

state and federal wetland resource regulatory agency rules and guidelines during the permitting phase.

#### ***Freshwater Marsh (641 FLUCFCS)***

Two areas of freshwater marsh (palustrine emergent systems) occur near the project, just north and south of I-4. Emergent wetlands identified are dominated by herbaceous species such as maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), blue maidencane (*Amphicarpum muhlenbergianum*), broom grass (*Andropogon virginicus*), St. John's wort (*Hypericum spp.*), yellow-eyed grass (*Xyris spp.*), and sedges (*Carex*, *Rhynchospora spp.*). Additional herbaceous species commonly observed may include primrose willow (*Ludwigia peruviana*), cinnamon fern (*Osmunda cinnamomea*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*). Small areas of marsh associated with storm water ponds provide foraging habitat for wading bird species, refuge and foraging for small fish, amphibians, and reptiles; but no economic, cultural resource, or recreational public use. This roadway project will not impact these marsh areas.

#### ***Wet Prairie (643 FLUCFCS)***

Areas of freshwater, shallow, herbaceous wetlands occur in small sections adjacent to forested wetlands and amid the managed pine areas. These communities are generally seasonally saturated and dominated with hydrophytic herbaceous species such as grasses, sedges, and rushes. Typical vegetation includes bluestem (*Andropogon spp.*), torpedograss (*Panicum repens*), dog fennel (*Eupatorium capillifolium*), St. Johns wort (*Hypericum spp.*) and maidencane (*Panicum hemitomon*). Minor constituents of associated shrubs may include coastal plain willow (*Salix caroliniana*) and wax myrtle (*Myrica cerifera*). These areas are interim communities during the growth and harvesting cycles of the managed pine plantations. They provide short-term habitat uses for some species, and as the canopy matures, those uses are replaced by others. For example, Sand Hill Crane, deer, and hawks will forage in the newly cut-over areas before the trees have grown, provided the groundcover is suitable. And after the trees are mature, small mammals (like opossum and squirrel) may forage and nest in the pines. In the cut-over condition, no economic, cultural resource, or recreational public uses are attributed to these areas. Wetland impacts, in general, were minimized by avoiding the higher quality wetlands to the greatest extent practicable, and placing unavoidable wetlands impacts in area such as this remnant groundcover area of managed pine plantation. In this way, this managed hydric groundcover community will be displaced by the roadway and by ponds, rather than other forested wetlands that provide higher wetland functions. Wildlife will have access to the remaining wet prairie as well as the pond; and as with the other areas impacted by the roadway, additional culverts will be used to offset the fragmentation of the habitat. These impacts will be fully mitigated per state and federal wetland resource regulatory agency rules and guidelines during the permitting phase of the project.

#### **4.3.4.4 Wetland Impact Assessment**

##### ***Direct Impacts***

The estimated impacts to wetlands and the functional loss anticipated are summarized in Table 4-4. Impacts presented in the tables include the roadway, ponds, and the multi-use trail. The impacts presented below are conservative and may be able to be reduced further during final design when the construction limits are finalized.

Preliminary estimates indicate that approximately 108 acres of wetlands and surface waters (combined) will be directly impacted by the proposed extension of LPGA Boulevard. Table 4-4 summarizes the type of wetland impacts associated with the Preferred Alternative (Alignment B-3), and the proposed wetland impacts are shown on the Preliminary Concept Plans included as Appendix G.

TABLE 4-4  
Proposed Wetland Impacts for Preferred Alternative

Wetland ID	FLUCFCS (NWI)	WRAP Score	Wetland Impact Area (acres)	Functional Loss (acres)
W-6	624 (PFO)	0.67	13.96	9.35
W-7	643 & 832 (PEM)	0.69	1.49	1.03
W-9	643 & 441 (PSS)	0.59	10.03	5.92
W-14	625 (PFO)	0.80	4.99	3.99
W-16	643 (PEM)	0.70	5.93	4.15
W-20	643 & 441 (PFO)	0.54	13.89	7.50
W-22	624 (PSS)	0.66	0.65	0.43
W-24	625 (PFO)	0.73	4.50	3.28
W-25	624 (PFO)	0.88	3.87	3.40
W-27	643 & 441 (PSS)	0.55	4.78	2.63
W-29	643 & 441 (PEM)	0.65	12.80	8.32
W-34, W-30	624 (PFO)	0.78	7.95	6.20
Remaining wetlands	Similar to above, plus 8 ditches	avg. 0.68	23.10	15.70
<b>TOTAL B-3 (Roadway, Pond and Trail)</b>			<b>107.92</b>	<b>71.90</b>

Impacts are expressed as actual acreage affected and are also presented as loss of function in comparison to an undisturbed wetland of the same type (Functional Loss). The Wetland Rapid Assessment Procedure (WRAP) was used to assess the functional values of the wetlands. Each wetland has been impacted to some degree by development pressures, habitat fragmentation and isolation, encroachment by nuisance species or existing roadway impacts. WRAP is based on the nature of disturbance and the functional values provided by the wetland. The derivation of the WRAP scores is contained in detail in the *Wetland Evaluation Report* (January 2006).

### *Secondary Impacts*

Secondary impacts refer to indirect effects on wetland functions resulting from project activities. Examples of secondary impacts that may occur because of the project include shading of wetlands due to a bridging, or habitat disruption in adjacent wetlands caused by road noise and debris.

The SJRWMD has a setback provision for off-setting secondary impacts. In some situations, a setback may be provided between a proposed treatment pond and a wetland, if there is sufficient right-of-way available for purchase; however, setbacks are not possible in most situations along the project corridor. Additional mitigation acreage may be required to offset secondary impacts. This will be finalized during the final design permitting stage of the project depending on the degree of secondary impacts anticipated along the length of the wetland impact in relation to the project. If additional mitigation is required for secondary impacts by the state and federal agencies it will be provided in accordance with Section 373.4137 F.S.

### ***Cumulative Impacts***

As per the SJRWMD *Applicant's Handbook* subsections 12.1.1(c), 12.1.1(g), 12.2.2, and 12.2.8(b), an applicant must provide reasonable assurances that the project will not cause unacceptable cumulative impacts on wetlands within the same drainage basin, by identifying "reasonably expected future applications with like impacts". Cumulative impacts are considered unacceptable when the proposed project, considered in conjunction with the past, present, and future activities would then result in a violation of state water quality standards or significant adverse impacts to functions of wetlands or other surface waters within the same drainage basin when considering the basin as a whole.

