



2013 FDOT Mitigation Plan

*Natural Systems & Restoration Bureau
Springs & Environmental Flows Section
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Cover: Featured are some of the restored and enhanced natural communities on the Conner Preserve (SW 77). Pictured in the upper left is a wetland buffer area that was restored to pine flatwood from an improved pasture and in the lower left is a basin swamp and marsh that was enhanced by removing the exotic invasive plant, Chinese tallowtree (*Sapium sebiferum*). Plants and animals found in these habitats are pictured at the right. Pictured top to bottom are: Pond cypress (*Taxodium ascendens*), False foxglove (*Agalinis* spp.), Great Egret (*Ardea alba*), Lopsided indiagrass (*Sorghastrum secundum*), Dahoon holly (*Ilex cassine*) and an unidentified damselfly likely from the Family Coenagrionida.

INTRODUCTION

The Florida Department of Transportation (FDOT) historically conducted mitigation for wetland impacts associated with roadway construction on a project by project basis. The majority of these mitigation activities were creation and enhancement of habitats adjacent to the roadway facilities. Existing and future commercial, industrial and residential developments along these roadways subject these constructed mitigation areas to many limitations and risks in achieving the desired ecological benefits needed to compensate for wetland impacts. These developments also reduce mitigation opportunities as well as increase the cost of mitigation projects, primarily a result of the availability of property and the cost of acquisition.

In 1996, the State Legislature determined that mitigation would be more effectively achieved with regional, long range mitigation planning instead of conducting mitigation on a project by project basis and created the FDOT Mitigation Program (see Section 373.4137, Florida Statutes). A copy of the current statutory language is provided in Appendix A. This program is administered by the state's water management districts, which are responsible for annually developing a mitigation plan.

Mitigation planning is based on an inventory of construction projects that is provided by the FDOT. The minimum planning horizon is three years. However, the FDOT may elect to add to their inventory, projects with projected construction dates that extend beyond this planning horizon. This provides additional time for suitable mitigation projects to be developed, which is essential when mitigation options are limited. The project inventory is updated annually to account for changes that occur as the FDOT projects move through planning, design and permitting phases. Inventory updates include: additions and deletions of construction projects; modifications to projected permitting and construction dates as well as adjustments to projected impact habitat type or acreages. New this year, is the requirement that the FDOT perform an evaluation to identify any projects where impacts may be offset using a mitigation bank. These projects are deleted from the inventory of projects that are to be included in the FDOT Mitigation Program.

Mitigation for wetland impacts associated with FDOT road improvement projects may be provided by a private or public mitigation bank or a mitigation project adopted into the FDOT Mitigation Program. Mitigation projects that are adopted into the FDOT Mitigation Program are to address significant water resource needs and focus on the needs of the Department of Environmental Protection and the water management districts, such as Surface Water Improvement and Management (SWIM) projects; lands identified for acquisition, restoration or enhancement; control of invasive and exotic plants to the extent the impacts of the FDOT Project are offset.

Based on the impact information provided by the FDOT, mitigation options are matched to FDOT road improvement projects such that the State and Federal permitting requirements for offsetting wetland impacts are satisfied. Federal and State mitigation requirements specify that habitats with similar value and function as those being impacted are to be created, enhanced, restored or preserved. Additionally, mitigation projects must be located in the same regional watershed as the projected wetland impacts. A map of the regional watersheds in the Southwest Florida Water Management District (District) is provided in Appendix B. In addition to these criteria,

Florida statute specifies that the purchase of credits from public or private mitigation banks be considered when such purchase would offset the impact of the FDOT project, provide equal benefit to the water resource as other mitigation options and provide the most cost-effective mitigation option.

