of-way, to the north of the SR 536 and I-4 interchange. This is a proposed new pond site with no corresponding pond site from the original PD&E Study. The site is mostly forested with some openings which are dominated by cogon grass. The site is composed of a mix of cabbage palm, laurel oak, water oak, golden raintree, and longleaf pine with unmaintained weedy herbaceous species. The pond site does not propose any wetland impacts, has no listed species involvement, and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). This pond site was given a medium contamination risk rating, though subsequent analysis from the *Level 2 Contamination Assessment Report* (March 2015) determined that the soils and groundwater have not been impacted and would not require special handling, characterization, and disposal provisions. Additional right-of-way will be required for this pond site.

Pond Site 137

Pond Site 137 is located within the SR 535 and I-4 interchange, east along the ramp from eastbound I-4 to SR 535. This is a proposed new pond site with no corresponding pond site in the original PD&E Study. The existing site is mostly planted pine with Bahia grass and mixed weedy herbaceous species. The pond site does not propose any wetland impacts, though will result in minor surface water impacts (0.75 acres). It has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 137A

Pond Site 137A is located within the SR 535 and I-4 interchange, at the off-ramp from eastbound I-4 to SR 535. This pond site is proposed to be reconfigured with no corresponding pond site in the original PD&E Study. The existing pond has some open water with a mix of various submerged aquatic vegetation and patches of cattails and white water lily in the middle. The edges of the pond are dominated by cattails and Carolina willow with some primrose, salt bush, and wax myrtle. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 137B

Pond Site 137B is located within the SR 535 and I-4 interchange, at the northwest corner. This is a proposed new pond site with no corresponding pond site in the original PD&E Study. The site is primarily comprised of a mix of wax myrtle, Carolina willow, elderberry, cabbage palm, cattail, and primrose. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. This pond is within the existing right-of-way and will not require further acquisitions.

Pond Site 138

Pond Site 138 is located west of I-4 in the Crossroads Shopping Plaza, just north of the SR 535 and I-4

interchange. This is one of three proposed new pond sites in the Crossroads Shopping Plaza with no corresponding pond site in the original PD&E Study. The existing area for this pond site includes Red Lobster, Taco Bell, and Johnnie's Hideaway restaurants, as well as an existing pond for the Crossroads Shopping Plaza. The existing pond is mostly open water surrounded by mowed St. Augustine grass with an area of arrowhead, torpedo grass, and button bush. The remaining portion of the site is primarily composed of an asphalt parking lot with landscaped vegetation. The pond site does not propose any wetland impacts, has no listed species involvement, and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). This pond site was given a medium contamination risk rating due to the amount of business currently located on the proposed pond. Additional right-of-way will be required for this pond site.

Pond Site 138A

Pond Site 138A is located west of I-4 in the Crossroads Shopping Plaza, just north of the SR 535 and I-4 interchange. This is one of three proposed new pond sites in the Crossroads Shopping Plaza with no corresponding pond site in the original PD&E Study. The existing area includes McDonalds, Chevys, Buffalo Wild Wings, and The Knife restaurants. The site is primarily composed of an asphalt parking lot with landscaped vegetation. The pond site does not propose any wetland impacts, has no listed species involvement, and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). This pond site was given a medium contamination risk rating due to the amount of business currently located on the proposed pond. Additional right-of-way will be required for this pond site.

Pond Site 138B

Pond Site 138B is located west of I-4 in the Crossroads Shopping Plaza, just north of the SR 535 and I-4 interchange. This is one of three proposed new pond sites in the Crossroads Shopping Plaza with no corresponding pond site in the original PD&E Study. The existing area includes the Sweet Tomatoes restaurant, Pirate's Cove Mini Golf, and Gooding's Supermarket. The site is primarily composed of an asphalt parking lot with landscaped vegetation. The pond site proposes minor wetland impacts (0.82 acres), has no listed species involvement, and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). This pond site was given a medium contamination risk rating due to the amount of business currently located on the proposed pond. Additional right-of-way will be required for this pond site.

Pond Site FPC 138

Pond Site FPC 138 is located west of I-4, west of South Apopka Vineland Road, behind a row of restaurants. This new pond site providing 3.50 acre-feet of compensation volume with no corresponding pond site from the original PD&E Study is densely vegetated and is mostly comprised of Carolina willow, elderberry, primrose, red maple, and laurel oak. The pond site proposes minor wetland impacts (1.41 acres), has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 139A

Pond Site 139A is located along the east side of I-4, just south of the Daryl Carter Parkway overpass. This

pond site is proposed to be reconfigured with no corresponding pond site in the original PD&E Study. The pond is mostly open water with some patches of hydrilla and spatterdock. Some cattails, torpedo grass and primrose are present around the edges. The banks of the existing pond are primarily comprised of mowed Bahia grass. An active cattle pasture composed primarily of Bahia grass and prickly pear is located to the east of the existing pond, where expansion is proposed. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 139B

Pond Site 139B is located along the east side of I-4, just north of the Daryl Carter Parkway overpass. This pond site is proposed to be reconfigured and has no corresponding pond site in the original PD&E Study. The pond is mostly open water with some cattails, torpedo grass, Carolina willow and primrose around the edges. The banks of the existing pond are primarily comprised of mowed Bahia grass with some areas of castor bean. An active cattle pasture composed primarily of Bahia grass and prickly pear with some scrub lupine is located to the east of the existing pond, where expansion is proposed. The pond site does not propose any wetland impacts, has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. The scrub lupine, a federally listed plant species, was observed in the cattle pasture at this pond site. Based upon the recommendations of USFWS staff, FDOT will coordinate with the conservation staff from Bok Tower Gardens prior to project construction to collect and relocate the individual scrub lupine plants and seeds (if possible). This will satisfy the requirements of USFWS and is documented in the Biological Opinion dated August 26, 2016. Additional right-of-way will be required for this pond site.

Pond Site 140

Pond Site 140 is located along the west side of I-4, just north of the Daryl Carter Parkway overpass. This pond site is proposed to be reconfigured and has no corresponding pond site in the original PD&E Study. The existing pond is mostly open water with some cattails, torpedo grass, Carolina willow and primrose around the edges. The banks are primarily comprised of mowed Bahia grass. The area to the west of the existing pond is mostly scrub live oak with some sand pine, longleaf pine, and saw palmetto. The pond site does not propose any wetland impacts, has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond.

Pond Site FPC 141

Pond Site FPC 141 is located east of the right-of-way, north of the Daryl Carter Parkway overpass at the end of Lake Willis Drive. This is a proposed new floodplain compensation pond providing 1.92 acre-feet of compensation volume with no corresponding pond site in the original PD&E Study. The site is mostly forested and is primarily composed of live oak and saw palmetto which have been densely overgrown by wild grape vines. The pond site proposes minor wetland impacts (2.2 acres) and surface water impacts (1.02 acres), though has no listed species involvement, no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16), and has no potential contamination involvement. Additional right-of-way will be required for this pond site.

Pond Site 142B

Pond Site 142B is located west of I-4, to the southwest of the intersection of Palm Parkway and Central Florida Parkway. This is a proposed new pond site corresponding to Pond Site 70.8 from the original PD&E Study. This pond site is comprised of a forested area to the north, a furrowed planted pine area in the middle, and an area of planted citrus to the south. The forested part of the pond site is mostly sand pine that has been densely overgrown with Brazilian pepper and weedy herbaceous species. The middle area has rows of young planted pines in furrows with heavy growth of weedy herbaceous species. The southern area is mostly planted rows of young citrus. The pond site does not propose any wetland impacts and has no cultural resource involvement (SHPO Concurrence Letter dated 6/23/16). Several burrows of the state-threatened gopher tortoise were observed on the site. Prior to construction, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals should the proposed pond not be able to avoid the burrows. This pond site was given a medium contamination risk rating, though subsequent analysis from the *Level 2 Contamination Assessment Report* (March 2015) found that the soils and groundwater have not been impacted and would not require special handling, characterization, and disposal provisions. Additional right-of-way will be required for this pond site.

Due to the proposed roadway widening, all of the cross drains will require total replacement. Through hydraulic analysis, it was determined that 4 cross drains need to be upsized: CD-7, 8, 12, and 13. The remaining cross drains will require a change in slope to function adequately. All cross drains were analyzed using HY8 (Version 7.3) software. Additional details are available in the *Location Hydraulic Report* (March 2016) prepared for this Reevaluation.

Bicycle and Pedestrian

There are no designated bicycle lanes currently on the cross streets within the study limits of I-4 BtU Segment 1. Pedestrian accommodations exist along CR 532, SR 535, Fenton Street (Daryl Carter Parkway) and Central Florida Parkway. According to the Orange County Trails Master Plan and MetroPlan Orlando documents, there are no planned bike trails within I-4 BtU Segment 1 in either Orange County or Osceola County. SR 429, World Drive, SR 417, SR 530, Osceola Parkway and SR 536 are roadway facilities without existing or proposed pedestrian accommodations. The proposed improvements for I-4 BtU Segment 1 will maintain sidewalks along both sides of CR 532 and Daryl Carter Parkway, which will expand in width through the center of the interchanges. Sidewalks will also be provided along both sides of SR 535. A 10-foot wide sidewalk (multi-use trail) will be provided along the south side of Central Florida Parkway since bicycle lanes are not being provided on the roadway and the County has indicated a preference to have a trail in lieu of bicycle lanes. Old Lake Wilson Road will have a 10-foot sidewalk on the west side of the bridge and 6-foot sidewalk on the east side when the bridge is replaced. The proposed improvements will not preclude any future pedestrian or bicycle facilities in the project area.

Floodplains and Floodways

Based on the FEMA floodplain lines, the roadway widening will impact the floodplain on both sides of the roadway at numerous locations within the project limits. The project proposes 93.22 acre-feet of floodplain impacts for both the mainline and pond sites. There are a total of 10 basins that impact the 100-year floodplain including Basins 100, 101, 102, 103, 105, 109, 114, 132, 138 and 142. A total of 13

existing and proposed floodplain compensation ponds provide compensation for the floodplain impacts. Detailed floodplain impacts and compensation calculations are provided in the *Pond Siting Report* (March 2016) prepared for this project. The original study identified approximately 37.6 acres of floodplain impacts from the project.

Wetlands

A *Wetland Evaluation Report* (WER) was prepared in conjunction with the project. Preliminary estimates suggest that 45.99 acres of jurisdictional other surface waters and 112.94 acres of wetland communities will be impacted by the proposed improvements associated with the mainline of I-4. These estimates are based on field assessment of jurisdictional limits and preliminary plan preparation for design. Details regarding the wetlands and proposed wetland impacts can be found in the *Wetland Evaluation Report* (April 2016) prepared for this project. Impacts to jurisdictional areas will be refined as design details are finalized. Mitigation will be provided to offset the impacts satisfying the requirements of Part IV Chapter 373, F.S. and 33 U.S.C.s.1344. The original study identified 59.6 acres of jurisdictional wetland impacts along with 11.4 acres of other surface water impacts.

Wildlife and Habitat

An *Endangered Species Biological Assessment* (February 2016), was prepared to identify wildlife species of known or potential occurrence and natural habitat types along the I-4 BtU Segment 1 project corridor and to document potential project-related impacts. Fifty-one species of animals and forty-eight species of plants have been identified as potentially occurring within study area counties, though suitable habitat may not be available for all of the species along the project corridor. Of these species, 11 are federally listed animals, 11 are federally listed plants, 26 are state listed animals and 48 are state listed plants. The results of the field surveys allowed for the preparation of the effects determinations for the species with the potential to occur within the corridor and be potentially impacted by the project. The determinations were shared with FFWCC and USFWS for concurrence. Informal concurrence was provided via a letter from FFWCC dated October 13, 2015 and from USFWS in a letter dated April 4, 2016. USFWS agreed with the determination that the project would not affect the red-cockaded woodpecker or the Everglades snail kite, and the project May Affect, but would not likely Adversely Affect the crested caracara, wood stork, Florida scrub-jay, and eastern indigo snake.

Formal consultation for impacts from the project to federally listed species (sand skink and scrub-lupine) was submitted to USFWS by FHWA on April 6, 2016. The USFWS completed the Biological Opinion to FHWA on August 26, 2016, and on September 7, 2016, the USFWS sent FDOT the completed Biological Opinion addressing impacts to federally listed species (sand skink and scrub lupine).

The Conservation Measures from the Biological Opinion the FDOT will employ are the following:

Conservation Measure 1: Compensation for Sand Skink Habitat Loss

FHWA and FDOT propose to offset impacts by providing compensatory mitigation at a Service-approved conservation bank at 2:1 ratio. The compensation acres are based on surveys that determined sand skink occupancy within the Pond Site FPC 105A for the project (10.0 acres of impacts). FDOT and FHWA will provide 20.0 credits to offset project impacts to occupied sand skink habitat.

Conservation Measure 2: Scrub lupine conservation

During permitting the proposed project will be re-surveyed for occurrence of scrub lupine. In coordination with Bok Tower Gardens, the following will occur: collection of seeds, or translocation of plants out of the project footprint for replanting in lands acceptable to the Service (e.g., public conservation lands). Collected seeds would be provided to Bok Tower Gardens for reproduction and conservation of the species.

The Biological Opinion Terms and Conditions that FDOT will comply with are the following:

1. The construction work area for 1-4 BtU Segment 1 — Pond Site FPC 105A will be clearly delineated prior to ground disturbance to ensure that take is not exceeded within the known occupied skink areas. The Service concluded that no more than 10 ac (4.05 ha) of occupied sand skink habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided.
2. FDOT will be required to notify the Service 30 days before ground disturbance and construction begins that the compensatory mitigation has occurred.

The results of the review and subsequent Biological Opinion have been incorporated into the project documents (see also Section VI. Commitments).

The original study concluded that the project was not likely to adversely affect any threatened or endangered species.

Cultural Resource Assessment Update

A Cultural Resource Assessment Survey (CRAS) in support of the proposed improvements was conducted to comply with Section 106 of the National Historic Preservation Act (as amended) and its implementing regulation 36 CFR Part 800 (Protection of Historic Properties). The purpose of the survey is to update the previous I-4 corridor study, which involves locating, identifying, and bounding archaeological resources within proposed pond locations and updating the inventory of historic structures and potential districts within the project Area of Potential Effect (APE). Previously undocumented resources identified in the APE were assessed for their potential for listing in the National Register of Historic Places (NRHP). The APE is defined as the area within which the roadway improvements and subsequent maintenance may have physical, visual, audible or atmospheric effects on historic properties. The APE as defined for this project includes the existing right-of-way along I-4 and was extended to the back or side property lines of parcels adjacent to the corridor, limited to a distance of no more than 100 meters (330 feet) from the proposed right-of-way. The APE also includes the proposed pond footprints plus a 100-foot buffer. Archaeological survey was conducted within the proposed pond footprints, and the architectural study included the entire APE.

One lithic flake was recovered in Pond 142B. The heat-treated flake (0.88 grams) appears to be a medial-

distal fragment of coastal plain chert. This artifact represents the only archaeological occurrence encountered in the Segment 1 APE. No other artifacts were recovered from any of the shovel tests, and no archaeological sites or occurrences were identified. No further archaeological survey is recommended for the proposed ponds and roadway.

The architectural survey resulted in the identification of one historic structure, one historic cemetery, and one linear resource constructed before 1971 located within Segment 1 of the I-4 APE. The Oak Hill Baptist Church Cemetery (8OS01925) was a previously recorded resource. 900 Scott Lane (8PO07762) and the Florida Midland Railroad (8OR10235) are newly recorded resources. The identified historic resources were evaluated to determine their significance and potential for listing in the NRHP. All three historic resources within the I-4 Segment 1 APE lack the architectural distinction and significant historical associations necessary to be considered for listing in the NRHP and are recommended ineligible. No potential NRHP districts were identified due to the lack of concentration of historic structures.

FSMF data indicates that three previously recorded structures (8OS00153, 8OS01926, and 8OR09607) are located within the project APE; however, the field survey confirmed that Resource 8OS00153 (Homely Cow Dip, 400 Celebration Place), 8PO01926 (1525 Kemp Road), and 8OR09607 (+/- 11001 Turkey Lake Road) have been removed or demolished. Resource 8OS00153, Homely Cow Dip, was most likely demolished during the construction of a hospital currently located at 400 Celebration Place, 8PO01926, 1525 Kemp Road, was likely demolished or removed during the construction of a nearby office building, and 8OS00153, +/- 11001 Turkey Lake Road, was likely demolished or removed during the construction of Palm Parkway in Orange County.

FMSF data also indicated that four previously recorded historic resources (8OR06192-8OR006195) were within the current I-4 BtU Segment 1 APE; however, the architectural field survey indicated that all four resources lie to the northwest and outside of the APE. No additional documentation of these structures was warranted. Further details are contained within the *Cultural Resources Assessment Survey* (April 2016).

Based on the results of this study and through coordination with SHPO it was determined the project will have no effect on resources listed or eligible for listing in the NRHP (SHPO Concurrence letter dated 6/23/16). The original study concluded that the project would have no effect on Section 106 properties.

Noise Impact Analysis

The project was subjected to a noise analysis which resulted in a *Noise Study Report* (December 2015). The purpose of this report is to update the original PD&E Study findings by documenting any changes that have occurred since the original study. This includes changes in the current proposed concept being analyzed, changes to the PD&E process, and changes in the environmental regulations since the EA/FONSI was approved in 1999. Three locations with anticipated noise impacts had noise barriers recommended for further consideration and public input as a result of the noise impact analysis update.

Noise Sensitive Area B – Barriers were modeled at the Tuscana Resort Orlando within Noise Sensitive

Area B. Ground-mounted barriers were modeled along the right-of-way adjacent to westbound I-4, and shoulder mounted barriers were modeled at the edge of the shoulder as a barrier-mounted wall. The best case scenario for the Ground Mounted Barrier was for a 619-foot long, 22-foot high wall at a total cost of \$408,693 that provided an insertion loss of 5 dBA or greater to 11 receptors for an average cost of \$37,154 per benefited receptor.

Noise Sensitive Area P – Barriers were modeled for the Integra Cove Apartments located within Noise Sensitive Area P. Barriers were modeled along the right-of-way, on the shoulder of the eastbound travel lanes, and on the shoulder of the off-ramp from eastbound I-4 to Central Florida Parkway. The best case scenario was for a 489-foot long, 22-foot tall ground-mounted barrier at a total cost of \$322,524. This barrier provided an insertion loss of at least 5 dBA for 10 receptors at an average cost of \$32,252 per benefited receptor, and is therefore cost reasonable.

Noise Sensitive Area Q – Barriers were modeled for the Altis Sand Lake Apartments located within Noise Sensitive Area Q. Barriers were modeled along the right-of-way adjacent to the on ramp to westbound I-4 from Central Florida Parkway and along the shoulder of the westbound travel lanes. The shoulder barrier was broken up into two separate barriers (with overlapping coverage) due to the elevated proposed on ramp to westbound I-4 from Central Florida Parkway. Both the ground mounted barriers and the shoulder-mounted barriers provided abatement, and both were deemed cost reasonable. The best case scenario for the shoulder mounted barrier was a configuration with a 979-foot long, 14-foot tall shoulder mounted barrier and a 598-foot long, 14-foot tall shoulder mounted barrier at a total cost of \$662,424. This barrier combination provided an insertion loss of at least 5 dBA for 86 receptors at an average cost of \$7,702 per benefited receptor. Both barrier options are well below the \$42,000 cost per benefited receptor threshold and are therefore cost reasonable.

Commitments pertaining to noise and noise barriers can be found in Section VI.

The original study identified two locations with noise impacts where abatement measures were deemed reasonable and feasible and committed to further evaluations during final design.

Contamination

A *Contamination Screening Evaluation Report* (December 2015) was completed to document the potential for contamination impacts for the I-4 Segment 1 corridor and proposed pond sites. Known contamination sites and properties with potential contamination were identified and assigned a risk rating based on the degree of concern for potential contamination problems. A total of 86 sites or properties within 1/2 mile of the current I-4 right-of-way and proposed pond sites were identified by searches in the FDEP contamination database or by field inspections. Of these sites, one had a high risk rating, 7 had a medium risk rating and the remaining 78 sites identified received a no risk or low risk rating. It is recommended that any excavation, demolition or dewatering activities within or adjacent to any of the identified medium risk sites should require soil and groundwater testing before construction. Pond sites were inspected via pedestrian transects and rated for their potential to have contamination. Out of the 89 pond sites, 11 were given medium risk rating and the remaining 78 were given a low risk rating.

Three sites were identified as groundwater contamination plumes of ethylene dibromide (EDB) and encompass a portion of one listed contamination site and Pond Sites 106A and 106B. The contamination site was given a low risk rating based on its distance from the right-of-way, but both pond sites were given a medium risk rating. In addition to the contamination plumes, discarded debris such as paint cans and fire extinguishers were discovered at Pond Site 136B, which was also given a medium risk rating.

A Level II Contamination Impact Assessment Report was prepared for four pond sites for I-4 BtU Segment 1 (Ponds 136B, 141A, 141B, and 142B), which determined that the soils and groundwater have not been impacted at that time and would not require special handling, characterization, and disposal provisions. It did not recommend any further contamination assessments to be performed at this location.

Based on historic aerials, land use in the area before the construction of I-4 consisted of natural vegetation, rural citrus groves, and some pasture land. Potential contamination impacts from these activities include additional EDB contamination from the citrus groves, pesticide/herbicide/fertilizer and potentially petroleum contamination from the citrus production or farm equipment, and arsenic contamination from potential cattle dips associated with the pastures. However, the existence, exact location and severity of these potential sources of contamination are mostly unknown.

Commitments were made pertaining to contamination; please refer to Section VI.

The original study identified two sites with a risk rating of Medium and two sites with a risk rating of High to be further evaluated.