A new road alignment often precedes development and population growth in an area. However, the LPGA Boulevard Extension project will directly or indirectly serve several local development projects that are already under construction, permitted or planned, and none are dependent on the project for approval.

Mitigation for cumulative impacts is determined during the permitting process.

### **4.3.4.5 Avoidance and Minimization**

Avoidance and minimization of wetland impacts has been, and continues to be, an important objective during the project planning process. However, avoiding wetlands entirely is not possible. Reducing wetland impacts has been a focus of the preliminary roadway and pond siting process. Alignment alternatives, shifts, and modifications have been considered and made to avoid the higher quality wetlands, and to reduce impacts to forested wetlands. Design changes during the study phase have been made to minimize impacts to wetlands include shortening the road extension to avoid a large hydric flatwoods along Tomoka Farms Road, shifting the alignment east to avoid higher quality wetlands, and winding the alignment to minimize forested wetlands to the extent possible.

The Environmental Advisory Group (EAG) convened for the project suggested an alternative alignment (B-4) that would use more of the Tomoka Landfill property in order to avoid some wetland impacts. This alternative was evaluated and as shown in Table 4-5, below, did result in reduced wetland impacts; however, this alignment would impact a historic landfill cell which would need to be excavated and re-filled with suitable fill. The cell is unlined and approximately 20 to 25 feet deep and the filling of the cell involved some burning with diesel fuel. The excavation of this portion of the landfill could involve extensive contamination issues and would be very expensive to deal with. B-4 would also impact an existing landfill retention pond that would need to be filled and relocated. For these reasons, B-4 is not considered a feasible alignment.

TABLE 4-5

Summary of Proposed Impacts to the Wetlands and Resulting Functional Loss for Representative Wetlands for Alignment B-4

Wetland ID	FLUCFCS (NWI)	WRAP Score	Wetland Impact Area (acres)	Functional Loss (acres)
W-6	624 (PFO)	0.67	11.82	7.92
W-7	643 & 832 (PEM)	0.69	3.43	2.37
W-9	643 & 441 (PSS)	0.59	10.03	5.92
W-14	625 (PFO)	0.80	5.40	4.32
W-16	643 (PEM)	0.70	6.78	4.74
W-21	643 (PEM)	0.75	8.42	6.31
W-25	624 (PFO)	0.88	4.12	3.63
W-27	643 & 411 (PSS)	0.55	3.02	1.66
W-29	643 & 441 (PEM)	0.65	12.80	8.32
W-34, W-30	624 (PFO)	0.78	7.95	6.20
Remaining wetlands	Similar to above, plus 8 ditches	avg. 0.68	18.54	12.60
<b>TOTAL B-4 (Roadway, Pond and Trail)</b>			<b>92.31</b>	<b>64.00</b>

Impacts were minimized to the extent possible based on safe and sound engineering and construction constraints. Further impact minimization efforts, such as the use of steeper front slopes with or without guard rails through wetland areas, will be considered during the detail design phase. In discussion with the environmental agencies during the course of the study, the consideration of reducing the typical section width with a 4:1 or even a 2:1 front slope in the clear recovery area was brought forth to reduce the impacts to wetland areas. Reduction in the front slope from the standard 6:1 to 4:1 coupled with a change in back slope from 4:1 to 3:1 would result in a total right-of-way reduction of 21 feet from that proposed. The average right-of-way for the without trail typical section being approximately 170 feet and with trail being approximately 190 feet, this could result in an approximate 11 percent to 12 percent reduction in right-of-way requirements for this project. While not a direct correlation, a reduction in wetland and floodplain impacts could be expected as well as lowering of right-of-way and construction costs.

However, this is not consistent with the roadside slopes criteria shown in Table 2.4.1 in the *FDOT Plans Preparation Manual* and would require a design variance when the project proceeds to design. In that these variances are not granted until the project proceeds into final design, and a goal of the PD&E process is to disclose the maximum anticipated impacts, this PD&E study will be conducted using front and back slopes that are consistent with the FDOT guidelines. Subsequently, during final design when specific topography surveys will be available, further refinement of impacts through typical section reductions with a possible Design Variance will be evaluated.

The proper erosion and turbidity control will be identified during final design and required during permitting. The use of silt screens, hay bales, and other discharge prevention measures during construction in accordance with FDOT's *Standard Specifications for Road and Bridge Construction* will minimize impacts to wetlands in the vicinity of the project.

#### 4.3.4.6 Mitigation Measures

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137 F.S., to satisfy all mitigation requirements of Part VI, Chapter 373, F.S. and 33 U.S.C. Section 1344. Under Section 373.4137, F.S., mitigation of FDOT wetland impacts will be implemented by SJRWMD and USACE where the impacts occur. The Water Management District will develop a regional wetland mitigation plan on an annual basis to be approved by the Florida State Legislature which addresses the estimated mitigation needs of FDOT. SJRWMD will then provide wetland mitigation for specific FDOT project impacts through a corresponding mitigation project within the overall approved regional mitigation plan in consultation with USACE. FDOT will provide funding to SJRWMD for implementation of such mitigation projects.

In addition, further coordination and review with the permit agencies will occur during the design phase of this project. Application for the permits will occur during the design phase of the project. Typically mitigation requirements are based on an analysis of the wetland functional values. Discussions pertaining to mitigation options for wetland and wildlife habitat along the corridor are ongoing, and will continue through pre-application meetings, with the USFWS, FFWCC, Nature Conservancy, USACE and the SJRWMD.

#### 4.3.5 Essential Fish Habitat

The project is not expected to have any significant direct or indirect negative impacts to Essential Fish Habitat (EFH). This area is not considered to be a breeding or nursery area for marine fish species, nor are the project wetlands and ditches directly connected to tidally-influenced waters. The project will be designed to meet Outstanding Florida Waters (OFW) water quality treatment criteria for the section north of I-4, and will not change floodplain storage or the downstream hydrologic regime. This project is not located within, and will not adversely affect areas identified as EFH; therefore, an EFH consultation is not required.