The statute establishing the FDOT Mitigation Program requires that the FDOT Mitigation Plan be updated every year by March 1st. Approval by the District's Governing Board and the Florida Department of Environmental Protection is required prior to implementation. Before presenting the 2013 FDOT Mitigation Plan for approval, a draft was presented at a publicly noticed meeting held on January 22, 2013. The 2013 FDOT Mitigation Plan contains an updated inventory of all FDOT projects included in the FDOT Mitigation Program, a summary of the evaluation of mitigation bank options performed and a description of the mitigation project or projects that are designated to offset the identified wetland impacts. This Mitigation Plan has been developed by the District in accordance with the statutory requirements for the FDOT Mitigation Program.

REPAYMENT OF ADVANCE FUNDING

Pursuant to Chapter 373.4137, F.S., the FDOT provided \$12 million in advance mitigation funding. These funds were distributed statewide to various habitat restoration projects proposed by the Water Management Districts. To the extent these projects offset the wetland impacts identified in the inventory, the FDOT received mitigation credit. Of the \$12 million distributed statewide, the District received \$1.9 million designated toward planning and design activities associated with several SWIM-sponsored projects selected for the mitigation program. The savings from cost-effective mitigation (i.e. mitigation projects costs that were less than the funding provided by FDOT) was credited toward reimbursing FDOT for the advance funding. The District officially reimbursed the FDOT \$4.2 million of the program's advance funding. The other Water Management Districts combined contributed \$4.8 million toward this reimbursement.

An analysis of selected mitigation projects demonstrated the tax savings exceeded \$50 million in the Tampa Bay region and \$100 million District-wide when the cost of the District's mitigation projects were compared to money FDOT anticipated expending to conduct traditional project specific mitigation. As a result of the substantial program savings demonstrated by the District, in 2009, Legislation that suspended the requirement to reimburse the remaining \$3 million balance in advance funding was passed. The District was credited with reimbursing \$7.2 of the \$12 million program's advance funding.

CONTACT INFORMATION

Any questions, comments, requests or recommendations for the FDOT Mitigation Program or any of the designated mitigation projects, may be directed to the FDOT Mitigation Program Manager & Senior Environmental Scientist, Karen Gruenhagen, MSPH, PWS at:

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FDOT ROAD IMPROVEMENT PROJECTS

Since the inception of the FDOT Mitigation Program in 1996, there are various transportation entities within the Southwest Florida Water Management District jurisdictional boundaries that have conducted mitigation through the FDOT Mitigation Program. These include FDOT District 1 (Bartow), District 5 (Deland), District 7 (Tampa), District 8 (Florida's Turnpike, Orlando), Tampa-Hillsborough Expressway Authority, and the Tampa International Airport, collectively referred to as FDOT. From 1996 through 2013, there are 132 construction projects with wetland impacts totaling 577.42 acres mitigated through the FDOT Mitigation Program.

Over the years, a number of FDOT projects for which mitigation projects were developed have been removed from the FDOT Mitigation Program, including 27 projects having a total of 23.16 acres of wetland impact in this year's Plan. Statutory revisions that became effective in 2012 require that the FDOT perform a mitigation bank analysis when determining which projects are submitted for inclusion in the FDOT Mitigation Program. This analysis was performed in December, 2012 when the inventory of FDOT road improvement projects was finalized. A summary of the FDOT projects being deleted and the reasons for deletion are shown in Table One.

Table One: Summary of FDOT Road Improvement Projects that are deleted from the FDOT Mitigation Program and the reason for deletion.

Delete Reason	Number of Projects	Wetland Impacts (acres)
Permit application date is outside FDOT planning horizon	4	4.30
Combined with another FDOT project	1	Combined impacts are reflected in the inventory
Dropped from the FDOT work program	1	6.20
Wetland impacts to be offset at a Private Mitigation Bank	14	10.48
Permitted without mitigation required	5	0.78
Mitigation is not available	2	1.40

Currently, there are 23 construction projects that are active, of which 4 are newly added to the Program, that require mitigation to be provided through the FDOT Mitigation Program. A total of 118.95 acres of wetland impact are planned to be offset through the FDOT Mitigation Program.