Land Use and Right-of-Way Acquisitions

Land Use changes for the project involve new pond sites, new interchange alternatives, and new right-of-way for roadway. The proposed improvements to I-4 BtU Segment 1 will follow the existing alignment and will require acquisition of right-of-way for the roadway mainline and interchange improvements, stormwater management facilities and floodplain compensation sites. The total anticipated right-of-way impacts for the recommended alternative involve full or partial acquisition of 125 parcels for a total of approximately 188 acres; some parcels may be impacted by both roadway and stormwater acquisitions. Of these, 73 parcels (63 in Orange County and 10 in Osceola County) are improved with existing developments. The existing developments consist of apartments, condominium/timeshare properties, hotels, golf courses and restaurants. Other impacted parcels are vacant, agriculture use, existing ponds/surface waters or municipal/utility facilities. The majority of right-of-way impacts to parcels are related to stormwater management (approximately 135 acres) and the remaining impacts are related to roadway improvements (approximately 53 acres). Eighteen parcels in the project area are impacted by both roadway and stormwater management acquisitions. Of the 125 unique parcel IDs, eleven parcels are developed/occupied and may require full acquisitions, involving potential relocation of existing commercial properties. No residential relocations are anticipated within I-4 BtU Segment 1. The impacted commercial parcels are located within/near the existing Crossroads Shopping Plaza in the northeast quadrant of the I-4 and SR 535 interchange. To minimize the unavoidable effects of right-of-way acquisition and displacement of people, FDOT will carry out a relocation assistance program in accordance with The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,

Public Law 91-646, as amended, for Federal and Federally Assisted Programs (23 CFR and 49 CFR, Part 24, Sections 334.048, 339.09 and 421.55, Florida Statutes Rule 14-66, Florida Administrative Code). The recommended alternative for I-4 BtU Segment 1 is not anticipated to result in any residential displacements, however a review of real estate listings using internet search engines shows there is an ample number of sites available for potential displacees to relocate to within the project study area. Additional information pertaining to the potentially displaced properties, including resources available to facilitate relocation and socio-economic impacts to the surrounding neighborhoods, are identified in the *Conceptual Stage Relocation Plan* (April 2016) prepared for this project.

The original study proposed right-of-way impacts including 10.2 acres for roadway and 55.8 acres for pond sites.

Design Traffic & System Access Modification Report (SAMR) Re-Evaluation:

Project traffic for I-4 and surrounding arterials within the study limits of I-4 BtU Segment 1 were developed and evaluated as part of the I-4 BtU SAMR Re-evaluation. The SAMR Re-evaluation includes existing conditions analysis, future original build and future modified build analyses. The “original build” analysis refers to the improvement concepts previously approved by the FHWA in the original I-4 SAMR report dated April 2000 and approved by FHWA in June 2000, with subsequent update in 2003. The current PD&E re-evaluation for I-4 BtU Segment 1 constitutes revised improvement concepts, referred to as “modified build,” which account for changing conditions over time. These changes include variation in traffic characteristics, modifications to express lane access points and other traffic and design considerations which led to the current proposed build alternatives. The SAMR Re-evaluation was submitted to FHWA August 12, 2016 for review and approval. Comments are expected September 30, 2016 and final approval is expected by the end of year.

Access Management

The proposed improvements will include a new full access interchange at Daryl Carter Parkway (previously known as Lake Avenue in the original PD&E Study).

CR 532 (Osceola Polk Line Road) is a County Road which is classified as an Access Class 5 minor arterial. There are numerous businesses located on the west side of the interchange in the area known as Champions Gate. To the east of the interchange, there are a few businesses and a residential community. The study area along CR 532 starts at South Goodman Road and continues east to Kemp Road. The recommended alternative maintains two through lanes in each direction. Access to businesses will not be affected.

SR 429 and SR 417 are limited access facilities that are operated by the Florida Turnpike Enterprise within the limits of Segment 1.

World Drive is a County Road which is classified as an Access Class 3 minor arterial roadway between I-4 and US 192/SR 530. Directly west of the interchange there are no driveways, businesses or residences. To the east of the interchange, World Drive forms a major intersection with Celebration Boulevard. The recommended alternative maintains the same number of lanes and access that is provided today.

US 192/SR 530 is currently categorized as a Class 1 roadway between World Drive and I-4 and as Class 5 roadway west of World Drive and east of I-4. The proposed improvements in Segment 1 do not affect the access management of US 192/SR 530.

Osceola Parkway is a County Road which is classified as an Access Class 2 principal arterial. Directly west of the interchange there are no driveways, businesses or residences with direct access to Osceola Parkway. To the east of the interchange lies the entrance to Gaylord Palms. The study area along World Drive starts at Victory Way and continues east to International Drive. There are some modifications to the existing interchange ramps, as well as the addition of new ramps, however, the recommended alternative maintains the same access that is provided today.

SR 536 is categorized as a Class 3 roadway from west of I-4 to SR 535. The proposed improvements in Segment 1 do not affect the access management of SR 536.

SR 535 is categorized as a Class 3 roadway from I-4 to SR 530. The proposed improvements in Segment 1 will modify access to some parcels along SR 535 north and south of the interchange. Between I-4 and Hotel Plaza Boulevard, the two driveway access points immediately north of the interchange (east and west side of SR 535) will be maintained but shifted slightly from their current locations. The second driveway north of I-4 on the east side of SR 535 will be removed along with the acquisition of the Crossroads Shopping Plaza. SR 535 northbound traffic will bridge over Hotel Plaza Boulevard, eliminating the existing north to west left turn movements at the intersection. The east leg of Hotel Plaza Boulevard, which is currently the main access for the Crossroads Shopping Plaza will be converted to a new one-way loop road which will go under SR 535 to provide access to Hotel Plaza Boulevard westbound. Additionally, the Hotel Plaza Boulevard eastbound through movement will be eliminated, since there will be no plaza to access on the east side of SR 535. Between Hotel Plaza Boulevard and north to Palm Parkway, all of the accesses along SR 535 will be maintained, except for the first driveway on the east side which connects to the Crossroads Shopping Plaza; that access will no longer be required as this is the location of the proposed pond 138A. North of Palm Parkway to Vinings Way Boulevard, all accesses to parcels along SR 535 will be maintained. However, all left turns will be prohibited at the Palm Parkway intersection and SR 535 intersection. Left turning traffic will continue straight through the intersection and make a U-turn, or turn right onto the intersecting roadway and make a U-turn. Additionally, a new quadrant road is proposed to connect to the south leg of the SR 535 and Vinings Way Boulevard intersection. The quadrant road will run parallel to and west of SR 535, connecting Vinings Way Boulevard to Palm Parkway. South of the interchange, access to and from Vineland Avenue will be maintained, but SR 535 southbound through lanes will bridge over the intersection, and westbound left turns from Vineland Avenue to southbound SR 535 will bridge over the SR 535 northbound travel lanes. Between Vineland Avenue south to Meadow Creek Drive, all access drives to parcels along SR 535 will be maintained except for the right-in only driveway on the west side of SR 535, just south of Vineland Way. This driveway is located within the transition section of the southbound SR 535 bridge section from Vineland Avenue which elevates the southbound travel lanes through this section of roadway, thus the need to eliminate the existing access. A full access driveway is located approximately 300 feet south of this location which is already being utilized by the existing parcel for exiting.

Daryl Carter Parkway is a County Road classified as a minor arterial. Directly west of the interchange there is an intersection with Palm Parkway/Turkey Lake Road; however there are no driveways, businesses or residences between the intersection and I-4. To the east of the interchange, Regency Village Drive intersects Daryl Carter Parkway, providing access to the Orlando Premium Outlets (Vineland Avenue) to the south. The study area along Daryl Carter Parkway starts at Turkey Lake Road / Palm Parkway and continues east to Regency Village Drive. The interchange will be reconfigured to a Diverging Diamond Interchange, with full access to I-4 eastbound and westbound. Access to businesses in the vicinity of the Orlando Premium Outlets will not be affected.

Central Florida Parkway is a County Road classified as a minor arterial. Directly west of the interchange there are no driveways, businesses or residences with direct access. To the east of the interchange, is a major intersection with Westwood Boulevard and further east is the access to the Sea World theme park. The study area along Central Florida Parkway starts at Turkey Lake Road/Palm Parkway and continues east to Westwood Boulevard. Interchange ramps will be added to allow access to eastbound I-4 and from westbound I-4. Access along the section of Central Florida Parkway will remain as it is today.

Utilities

The utilities located within the right-of-way were identified through the use of existing plans and by contacting all of the utility companies identified via the Sunshine State One call system. A number of new utilities have been added to the corridor over the past 15 years. Utility impacts were carefully evaluated when considering the proposed roadway improvements and stormwater pond locations. The location of overhead utilities, existing power poles and access issues were also evaluated to minimize impacts. However, smaller gas lines and other buried utilities may involve relocation.

Most utility companies have the capability to adjust their services without causing major inconveniences to the customers. As a result, mitigation measures, to the maximum extent feasible, will include the following:

- Maintaining utility connections in temporary locations;
- Minimizing the time without service;
- Installing alternative or new service before disconnecting the existing service; and
- Allowing service disruption only during periods of non-usage or minimum usage.

A *Utility Impact Assessment (August, 2015)* report was prepared concurrently with this effort and submitted under separate cover. The tables in the report provide a summary of potential utility impacts associated with the proposed improvements in the I-4 BtU Segment 1 corridor for the recommended alternative. Exact locations of existing utilities will be determined in the final design of the proposed improvements. Coordination with the known utility companies during the final design phase will assist in minimizing relocation adjustments and disruptions of service to the public.

Special Construction Methods:

Segment 1 (Osceola and Orange County) of the I-4 Beyond the Ultimate project has numerous construction challenges as well as many opportunities for construction innovation. Three areas in particular fall into this category, Bonnet Creek, the express lane viaduct between SR 429 and World Drive

and the general use lane viaduct between SR 535 and Central Florida Parkway.

At the Bonnet Creek location, the challenge is to construct the I-4 bridges over Bonnet Creek under the Osceola Parkway bridges. The existing configuration provides only 16.5-feet of vertical clearance from the I-4 deck to the low member of Osceola Parkway. This makes it extremely difficult to drive piles using conventional methods. It can be done, however it would require numerous pile splices, would be very expensive and would require the use of steel piles exclusively. One solution to this is to raise the profile of the Osceola Parkway bridges since they are being replaced as part of this project. The new vertical clearance from the I-4 deck to the low member will be 30.0-feet, which allows significantly more room to drive piles. The Osceola Parkway bridge over I-4 will be Florida I-Beams, and the I-4 bridge over Bonnet Creek will be Florida I-Beams as well.

For the area between SR 429 and World Drive, the right of way is constrained and in order to avoid numerous utility impacts, the eastbound express lanes were elevated and cantilevered over the general use lanes. Construction of the viaduct can be accomplished by shifting I-4 eastbound towards the outside, enough to provide a sufficient work zone to construct the foundations and piers and erect the concrete segments. The foundation and piers will likely be multiple drilled shafts for redundancy, and the piers will be C-shaped with post tensioning. The superstructure type will most likely be precast segments. The advantage of precast segments is that the superstructure can be erected at a faster rate compared to cast in place construction. The precast concrete segments are made while the substructure is being built and then stored until needed for erection. Precast segments are usually erected using the span by span method. In the span by span method, an entire span is assembled, post-tensioned, and erected so that it is self-supporting before the next span is erected. The method is appropriate for span lengths up to about 150-feet. All the segments are supported by an erection truss before the segments are post-tensioned together. The erection truss may be located either above or below the segments. Once the segments are post-tensioned together and the span is resting on its bearings, the erection truss is moved to the next span. When space permits, the segments may be assembled at ground level, post-tensioned together, and the entire span lifted into place. Once the bridge viaduct is complete, some of the eastbound I-4 traffic can be shifted to the viaduct while the mainline of I-4 is reconstructed.

For the area between SR 536 and Central Florida Parkway, the right of way is constrained and in order to avoid numerous business impacts, the eastbound and westbound general use lanes were elevated and partially overhang the express lanes. Construction of the general use lane viaducts can be accomplished by shifting I-4 eastbound and westbound towards the outside, enough to provide sufficient work zone to construct the foundations and piers and erect the concrete segments. The foundation and piers will likely be multiple drilled shafts for redundancy, and the piers will be hammerhead shaped with post tensioning. The superstructure type will most likely be precast segments. The advantage of precast segments is that the superstructure can be erected at a faster rate compared to cast in place construction. The precast concrete segments are made while the substructure is being built and then stored until needed for erection. Precast segments are usually erected using the span by span method. In the span by span method, an entire span is assembled, post-tensioned, and erected so that it is self-supporting before the next span is erected. The method is appropriate for span lengths up to about 150-feet. All the segments are supported by an erection truss before the segments are post-tensioned together. The erection truss may be located

either above or below the segments. Once the segments are post-tensioned together and the span is resting on its bearings, the erection truss is moved to the next span. When space permits, the segments may be assembled at ground level, post-tensioned together, and the entire span lifted into place. Once the bridge viaduct is complete, some of the eastbound and westbound I-4 traffic can be shifted to the viaduct while the express lanes are being constructed.

Public Hearing Summary:

The Public Hearing is scheduled for November 10, 2016 and will be documented upon completion.

VI. MITIGATION STATUS AND COMMITMENT COMPLIANCE

Mitigation:

Both project segments (242484-8 & 431456-1) are not far enough along in the design phase to have the detailed analysis of wetland impacts to complete the permitting of the projects; therefore, the mitigation requirements are unknown at this time. During the permitting phase of the project, FDOT will coordinate with the appropriate agencies to obtain the required permits and define the necessary mitigation for the projects. FDOT has issued a bid for mitigation for both projects based upon the preliminary information provided at this time.

Commitments from the Original EA/FONSI (12-99):

All project construction activities will be accomplished in accordance with the provisions in the Florida Department of Transportation *Standard Specifications for Road and Bridge Construction*. To minimize impacts to the human and natural environment, FDOT made the following commitments for the project in the original EA/FONSI:

1. Wetlands – Mitigation of anticipated wetland impacts (28.4 hectares [71.0 acres]) will be provided under the provisions of S. 373.4137 F.S., which requires that mitigation of FDOT construction impacts be implemented by the appropriate water management district where the impacts occur. Coordination with the South Florida Water Management District confirmed the WMD intended to provide the necessary mitigation to offset the impacts.

The current regulatory guidelines have changed since the EA/FONSI was completed. FDOT will direct the use of either 373.4137 F.S. or the purchase of mitigation bank credits to offset the impacts during project permitting. The WER identified a number of approved wetland mitigation banks with credit availability to offset impacts with both SFWMD and USACE under the regulatory programs.

2. Contamination – Information regarding eleven potential petroleum contamination sites will be updated, including site evaluations and organic vapor analyzer (OVA) screening/monitoring if necessary, during the final design phase and prior to construction or right-of-way acquisition.

Estimated areas of contamination will be marked on the design drawings and any necessary clean-up will take place during construction if deemed feasible. Special provisions for handling expected and unexpected contamination during construction will be included in the construction plans package.

The potential involvement of contamination sites with the project was re-assessed during the PD&E Update-Reevaluation, as documented in the CSER. The report recommended and FDOT committed to conducting Level II investigations on the one High rated site, the seven Medium rated sites, and the eleven Medium rated pond sites identified in the CSER. A Level II report was prepared for four medium risk pond sites. Additional recommendations were made: all bridges and other structures which will require possible demolition or retrofit should be tested for asbestos containing materials, lead-based paint or any other hazardous materials prior to construction; and any parcels containing medical facilities, doctor offices, hospitals or drug stores that might be acquired should be tested for asbestos, lead-based paint, x-ray equipment, lead-lined walls, chemicals and pharmaceuticals prior to demolition.

3. Salvaging of materials (i.e. signs, traffic signals, roadway lighting, lime rock, and asphalt) will be given consideration along all of the sections of roadways being displaced by construction activities.

This commitment remains unchanged and will be followed at the appropriate time.

4. Noise – Two potential noise barriers were determined to be reasonable and feasible based on the results of the STAMINA 2.1 barrier analysis, as follows:
 - Paradise RV Park, in Osceola County near CR 545 – 300 meters (984 feet) in length and 4.9 meters (16 feet) in height, and
 - Monterey Lake Apartments, in Orange County near the Bee-Line Expressway (SR 528) – 145 meters (476 feet) in length and 5.0 meters (16 feet) in height

The FDOT is committed to the construction of these noise barriers, contingent upon the following conditions:

- Detailed noise analyses conducted during the final design phase supports the need for abatement.
- Reasonable cost analyses indicate that the economic cost of the barrier(s) will not exceed FDOT guidelines.
- Community input regarding the barrier(s), solicited by the FDOT District Five office during the final design phase, is positive.
- Safety and engineering aspects as related to the roadway user and the adjacent property owner(s) are acceptable.
- Any other mitigating circumstances have been resolved.

If, during the final design phase of the project, any of the contingency conditions listed above cause abatement to no longer be considered reasonable or feasible for a given location or locations, such determination will be made prior to requesting approval for construction advertisement. In addition, during final design and prior to construction, those sites which may be affected through any final design alignment changes including those sites now considered borderline will be revised insofar as a noise analysis.

An updated Noise Study was conducted during the PD&E Update-Reevaluation for this project, as both FDOT and FHWA revised the noise criteria since the original study was conducted. The entire project corridor was analyzed, and three noise barriers were deemed reasonable and feasible. The three noise barriers are for: a 619-foot long, 22-foot high ground-mounted barrier located at the Tuscana Resort Orlando; a 489-foot long, 22-foot tall ground-mounted barrier at the Integra Cove Apartments; and a barrier combination with a 979-foot long, 14-foot tall shoulder mounted barrier and a 598-foot long, 14-foot tall shoulder mounted barrier adjacent to the Altis Sand Lake Apartments. FDOT is committed to the construction of feasible noise abatement measures contingent upon the following conditions:

- *Reasonable cost analysis indicates that the economic cost of the barriers will not exceed the cost-reasonable criterion.*
- *Community input regarding desires, types, heights, and locations (if applicable).*
- *Consideration of preferences regarding compatibility with adjacent land uses, particularly as addressed by officials having jurisdiction over such land uses; and,*
- *Consideration of safety and engineering aspects as related to the roadway user and the adjacent property owner.*

Neither of the two barriers originally deemed as reasonable and feasible in the original EA/FONSI remain a commitment for this Segment because they no longer meet the criteria.

5. Water Quality – Stormwater pond sizes have been developed for the purpose of estimating right-of-way requirements only. The actual physical size and configuration of all required water management facilities will be determined during the final design phase of the project. All stormwater facility designs will be in accordance with the most stringent regulations of the various permitting agencies, including South Florida Water Management District and Orange County.

During the PD&E Update-Reevaluation, stormwater management systems were designed and sized to meet the required regulations, beyond just the estimates for right-of-way requirements. The final sizes and configurations will be completed in design during the permitting phase.

6. Drainage Structures to Enhance Wildlife Connectivity – with respect to providing habitat and cover for wildlife, the existing I-4 crossing locations provide essential aquatic and terrestrial connectivity between portions of both Reedy Creek and Davenport Creek. The Davenport Creek

system is currently crossed via a series of concrete box culverts. The largest of these crossings consists of a multiple-opening (4) box arrangement at the main stream channel. The culvert structures within the Davenport Creek system provide aquatic connectivity and allow terrestrial animal access only during low water stages. The project design must include drainage structures which preserve the existing hydrologic openings to meet drainage requirements. As part of the drainage final design, FDOT is committed to the evaluation and consideration of cross drain culvert configurations which also serve to enhance the opportunity for wildlife to utilize these structures as crossing locations.

The I-4 Bridges over Reedy Creek were lengthened in a separate project after the original study was completed that provided an enhanced crossing for wildlife connectivity. The commitment to preserve the existing hydrologic openings at the Davenport Creek crossing will be maintained.

7. Access Management – A break in access along Lake Avenue will be provided to the Embassy Suites Hotel, which is located in the southwest quadrant of the proposed I-4 / Lake Avenue interchange. The Department believes the design concept as shown is a reasonable compromise, balancing traffic operations and cost issues.

The proposed interchange at Daryl Carter Parkway (formerly known as Lake Avenue in the original study) will be a full access interchange and has been relocated and no longer requires this commitment; therefore this commitment is no longer valid for the project.

8. Special Features – Barrier separated special use / HOV lanes will be used throughout Section 1. A park and ride lot will be located adjacent to the Lake Avenue interchange.

The new design concept subject of this PD&E Update-Reevaluation proposes barrier separated Special Use / Express Lanes rather than the previous special use / HOV lanes of the original study. This project is being designed to match the I-4 BtU Segment 2 to the north and the I-4 Ultimate, which had a design re-evaluation in 2005 in which the Special Use Lanes (which were described as HOV lanes) were converted to tolled-Express Lanes. For this project, the same situation occurs as with both Segment 2 and the I-4 Ultimate: there are no HOV lanes on I-4 to be considered, so the design change from Special Use Lanes to tolled-Express Lanes is similarly being proposed. The park and ride lot is no longer a commitment of the project at that location.

9. Transportation System Management (TSM) – TSM measures have been considered extensively in the development of, and are an integral part of, this project. The TSM measures which are incorporated into this project include High Occupancy Vehicle (HOV) lanes, an additional median transit envelope for future transit facilities, Intelligent Transportation Systems (ITS) features, interchange improvements, and ramp-to-ramp auxiliary lanes. Further, LYNX is committed to providing light rail transit (LRT) service adjacent to the corridors to further enhance mobility and provide modal options for commuters and visitors.