#### 4.3.6 Aquatic Preserves

There are no designated Aquatic Preserves within the project study area. However, the Tomoka Marsh Aquatic Preserve is located downstream approximately eight miles east of the project area in the estuary of the Tomoka River. No direct impacts to the Tomoka Marsh Aquatic Preserve are expected to result from the proposed improvements due to the addition of stormwater management systems along the Preferred Alternative.

#### 4.3.7 Water Quality

Potential impacts to water quality were documented through completion of a Water Quality Impact Evaluation (WQIE). A copy of the WQIE checklist is included in Appendix F.

The proposed stormwater facility design will include, at a minimum, the water quantity requirements for water quality impacts as required by SJRWMD in F.A.C., Rules 40C-4, 40C-40, and 40C-42. Therefore, no further mitigation for water quality impacts will be required.

### 4.3.8 Outstanding Florida Waters

Outstanding Florida Waters (OFW) are those which have been designated by the Environmental Regulatory Commission as worthy of special protection due to their natural attributes (F.A.C., Chapter 62-302.700(9)(I)13.b). As such, it is FDEP's policy to afford the highest protection of these waters with regard to water quality degradation.

The Tomoka River is located to the east and north of the project study area, and flows from south to north toward the Halifax River. This project is primarily located within the headwaters of the Tomoka River and its associated floodplain. The Tomoka River is designated as an OFW north of I-4. Therefore, recommended Pond F-3 falls within the OFW criteria for the Tomoka River Basin per state water quality standards.

Water quality criteria for OFWs are more stringent than for normal surface waters. The proposed stormwater management facilities will be designed to meet applicable water quality criteria. Therefore, the proposed improvements are not expected to degrade or significantly impact the water quality of the Tomoka River.

### 4.3.9 Contamination

A *Contamination Screening Evaluation Report* (CSER) (Nodarse & Associates, 2005) was prepared for the project study area. Two sites were identified for assessment. One was assigned a "no" risk rating and the other was assigned a risk rating of "medium" for having potential petroleum or hazardous material contamination. A brief summary of the potential sites and their risk rating is provided below.

**Site No. 1 Kirton-Self C&D Landfill** – This landfill is located approximately one mile northeast of the proposed LPGA Boulevard Extension right-of-way. The site is listed as an active construction/demolition debris facility. The regional groundwater flow beneath the landfill is to the northeast and away from the proposed LPGA Boulevard Extension right-of-way. Based upon a review of regulatory files, no discharges have been reported for this site. As a result, this facility was assigned a hazardous ranking of "no" risk.

**Site No. 2 Tomoka Farms Landfill** – This Class III landfill facility is currently located adjacent to the west of the proposed right-of-way of the LPGA Boulevard Extension. The most recent Quarterly Monitoring Report, dated November 17, 2004, indicates that benzene concentrations were detected in seven groundwater monitoring wells located approximately 2,000 feet west/southwest of the proposed roadway corridor. These high levels of benzene exceeded the Primary Drinking Water Standard (PDWS) of 1 µg/L. Vinyl chloride concentrations were detected ranging between 0.48 µg/L to 520 µg/L which also exceeded the PDWS of 1 µg/L. The regional groundwater flow beneath the landfill is to the east/northeast towards the proposed LPGA Boulevard Extension right-of-way. As a result, this facility was assigned a hazardous ranking of "medium" risk.

For the site rated "medium", a further review of records should be conducted to determine the status of any contamination assessments or remedial actions taking place at this site.

FDOT has evaluated the proposed right-of-way and has identified potentially contaminated sites for the various proposed alternatives. Results of this evaluation were utilized in the selection of a Preferred Alternative. The Preferred Alternative, Alignment B-3, will have no direct impacts for either potential contamination site that has been identified (Site No. 1 Kirton-Self C&D Landfill and Site No. 2 Tomoka Farms Landfill). However, during final design, a site assessment will be performed to the degree necessary to determine if any new levels of contamination have occurred within these two potential sites and, if necessary, evaluate the options to remediate along with the associated costs. Resolution of problems associated with contamination if identified during final design will be coordinated with appropriate regulatory agencies and, prior to right-of-way acquisition, appropriate action will be taken, where applicable.

#### 4.3.10 Wild and Scenic Rivers

Wild and scenic rivers are those rivers that are characterized as free-flowing and are approved by the U.S. Department of the Interior in accordance with the Wild and Scenic Rivers Act.

The portion of the Tomoka River that extends from River Mile (RM) 7, 2.0 miles south of the US 1/SR 5 Bridge, to RM 17 at the I-4 Bridge, is listed in the National Park Service (NPS) *Southeastern Rivers Inventory* for Wild and Scenic Rivers. However, the section of the Tomoka River that lies in close proximity to the project study limits is not listed in the NPS *Southeastern Rivers Inventory*, and therefore, the coordination requirement for the Wild and Scenic Rivers Act does not apply to this project.

#### 4.3.11 Floodplains

Protection, analysis, mitigation, and documentation of floodplains has been provided in accordance with the requirements set forth in Executive Order 11988, "*Floodplain Management*," U.S. Department of Transportation (DOT) Order 5650.2, "*Floodplain Management and Protection*," and Federal-Aid Policy Guide 23 CFR 650A. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplain, where practicable, and to avoid supporting land use development that is incompatible with floodplain values. Potential impacts to floodplains associated with the project have been assessed. The results of this assessment are presented in the *Location Hydraulics Report* (LHR) and are summarized below. Figure 4-4 presents the locations of existing floodplain and the potential impacts associated with this project.

The proposed project is located within the floodplain associated with the Tomoka River. The floodplain information was determined using the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panels:

- Volusia County – 12127 C0363G, C0364G, and C0525G (April 15, 2002)

The FEMA FIRM identified two floodplain zones present within the project study area and associated with the Tomoka River. The majority of the project is located within Zone A which is defined as "No base flood elevation determined." The floodplain elevation was estimated overlaying the FEMA floodplain line over the USGS map for the area and making assumptions based on high water information available for the I-4 cross drains from the original FDOT construction plans.