Tables Two – Fourteen lists all the FDOT projects that have been permitted with mitigation provided through the FDOT Mitigation Program. Also listed are the FDOT projects that remain in, are added to or deleted from the FDOT Mitigation Program. Projects deleted are highlighted in yellow and projects that are added are highlighted in green. Detailed information, including location, projected permitting and construction dates, impact acreage and impact habitat type, for all FDOT projects in the FDOT Mitigation Program is provided in Appendix C.

Table Two: FDOT Road Improvement Projects in the Alafia River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
4154892	US 301, Balm Road to Gibsonton Drive	Permitted	0.30	SW 81 - Balm Boyette

Table Three: FDOT Road Improvement Projects in the Charlotte Harbor Drainage

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
4130423	I-75 from Tucker's Grade to N. Jones Loop Road	Permitted	1.10	SW 52 - Little Pine Island Mit. Bank

Table Four: FDOT Road Improvement Projects in the Hillsborough River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
2012081	I-4 - County Line to Memorial Blvd. -Sec. 1	Permitted	13.55	SW 55 - U.H. 4&5
2012171	I-4 West of Memorial Blvd. to west of US 98 - Sec. 2	Permitted	4.30	SW 61 - Jennings Tract
2562432	SR 52 (SCHRADER HWY) FROM CR 581 (BELLAMY BRO) TO OLD PASCO RD	2013-active	0.80	SW 77 - Conner Preserve
2555361	SR 39, Blackwater Creek Bridge Replacement	Permitted	2.10	SW 61 - Jennings Tract
2555851	SR 39 (Alexander St) I-4 to Knights Griffin Rd.	Permitted	14.20	SW 84 - Colt Creek State Park
2558591	SR 678 (Bearss Ave.) Florida Ave. to Nebraska	Permitted	0.10	SW 61 - Jennings Tract
2563151	US 41 Bell Lake to Tower Road	Permitted	1.10	SW 63 - Hills. River Corridor
2563341	SR 52 US 41 to CR 581	2013-active	42.80	SW 77 - Conner Preserve
2564222	US 301 (SR 41) SR 39 to South of CR 54	2013-active	0.10	SW 77 - Conner Preserve
2563431	SR 54 US 41 to Cypress Creek	Permitted	14.20	SW 34 - Lk. Thonotassassa
2578623	SAM ALLEN Rd; from Alexander St to Park Rd	2013-active	0.80	SW 77 - Conner Preserve
2587362	I-75 (SR 93) FROM NORTH OF SR/CR 54 TO NORTH OF SR 52 (Design-Build)	2013-active	2.61	SW 77 - Conner Preserve