The project no longer proposes HOV lanes, rather Express Lanes at a variable toll rate, and does still include a 44-foot High Speed Rail envelope. TSM is now referred to as TSM Operations (TSMO). The TSMO Alternative was re-analyzed during the current PD&E Update-Reevaluation. Although the implementation of TSMO strategies would certainly aid in localized operation of the existing roadway, the projected traffic volumes for the design year 2040 require I-4 to be widened to provide the additional capacity necessary to maintain or improve the existing levels of service. Therefore, the TSMO Alternative is not considered a viable alternative and no further evaluation of the TSMO Alternative will be conducted during the project.

10. Noise, Landscaping, and Retention Pond Issues at Lake Willis – The Department is committed to re-evaluating the need for noise abatement, landscaping treatments, and the location of retention ponds in the vicinity of Lake Willis during final design.

The updated Noise Study included the residential area near Lake Willis in the analysis, and determined that noise impacts are not anticipated and there is no need for noise abatement. A retention pond has been constructed near the residential area at Lake Willis since the original EA/FONSI study occurred. Additional pond requirements for the proposed I-4 project will include expansion of the existing ponds in this area. The commitment to re-evaluate these items during design remains.

Additional commitments made during the PD&E Study Update and the current Reevaluation (9-16):

1. As required by FDOT Standard Specifications, the construction of equipment staging areas for storage of oils, greases, fuel, roadbed material, and equipment maintenance will be sited in previously disturbed areas not adjacent to any streams, wetlands, or surface water bodies. The staging areas will be surveyed for listed species prior to their use. Also as required by FDOT Standard Specifications, if protected species are identified unexpectedly within the construction area during construction, coordination will be initiated with the appropriate resource agencies to avoid or mitigate impacts.
2. FDOT through consultation with the U.S. Fish and Wildlife Service (USFWS) for listed species assessed the impacts to sand skinks and scrub lupine. The completed Biological Opinion (dated 8/26/16, received by FDOT 9/7/16) resulted in the following commitments for these species assessed.
 - a) FHWA and FDOT propose to offset impacts by providing compensatory mitigation at a Service-approved conservation bank at a 2:1 ratio. The compensation acres are based on surveys that determined sand skink occupancy within the Pond Site FPC 105A for the project (10.0 acres of impacts). FDOT and FHWA will provide 20.0 credits to offset project impacts to occupied sand skink habitat.

- b) During permitting the proposed project will be re-surveyed for occurrence of scrub lupine. In coordination with Bok Tower Gardens, the following will occur: collection of seeds, or translocation of plants out of the project footprint for replanting in lands acceptable to the Service (e.g., public conservation lands). Collected seeds would be provided to Bok Tower Gardens for reproduction and conservation of the species.
 - c) The construction work area for 1-4 BtU Segment 1 — Pond Site FPC 105A will be clearly delineated prior to ground disturbance to ensure that take is not exceeded within the known occupied skink areas. The Service concluded that no more than 10 ac (4.05 ha) of occupied sand skink habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided.
 - d) FDOT will be required to notify the Service 30 days before ground disturbance and construction begins that the compensatory mitigation has occurred.
- 3. During permitting, FDOT will ensure that mitigation proposed for wetland impacts to any wood stork suitable foraging habitat (SFH) within USFWS designated wood stork Core Foraging Area (CFA) will adhere to the requirements of the US Army Corps of Engineers and USFWS.
 - 4. Eastern Indigo Snake Habitat has been identified within the project. FDOT will utilize the US Fish and Wildlife Service Standard Protection Measures for the Eastern Indigo Snake, at the US Fish and Wildlife Service Link:
http://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm.
 - 5. During permitting, all potential gopher tortoise habitat that could be impacted by the project will be systematically surveyed according to the current guidelines published by the Florida Fish and Wildlife Conservation Commission (FFWCC). If gopher tortoise burrows are found, all practicable design measures will be employed to avoid impacts to the burrows. For burrows which cannot be avoided, a permit will be obtained from FFWCC for relocation of gopher tortoises and commensals, and relocation will be performed at a time as close as practicable to the start of construction activities at the site of the burrows.
 - 6. During the permitting process, FDOT will coordinate with federal and state agency personnel to ensure minimization and reduction of adverse wetland impacts have been explored to the fullest extent of the project while meeting engineering standards and practice.

7. Wetland impacts (direct and secondary) that will result from the construction of this project will be mitigated pursuant to requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s.1344. The FDOT is committed to minimize direct, secondary and temporary impacts where feasible.
8. During the design, a Quality Enhancement Strategies (QES) addressing the avoidance and minimization for losses of waters of the United States and alternative design changes to minimize wetland impacts (without jeopardizing safety) will be committed by others.
9. Prior to the initiation of construction, FDOT will resurvey the corridor for nests of the state-listed Florida Sandhill Crane and Sherman's Fox Squirrel as recommended by FFWCC during project coordination. If any nests are found, coordination with FFWCC staff will be initiated.
10. No upstream surface water rise shall be allowed at the Reedy Creek crossing under I-4.
11. The new I-4 bridges over the relocated Bonnet Creek will span the entire Bonnet Creek right-of-way, which is 300-feet. The bridges can be multiple span structures, and do not have to clear span the right-of-way.
12. FDOT commits to documenting any structures that reach historic age prior to project completion as part of a Cultural Resource Assessment Survey Addendum.
13. FDOT commits to use 1.5% of the construction cost for the enhancement of the aesthetics of the new structures (hardscape) to keep the same look established by the I-4 Ultimate Project.

VII. PERMITS STATUS

I-4 BtU Segment 1 has two design segments:

242484-8:

The South Florida Water Management District Individual Environmental Resource Permit will be obtained at the appropriate time during the design and permitting phase.

The U.S. Army Corps of Engineers Individual Wetland Dredge and Fill Permit will be obtained at the appropriate time during the design and permitting phase.

The Environmental Protection Agency NPDES Permit will be secured prior to construction.

431456-1:

The South Florida Water Management District Individual Environmental Resource Permit will be obtained at the appropriate time during the design and permitting phase.

The U.S. Army Corps of Engineers Individual Wetland Dredge and Fill Permit will be obtained at the appropriate time during the design and permitting phase.

The Environmental Protection Agency NPDES Permit will be secured prior to construction.

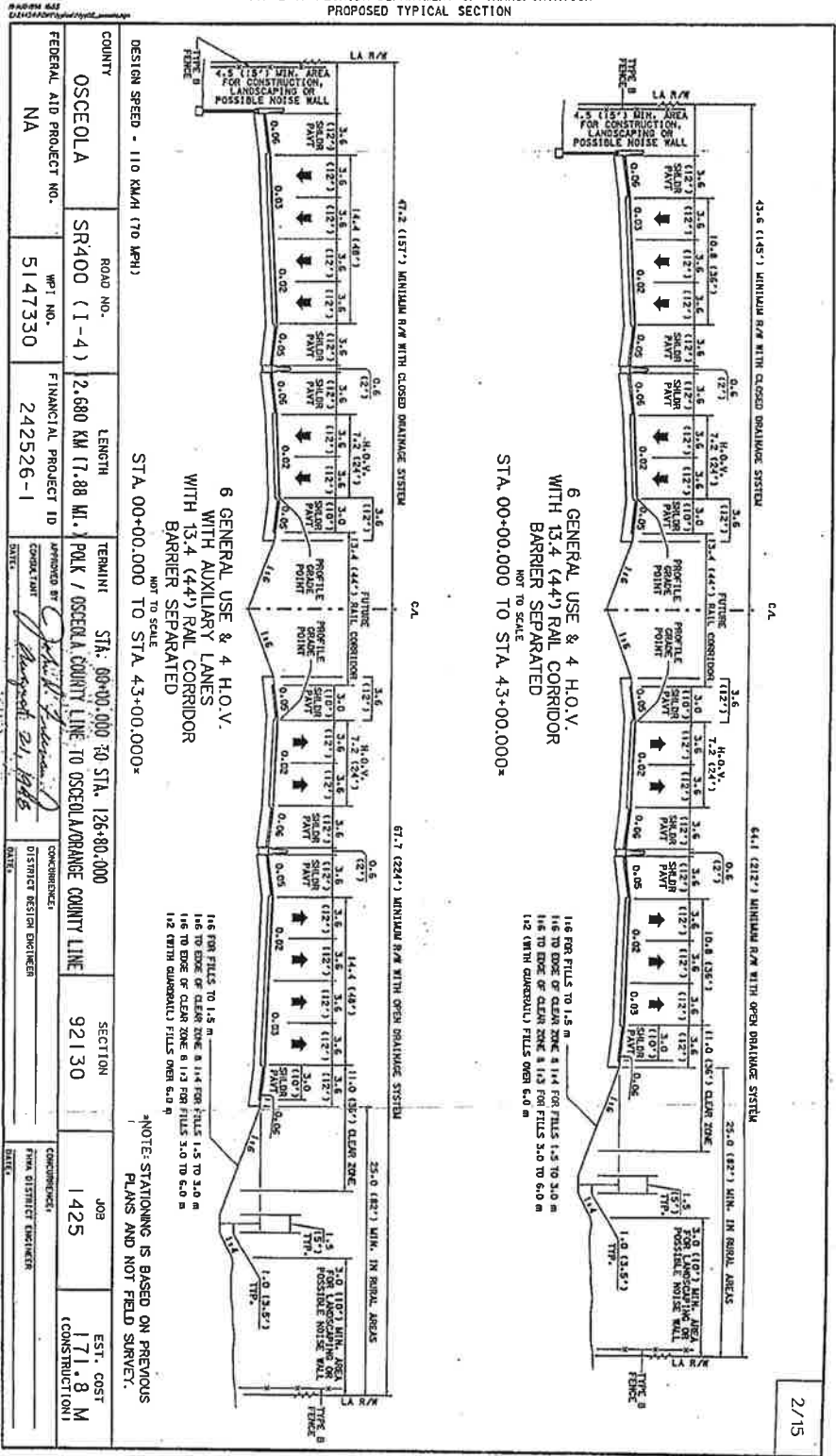
Location Map

242482-8
TIP, STIP, LRTP Pages

431456-1
TIP, STIP, LRTP Pages

Original EA/FONSI Typical Sections

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	OSCEOLA	ROAD NO.	SR400 (I-4)	LENGTH	2.680 KM (1.68 MI.)	TERMINI	STA. 00+00.000 TO STA. 126+80.000	SECTION	92130	JOB	1425	EST. COST	171.8 M
FEDERAL AID PROJECT NO.	NA	WPT NO.	5147330	FINANCIAL PROJECT ID	242526-1	APPROVED BY	<i>[Signature]</i>	CONCURRENCE		DISTRICT RESUR ENGINEER		PRIN. DISTRICT ENGINEER	
						CONTRACT	August 21, 1985						

DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION
HNTB ARCHITECTS ENGINEERS PLANNERS									
FLORIDA DEPARTMENT OF TRANSPORTATION									
I-4 PD & E TYPICAL SECTIONS									

FIGURE 3

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION

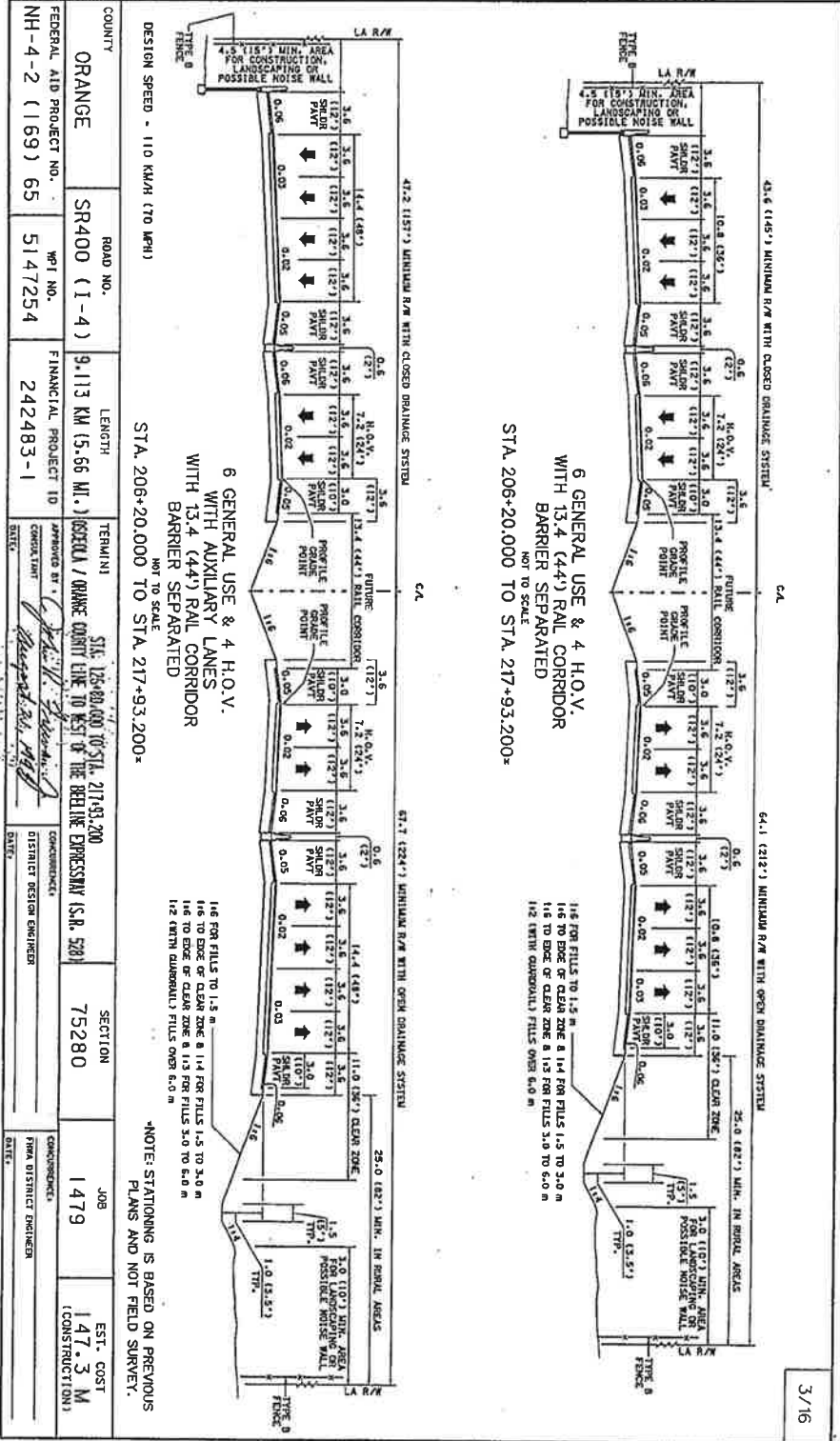


FIGURE 3 (CONT)

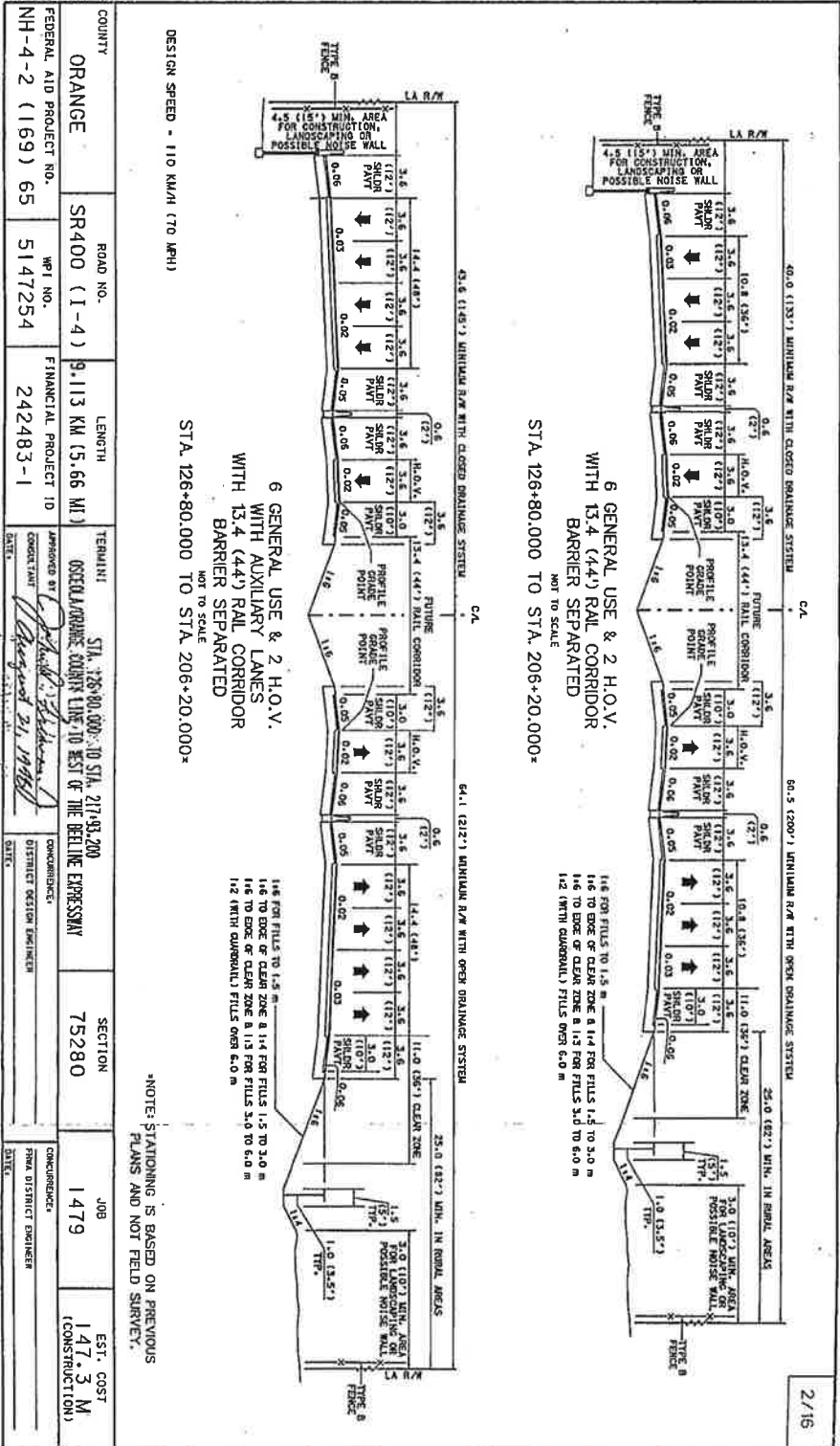
1-4 PD & E
TYPICAL SECTIONS

DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION

HNTB ARCHITECTS & PLANNERS

FLORIDA DEPARTMENT OF TRANSPORTATION

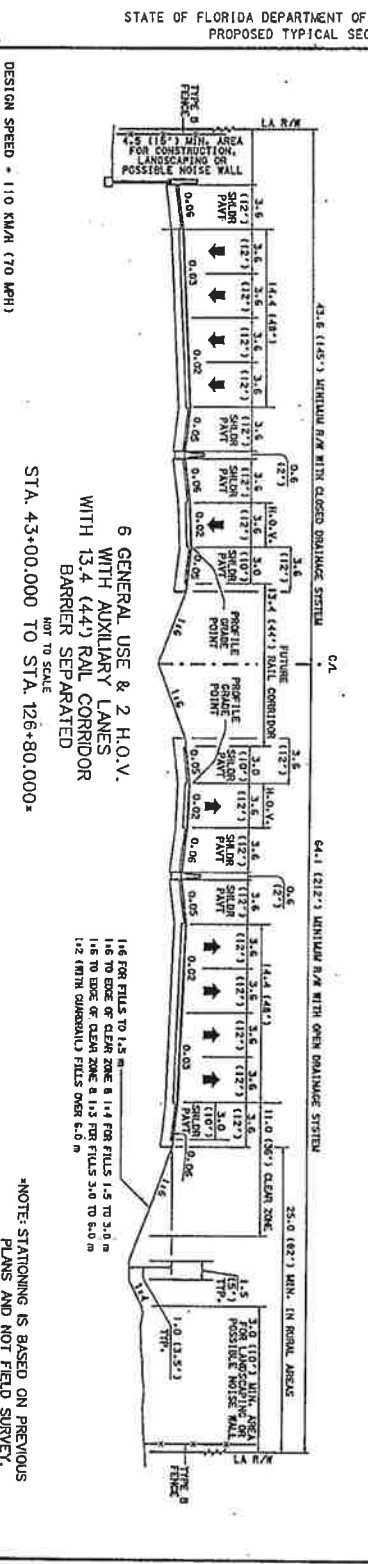
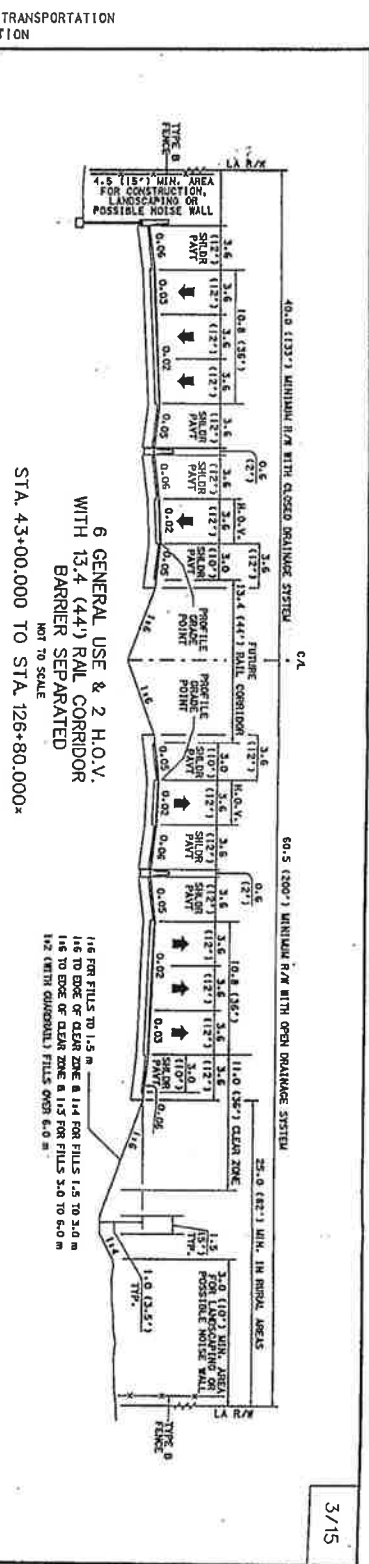
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PROPOSED TYPICAL SECTION



COUNTY	ORANGE	ROAD NO.	SR400 (I-4)	LENGTH	9.113 KM (5.66 MI.)	TERMINI	STA. 126+80.000 TO STA. 217+92.200	SECTION	75280	JOB	1479	EST. COST	147.3 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	NH-4-2 (169) 65	WPI NO.	5147254	FINANCIAL PROJECT ID	242483-1	APPROVED BY	<i>[Signature]</i>	CONCURRENCE	DISTRICT DESIGN ENGINEER	CONCURRENCE	SINIA DISTRICT ENGINEER		
DATE		DATE		DATE		DATE		DATE		DATE			

FIGURE 3 (CONT)

I-4 PD & E
TYPICAL SECTIONS



DESIGN SPEED = 110 MPH (170 MPH)

COUNTY	OSCEOLA	ROAD NO.	SR400 (I-4)	LENGTH	12.680 KM (7.88 MI)	TERMINI	STA. 00+00.000 TO STA. 126+80.000	SECTION	92130	JOB	1425	EST. COST	171.8 M (CONSTRUCTION)
FEDERAL AID PROJECT NO.	NA	RFI NO.	5147330	FINANCIAL PROJECT ID	242526-1	APPROVED BY	<i>John W. Harrison</i> DATE: August 21, 1998	DISTRICT DESIGN ENGINEER		CONTRACTOR			
						CONSULTANT				FROM DISTRICT ENGINEER			

NOTE: STATIONING IS BASED ON PREVIOUS PLANS AND NOT FIELD SURVEY.