Based on this method, the estimated elevation for the 100-year floodplain affecting the LPGA Boulevard Extension project varies from 25 to 27.5 feet National Geodetic Vertical Datum (NGVD) 29. The remainder of the project area is designated Zone X, which is defined two ways:

- Zone X – Areas determined to be outside the 500-year floodplain
- Zone X – Areas of 500-year flood; areas of 100-year flood with average depths less than one foot or with drainage areas less than one square mile; and areas protected by levees from 100-year flood

The proposed roadway and drainage improvements will require encroachment into the 100-year floodplain. The encroachment will traverse the Tomoka River floodplain and requires approximately 27 acre-feet of the floodplain to be filled.

Compensation for loss of floodplain storage is recommended within dedicated floodplain compensation ponds. The compensation ponds are areas re-graded to provide the required storage volume and to meet SJRWMD no rise criteria for the Tomoka River Basin. The location of the dedicated compensation ponds and the floodplain impact areas are depicted on Figure 4-4.

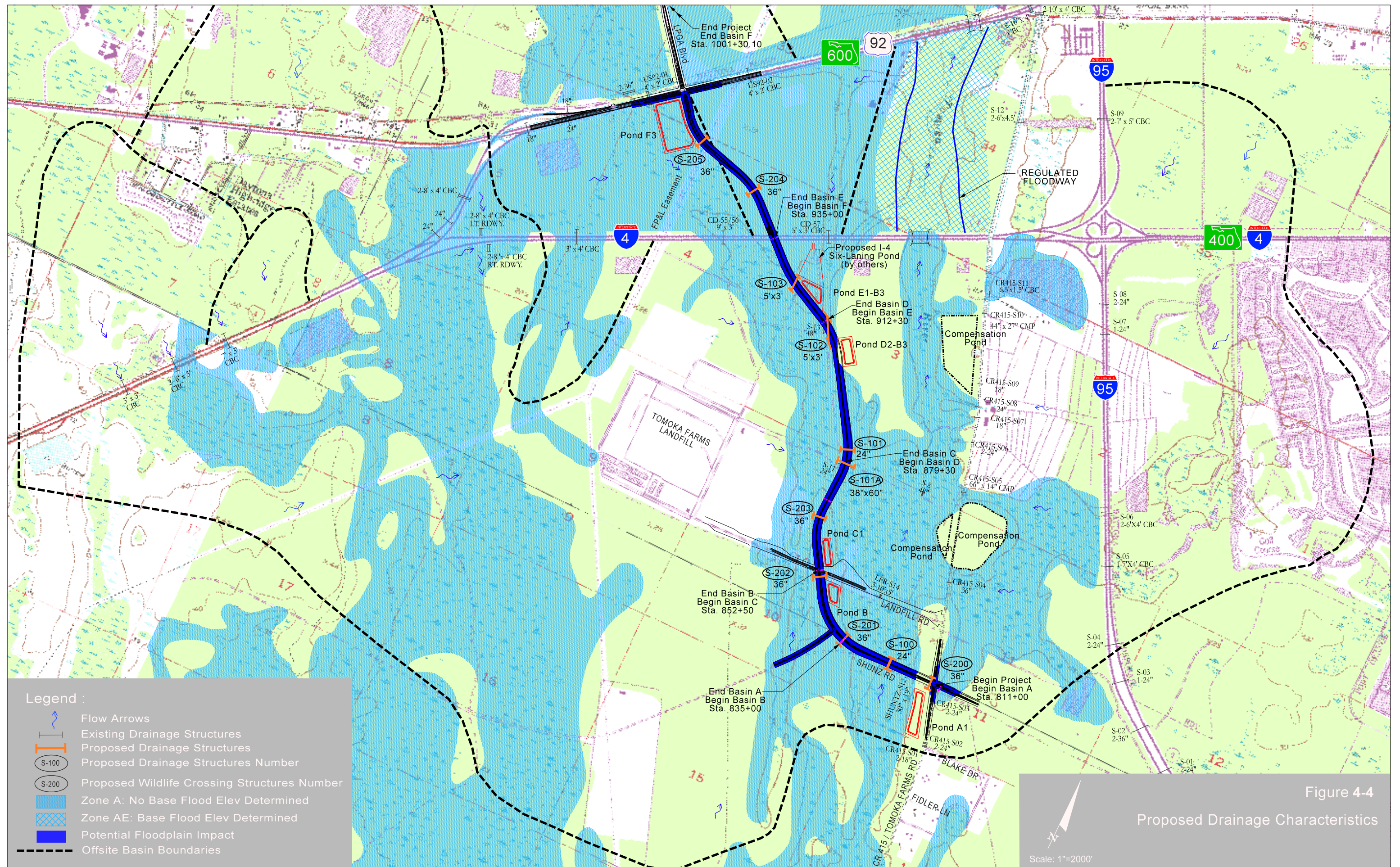
The construction of the drainage structure(s) for this project will cause changes in flood stage and flood limits. These changes will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant changes in flood risk or damage. These changes have been reviewed by the appropriate regulatory authorities who have concurred with the determination that there will be no significant impacts. There will not be significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant. However, this project is located within the Tomoka River Basin which has special basin designation and as such it is required to meet 1:1 compensation to comply with no net reduction in flood storage within the 100-year floodplain.

It has been determined through consultation with local, state, and federal water resources and floodplain management agencies that there is no regulatory floodway involvement on the proposed project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.

#### 4.3.12 Coastal Zone Consistency

Under Florida Statute 380, the FDEP is charged with establishing a Coastal Zone Management Program (CZMP) in accordance with 15 CFR 930. Section 307 of the Coastal Zone Management Act (CZMA) requires all federal agencies to review activities that directly affect the coastal zone in order to develop consistency determinations. These determinations will be used to determine if proposed federal activities are consistent to the maximum extent practicable, with Florida's CZMP, which was approved on October 1, 1981.







The Florida Department of Environmental Protection, through the Florida State Clearinghouse, has determined that this project is consistent with the Florida CZMP (refer to Appendix A for a copy of the advance notification response letter dated October 19, 2004).