2578071	Bruce B. Downs Bike Path Amberly Dr. - Hunter's Green	Permitted	0.50	SW 61 - Jennings Tract
2578072	Bruce B. Downs Bike Path Tampa Limits to Amberly Dr.	Permitted	0.20	SW 61 - Jennings Tract
2578391	Alexander Street US 92 to I- 4	Permitted	2.60	SW 61 - Jennings Tract
2578622	Park Road I-4 (SR 400) to Sam Allen Rd.	Permitted	0.81	SW 84 - Colt Creek State Park
2584131	SR 93 (I-275) US 41 to Pasco Co. Line	Permitted	7.60	SW 61 - Jennings Tract
2584491	I-4 (SR 400) at Alexander Street Ramp	Permitted	1.70	SW 61 - Jennings Tract
2587341	SR 56, Cypress Creek to CR 581 (B.B. Downs)	Permitted	5.30	SW 61 - Jennings Tract
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	2013-active	4.26	SW 77 - Conner Preserve
4165612	SR 54 FROM CR 577/CURLEY RD TO CR 579/MORRIS BRDG RD	2013-active	2.00	SW 77 - Conner Preserve
4079441	I-75 Northbound Rest Area	Permitted	1.20	SW 84 - Colt Creek State Park
4079442	I-75 Southbound Rest Area	Permitted	1.00	SW 84 - Colt Creek State Park
4084592	I-75 Fowler Avenue to CR 581	Permitted	23.79	SW 84 - Colt Creek State Park
4084593	I-75 - CR 581 (BB Downs) to SR 56 (Mainline)	Permitted	16.10	SW 84 - Colt Creek State Park
4084594	I-75 SR 56 to S of CR 54	Permitted	11.90	SW 84 - Colt Creek State Park
4084602	I-75 Off-Ramp at CR 581	Permitted	0.50	SW 61 - Jennings Tract
4089321	SR 39 @ Hillsborough River	Permitted	1.70	SW 84 - Colt Creek State Park
4113371	US 92 - Eureka Springs to Thonotasassa Rd.	Permitted	1.65	SW 84 - Colt Creek State Park
4218311	I-75 - CR 581 (BB Downs) to SR 56 ("Waddah Ramps")	Permitted	30.70	SW 84 - Colt Creek State Park
4218314	I-75 S of CR 54 to N of CR 56	Permitted	17.34	SW 84 - Colt Creek State Park
4165611	SR 54 I-75 to US 301	2013-deleted	0.00	SW 84 - Colt Creek State Park
4271591	US 92 (SR 580/600) Benjamin Rd. to Westshore Blvd.	2013-deleted	0.20	SW 84 - Colt Creek State Park
4289611	SR 39/JAMES L REDMAN FROM SR 60(HOPEWELL RD) TO N OF CHARLIE GRIF	2013-New	0.20	SW 77 - Conner Preserve

4311371	SR 574/MLK JR BLVD FM E OF MCINTOSH RD TO W OF WHEELER CT	2013-New	0.20	SW 77 - Conner Preserve
4306851	SR 574 / MLK BLVD AT GALLAGHER ROAD	2013-New	0.20	SW 77 - Conner Preserve

Table Five: FDOT Road Improvement Projects in the Kissimmee Ridge Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
1945101	US 27 Lake Glenada to Hal McRae	Permitted	0.39	SW 49 - Reedy Ck. Mit. Bank
2012041	I-4, East of CR 557 to Osceola County (Sec. 6-7,9)	Permitted	2.35	SW 49 - Reedy Ck. Mit. Bank

Table Six: FDOT Road Improvement Projects in the Little Manatee River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
4245501	US 41 (SR 45) FROM MANATEE/HILLS CO/L TO N OF 15TH AV	2013-active	0.00 ¹	SW 78 - Bahia Beach
4154893	US 301, Sun City Center to Balm Road	Permitted	0.90	SW 83 - Little Manatee River, Lower Tract

Table Seven: FDOT Road Improvement Projects in the Manatee River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
1960221	SR 64 (Seg. 1) I-75 to Lena Rd.	Permitted	2.42	SW 65 - Rutland Ranch
1960223	SR 64 (Seg. 2) Lena Rd. to Lakewood Ranch Rd.	Permitted	0.80	SW 65 - Rutland Ranch
1960224	SR 64 (Seg. 3) Lakewood Ranch to Lorraine Rd.	Permitted	4.00	SW 80 - Hidden Harbour
1960581	US 301 (Ellenton) 60th Ave. to Erie Rd.	Permitted	0.59	SW 50 - Terra Ceia
1961211	SR 70 (Seg. 1) I-75 to Lakewood Ranch Rd.	Permitted	0.90	SW 65 - Rutland Ranch
4043232	SR 70 (Seg. 2) Lake Ranch Rd. to Lorraine Rd.	Permitted	3.80	SW 65 - Rutland Ranch

¹ Impacts are reported segment located in Tampa Bay Drainage basin.