FIGURE 3 (CONT)

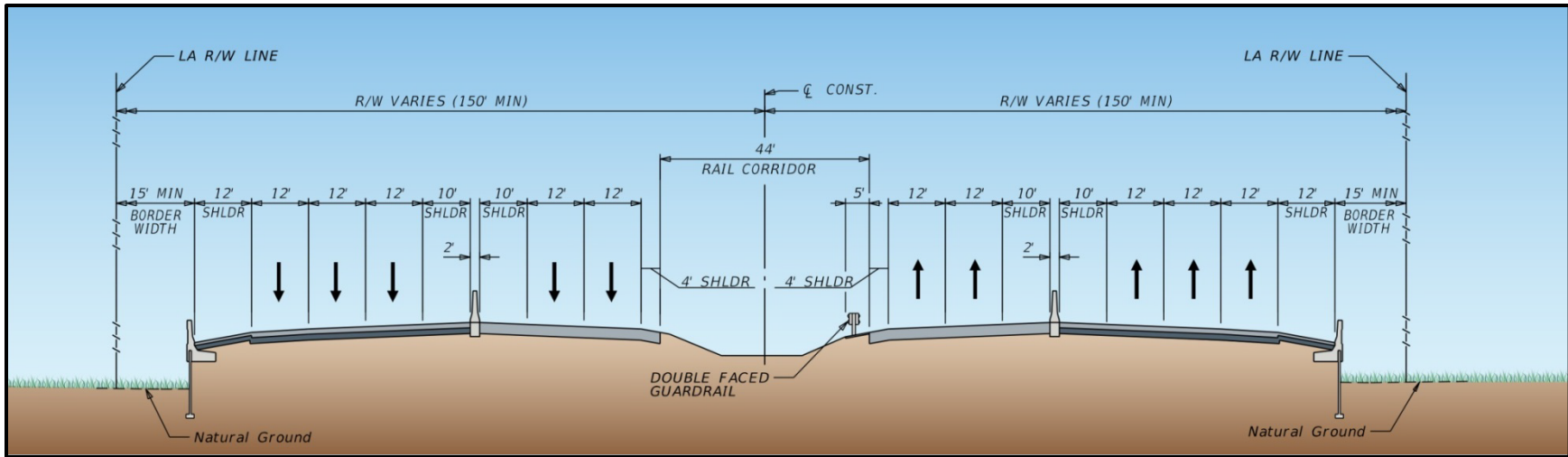
DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION

ARCHITECTS
HNTB
ENGINEERS
PLANNERS

FLORIDA DEPARTMENT OF
TRANSPORTATION

1-4 PD & E
TYPICAL SECTIONS

Proposed I-4 BtU Typical Sections



SR 400 (I-4) TYPICAL SECTION

Design Speed - 70 MPH

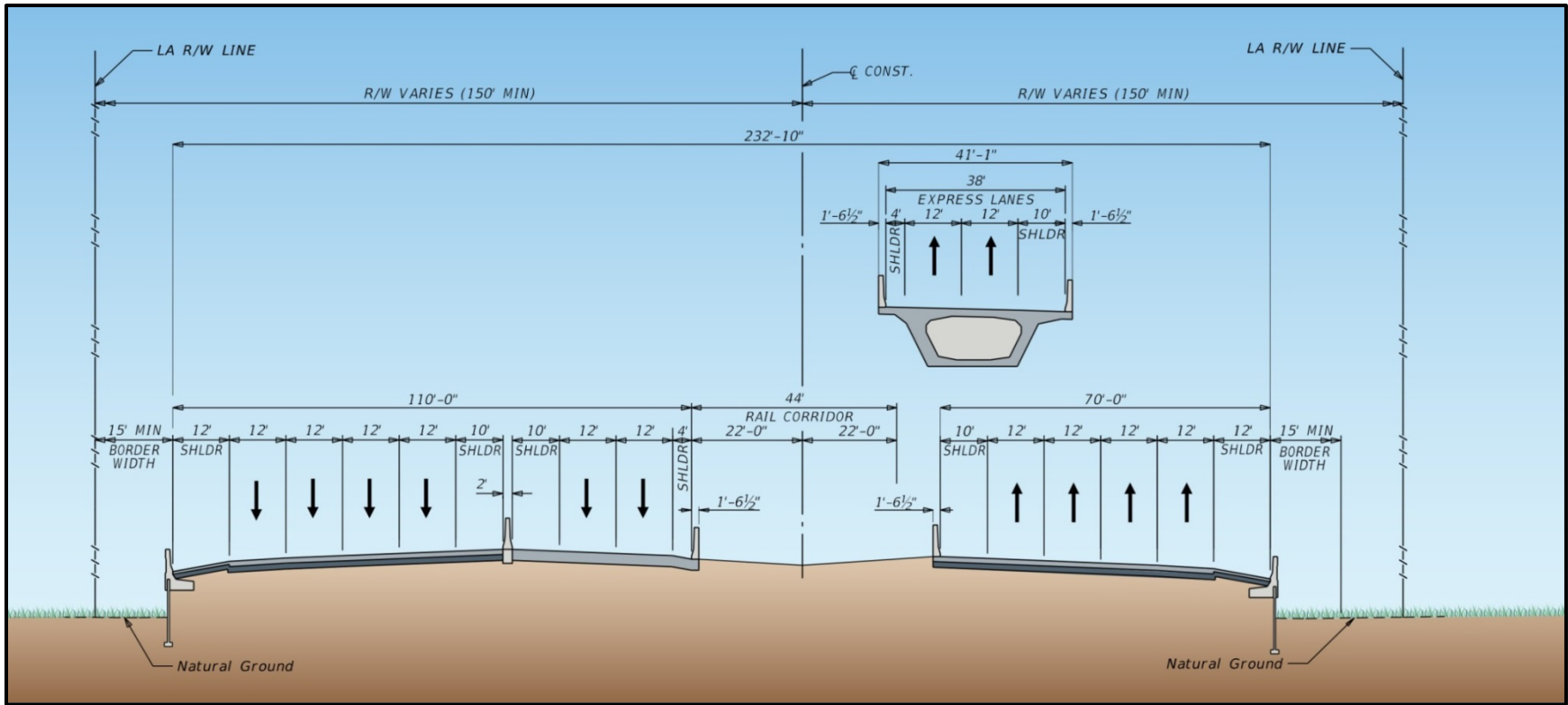
Station 627 + 20.00 to Station 759 + 00.00 (Osceola County)

Station 828 + 00.00 to Station 1042 + 95.00 (Osceola County)

Station 1042 + 95.00 to Station 1121 + 50.00 (Orange County)

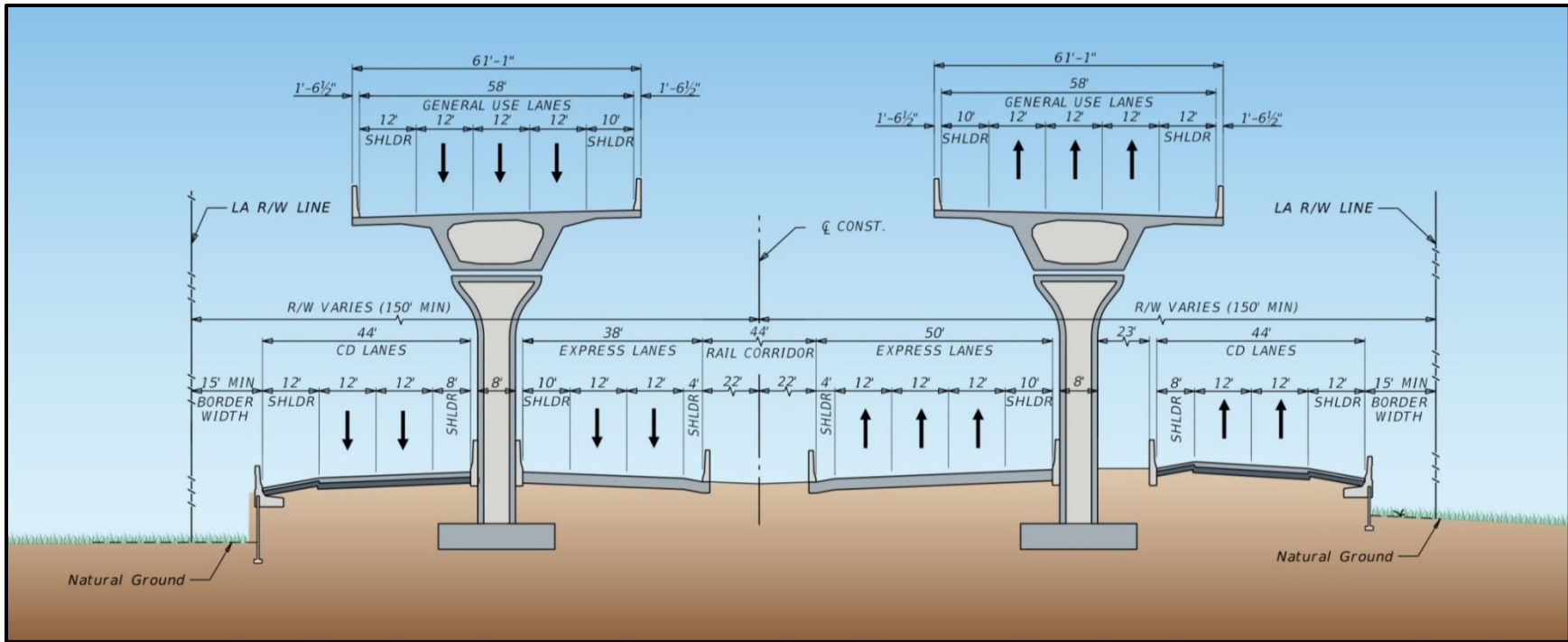
Station 1288 + 00.00 to Station 1365 + 00.00 (Orange County)

SR 400 (I-4) Segment 1 Proposed Typical Section (6+4 with rail envelope)



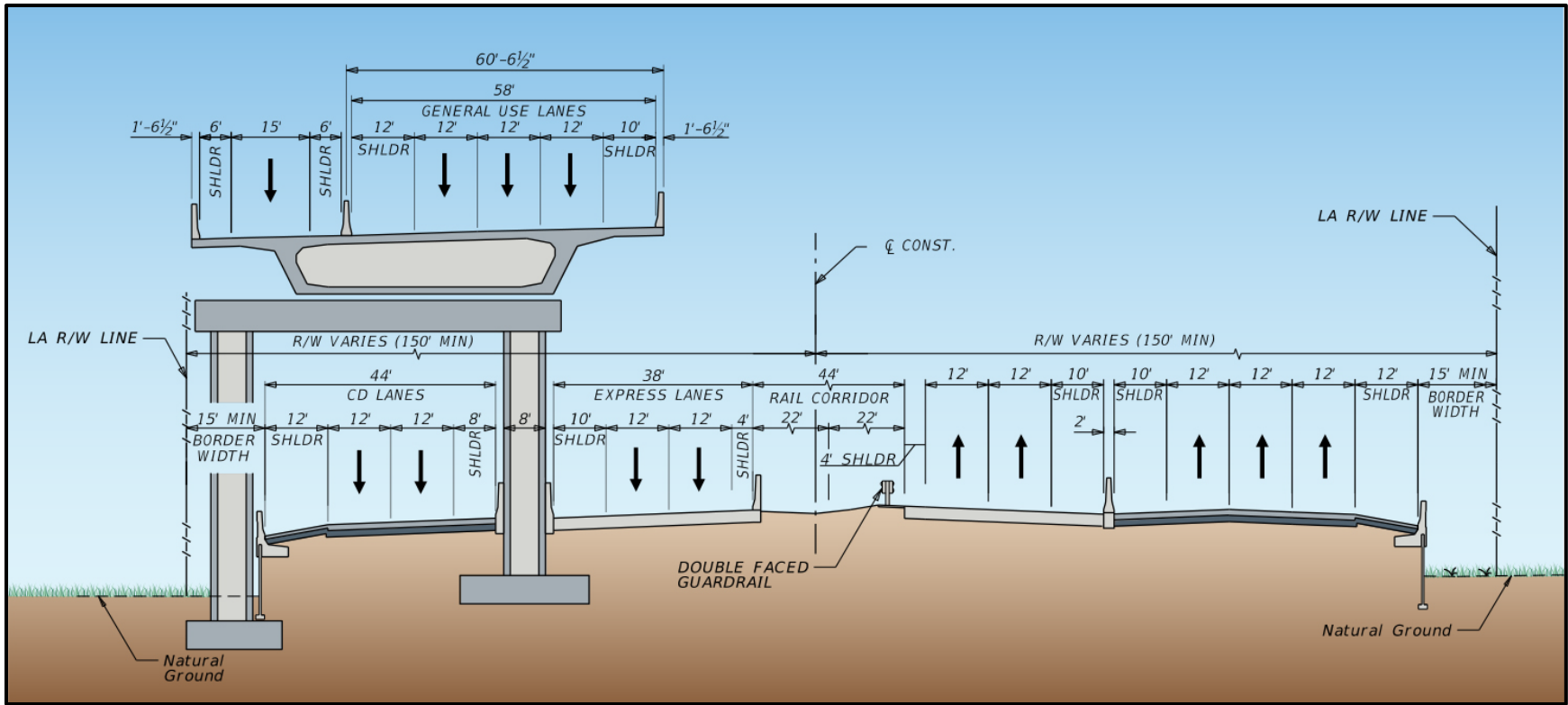
SR 400 (I-4) SPECIAL SECTION
Design Speed - 70 MPH
 Station 759 + 00.00 to Station 828 + 00.00 (Osceola County)

SR 400 (I-4) Segment 1 Proposed Special Section (Bridge Viaduct Between SR 429 and World Drive)



SR 400 (I-4) SPECIAL SECTION
Design Speed - 70 MPH
 Station 1121 +50.00 to Station 1168 + 50.00 (Orange County)

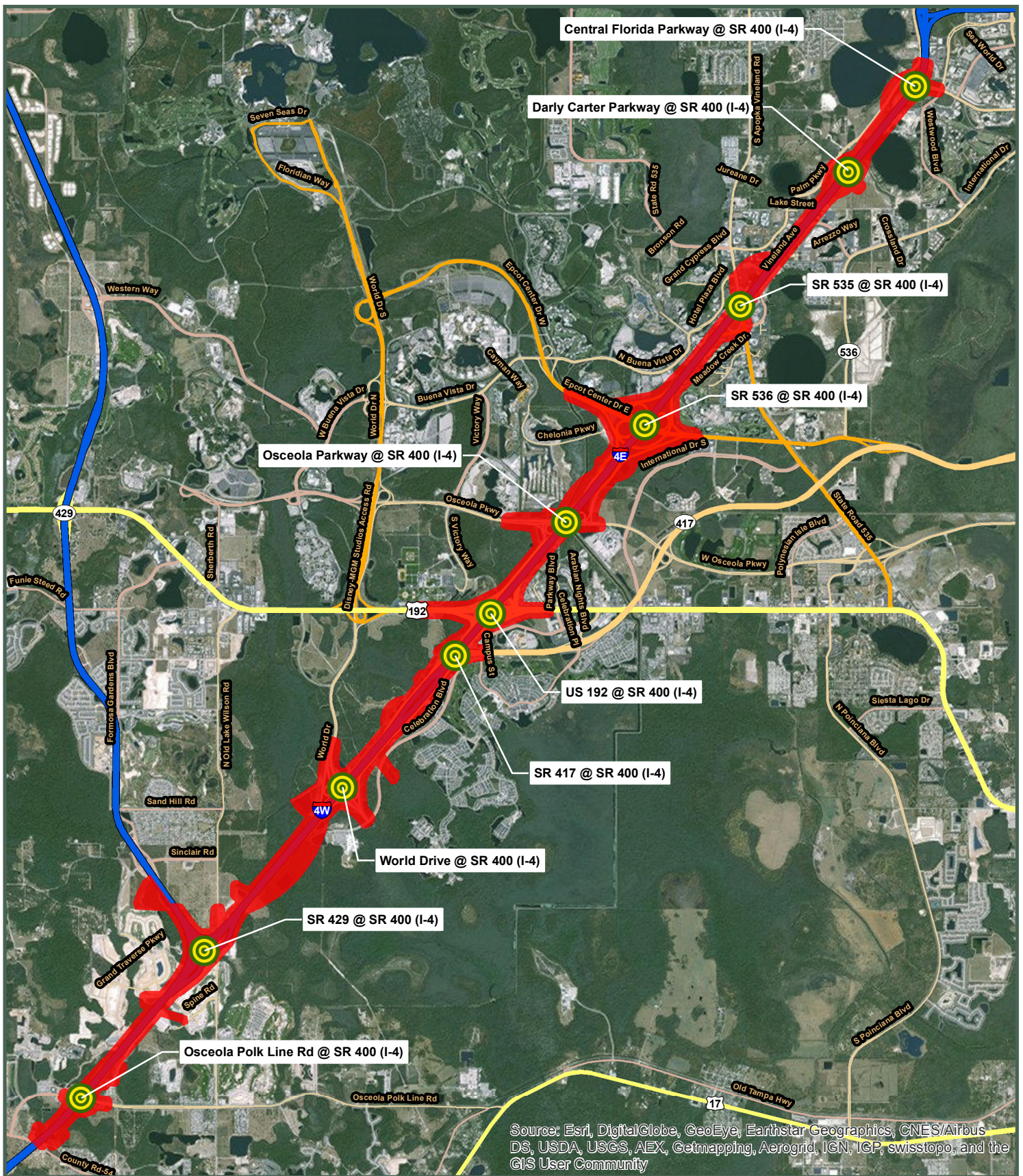
SR 400 (I-4) Segment 1 Proposed Special Section (Bridge Viaduct Between SR 536 and SR 535)



SR 400 (I-4) SPECIAL SECTION
Design Speed - 70 MPH
 Station 1168 + 50.00 to Station 1288 + 00.00 (Orange County)

SR 400 (I-4) Segment 1 Proposed Special Section (Bridge Viaduct Between SR 535 and Daryl Carter Parkway)