#### 4.3.13 Wildlife and Habitat

The potential for adverse impacts to federally and state listed Threatened and Endangered wildlife and plant species, state listed Species of Special Concern (SSC), and other wildlife as a result of construction of the proposed project was evaluated in accordance with 50 CFR 402 of the Endangered Species Act of 1973, as amended. The objectives of this evaluation were to determine if any protected species inhabit the project study area, to determine if any protected species present would be adversely impacted by the proposed improvements, and to develop recommendations for avoidance and minimization of potential impacts. An *Endangered Species Biological Assessment* (ESBA) was completed for this project and a brief summary of the findings is provided herein.

The potential occurrence of listed species within the project study area was assessed based on consideration of species' range; available habitat within the study area; coordination with US Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FFWCC); and literature and field reviews. General surveys were also conducted within the project study area. Of the federally/state listed species generally found in Volusia County, approximately 28 species (15 animals and 13 plants) were either observed or reported by agencies to occur within the project study limits. A list of observed and/or potentially present fauna and flora species is included in Table 4-6 and presented graphically on Figure 4-5.

A review of available information from regulatory agencies was conducted to assess the potential occurrence of threatened and endangered species in the area. As presented previously in Table 4-6, a list of protected species that are known to occur in Volusia County, and that have the potential to occur in the project study area, based on known ranges and habitat preferences for that species has been compiled. Many protected species occur in the County; however, their specific habitat requirements do not occur in the project study area, thus they are not included in Table 4-6.

The results of the USFWS, FFWCC, and FNAI database research, relative to the potential presence of each of these species in the project study area, are briefly discussed below.

##### 4.3.13.1 Federally Listed Wildlife Species

Bald Eagle - There is one unconfirmed Bald Eagle nest located within one mile of the project corridor. The northern terminus of the proposed corridor is approximately 1,360 feet from the nearest eagle nest (#VO085). The nest is still considered by FFWCC to be active if it has been used in a successful nesting season in the last five years. This one was last successful in 2000.

Based on the 2005 data collected on Eagle Nest Surveys from FFWCC, Nest No. VO085 is unconfirmed at this time. It appears that the nest may have been destroyed during the 2004 hurricane season. FFWCC was not able to locate this nest by ground this winter but could not obtain the necessary permission from the local Daytona Beach Airport to perform the needed flyover to confirm whether this nest still exists. Both the FFWCC and the USFWS will continue to be consulted during the permit application phase concerning potential impacts to any new nests that may be built in the project area and a fly-over will be required to confirm any eagle activity during final design and prior to issuance of any permits. In the event that a nest is found anywhere within 1500 feet of the project corridor or proposed pond locations, coordination will be conducted with USFWS and FFWCC to ensure there will be no impacts. As a result, the proposed project may affect, but is not likely to adversely affect the Bald Eagle.

TABLE 4-6  
Listed and Potentially Occurring Threatened and Endangered Wildlife Species

Common Name	Scientific Name	Occurrence in PSA		Status	
		Observed	Documented	Federal	State
Mammals					
Florida Black Bear	<i>Ursus americanus floridanus</i>		D		T
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>				SSC
Birds					
Bald Eagle	<i>Haliaeetus leucocephalus</i>	O	D	T	T
Burrowing Owl	<i>Speotyto cunicularia</i>	O <sup>3</sup>			SSC
Florida Sandhill Crane	<i>Grus canadensis</i>				T
Limpkin	<i>Aramus guarauna</i>				SSC
Little Blue Heron	<i>Egretta caerulea</i>				SSC
Red-cockaded Woodpecker	<i>Picoides borealis</i>			E	SSC
Snowy Egret	<i>Egretta thula</i>	O <sup>1</sup>			SSC
Southeastern American Kestrel	<i>Falco sparverius paulus</i>				T
Tri-colored Heron	<i>Egretta tricolor</i>				SSC
White Ibis	<i>Eudocimus albus</i>	O <sup>1</sup>			SSC
Wood Stork	<i>Mycteria americana</i>	O <sup>2</sup>		E	E
Reptiles					
American Alligator	<i>Alligator mississippiensis</i>	O		T (S/A)	SSC
Eastern Indigo Snake	<i>Dymarchon corais couperi</i>			T	T

Note: The species listed above are known to occur in Volusia County and have the potential to occur within the project study area (PSA) based on known ranges and habitat preferences for that species.

Federal = US Fish and Wildlife Service

State = Florida Fish and Wildlife Conservation Commission

T = Threatened

T(S/A) = Threatened due to similarity of appearance

E = Endangered

SSC = Species of Special Concern

D = Documented in agency records as occurring in the area

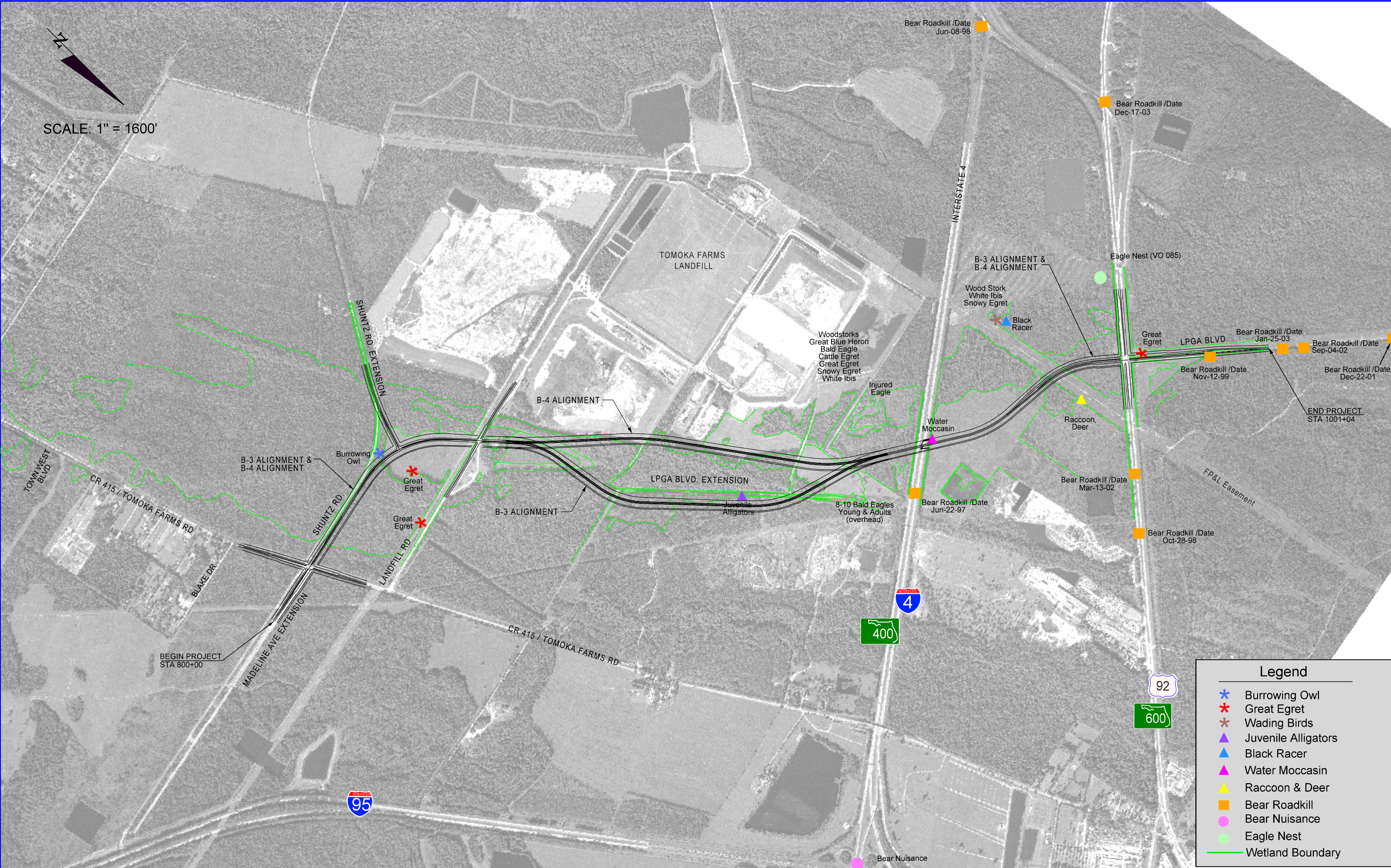
O = Observed in the field by project biologists

O<sup>1</sup> = Observed foraging; nearest colony is 10 miles from project

O<sup>2</sup> = Observed foraging; nearest colony is 40 miles from project

O<sup>3</sup> = Solitary bird observed; no burrows were found





REVISIONS						John R. Freeman, JR., P.E., PTOE P.E. License No. 25730 Kittelson & Associates, Inc. 315 E. Robinson St, Suite 465 Orlando, Florida 32801 Certificate of Authorization No 00007524	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			LPGA BLVD.EXTENSION PD&E STUDY KNOWN AND OBSERVED LOCATIONS OF LISTED WILDLIFE SPECIES	Figure 4-5
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
								VOLUSIA	410252-1-22-01		



Wood Stork - Wood Storks were observed foraging at the edge of the Tomoka Farms Landfill ponds. This species depends on receding water levels to concentrate fish, upon which they feed. Wood Storks are commonly seen in local wetlands in the region. The majority of the wetlands and open water areas in the project corridor will be undisturbed. Additionally, new surface water foraging areas will be created in the form of stormwater ponds and ditches. Because this project will not disturb any nesting areas, (the nearest known Wood Stork colony is approximately 40 miles to the north and 40 miles to the southwest), it is not expected to impact any regional populations, or decrease the amount of foraging habitat in any known Core Foraging Area. As a result, the proposed project may affect, but is not likely to adversely affect the Wood Stork.

Red-cockaded Woodpecker - The Red-cockaded Woodpecker is classified by the USFWS as an endangered species, and by the FFWCC, as a species of special concern (SSC). No evidence of nesting or foraging habitat was found in the project study area; thus, this project is not expected to significantly impact any regional populations of the Red-cockaded Woodpecker. As a result, the proposed project may affect, but is not likely to adversely affect the Red-cockaded Woodpecker.

Eastern Indigo Snake - The eastern indigo snake is restricted to the southeastern United States and is listed by USFWS and FFWCC as a threatened species. This species is known to occur in a variety of habitats, which range from swamps and wet prairies to xeric pinelands and scrub. Where wetter habitats prevail, indigo snakes may take shelter in hollowed root channels, hollow logs, or the burrows of rodents and armadillo. In drier areas, the indigo inhabits gopher tortoise burrows (no scrub habitat or gopher tortoise burrows exist in the project area). Although an indigo snake was not directly observed during the field investigations, it is potentially present based on known habitat preferences and range of distribution. Traffic might pose an occasional hazard to individual snakes attempting to cross the new road; however, the project is not expected to have a significant effect on regional populations of the indigo snake because the majority of the swamps and wet pinelands will remain. Furthermore, FDOT is committed to implementing the USFWS-approved standard *Protection Measures for the Eastern Indigo Snake* (refer to Appendix H). As a result, the proposed project may affect, but is not likely to adversely affect the Eastern indigo snake.

American Alligator - The American alligator is not expected to be directly impacted by the proposed project because these are highly mobile animals and a majority of the wetlands and open water along the project corridor will remain undisturbed. As a result, the proposed project may affect, but is not likely to adversely affect the American alligator.

#### 4.3.13.2 State-Only Listed Wildlife Species

Florida Black Bear - The Florida Black Bear is listed as threatened in Florida. Records of nuisance reports and road kills along I-4, US 92, and LPGA Boulevard indicate that bears do roam through the area. No road kills have been reported for CR 415 (Tomoka Farms Road). Because the proposed roadway lies at the eastern edge of the secondary range for the black bear, or what might be determined by FFWCC as a primary population range, it is expected that traffic might pose an occasional hazard to individual bears attempting to cross the new road. Bears will most likely continue to use the main travel routes, which appear to be to the west of this project, along a north-south movement along the Tiger Bay and Deep Creek floodplains.

Three new large wildlife crossings are currently being designed under another project (the six-lane widening of I-4). These crossings are located approximately two to five miles west of our project study area.

Coordination is ongoing with FFWCC regarding the potential impacts of this roadway on the local bear population, and actions necessary to offset secondary and/or cumulative impacts. However, plans for future development in the vicinity of the project have been identified and are proceeding with approvals regardless if the extension of LPGA Boulevard is constructed.