Interchange Locations



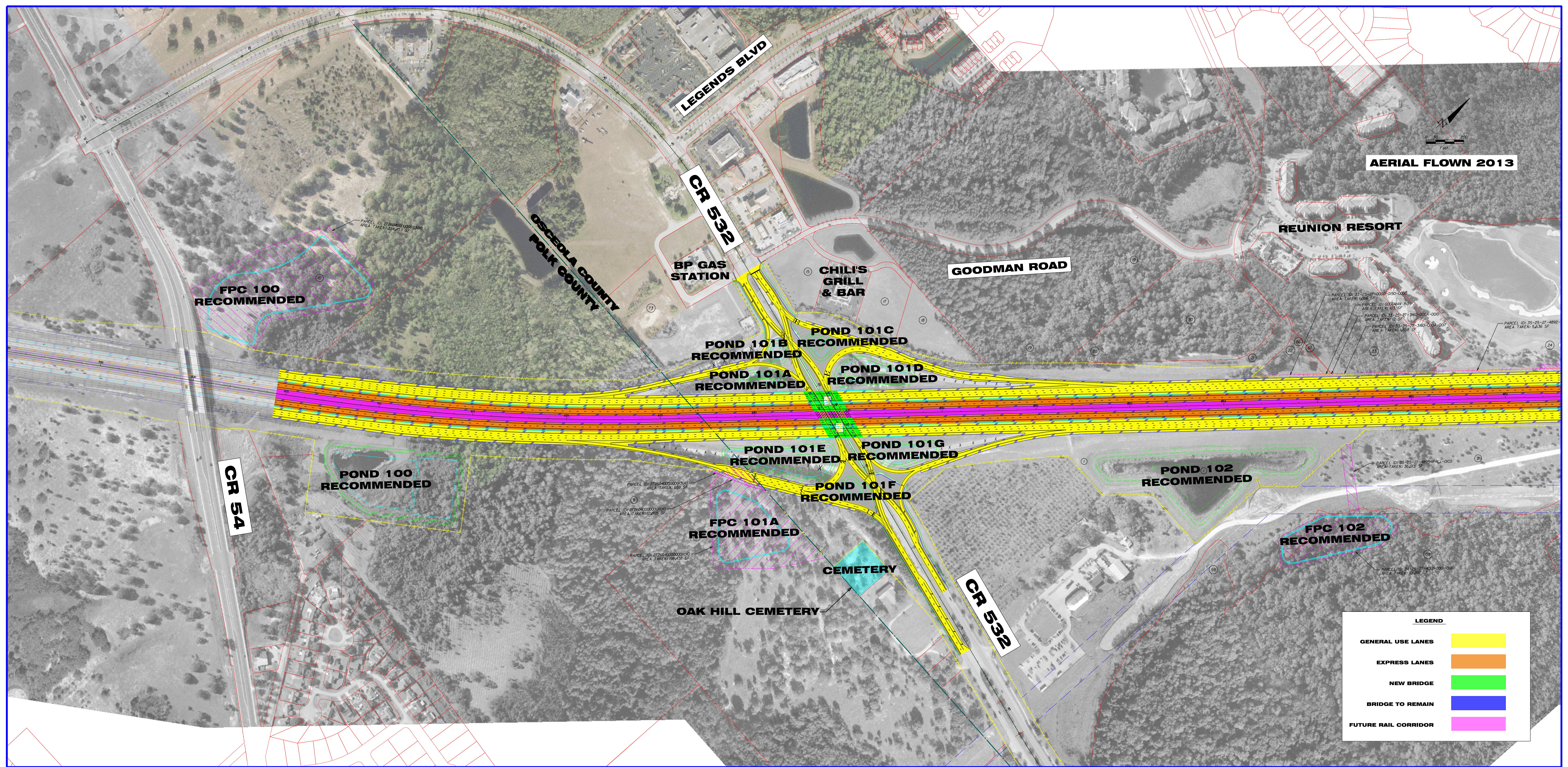
0 3,500 7,000 14,000 Feet

1" = 7,000'

SR 400 (I-4) Project Development and Environment (PD&E) Study | FM No. 432100-1-22-01

CR 532 Interchange

ROLL-OUT-CR532-RECOMMENDED



AERIAL FLOWN 2013

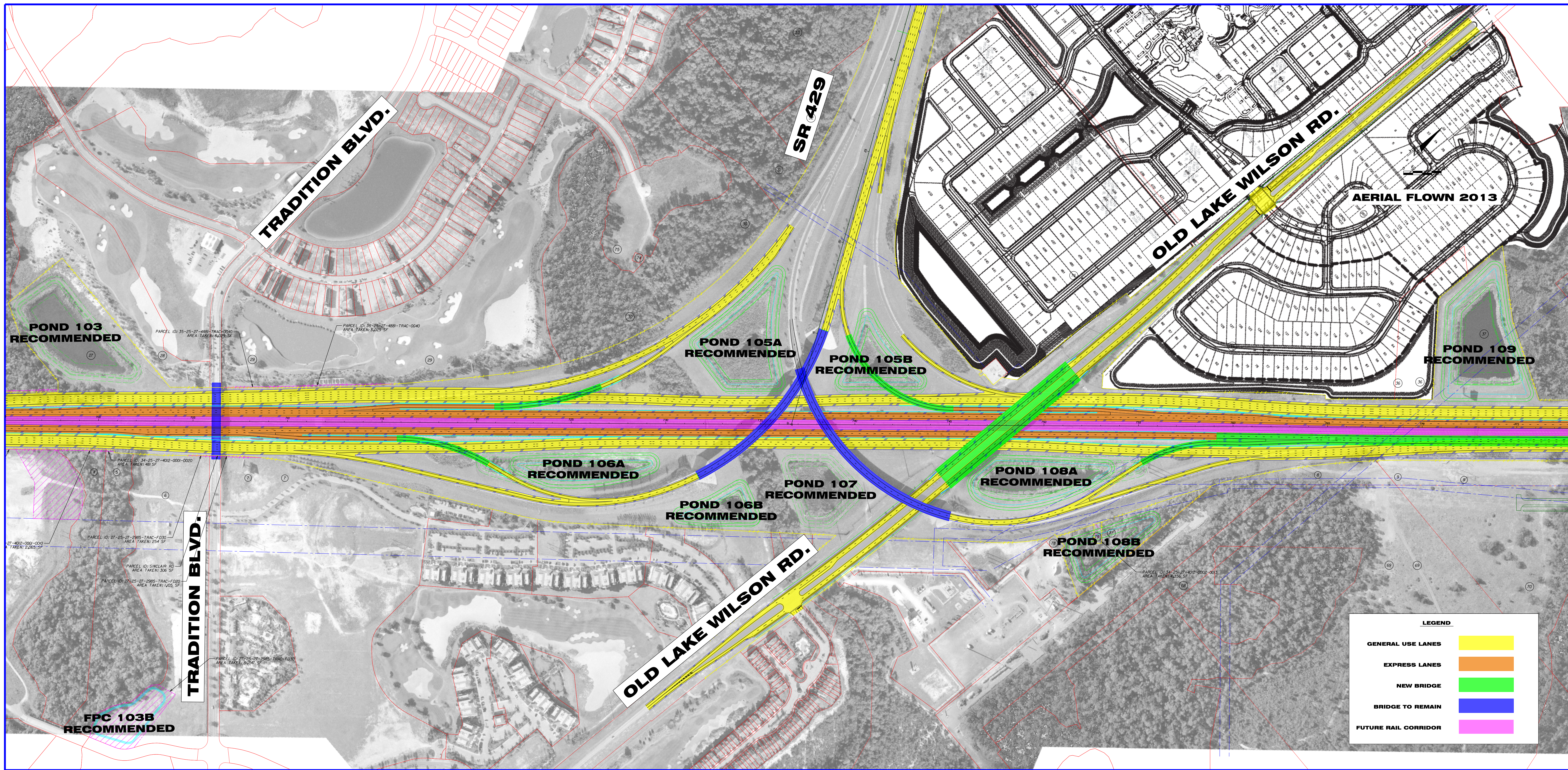
LEGEND	
GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	



**SR-400 (I-4) Segment 1
CR 532 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE**



SR 429 Interchange



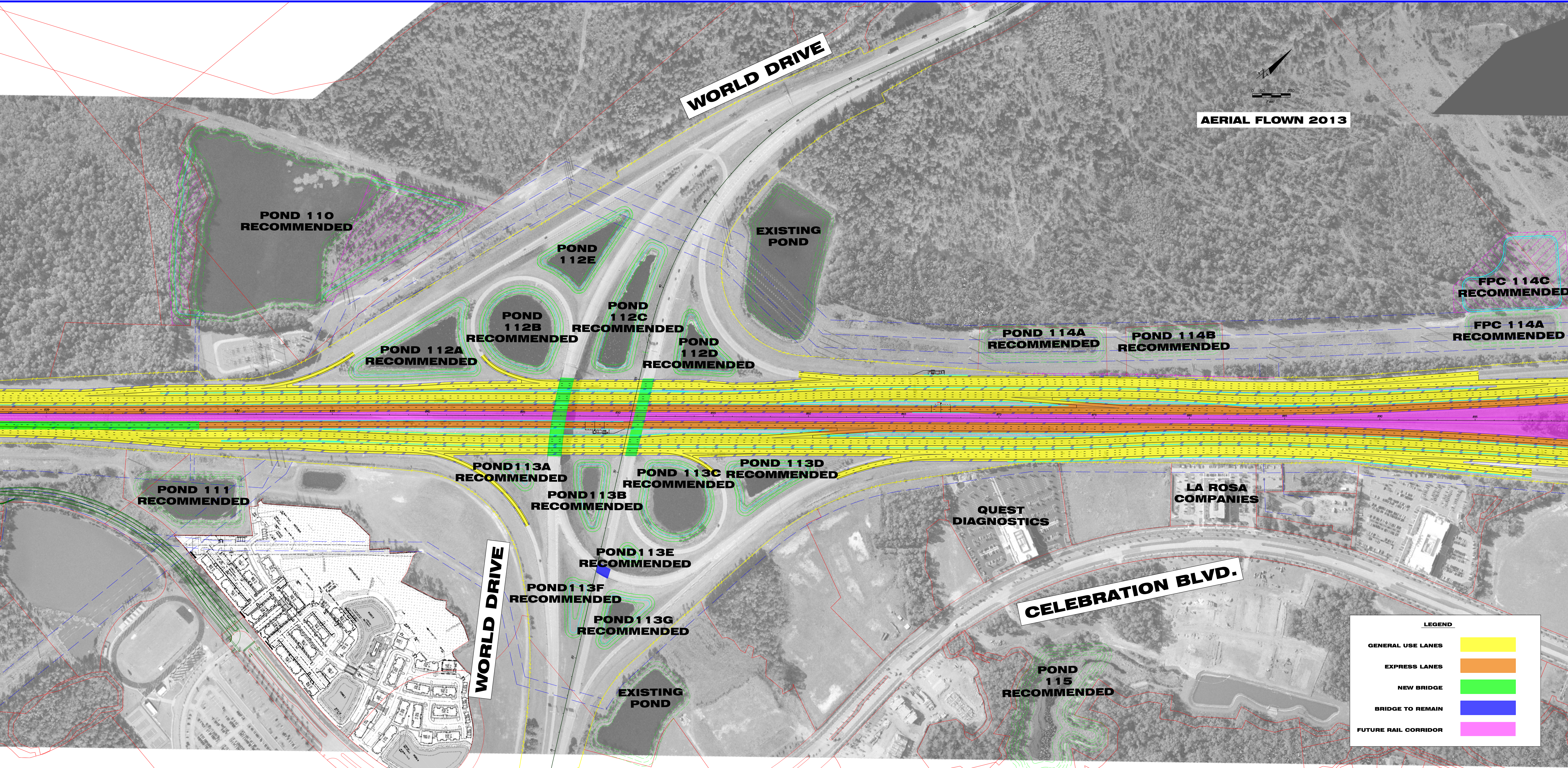
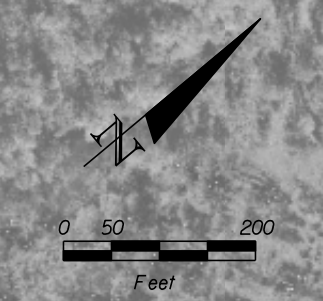
**SR-400 (I-4) Segment 1
SR 429 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE**



World Drive Interchange

ROLLPLOT-WORLD-DRIVE-RECOMMENDED

AERIAL FLOWN 2013

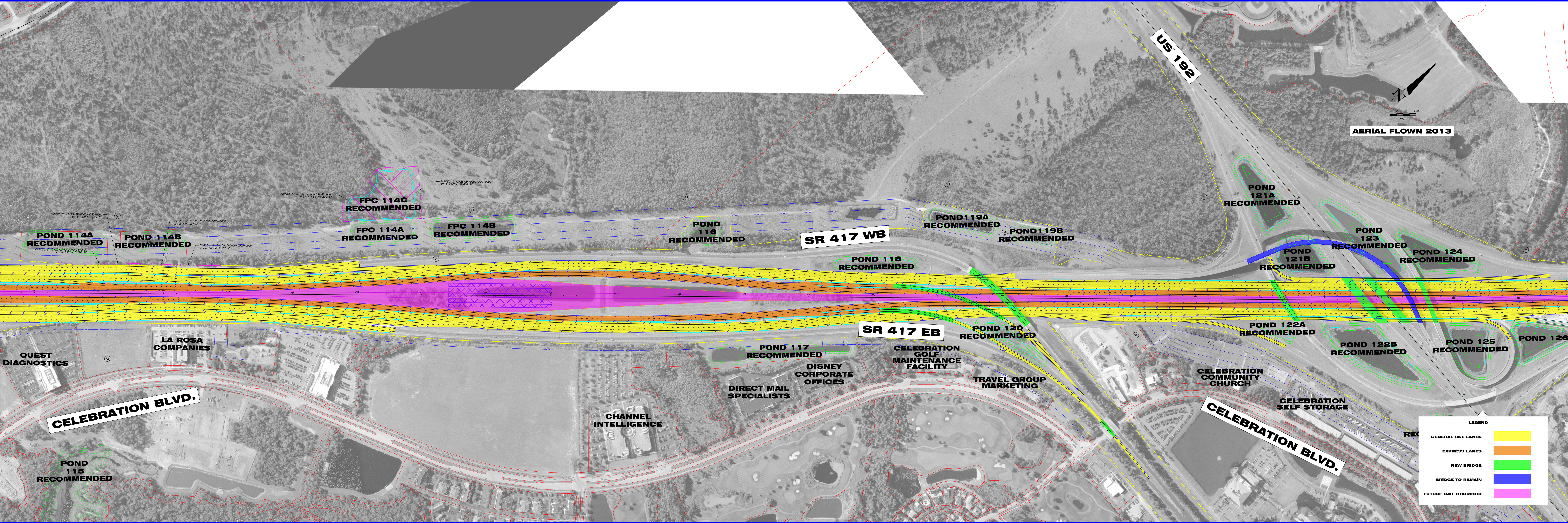


SR-400 (I-4) Segment 1 WORLD DRIVE / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE



SR 417 Interchange

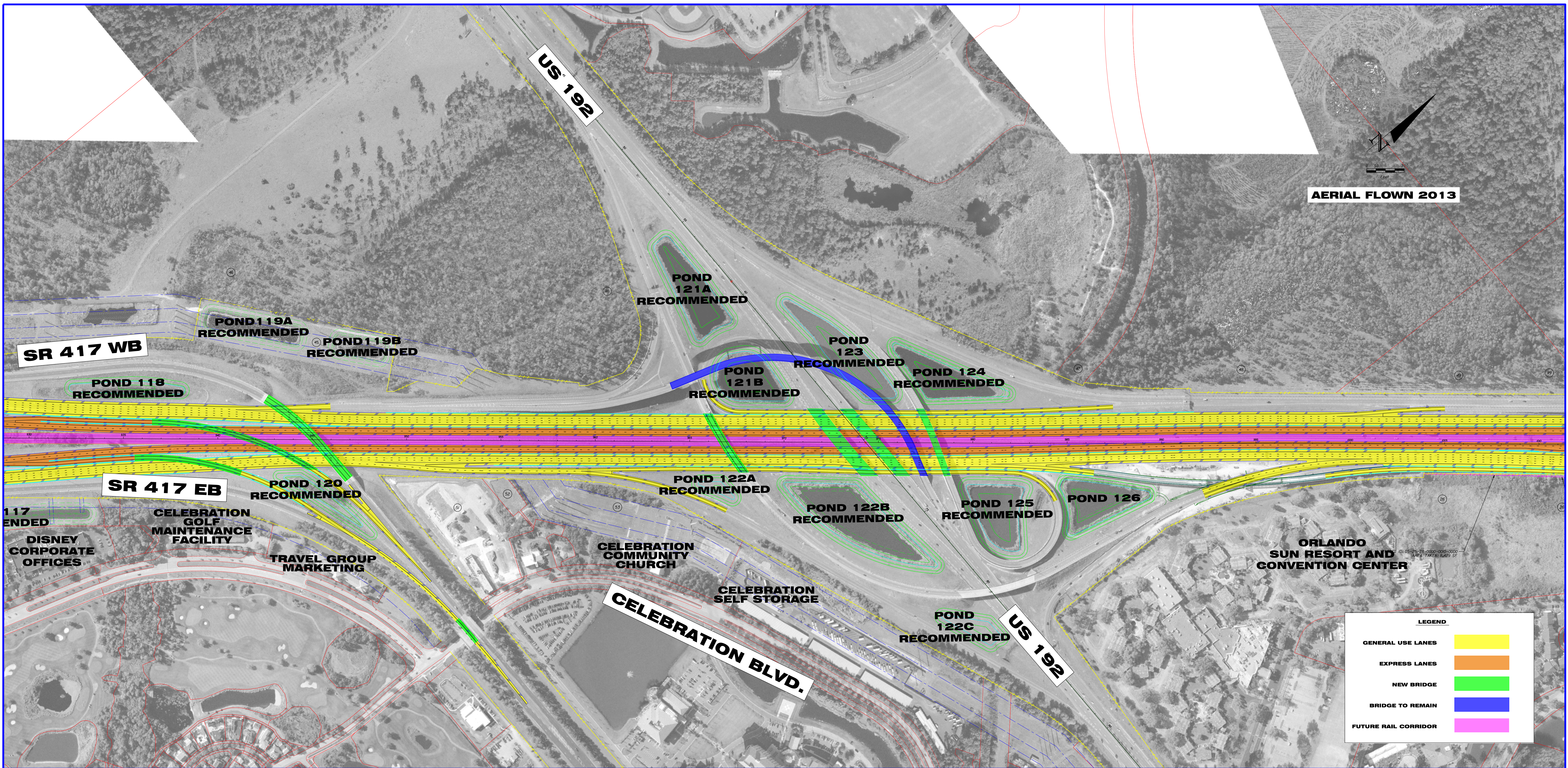
ROLL: 01 SR 417-RECOMMENDED



SR-400 (I-4) Segment 1
SR 417 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE



US 192/SR 530 Interchange



AERIAL FLOWN 2013

LEGEND

GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	



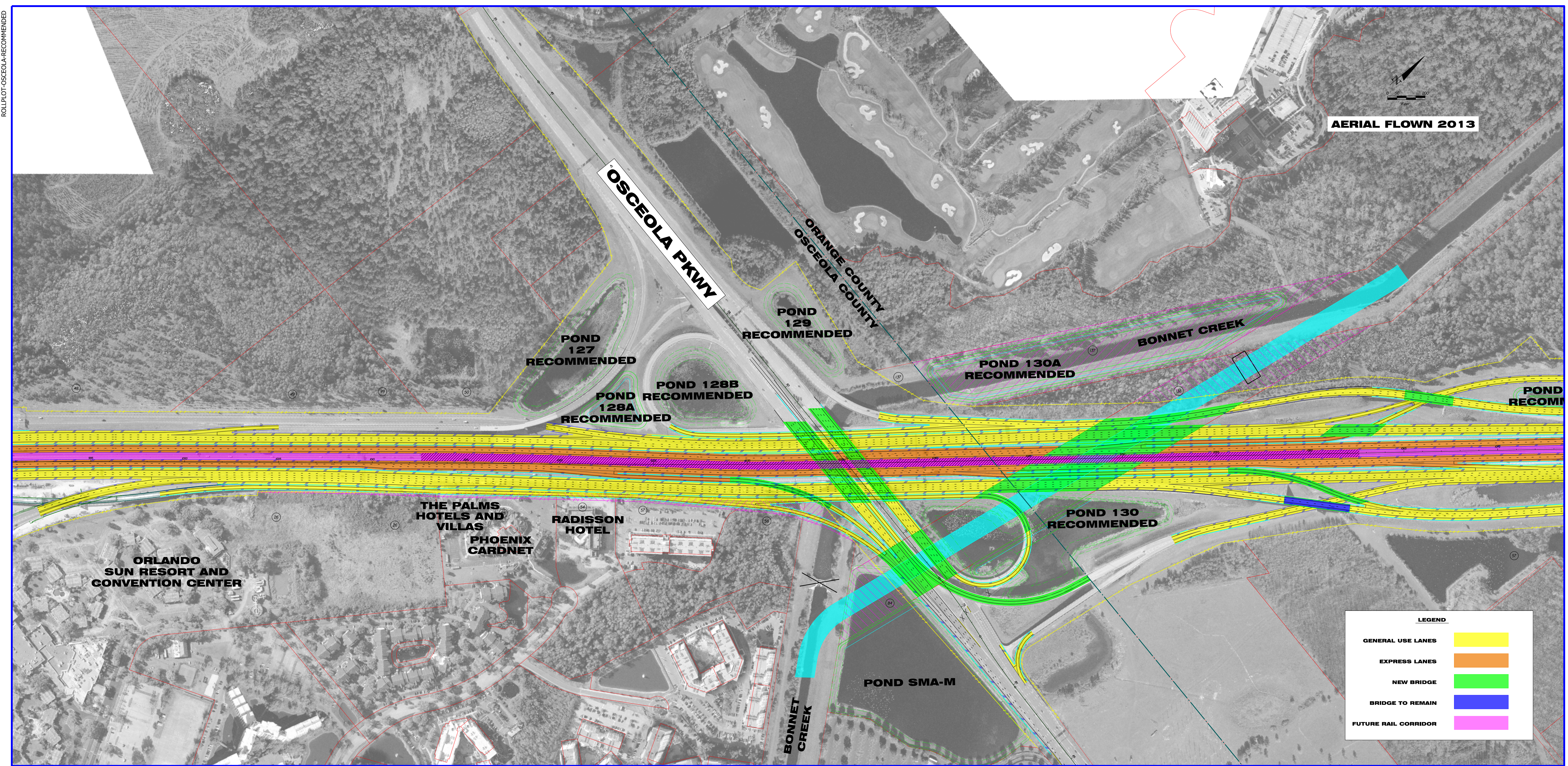
SR-400 (I-4) Segment 1
SR 530 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE



Osceola Parkway Interchange

ROLLPLOT-OSCEOLA-RECOMMENDED

AERIAL FLOWN 2013



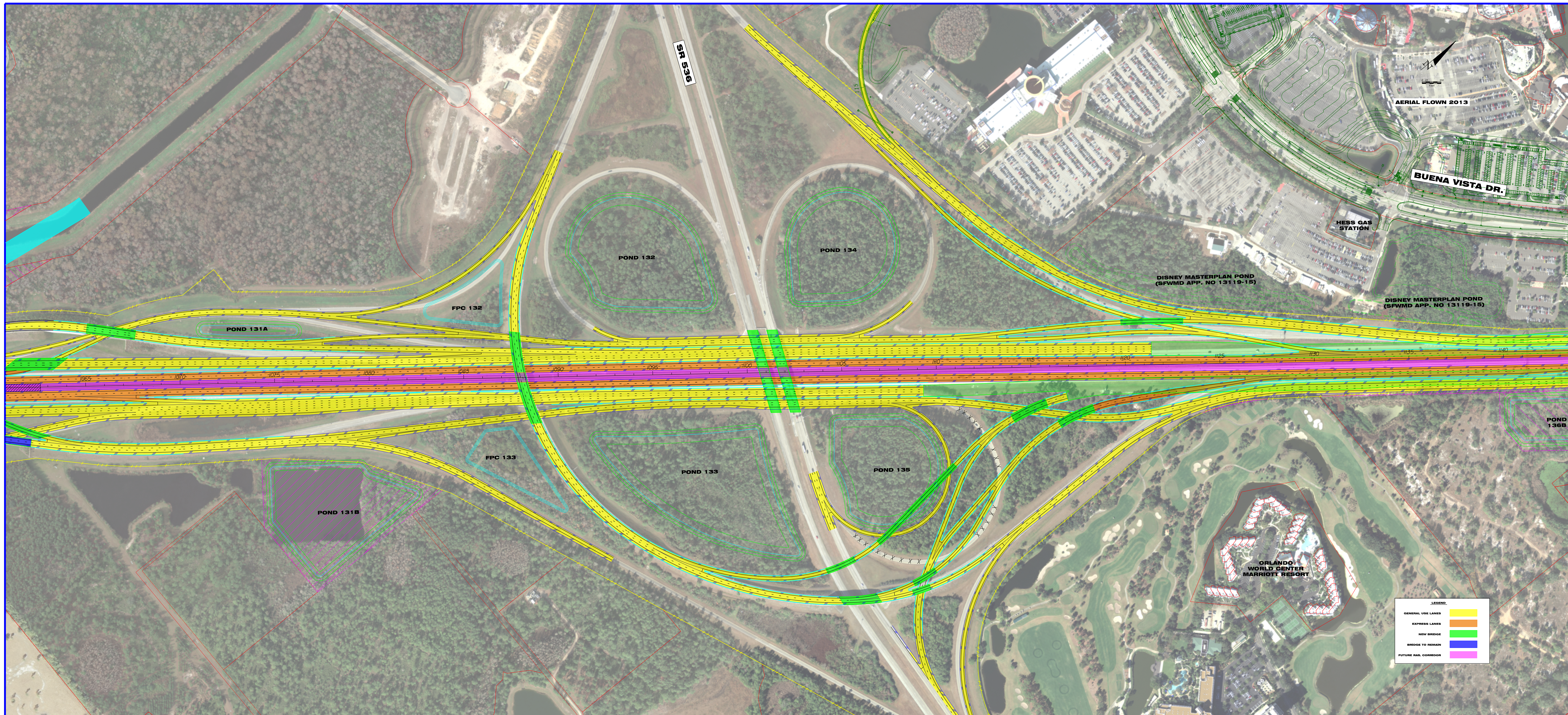
LEGEND	
GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	



**SR-400 (I-4) Segment 1
OSCEOLA PARKWAY / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE**



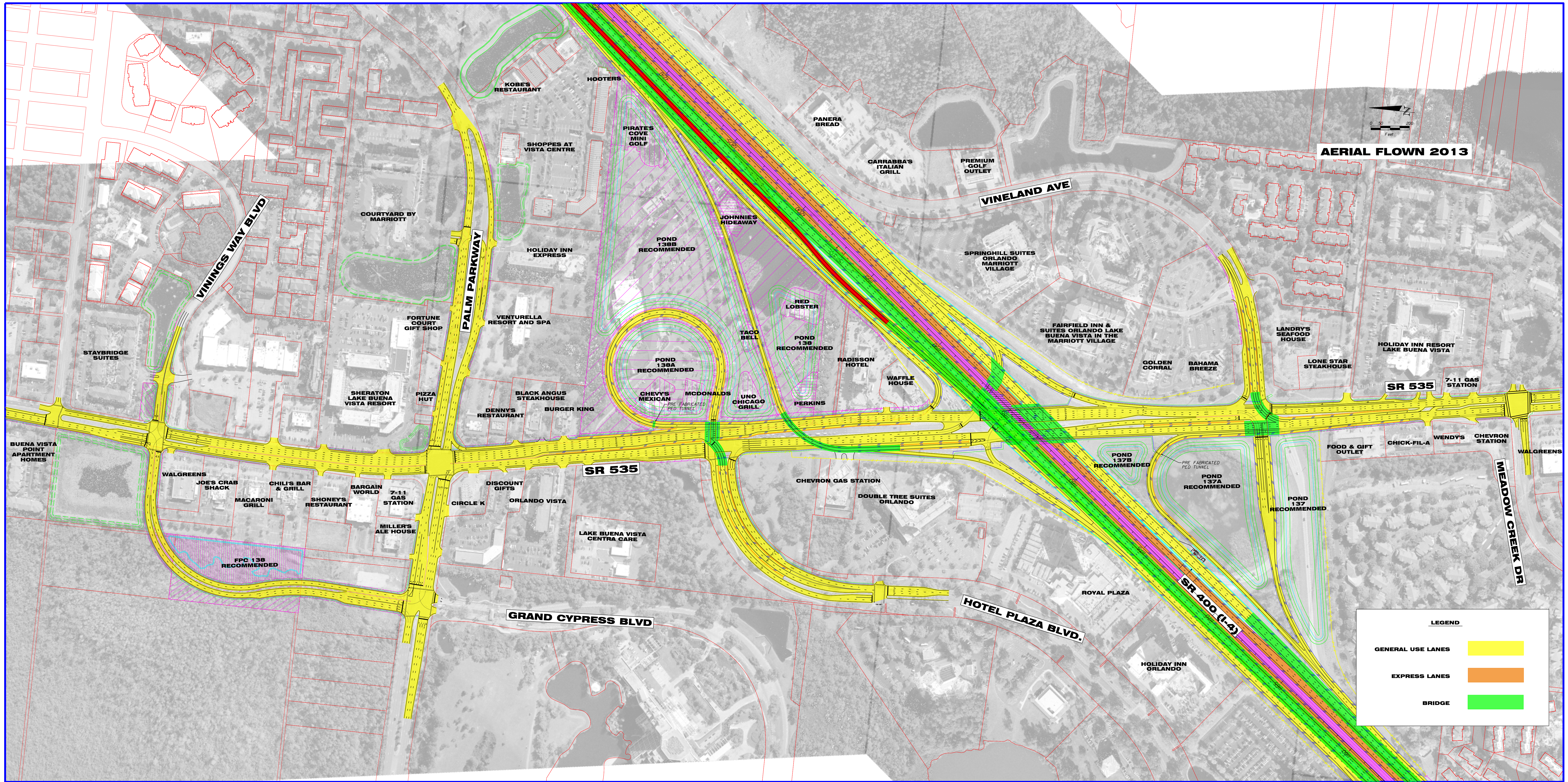
SR 536 Interchange



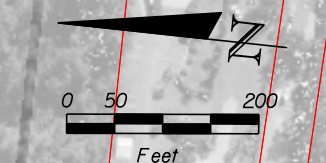
**SR-400 (I-4) Segment 1
SR 536 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE**



SR 535 Interchange



AERIAL FLOWN 2013



LEGEND

- GENERAL USE LANES
- EXPRESS LANES
- BRIDGE

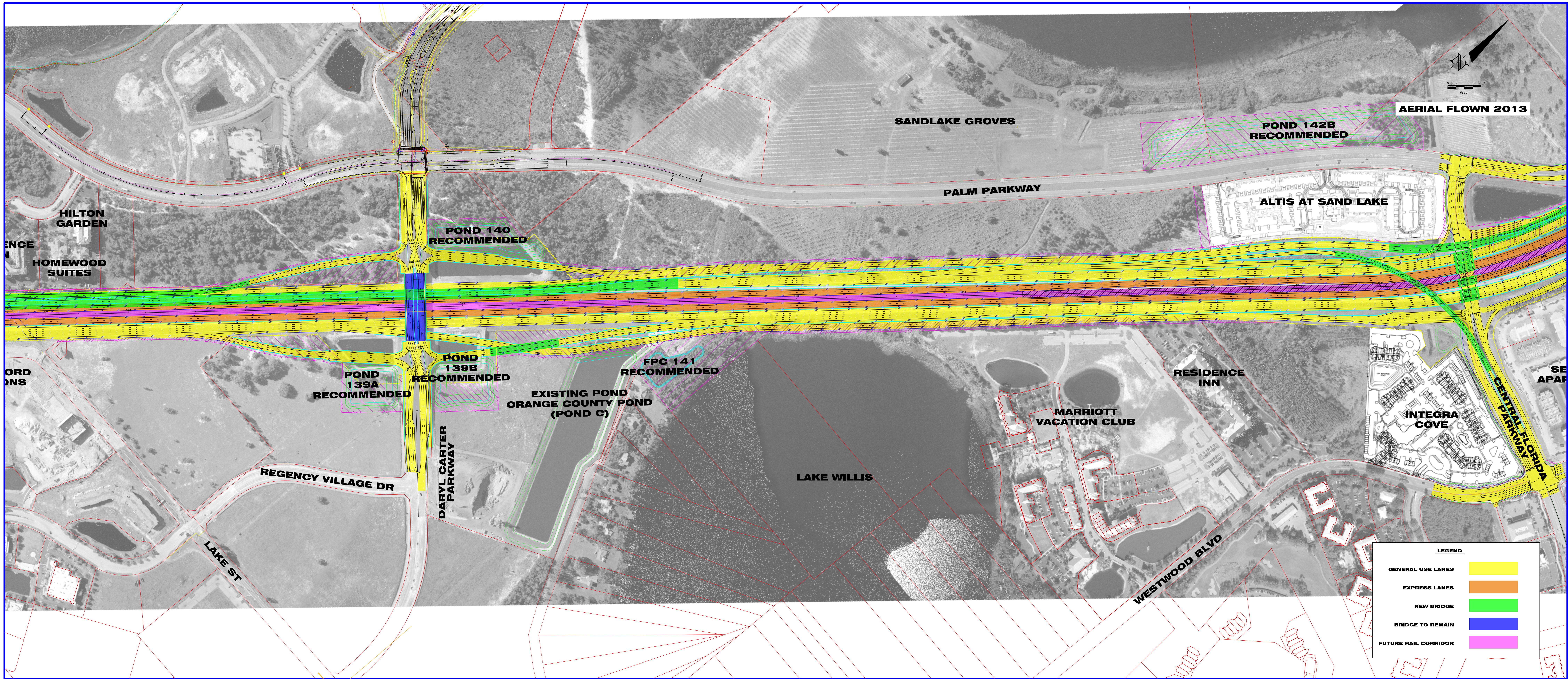


SR-400 (I-4) Segment 1
SR 535 / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE



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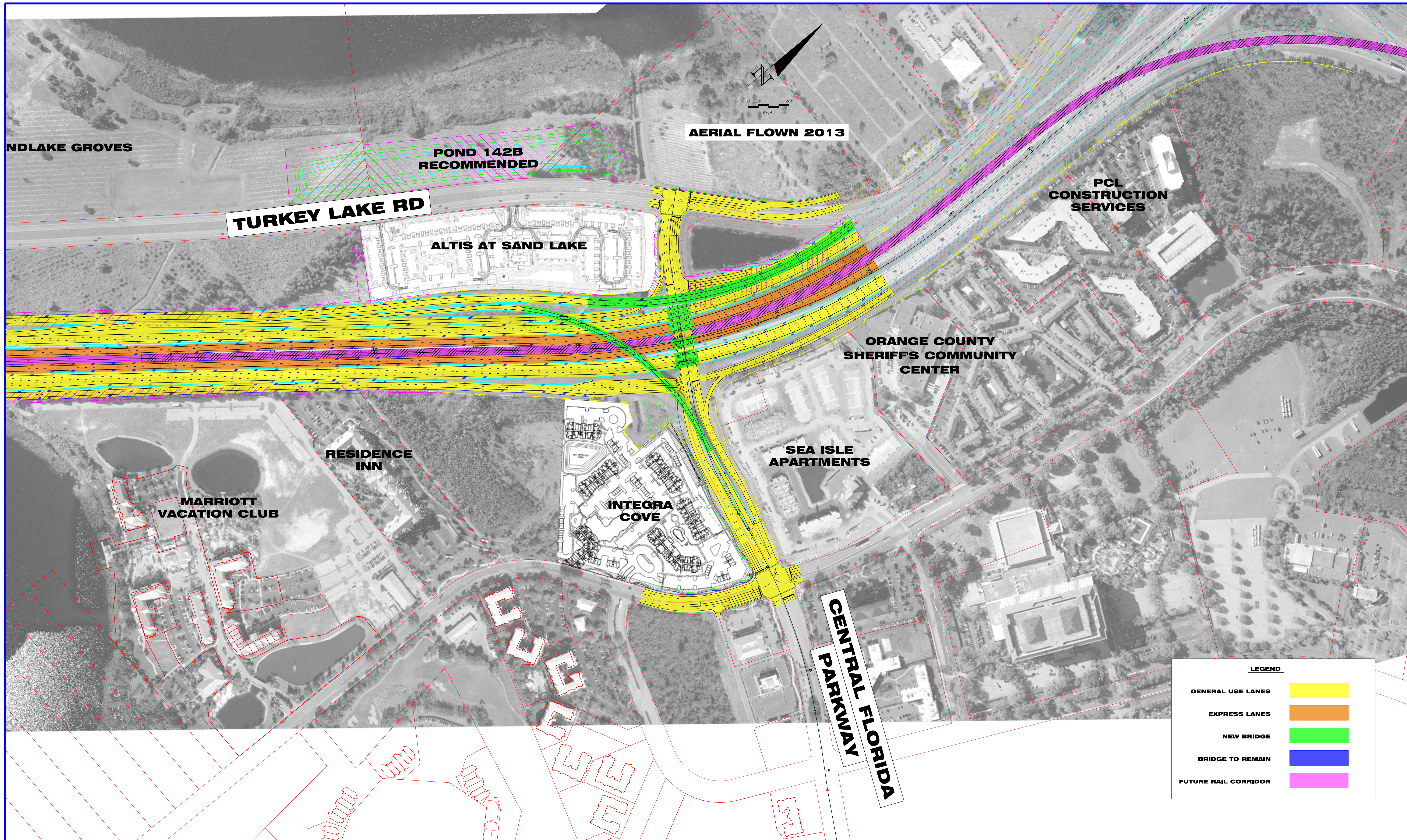
Daryl Carter Parkway Interchange



SR-400 (I-4) Segment 1
DARYL CARTER PKWY / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE



Central Florida Parkway Interchange



AERIAL FLOWN 2013

TURKEY LAKE RD

POND 142B
RECOMMENDED

ALTIS AT SAND LAKE

PCL
CONSTRUCTION
SERVICES

ORANGE COUNTY
SHERIFFS COMMUNITY
CENTER

RESIDENCE
INN

SEA ISLE
APARTMENTS

MARRIOTT
VACATION CLUB

INTEGRA
COVE

CENTRAL FLORIDA
PARKWAY

LEGEND	
GENERAL USE LANES	
EXPRESS LANES	
NEW BRIDGE	
BRIDGE TO REMAIN	
FUTURE RAIL CORRIDOR	



**SR-400 (I-4) Segment 1
CENTRAL FLORIDA PARKWAY / I-4 INTERCHANGE RECOMMENDED ALTERNATIVE**



SHPO Concurrence Letter



Florida Department of Transportation

RICK SCOTT
GOVERNOR

719 S. Woodland Blvd.
DeLand, FL 32720

JIM BOXOLD
SECRETARY

RECEIVED
BUREAU OF
HISTORIC PRESERVATION
MAY 19 2016

RECEIVED
BUREAU OF
HISTORIC PRESERVATION
MAY 2 2016 A 9:24

April 28, 2016

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
& State Historic Preservation Officer
Florida Department of State
Division of Historical Resources
500 South Bronough Street
Tallahassee, Florida 32399-0250

Attention: Ms. Ginny Jones, Transportation Compliance Review Program

RE: SR 400 (I-4) Beyond the Ultimate Project Development & Environment Study
Segment 1 (Osceola and Orange Counties)
Financial Management # 432100-1-22-01

Dear Dr. Parsons,

Enclosed please find the report entitled *Technical Memorandum: Cultural Resource Assessment Survey of Proposed Improvements to Segment 1: State Road 400 (SR 400/Interstate 4 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway), Osceola and Orange Counties, Florida*. The Segment 1 boundaries have been modified since the project was developed to incorporate a small portion of Polk County. The following documents have also been included:

- One SHPO package containing one unbound copy of the CRAS final report, one completed Survey Log Sheet, and accompanying documentation.

The archaeological survey included pedestrian inspection and the excavation of 120 shovel tests within proposed pond footprints. One artifact was recovered during shovel testing, resulting in the identification of one archaeological occurrence. No archaeological sites were recorded. No further archaeological survey is recommended for the proposed ponds.


The architectural survey resulted in the identification of one historic structure, one historic cemetery, and one historic linear resource constructed before 1971 located within Segment 1 of the I-4 APE. The Oak Hill Baptist Church Cemetery (8OS01925) was previously recorded, while 900 Scott Lane (8PO07762) and the Florida Midland Railroad (8OR10235) are newly recorded resources. The historic resources were evaluated to determine their significance and potential for listing in the NRHP. All three resources within Segment 1 of the I-4 APE lack the architectural distinction and significant historical associations necessary to be considered for

listing in the NRHP and are recommended ineligible. No potential NRHP districts were identified.

Based on the results of this study, it is the opinion of the District that the proposed undertaking will have no effect on resources listed or eligible for listing in the NRHP. I respectfully request your concurrence with the findings of the enclosed report.

If you have any questions or need further assistance, please contact Catherine Owen, District Cultural Resource Coordinator, at (386) 943-5383 or me at (386) 943-5411.

Sincerely,

For 
William G. Walsh
Environmental Manager
FDOT, District Five

cc: Beata Stys-Palasz, FDOT District Five
Roy Jackson, FDOT SEMO
Cathy Kendall, FHWA

The Florida State Historic Preservation Officer:

finds the attached report complete and sufficient and concurs/ does not concur with the findings and recommendations contained in this cover letter and the enclosed report.

does not find the attached report complete and sufficient and requires additional information in order to provide an opinion on the potential effects of the proposed project on historic resources.

/s/ J. Aldridge Deputy SHPO
For: Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
& State Historic Preservation Officer

6/23/2016
Date

2016-1348
DHR No.

USFWS Biological Opinion



United States Department of the Interior

U. S. FISH AND WILDLIFE SERVICE

7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:

FWS Log. No. 04EF1000-2016-F-0430

August 26, 2016

Cathy Kendall, AICP
Senior Environmental Specialist
FHWA - FL, PR and VI
3500 Financial Plaza, Suite 400
Tallahassee, FL 32312

Dear Ms. Kendall:

This document is the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed SR 400 (I-4) Beyond the Ultimate-Segment 1 widening and improvement project in Orange and Osceola Counties, Florida, and its effects on the threatened sand skink (*Neoseps reynoldsi*) [*Plestiodon reynoldsi*] and scrub lupine (*Lupinus aridorum*) per section 7 of the Endangered Species Act (Act) of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). The Service received your written request to initiate formal consultation on April 6, 2016, for improvements to I-4 Beyond the Ultimate (BtU)-Segment 1. The proposed project will be addressed in this biological opinion as requested by the applicants.

This biological opinion is based on information provided by the Florida Department of Transportation (FDOT) and Federal Highway Administration (FHWA), prior technical assistance and informal consultations with FDOT, field investigations, and other sources of information. A complete administrative record of this consultation is on file at the Service's North Florida Ecological Services Office, Jacksonville, Florida.

BIOLOGICAL OPINION

A Biological Opinion is a document that includes the Service's analysis of whether the proposed action, the SR 400 (I4) Beyond Ultimate Segment 1, is likely to jeopardize the continued existence of sand skinks (*Plestiodon reynoldsi*) and scrub lupine (*Lupinus aridorum*). "To jeopardize the continued existence of a listed species" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of the species (50 CFR §402.02). Because critical habitat has not been designated for the sand skink or scrub lupine, this Biological Opinion will not discuss critical habitat or analyze adverse modification.

CONSULTATION HISTORY

The summary presented below highlights our early coordination and discussions about sand skinks, which is the focus of the action agency's request for Formal Consultation. The Service provided technical guidance on specific roadway sections and survey methods. A separate informal consultation was completed for this project.

The following list is presented in reverse chronological order, starting with the most recent coordination with the Service.

2016 August 26, The Service provided a draft Biological Opinion to the FHWA and FDOT to review and provide comments.

2016 June 1, Representatives of FDOT, Service staff from both North Florida and South Florida field offices, and project consultants attended a field meeting to determine the areas of skink occupied habitat based upon the site characteristics and the cover board survey results.

2016 May 11, FHWA, FDOT, the Service and project consultants met at the Service's office to discuss the new designation for skink occupied habitat and resultant increased project impacts.

2016 April 6, FHWA requested formal consultation with the Service for I-4 BtU - Segment 1.

2016 March 8, FDOT requested informal consultation for I-4 BtU Segment 1. Informal consultation for this segment was concluded on April 11, 2016. The informal consultation covered Florida scrub jays, wood storks, snail kites, crested caracara, and eastern indigo snakes.