It has been documented in the first EAG Meeting that the local FFWCC representative, Mr. Brian Scheick, requested that no bear crossings be proposed for our project since they do not want to encourage the bears to travel farther east into the populated Daytona Beach area. He stated in that meeting that, although in the past eight years, nine bears have been killed attempting to cross the I-4/LPGA/US92 intersections, the local bear corridor is mainly a north-south travel route within the Tiger Bay State Forest that is located over five miles due west of our project area.

Further discussions have been held with FFWCC, Mr. Terry Gilbert, since the March 17, 2005 letter that has been included in Appendix I. It was agreed that large underpasses would encourage bears to move eastward, which would not be prudent given the proximity of I-95 and the urban area of Daytona Beach to the east.

FDOT recognizes that a new roadway will result in loss of wildlife habitat, and is committed to continuing its coordination with FFWCC to determine the maximum feasible size of additional wildlife openings and to determine if mitigation in excess of that provided for wetland impacts under FS 373.4137 is required for the loss of black bear habitat and for the fragmentation of the remaining habitat to the east of LPGA Boulevard Extension. Additional mitigation might include coordination with Volusia Forever Advisory Committee to identify and purchase strategically valuable lands needed to conserve biodiversity in the region, such as parcels within the Volusia Conservation Corridor that have already been identified through the Volusia Forever Program, but not yet funded for purchase and conservation. The mutual goal of the FDOT and FFWCC is to minimize the proposed project effect on the local Florida black bear population.

Sherman's Fox Squirrel - Sherman's fox squirrel is listed by FFWCC as a species of special concern, and is listed by FNAI as potentially occurring in Volusia County. However, because only marginally suitable habitat exists in the project study area, the potential for the fox squirrel to be present on-site is low. The fox squirrel's primary habitat includes areas that are characterized as fire-maintained longleaf pine-turkey oak sandhill and flatwoods communities. Small areas of drier flatwoods communities occur within the project study area, but no longleaf pine-turkey oak sandhill communities are present.

No individuals were observed during the field surveys performed for this study. This project is not expected to have a significant effect on regional populations of the fox squirrel, if any exist, because the majority of the pinelands will remain. As a result, the proposed project may affect, but is not likely to adversely affect the Sherman's fox squirrel.

Wading Birds - Wading birds (White Ibis, Little Blue Heron, Snowy Egret, Tri-colored Heron, and Limpkin) are commonly seen in local wetlands in the region. These avian species are not listed by the USFWS, but are listed as species of special concern by FFWCC. While each species is distinct, wading birds are discussed collectively since they occupy similar habitats. Some were observed foraging at the edge of the landfill ponds. The majority of the swamps, wet pinelands, ditches and stormwater ponds will not be disturbed by the project. Additionally, new surface water foraging areas will be created in the form of ponds and ditches. Because this project will not disturb any known nesting areas of these species, it is not expected to impact any regional wading bird populations, or decrease the amount of foraging habitat in the area. As a result, the proposed project may affect, but is not likely to adversely affect these wading birds.

Florida Sandhill Crane - Surveys for the Florida Sandhill Crane, which is state-listed as threatened, consisted of binocular surveys of suitable foraging and nesting habitat (primarily open wet fields).

No Sandhill Cranes were sighted. No suitable nesting habitat (marsh) occurs along the proposed road corridor. Because more suitable nesting and foraging habitat (wet prairies and marshes) occur elsewhere in the region, the project is not expected to adversely affect any regional populations of the Sandhill Crane. As a result, the proposed project may affect, but is not likely to adversely affect the Florida Sandhill Crane.

Southeastern American Kestrel - The Southeastern American Kestrel is listed by FFWCC as threatened. No evidence of this listed species was found during the field investigations, and no occurrence records are available, although it is potentially present based on known habitat preferences and range of distribution.

This project is not expected to significantly impact the open pastures, woodland edges, and farmlands in the area, thus no impacts to the potential occurrence of the Kestrel are anticipated. As a result, the proposed project may affect, but is not likely to adversely affect the Southeastern American Kestrel.

Burrowing Owl - The Burrowing Owl, listed by FFWCC as a species of special concern, prefers open pastures, grasslands, prairies, and airstrips. No suitable habitat of the Burrowing Owl occurs along the proposed roadway corridor. No actual burrows or nests of this listed species were found, only the individual owl itself was sighted along Shunz Road. It is presumed that the Burrowing Owl was passing through the area, possibly from the horse pastures east of CR 415. Hence, this project is not expected to impact the Burrowing Owl population. As a result, the proposed project may affect, but is not likely to adversely affect the Burrowing Owl.

#### 4.3.13.3 Other Potentially Occurring Plant Species

As presented in Table 4-7, a list of protected plant species that are known to occur in Volusia County and that have the potential to occur in the project study area, based on known habitat preferences for that species is summarized. However, no protected plant species listed as threatened or endangered were found within the project study area during the field investigations.

TABLE 4-7

Listed and Potentially Occurring Threatened and Endangered Plant Species

PLANTS - none observed		Status		Habitat
Common Name	Scientific Name	Federal	State	
Auricled Spleenwort	<i>Asplenium auritum</i>		E	on trunks of large trees, mostly live oaks in mesic hammocks, strand swamp
Bird's Nest Spleenwort	<i>Asplenium serratum</i>		E	fallen logs in swamps and hammocks
Fall-flowering Ixia	<i>Nemastylis floridana</i>		E	pine flatwoods
Florida spiny-pod	<i>Matelea floridana</i>		E	temp hardwood forest
Golden Leather Fern	<i>Acrostichum aureum</i>		E	swamps
Hand Fern	<i>Cheiroglossa palmata</i>		E	cabbage palm sloughs
Hartwrightia	<i>Hartwrightia floridana</i>		T	pine flatwoods
Lake-side Sunflower	<i>Helianthus carnosus</i>		E	marsh
Okeechobee Gourd	<i>Cucurbita okeechobeensis okeechobeensis</i>	E	E	wet hammocks, ditch banks
Pigmy Pipes	<i>Monotropsis reynoldsiae</i>		E	grows on <i>Cornus florida</i> roots
Rain Lily	<i>Zephyranthes simpsonii</i>		T	wet pinelands and pastures, adjacent roadsides
Star Anise	<i>Illicium parviflorum</i>		E	swamp
Terrestrial Peperomia	<i>Peperomia humilis</i>		E	upland hardwoods; swamp

Federal = US Fish and Wildlife Service

State = Florida Department of Agriculture and Consumer Services

E = Endangered, T = Threatened

This project has been evaluated for impacts on threatened and endangered species. A literature review was conducted to determine those possible threatened or endangered species which may inhibit the project area. This search resulted in findings that no listed species would be affected by the proposed action. This determination was made after review of the advance notification responses and field surveys of the project area by a biologist. Furthermore, the potential for impacts to critical habitat was assessed as to the relationship of the project to the Fish and Wildlife's designated "Critical Habitat."

#### 4.3.13.4 Drainage Structures and Wildlife Crossings

Constructing a new alignment for the extension of LPGA Boulevard provides the opportunity to incorporate and implement wildlife crossings for upland and wetland dependent species in addition to the proposed drainage cross culverts. The drainage cross culverts may provide safe passage for amphibian species, but upland wildlife crossings would provide safe and dry passage for small mammal and reptile species. The proposed preliminary design provides additional 36-inch pipes in upland locations for wildlife crossing; however, during final design the cost and feasibility of installing structures with larger cross sections, such as box culverts or 38"x 60" elliptical pipes in lieu of the proposed standard 36-inch concrete pipes will be investigated. Structures will not be considered that would substantially raise the profile grade and therefore increase wetland and floodplain impacts. Discussions with the state and federal resource agencies has begun and will continue during the design and permitting phases concerning appropriate wildlife mitigation measures, including wildlife crossings.



Based on the above findings, no significant adverse impacts are anticipated to the regional populations of the federally or state-listed species protected by the Endangered Species Act of 1973, amended (16 U.S.C. 1531 et seq.), as a result of the proposed improvements. This finding fulfills the requirements of the Act. Further information on potential threatened and endangered species is described in greater detail in the *Endangered Species Biological Assessment* (October 2005).

#### **4.3.14 Farmlands**

Through coordination with the Natural Resources Conservation Service (NRCS), it has been determined that the project study area, which is located within the urbanized area of Daytona Beach, does not meet the definition of farmland as defined in 7 CFR 658. Therefore, the provisions of the Farmland Protection Policy Act (FPPA) of 1984 do not apply to this project.

#### **4.3.15 Construction Impacts**

Implementation of the proposed project will require physical improvements within the corridor that will result in impacts as construction proceeds. This section describes the impacts that may occur during the construction of the LPGA Boulevard Extension project.

Construction activities accompanying the proposed improvements associated with the Preferred Alternative will produce temporary air, noise, vibration, water quality, traffic flow, and visual impacts for those residences and travelers within the immediate vicinity of the project.

##### ***Air Quality***

Air quality impacts will be temporary and will primarily be in the form of exhaust emissions from trucks and construction equipment as well as fugitive dust from construction sites. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials in accordance with FDOT's *Standard Specifications for Road and Bridge Construction*.

##### ***Noise and Vibration***

Noise and vibration impacts may be generated by heavy equipment and construction activities such as pile driving and vibratory compaction of embankments. Noise control measures will be implemented as set forth in the FDOT's *Standard Specifications for Road and Bridge Construction*. Adherence to local construction noise and/or construction vibration ordinances by the contractor will also be required where applicable.

##### ***Water Quality***

Water quality impacts resulting from erosion and sedimentation will be controlled in accordance with FDOT's *Standard Specifications for Road and Bridge Construction* and through the use of BMPs.

##### ***Traffic***

Maintenance of traffic and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Signs will be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction-related activities which could excessively inconvenience the community so that motorists, residents, and business persons can plan travel routes in advance.

A sign providing the name, address, and telephone of a Department contact person will be displayed on-site to assist the public in obtaining immediate answers to questions and logging complaints about project activity.

Access to all businesses and residences will be maintained to the extent practical through controlled construction scheduling. Within the project study limits, the present traffic congestion may become worse during stages of construction where narrow lanes may be necessary. Traffic delays will be controlled to the extent possible where many construction operations are in progress at the same time. The contractor will be required to maintain two lanes of traffic in each direction at all times and to comply with BMPs.

### ***Visual and Aesthetic Quality***

Visual impacts associated with the storage of construction materials and establishment of temporary construction facilities will occur, but are temporary and short term.

Construction of the roadway and bridge requires excavation of unsuitable material (muck), placement of embankments, and the use of materials, such as limerock, asphaltic concrete, and portland cement concrete. Demucking is anticipated at most of the wetland sites and will be controlled by Section 120 of the FDOT's *Standard Specifications for Road and Bridge Construction*. Disposal will be on-site in detention areas or off-site. The removal of structure and debris will be in accordance with local and State regulation agencies permitting this operation. The contractor is responsible for his methods of controlling pollution on haul roads, in borrow pits, other material pits, and areas used for disposal of waste materials from the project. Temporary erosion control features as specified in the FDOT's *Standard Specifications for Road and Bridge Construction*, Section 104, will consist of temporary grassing, sodding, mulching, sandbagging, slope drains, stormwater ponds, sediment basins, sediment checks, artificial coverings, and berms.

## **4.3.16 Required Permits**

The construction and operation of the proposed LPGA Boulevard Extension will require permits from federal and state regulatory agencies prior to the construction of this project. Permits will be required for wetland impacts, floodplain impacts, stormwater discharge, treatment, and attenuation. Complying with all federal and state regulations concerning impacts to wetlands and water resources will satisfy local ordinances pertaining to such impacts.

A list of the potentially required permits for this project and the respective issuing agencies is summarized in Table 4-8.

TABLE 4-8  
Potentially Required Permits

Potentially Required Permits	Issuing Agency	Jurisdiction
Federal Dredge and Fill Permit (joint ERP)	USACE	Federal
National Pollutant Discharge Elimination System (NPDES) General Permit	FDEP	Federal/delegated to State
Environmental Resource Permit (ERP)	SJRWMD	State

Environmental coordination has been accomplished through meetings and telephone conversations with USFWS and FFWCC on wildlife and habitat issues, and with SJRWMD and USACE on wetland assessments. An EAG with members representing permitting and other resource agencies, local governments, and interested citizens was convened and consulted for this PD&E study.