2015 December 17, FDOT, FHWA, project consultant (Stantec) and the Service met to discuss needs for consultation for I-4 extension of proposed express lanes. The decision was made to send the Service a request for informal consultation and another request for formal consultation.

2014 October 22, Service staff in the North Florida Office (Jane Monaghan) communicated to FDOT and project consultant that survey results were reviewed and that concurrence for a MANLAA for sand skinks was possible.

2014 May 12, Project consultant sent South Florida staff (John M. Wrublik) message indicating negative results of cover boards for Osceola County, FL.

DESCRIPTION OF PROPOSED ACTION

As part of the I-4 Beyond the Ultimate concept FDOT is proposing to reconstruct and widen SR 400 (I-4). The project consists of the build-out of I-4 to its ultimate condition through Central Florida. The design proposes the addition of two new express lanes in each direction, resulting in a total of ten dedicated lanes. The proposed improvements to I-4 include widening the existing six lane divided urban interstate to a ten lane divided highway. The typical section will be consistent throughout Segment 1 and will have three 12-foot general use travel lanes with 10-foot inside and 12-foot outside shoulders and two 12-foot express lanes with 4-foot inside and 10-foot outside shoulders in each direction. A barrier wall

between the adjacent shoulders will separate the express lanes from the general use lanes. Twelve-foot auxiliary lanes will be provided in some areas in both the eastbound and westbound directions. The typical section includes a 44-foot rail envelope in the median within a minimum 300 foot right of way.

The focus of this consultation is Segment 1: SR 400 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway in Osceola and Orange Counties, Florida. Construction work will include the use of heavy machinery to clear vegetation, compact soils, and construct the proposed project. All fill, dirt hauling, asphalt paving, and staging areas for the proposed construction will occur in the construction right-of-way.

Based on survey results, the FHWA and FDOT determined the proposed project “may affect and is likely to adversely affect” the sand skink and scrub lupine. The Service concurs with this determination. For the scrub lupine we found that while adverse effects will result, the species will not be jeopardized. Because it is a plant, take is not prohibited.

Action area

The action area is defined as all areas to be directly or indirectly affected by the Federal action and not merely the immediate area involved in the action. The action may result in a variety of indirect and cumulative effects in the project area. Also, it may potentially encouraging new development resulting in the loss of additional sand skink habitat and sand skinks.

Consequently, existing sand skink habitat in the project area is threatened by future development and increased fragmentation of the landscape. However, the extent of the project’s effects on the surrounding lands is difficult to discern. The action area identified for this project is SR 400 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway in Osceola and Orange Counties, Florida (Figure 1). FDOT and FHWA have identified 14.5 acres of potential suitable habitat for sand skinks in a proposed pond site for this Segment of I-4. The Service has established a skink action area for this project that includes all lands within the proposed Pond Site 105A and a buffer of 188 feet that includes all undeveloped lands with suitable soils (excessively drained to moderately well drained) adjacent to the project footprint (Figure 2). The action area as described above is sufficient to capture the direct, indirect, and cumulative effects resulting from the proposed roadway improvements.

The scrub lupine was observed west of Turkey Lake Road, to the west of the SR 528 Interchange at westbound I-4 in five areas surveyed for sand skinks in 2014 (Area H, Area K, Area L, Area M, and Area O). The footprint of Pond Site 139B and the edge of the proposed right-of-way northeast of the Daryl Carter Parkway overpass overlap an individual observation of scrub lupine. For the scrub lupine the action area was identified as the total project area (Figure 3) surrounding the areas where the species was identified, as mentioned above.

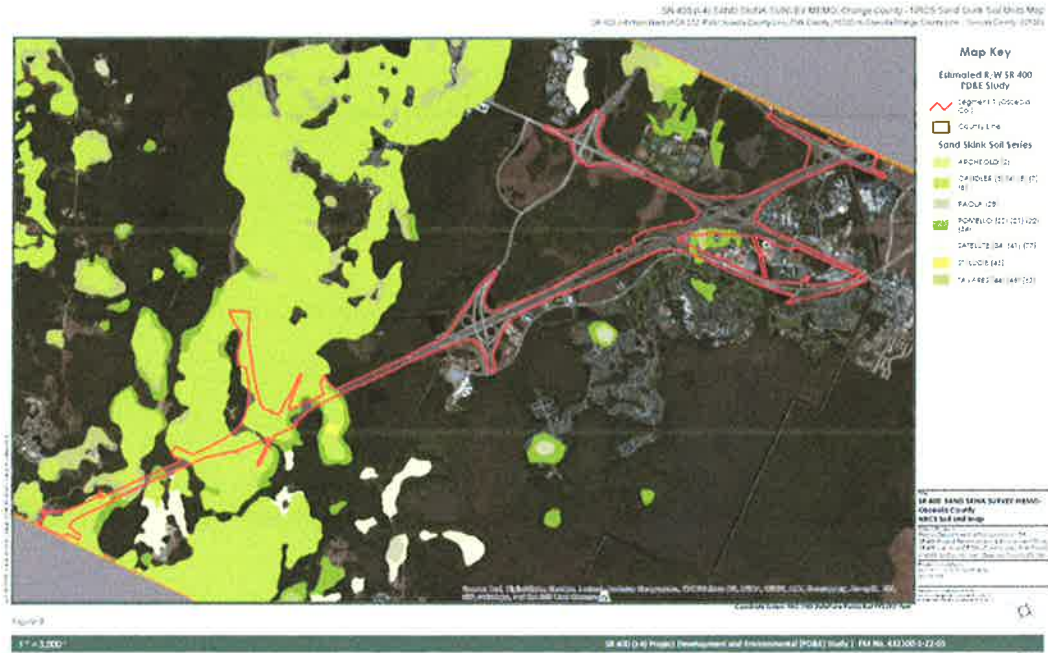


Figure 1. Project area (red) showing sand skink soils



Figure 2. Pond Site FPC 105, sand skink habitat.



Figure 3. Identified scrub lupine habitat and occurrences at proposed project.

Conservation Measures

Conservation measures are actions to benefit or promote the recovery of a listed species that are included by the Federal agency as an integral part of the proposed action. These actions are taken by the Federal agency or applicant and serve to avoid, minimize, or compensate for project effects on the listed species.

Conservation Measure 1: Compensation for Sand Skink Habitat Loss

FHWA and FDOT propose to offset impacts by providing compensatory mitigation at a Service-approved conservation bank at 2:1 ratio. The compensation acres are based on surveys that determined sand skink occupancy within the Pond Site FPC 105 for the project (10.0 acres of impacts). FDOT and FHWA will provide 20.0 credits to offset project impacts to occupied sand skink habitat.

Conservation Measure 2: Scrub lupine conservation

During permitting the proposed project will be re-surveyed for occurrence of scrub lupine. In coordination with Bok Tower Gardens, the following will occur: collection of seeds, or translocation of plants out of the project footprint for replanting in lands acceptable to the Service (e.g., public conservation lands). Collected seeds would be provided to Bok Tower Gardens for reproduction and conservation of the species.

STATUS OF SPECIES/CRITICAL HABITAT

The most recent review of the sand skink can be found in the 5-year review (Service 2007) and in the 5-year review for the scrub lupine (USFWS 1996). This review builds on the detailed information in the Multi-Species Recovery Plan (MSRP) (Service 1999). The MSRP is incorporated by reference and can be used to obtain more detailed information about these species. Additional species information was obtained from the Peninsular Florida Species Conservation and Consultation Guide (Service 2012).

Scrub Lupine

Species/critical habitat description

Appearance/Morphology

Lupinus aridorum is a woody, perennial herb, with sprawling stems up to 1 m long. The leaves are obovateelliptic, 4 to 7 cm long and 2 to 4 cm wide. The base and end of the leaf are rounded with a sharp point at the leaf's end. The petioles are 2.0 to 4.5 cm long and the stipules are very small or absent. A silvery pubescence covers the leaves and stems. The flowers are a pale flesh-colored pink and are 4 to 5 cm long. The upper petal (standard) has a black center surrounded by a maroon area. They are arranged in racemes with stalks 4 to 13 cm long. Each raceme has 5 to 14 flowers, but up to 25 on occasion (Stout in press). *Lupinus aridorum* fruits are long, woody, and elliptical with a pointed end. It is differentiated from *L. villosus*, the only other pink flowering lupine, in that *L. aridorum* is not prostrate, has hairs on the leaves and stem, and is the only upright pink-flowering lupine in Florida.

Taxonomy

Until being named *L. aridorum* in 1982, this taxon was identified as *L. diffusus* and *L. westianus* (52 FR 11172). Isley (1986, 1990) evaluated the systematics of *L. aridorum* in his floristic treatment of the pea family (Fabaceae) in the Southeast and concluded that *L. aridorum* belongs to the same species as *L. westianus* of the Gulf Coast of northwest Florida, which differs mainly in flower color (blue). Isley's taxonomic status for the central Florida plant is *L. westianus* var. *aridorum* (McFarlin ex Beckner) Isley. However, the former classification *L. aridorum* was used to list the species (52 FR 11172), and will be used here to maintain consistency.

Life History

The scrub lupine was first collected in 1900 in Orange County, Florida. It was not collected again until it was found in Polk County in 1928 and 1937. Renewed survey efforts in the early 1970s and the early 1980s greatly expanded the knowledge of the species distribution in both Orange and Polk counties (Figure 1). Scrub lupine is now known from two distinct areas. In western Orange County (Orlando area) it is found on the southern Mount Dora Ridge from the Apopka-Plymouth area south, past Lake Buena Vista. In South Florida it is found in north-central Polk County on the Winter Haven Ridge near Auburndale and Winter Haven.

The scrub lupine has been found in bloom between March and May. The seed pods mature by June, and the seeds fall off the plant and take root nearby or remain in a long-lived seedbank (T. Race, Bok Tower Gardens, personal communication 1996, J. Stout, University of Central Florida, personal communication 1996). Recent information indicates the plant may bloom from one to three times throughout its life, though few seeds are produced the first year (J. Stout, University of Central Florida, personal communication 1996). Pollinators of this species are unknown.

Habitat

The scrub lupine grows primarily on well-drained sandy soils of the Lakewood or St. Lucie series (Wunderlin 1984). These soils are very dry and have very little organic accumulation (Lowe *et al.* 1990). The sands are white or occasionally yellow and generally support sand pine scrub (Wunderlin 1984). They are also quite acidic with a pH from 4.0 to 4.5 (J. Stout, University of Central Florida, personal communication 1996).

The natural habitat for *L. aridorum* is believed to be sand pine and rosemary scrub (J. Stout, University of Central Florida, personal communication 1996). Scrub lupine probably existed in sunny gaps until succession of the scrub resulted in excessive shading and closure of open, sunny patches. After long periods without disturbance, gap specialists usually become less common in scrub communities. Regrowth of *L. aridorum* after fire or other disturbances occurs from seedbanks stored in the sand.

Most of the sites where *L. aridorum* is now found are moderately to severely disturbed by soil scraping, road construction, land clearing, or offroad vehicles (Stout *in press*). With these disturbances and associated vegetative responses, it is difficult to determine what the “natural” vegetative cover may have been. However, Wunderlin (1984) found the predominant overstory for this species to be sand pine (*Pinus clausa*), longleaf pine (*Pinus palustris*), and occasionally turkey oak (*Quercus laevis*). The shrub layer tends to be sparse at *L. aridorum* sites; however this may be a result of manmade disturbances to the soil. Shrub species most frequently found in association with *L. aridorum* include rosemary (*Ceratiola ericoides*), scrub live oak (*Quercus geminata*), rusty lyonia (*Lyonia ferruginea*), *Palafoxia feayi*, tallowwood (*Ximenia americana*), and an occasional cabbage palm (*Sabal palmetto*). The herbaceous layer is mostly wiregrass (*Aristida beyrichiana*).

Status and distribution

Distribution

Like many other Florida scrub endemics, *L. aridorum* has suffered from habitat loss due to urban and agricultural expansion. Currently, most of the estimated 1,000 individuals of this species occur in habitats that have already been highly modified or are threatened by future land clearing for residential housing; road construction and maintenance; pedestrian, horse, and off-road vehicles; and conversion to pasture land. It is endemic to 2 counties in central FL: Orange County on the southern Mount Dora Ridge and Polk County on the Winter Haven Ridge. Throughout much of its range, the scrub lupine is afforded little protection; it occurs on fewer than 2 ha of public land (excluding road rights-of-ways) (Stout *in press*). The limited distribution

of *L. aridorum* makes it especially vulnerable to loss of habitat. As a result of these threats, this species was federally listed as an endangered species on April 7, 1987 (52 FR 11172).

In South Florida, only six sites are inhabited by *L. aridorum*. They are in Polk County, near Winter Haven and Auburndale. The sites near Auburndale are threatened by land clearing to support a rapidly growing human population. Presently only small tracts of scrub remain among expanses of residential development. Polk County sites total only about 380 ha (Christman 1988). The status of the 10 sites inhabited by *L. aridorum* in Orange County is important to evaluate the pressures on this species. All 10 sites are between the City of Orlando and Walt Disney World. Orlando has been, and continues to be, one of the most rapidly growing cities in Florida. The portion of the species' range in western Orange County is largely urbanized, with many of the remaining sites composed of small remnants of the original scrub, including vacant residential lots and the right-of-ways of the Florida Turnpike. These are also rapidly expanding communities whose human population growth threatens the continued existence of *L. aridorum*.

Status

Although the species is not abundant or well-distributed, the seeds of *L. aridorum* may be numerous in many locations in which it historically grew. This species may persist only in the form of a seed bank in many heavily vegetated scrubs (J. Stout, University of Central Florida, personal communication 1996). In most known localities, *L. aridorum* grows aggressively following soil disturbance, because of the open patches of bare sand resulting from these disturbances. Since fire and other sources of disturbance have been excluded from many scrub sites, succession and the subsequent growth of other scrub vegetation probably have out-competed *L. aridorum* in many historic localities. Even though seed sources may be available in many of these locations, vegetative surveys rarely locate seeds, and these potential sources of plants are overlooked and rarely considered when reviewing areas for acquisition or protection needs.

Analysis of the species/critical habitat likely to be affected

It is difficult to adequately assess the status and population dynamics of the scrub lupine. The status of the 10 sites inhabited by *L. aridorum* in Orange County is important to evaluate the pressures on this species. All 10 sites are between the City of Orlando and Walt Disney World. Orlando has been, and continues to be, one of the most rapidly growing cities in Florida. The portion of the species' range in western Orange County is largely urbanized, with many of the remaining sites composed of small remnants of the original scrub, including vacant residential lots and the right-of-ways of the Florida Turnpike. These are also rapidly expanding communities whose human population growth threatens the continued existence of *L. aridorum*.

In 2010 there was a population planted at Mackay Gardens and Lakeside Preserve. This is one of 5 introduced populations in conservation lands introduced by the Rare Plant Conservation Program at Bok Tower Gardens and its many partners. Another population, one of the largest, is found in Orange County near Vineland Road, Apopka.

SAND SKINK

Species/critical habitat description

Appearance/Morphology

The sand skink is a small, fossorial lizard that reaches a maximum length of about 5 inches (in) (12.7 centimeters [cm]). The tail makes up about half the total body length. The body is shiny and usually gray to grayish-white in color, although the body color may occasionally be light tan. Hatchlings have a wide black band located along each side from the tip of the tail to the snout. This band is reduced in adults and may only occur from the eye to snout on some individuals (Telford 1959). Sand skinks contain a variety of morphological adaptations for a fossorial lifestyle. The legs are vestigial and practically nonfunctional, the eyes are greatly reduced, the external ear openings are reduced or absent (Greer 2002), the snout is wedge-shaped, and the lower jaw is countersunk.

Taxonomy

The taxonomic classification of the sand skink has been reevaluated since it was listed as *Neoseps reynoldsi* in 1987 (52 FR 42658), and the commonly accepted scientific name for the sand skink is now *Plestiodon reynoldsi* (Brandley et al. 2005; Smith 2005). A detailed description of the recent taxonomic review can be found in Service (2007). We continue to use the scientific name as published in the final listing rule (52 FR 42658).

The sand skink is believed to have evolved on the central Lake Wales Ridge (LWR) and radiated from there (Branch et al. 2003). Analysis of mitochondrial DNA indicates populations of the sand skink are highly structured with most of the genetic variation partitioned among four lineages: three subpopulations on the LWR characterized by high haplotype diversity and a single, unique haplotype detected only on the Mount Dora Ridge (MDR) (Branch et al. 2003). Under the conventional molecular clock, the 4.5 percent divergence in sand skinks between these two ridges would represent about a 2-million-year separation; the absence of haplotype diversity on the MDR would suggest this population was founded by only a few individuals or severely reduced by genetic drift of a small population (Branch et al. 2003).

Life History

The sand skink is usually found below the soil surface burrowing through loose sand in search of food, shelter, and mates. Sand skinks feed on a variety of hard and soft-bodied arthropods that occur below the ground surface. The diet consists largely of beetle larvae and termites (*Prorhinotermes* spp.). Spiders, larval ant lions, lepidopteran larvae, roaches, and adult beetles are also eaten (Myers and Telford 1965; Smith 1982).

Sand skinks are most active during the morning and evening in spring and at mid-day in winter, the times when body temperatures can easily be maintained at a preferred level between 82° Fahrenheit (F) and 88° F (27.8° Celsius [C] - 31.1° C) in open sand (Andrews 1994). During the hottest parts of the day, sand skinks move under shrubs to maintain their preferred body temperatures in order to remain active near the surface. With respect to season, Telford (1959) reported skinks most active from early March through early May, whereas Sutton (1996) found

skinks most active from mid-February to late April. Based on monthly sampling of pitfall traps, Ashton and Telford (2006) found captures peaked in March at Archbold Biological Station (ABS), but in May at the Ocala National Forest (ONF). All of these authors suggested the spring activity peak was associated with mating. At ABS, Ashton and Telford (2006) noted a secondary peak in August that corresponded with the emergence of hatchling sand skinks.

Telford (1959) assumed sand skinks become sexually mature during the first year following hatching, at a size of 1.78 in (4.52 cm) snout-vent length. He suspected most of the breeders in his study were in their second year and measured between 1.78 in and 2.24 in (4.52 cm - 5.69 cm) snout-vent length. However, Ashton (2005) determined sand skinks become sexually mature between 19 and 23 months of age and have a single mating period each year from February through May. Sand skinks first reproduce at 2 years of age and females produce a single clutch in a season, although some individuals reproduce biennially or less frequently (Ashton 2005). Sand skinks lay between two and four eggs, typically under logs or debris, in May or early June (Ashton 2005; Mushinsky in Service 2007), approximately 55 days after mating (Telford 1959). The eggs hatch from June through July. Sand skinks can live at least to 10 years of age (Meneken et al. 2005). Gianopulos (2001) found the sex ratio of sand skinks did not differ significantly from 1:1, which is consistent with the findings of Sutton (1996).

Evidence suggested smaller sand skinks might move greater distances than larger individuals. The longest sand skink movement documented is 26,250 ft (8 km) and an average movement of 5,250 ft (1.6 km) in naturally fragmented scrubby flatwoods at the ABS (Mushinsky et al. 2011). However, most sand skinks move less than 130 ft (39.6 m) between captures, but some have been found to move over 460 ft (140.2 m) in 2 weeks (Mushinsky et al. 2001). Limited dispersal has been suggested to explain the relatively high degree of genetic structure within and among sand skink populations (Branch et al. 2003; Reid et al. 2004).

Habitat

The sand skink is widespread in native xeric uplands with excessively drained, well-drained, and moderately well-drained soils on the sandy ridges of interior central Florida at elevations greater than 80 ft (24.4 m) above mean sea level (Service 2012). Commonly occupied native habitats include Florida scrub variously described as sand pine scrub, xeric oak scrub, rosemary scrub and scrubby flatwoods, as well as high pine communities that include sandhill, longleaf pine/turkey oak, turkey oak barrens and xeric hammock (see habitat descriptions in Myers 1990 and Service 1999). Sand skinks also use disturbed habitats such as citrus groves, pine plantations, and old fields, especially when adjacent to existing occupied scrub (Pike et al. 2007; 2008).

Various authors have attempted to characterize optimal sand skink habitat (Telford 1959; 1962; Christman 1978; 1992a; Campbell and Christman 1982). Literature descriptions of scrub characteristics have not proven very useful to predict sand skink abundance, but expert opinion was more successful (McCoy et al. 1999). McCoy et al. (1999) used trap-out enclosures to measure sand skink densities at seven scrub sites and attempted to rank each area individually based on eight visual characteristics to identify good habitat: root-free, grass-free, patchy bare areas, bare areas with lichens, bare areas with litter, scattered scrubs, open canopy, and sunny exposure. None of the individual literature descriptions of optimal habitat (or any combination thereof) accurately predicted the rank order of actual sand skink abundance at these sites, which ranged in density from 52 to 270 individuals per acre (Sutton 1996). However, knowledgeable

researchers, especially as a group, appear to be able to visually sort out the environmental variables important to sand skinks, but had difficulty translating their perceptions into a set of rules that others could use to identify optimal sand skink habitat (McCoy et al. 1999).

Multiple studies (Collazos 1998; Hill 1999; Mushinsky and McCoy 1999; Gianopulos 2001; Mushinsky et al. 2001) have quantified the relationship between sand skink density and a suite of environmental variables. These studies have found that sand skink relative density was positively correlated with low canopy cover, percent bare ground, amount of loose sand and large sand particle size, but negatively correlated with understory vegetation height, litter cover, small sand particle size, soil moisture, soil temperature, and soil composition. In an unburned sandhill site at ABS, Meshaka and Lane (2002) captured significantly more sand skinks in pitfall traps set in openings without shrubs than at sites with moderate to heavy shrub density. Telford (1959) suggested scattered debris and litter provided moisture that was important to support an abundant food supply and nesting sites for sand skinks. Cooper (1953) noted the species was most commonly collected under rotting logs, and Christman (1992) suggested they nest in these locations. Christman (2005) found the species continues to occupy scrub with a closed canopy and thick humus layer, although at lower densities. Recent surveys have also shown sand skinks may occupy both actively managed lands such as citrus groves and pine plantations and old-field communities (Pike et al. 2007), particularly if these sites are adjacent to patches of native habitat that can serve as a source population for recolonization.

Habitat size may be a factor in maintaining viable skink populations. Pike et al. (2006) monitored sand skinks and quantified vegetation change in six areas from 5 ac to 69 ac (2 - 27.9 ha) that were restored to a more natural state using fire and canopy thinning, and set aside for conservation in residential areas. Pike et al. (2006) documented a severe decline in occupancy and relative density of sand skinks, and hypothesized indirect impacts from surrounding development, such as changes in soil hydrology, may have caused the decline. Hydrologic changes in the soil may have occurred as a result of construction of retention ponds or run-off from neighborhoods that caused a rise in the groundwater level (Pike et al. 2006). The population decline of skinks noted may also have been caused by prescribed burning used to restore these sites (Mushinsky in Service 2007).

Population Dynamics

The current status of the sand skink throughout its geographic range is unclear because recent comprehensive, range-wide surveys have not been conducted. At the time of listing in 1987, Florida Natural Areas Inventory (FNAI) had recorded 31 known sites for the sand skink. By September 2006, 132 localities were known by FNAI (Griffin 2007). This increase is largely the result of more intensive sampling of scrub habitats in recent years and does not imply this species is more widespread than originally supposed. Nonetheless, except for a few locations where intensive research has been conducted, limited information about the presence or abundance of sand skinks exists. Additional studies have provided presence/absence information that has been used to determine the extant range of the species (Mushinsky and McCoy 1991; Stout and Corey 1995). However, few long-term monitoring efforts have been undertaken to evaluate the population size, or population trends, of sand skinks at these sites, on remaining scrub habitat on private lands, or range-wide.

The population dynamics of sand skinks within their extant ranges are not well known because the skinks' small size and secretive habits make their study difficult. Sand skinks are known to exhibit life-history traits that are also found in a number of other fossorial lizard species, such as: delayed maturity, a small clutch size of relatively large eggs, low frequency of reproduction, and a long lifespan (Ashton 2005). Such character traits may have resulted from, and be indicative of, high intraspecific competition or predation.

Status and distribution

The modification and destruction of xeric upland communities in central Florida were a primary consideration in listing the sand skink as threatened under the Act in 1987 (52 FR 42658), and is listed as federally-designated threatened by the state. Critical habitat has not been designated for the sand skink.

Distribution

The extant range of the sand skink includes Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam counties (Christman 1988; Telford 1998). Principal populations occur on the LWR and Winter Haven Ridge (WHR) in Highlands, Lake, and Polk counties (Christman 1992a; Mushinsky and McCoy 1995). The sand skink is uncommon on the MDR, including sites within the ONF (Christman 1970; 1992a). Herpetile surveys in a variety of scrub habitats in the ONF did not detect sand skinks (Greenberg et al. 1994). Telford (1998) cited the ephemeral nature of early successional scrub habitats due to dynamic changes as an important confounding factor in the evaluation of the sand skink's present status in the ONF. At least two persistent populations are known from the ONF (Telford 1998), where sand skinks have been collected for genetic analysis (Branch et al. 2003) and population studies (Ashton and Telford 2006). Despite intensive sampling efforts in scrub habitat with similar herpetofauna, the sand skink has not been recorded at Avon Park Air Force Range on the Bombing Range Ridge (Branch and Hokit 2000). Although we do not have estimates of acreage for all of the ridges, we do know that the largest of these, the LWR, encompasses approximately 517,303 ac (209,353 ha) (Weekley et al. 2008).

According to the FNAI database updated as of September 2006, there were 132 locality records for the sand skink, including 115 localities on the LWR, 7 on the MDR, and 4 on the WHR (Griffin 2007). FNAI also reports four localities for this species west of the MDR in Lake County and two localities between the LWR and the Lake Hendry Ridge.

Range-wide trends

Approximately 85 percent of xeric upland communities historically used by sand skinks on the LWR are estimated to have been lost due to development (Turner et al. 2006b). It is likely continued residential and agricultural development of xeric upland habitat in central Florida has destroyed or degraded habitat containing sand skinks. Protection of the sand skink from further habitat loss and degradation provides the most important means of ensuring its continued existence. Of the 73 locations examined by Turner et al. (2006a) on which sand skinks were reported, 39 are protected and, as of 2004, 27 were managed. Current efforts to expand the system of protected xeric upland communities on the LWR, coupled with implementation of effective land management practices, represent the most likely opportunity for assuring the sand skink's survival.

Over the last 20 years, a concerted effort by public and private institutions to protect the remaining undeveloped areas of the LWR has resulted in the acquisition of 21,498 ac (8,700 ha) of scrub and sandhill habitat (Turner et al. 2006). A variety of state and federal agencies and private organizations are responsible for management of these areas. The Service has also acquired portions of several tracts totaling 1,800 ac (728.4 ha) as a component of the LWR National Wildlife Refuge (Service 1993). Private organizations, such as TNC and ABS, have acquired and currently manage xeric uplands within the LWR. All of these efforts have greatly contributed to the protection of imperiled species including sand skinks on the LWR (Turner et al. 2006).

The Service currently has certified six conservation banks totaling nearly 1,500 ac (607 ha) for sand and blue-tailed mole skinks, two in Highlands County and four in Polk County. Additional conservation banks are in the approval process in Polk County which will significantly increase the amount of habitat in conservation for this species once approved. Conservation banking provides an avenue for collaboration of private/public partnerships to maintain and preserve habitat, providing for the conservation of endangered species. These banks conserve and manage land in perpetuity through a conservation easement to offset impacts occurring elsewhere to the same resource values on non-bank lands. The certification of these banks should help reduce the piece-meal approach to sand skink conservation that can result from separate evaluation of individual projects by establishing larger reserves and improving connectivity of habitat.

Analysis of the species/critical habitat likely to be affected

Little information is available to adequately assess the status and population dynamics of the sand skink. However, the sand skink may be relatively widespread in remaining xeric uplands. Furthermore, the implementation of favorable management practices can create and maintain suitable habitat conditions for the sand skink, as well as other xeric upland-dependent species. A number of actions over the last 20 years have resulted in conservation benefits to xeric uplands within the extant range of the species. The state of Florida has acquired xeric upland habitat through various acquisition programs for conservation of native landscapes. The Service has also acquired portions of several tracts as a component of the LWR National Wildlife Refuge. In 2012, the Service began acquisition and conservation easements to create the Everglades Headwaters National Wildlife Refuge and Conservation Area that includes xeric uplands on LWR. Finally, private organizations, such as TNC and ABS have acquired and currently manage xeric uplands within the LWR.

ENVIRONMENTAL BASELINE

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem within the action area. The environmental baseline does not include the effects of the action under review in this Biological Opinion.

STATUS OF THE SPECIES WITHIN THE ACTION AREA

Project biologists conducted visual pedestrian surveys according to the USFWS Sand Skink and Blue-tailed Mole Skink Survey Protocol (2012) within the proposed right-of-way and pond sites of the SR 400 (I-4) Segment 1, in locations where land elevation exceeded 82 feet mean sea level and well-drained soils were suitable. There wasn't previous evidence of skinks noted in the original PD&E surveys conducted in December 1996 – December 1997, nor was there a species-specific survey performed. However, guidance from USFWS on the skink now classifies areas with skink soils as potential skink habitat, whether or not natural xeric scrub habitat occurs over the soils. Cover board surveys were conducted according to the USFWS Survey Protocol for Peninsular Florida for the Sand Skink and Bluetailed Mole Skink (USFWS 2012) during March, April, and May 2014. Subsequent design changes after the completion of the 2014 survey necessitated a supplemental survey over several new areas in 2015.

Sand skink tracks were not observed on the 2014 surveys. In 2015 an extensive survey was conducted and sand skinks were found in Pond Site FPC 105A. Originally, total acres proposed as occupied were 14.5 acres. Areas where heavy oak cover occurred and soil conditions were changed to include a heavy duff layer, high soil moisture, organic presence, and high root mass density are considered non-suitable sand skink habitat. A 188-foot buffer from a positive occurrence was used to determine the extent of occupied habitat. In areas where positive tracks were found with unsuitable habitat in a direction a 30-foot buffer in that same direction was used. In the areas where the pine plantation included heavy coverage of Bahia grass and a slightly altered soil profile (high root mass density, higher soil moisture), the extent of the occupied habitat was again determined using a 30-foot buffer from the end of the line of positive occurrences. In addition, it was agreed that the several areas that were vegetated with a heavy cover of Cogon grass likely represented unsuitable habitat for sand skinks and would be excluded from the calculation of occupied habitat. Based on survey results, the FHWA and FDOT determined the proposed Pond Site 105A of the SR 400 BtU project “may affect and is likely to adversely affect” the sand skink.

Scrub lupine was found during the sand skink surveys in 2014. This plant species was observed west of Turkey Lake Road, to the west of the SR 528 Interchange at westbound I-4 in five areas surveyed for sand skinks in 2014 (Area H, Area K, Area L, Area M, and Area O). The footprint of Pond Site 139B and the edge of the proposed right-of-way northeast of the Daryl Carter Parkway overpass overlap with an individual observation of scrub lupine. Based on the survey results, the FHWA and FDOT determined the proposed project, SR 400 BtU Segment 1, “may affect and is likely to adversely affect” the scrub lupine.

The Service concurs with these determinations and finds that the project will result in adverse effects to the federally listed sand skink and its habitat, and the federally listed scrub lupine and its habitat. The project's effects on the sand skink and the scrub lupine will be discussed in the Effects of the Action.

FACTORS AFFECTING SPECIES' ENVIRONMENT WITHIN THE ACTION AREA

The habitats surrounding the action area are threatened by degradation resulting from fire exclusion, lack of management, and residential development. As mentioned in the previous section, some suitable habitat is interspersed within the residential and compacted pastureland. Xeric habitats favored by skinks require periodic fire to maintain optimal habitat values such as patches of bare sand and low shrub architecture. The need to protect agricultural, residential, and commercial development has resulted in the suppression of wildfires.

Xeric habitats lacking periodic fire or management become overgrown and less suitable to skinks and scrub lupine. Over time, skinks and scrub lupine will diminish in abundance and eventually may be extirpated as other vegetation takes over the available habitat and open sandy areas are covered. The FHWA and FDOT have no mechanism to perpetuate land management practices beyond their right-of-way, so the maintenance of habitat for skink and scrub lupine suitability surrounding the action area will be the responsibility of individual property owners.

CLIMATE CHANGE

Climate change is evident from observations of increases in average global air and ocean temperatures, widespread melting of snow and ice, and rising sea level, according to the Intergovernmental Panel on Climate Change Report (IPCC 2007a,b). The IPCC Report describes changes in natural ecosystems with potential wide-spread effects on many organisms, including marine mammals and migratory birds. The potential for rapid climate change poses a significant challenge for fish and wildlife conservation. Species' abundance and distribution are dynamic, relative to a variety of factors, including climate. As climate changes, the abundance and distribution of fish and wildlife will also change. Highly specialized or endemic species are likely to be most susceptible to the stresses of changing climate. Based on these findings and other similar studies, the Department of the Interior (DOI) requires agencies under its direction to consider potential climate change effects as part of their long-range planning activities (Service 2007).

Temperatures are predicted to rise from 3.6 °F to 9.0 °F (2 ° - 5 °C) for North America by the end of this century (IPCC 2007a,b). Other processes to be affected by this projected warming include rainfall (amount, seasonal timing and distribution), storms (frequency and intensity), and sea level rise.

Climatic changes in Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management. Global warming will be a particular challenge for endangered, threatened, and other "at risk" species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. The Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (Service 2006). As the level of information increases concerning the effects of global climate change on sand skinks and scrub lupine, the Service will have a better basis to address the nature and magnitude of this potential threat and will more effectively evaluate these effects to the range-wide status of these species.

EFFECTS OF THE ACTION

This section analyzes the direct, indirect, and beneficial effects of the proposed action and interrelated and independent actions on federally listed skinks and their habitat and scrub lupine.

FACTORS TO BE CONSIDERED

The project site contains skink and scrub lupine habitat and is located within the geographic range of the sand skink and scrub lupine. The timing of construction for this project, relative to sensitive periods of the species, is unknown. The project will be constructed in a single, disruptive event and alter native vegetation within the action area. The time required to complete construction of the project is not known, but it is likely the majority of the land clearing will be completed within a few months. The disturbance associated with the project will be permanent and will result in a direct loss of habitat currently occupied and available to these species.

Direct effects

Direct effects are those effects that are caused by the proposed action, at the time of construction, are primarily habitat based, and are reasonably certain to occur. Direct effects include: the permanent and temporary loss of habitat for the sand skink and a reduction in the geographic distribution of sand skink habitat. Direct impacts to scrub lupine are the permanent loss of habitat and mortality of the plants located in the project area.

The construction of I-4 BtU Segment 1 will result in the permanent loss of 10 acres of occupied sand skink habitat. Based on the outcome of sand skink coverboard surveys conducted in the spring of 2015 construction activities will directly destroy 10.0 acres of occupied skink habitat at Pond Site 105A. Incidental mortality of skinks due to land clearing and construction activities may also occur. Mechanical preparation of the proposed project site can crush or injure individual skinks and skink eggs, and destroy or degrade occupied and potential habitat and foraging areas. In addition, any clearing activities may adversely affect skinks by causing them to leave the area and possibly miss foraging and mating opportunities. Individual skinks fleeing the area may be more vulnerable to predation.

Sand skinks may respond to the commencement of construction activities by attempting to flee the project site to avoid the disturbance. However, because skinks are not highly agile, they may not be able to successfully flee the project site before they are affected by construction activities. As such, skinks may be crushed by construction vehicles or entombed during earth moving, contouring and trenching activities associated with the construction of the proposed pond site 105A of I-4 BtU Segment-1 analyzed in this Biological Opinion.

Mechanical preparation of the proposed project site will also crush any scrub lupine plant located at the proposed project site. It will also destroy or degrade occupied and potential habitat for this species.

Interrelated and interdependent actions

An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

Indirect effects

Indirect effects are those effects that result from the proposed action, are later in time, and are reasonably certain to occur. Unintentional yet often unavoidable indirect effects of a new roadway are increased incidences of vehicle wildlife collision resulting in road kill. In addition, the project will add to the continued fragmentation of skink and scrub lupine habitat in the Mount Dora region and skink home ranges that extend into Pond Site 105A may be truncated.

Beneficial effects

Beneficial effects are those effects of the proposed action that are completely positive, without any adverse effects to the listed species or its critical habitat. The proposed action includes a habitat restoration or conservation component (Conservation Measure 1 and 2) that will result in management or protection of suitable, potentially occupied habitat within the northern portion of the species range.

Analyses for effects of the action

To minimize potential impacts to sand skinks and scrub habitat, the applicants will provide compensatory mitigation at a Service Approved conservation bank to preserve skink habitat as a part of the proposed action. Targeted habitat credit acquisition will have beneficial effects for the species and protect or restore up to two times as much habitat that is proposed to be directly impacted.

Although we know that the site is occupied, it is difficult to quantify abundance due to the cryptic nature of the species and survey methodology. Therefore, the actual number of skinks that currently occupy the site are unknown. The Service has determined that the acres of occupied scrub habitat are a quantifiable proxy for the jeopardy analysis and allows the Service to quantify and monitor take of the species. Results of the surveys suggest that federally listed sand skinks occur within 10 acres of the project footprint. Based on estimated acres of protected lands that manage for sand skinks and scrub species, the proposed loss of occupied habitat is insignificant amount, less than .04% (assuming 29,511 acres, Mushinsky et al 2011). The Service acknowledges that this may be a conservative estimate because of limited rangewide data regarding sand skink population size at all protected sites in the remaining scrub habitat. Based on the best available information, the Service has determined that the loss would not jeopardize the recovery or continued existence of the sand skink.

To minimize impacts to the scrub lupine, the applicants will do surveys during the permitting phase to determine where the specimens are located. After determining if the plants are still located within the area identified in the 2014 surveys, the applicants will work with Bok Tower Gardens to collect seed and/or transplant the specimens found in the project area. The Service

has determined that the plants identified in the six surveyed areas that identified scrub lupine occurrence in Orange County are located in isolated areas with roads north and south of the plants where management (prescribed fire) will most likely never occur. These plants are in already fragmented habitat and are few in numbers. Based on the best available information, the Service has determined that the loss of these plants would not jeopardize the recovery or continued existence of the scrub lupine.

CUMULATIVE EFFECTS

The Service defines “cumulative effects” considered in this Biological Opinion as the effects of future State, Tribal, local, or private actions (*i.e.*, non-Federal actions) reasonably certain to occur in the action area. Our definition of cumulative effects does not include future Federal actions unrelated to the proposed action because these actions require separate consultation pursuant to section 7 of the Act. Cumulative effects are considered in regard to the risk of the proposed action having an effect that would jeopardize the recovery and continued existence of the species.

Anticipated future county actions in the action area that will adversely affect sand skink habitat include the issuance of county building permits. Construction projects requiring only county building permits will not have a Federal nexus requiring consultation with the Service under the Act. However, applicants obtaining county building permits are not absolved from the prohibition of take of listed species under the Act. Section 10 of the Act provides a means for permitting the incidental take of listed species associated with non-Federal actions such as county building permits. In order to obtain an incidental take permit, the applicant must prepare a Habitat Conservation Plan (HCP), acceptable to the Service, describing how impacts to both species will be minimized and mitigated to the maximum extent practicable. To be acceptable to the Service, an HCP for a non-Federal action affecting Federally-listed species would generally include the enhancement, restoration, or preservation of sand skink habitat. Take provisions are only given in federal lands but the Service would recommend that plants be relocated or seed collected for conservation during the HCP process.

The Service has considered cumulative effects within the action area for the sand skink and scrub lupine and based on the above discussion, we have not identified any additional cumulative effects beyond those already discussed in the Environmental Baseline.

CONCLUSION

After reviewing the current status of sand skink and the scrub lupine, the environmental baseline for the action area, the effects of the proposed roadway construction and the cumulative effects, it is the Service’s biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the sand skink or the scrub lupine. No critical habitat has been designated for either of these species; therefore, none will be affected. Construction of the proposed project will result in the permanent loss of 10 ac (4.05 ha) of occupied sand skink habitat. However, the loss of this habitat is not expected to appreciably affect the overall survival and recovery of the sand skink.

Additionally, the proposed project will also impact 10 or more scrub lupine plants, however, the loss of these plants will not affect the overall survival and recovery of the species. The scrub lupine is a plant and take is not prohibited for plants. An incidental take statement will only be provided for sand skinks.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." "Harass" is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. "Harm" is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking, that is incidental to and not intended as part of the agency action, is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

The Service has reviewed the biological information for this species, the information presented by the applicant, and other available information relevant to this action. The Service anticipates incidental take of sand skinks in the form of harm (*i.e.*, mortality and habitat loss). Construction activities associated with the project may wound or kill skinks, and result in the loss 10 acres of occupied skink habitat. The Service finds the actual number of sand skinks incidentally taken by the action will be difficult to quantify for the following reasons: 1) individuals have a small body size and spend the majority of their time underground, making the detection of a dead or impaired specimen unlikely; and 2) a commercially practicable and suitable survey method has not been developed to accurately estimate skink density, thus the number of skinks currently occurring in the project footprint is not well known. The Service finds that all sand skinks occurring within the 10 acres (4.05 ha) of occupied skink habitat on the Pond Site 105A will be taken incidental to the action.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined this level of anticipated take is not likely to result in jeopardy to the sand skink. Critical habitat has not been designated for the sand skink and therefore, will not be affected. If during the course of this action, this level of take is exceeded; such take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide modification of the reasonable and prudent measures.

REASONABLE AND PRUDENT MEASURES

When providing an incidental take statement, the Service is required to give reasonable and prudent measures it considers necessary or appropriate to minimize the take along with terms and conditions that must be complied with, to implement the reasonable and prudent measures. The Service has determined that the following reasonable and prudent measures are necessary and appropriate to minimize the take of sand skinks.

- 1) FHWA and FDOT shall ensure the level of incidental take anticipated in this Biological Opinion is commensurate with the analysis contained herein.

The conservation measures described as a part of the project description are considered binding measures and shall be implemented for the exemption in section 7(o)(2) to apply. In the event that a sick, injured, or dead species is found, the Service has provided the following procedures to be used to handle or dispose of any individuals taken.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the FDOT and FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting/monitoring requirements. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. These terms and conditions are non-discretionary.

- The construction work area for I-4 BtU Segment 1 – Pond Site 105A will be clearly delineated prior to ground disturbance to ensure that take is not exceeded within the known occupied skink areas. The Service concluded that no more than 10 ac (4.05 ha) of occupied sand skink habitat will be incidentally taken. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided.
- FDOT will be required to notify the Service 30 days before ground disturbance and construction begins that the compensatory mitigation has occurred.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service recommends incorporating the following minimization measures to the ongoing maintenance of the highway right-of-way:

- Setting mower height at greater than 4 inches to avoid or minimize adverse effects to ground-dwelling wildlife.
- Limit the use of pesticides in the right-of-ways and pond sites that have suitable soils at elevations that could support sand skinks.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Thank you for your cooperation in the effort to protect fish and wildlife resources. If you have any questions regarding this project, please contact Lourdes Mena at 904-731-3134.

Sincerely,

for 
Jay B. Herrington
Field Supervisor

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