4161201	SR 64 Carlton Arms Blvd. to I-75	Permitted	0.76	SW 80 - Hidden Harbour
4226031	US 301 (Seg. B) Erie Road to CR 675	Permitted	2.73	SW 80 - Hidden Harbour

Table Eight: FDOT Road Improvement Projects in the Myakka River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
1937941	SR 776 CR 771 to Willow Bend Rd.	Permitted	2.08	SW 52 - Little Pine Island Mit. Bank
1937941	SR 776 CR 771 to Willow Bend Rd.	Permitted	8.88	SW 31 - Cattle Dock
1979251	SR 72 Big Slough to DeSoto C/L	Permitted	1.49	SW 51 - Myakka River State Park
1980131	SR 72 Deer Prairie to Big Slough	Permitted	0.87	SW 51 - Myakka River State Park
4138871	SR 72 Myakka River to Big Slough	Permitted	5.00	SW 51 - Myakka River State Park

Table Nine: FDOT Road Improvement Projects in the Ocklawaha River

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
238641	US 27 Levy Co. Line to SR 326	Permitted	3.50	SW 58 - Ledwith Prairie
238679	US 27 SR 326 to CR 225a	Permitted	1.09	SW 58 - Ledwith Prairie
238719	SR 40 CR 328 to SW 80th	Permitted	0.08	SW 58 - Ledwith Prairie
1976791	US 27 SR 544 to Blue Heron Bay	Permitted	0.46	SW 76 - Lake Lowery
2012041	I-4 East of CR 557 to Osceola County (Sec. 6-7,9)	Permitted	4.35	SW 76 - Lake Lowery
4038901	US 27 Blue Heron Bay to CR 547	Permitted	1.90	SW 76 - Lake Lowery

Table Ten: FDOT Road Improvement Projects in the Peace River

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
1937911	US 17 (SR 35) CR 74 to CR 764 North	Permitted	0.27	SW 53 - Boran Ranch Mit. Bank
1937981	US 17 (SR35) CR 764 South to CR 764 North	Permitted	3.60	SW 53 - Boran Ranch Mit. Bank
1938851	SR 72 Sarasota Co. Line to SR 70	Permitted	1.19	SW 53 - Boran Ranch Mit. Bank
1938991	US 17 Livingston to Hardee County Line	Permitted	11.59	SW 66 - Circle B Bar Reserve
1940931	US 17 (SR 35) Peace River to Tropicana Rd.	Permitted	4.42	SW 66 - Circle B Bar Reserve
1941021	US 17 (SR 35) SR 64 to Peace River Bridge	Permitted	2.30	SW 53 - Boran Ranch Mit. Bank
1971681	SR 60A (Van Fleet Dr.) CR 555 to Broadway Ave.	Permitted	0.46	SW 66 - Circle B Bar Reserve
1974711	SR 540 (Cypress Gardens) 9th Street to Overlook	Permitted	0.41	SW 47 - Tenoroc/Saddle Creek
1974751	SR 540 (Cypress Gardens) Thornhill Rd. to Recker Hwy.	Permitted	5.87	SW 47 - Tenoroc/Saddle Creek
1975331	US 27 Towerview Rd. to SR 540	Permitted	3.90	SW 66 - Circle B Bar Reserve
1976381	US 98 - Carpenter's Way to Daugherty Road	Permitted	0.10	SW 66 - Circle B Bar Reserve
1976791	US 27 SR 544 to Blue Heron Bay	Permitted	1.50	SW 66 - Circle B Bar Reserve
1977014	SR 559 Extension SR 655 (Recker Hwy) to Derby Ave.	Permitted	0.39	SW 66 - Circle B Bar Reserve
1977051	US 27 SR 60 to Towerview Blvd.	Permitted	0.19	SW 66 - Circle B Bar Reserve
1977061	US 27 SR 540 to SR 542	Permitted	3.94	SW 66 - Circle B Bar Reserve
1977071	US 27 SR 542 to CR 546	Permitted	0.60	SW 66 - Circle B Bar Reserve
1984711	Trabue Harborwalk Bike Path	Permitted	0.16	SW 52 - Little Pine Island Mit. Bank
1986371	Ft. Green/Ona (Seg. 2) Vandola to North of Vandolah Rd.	Permitted	7.22	SW 53 - Boran Ranch Mit. Bank
1986381	Ft. Green/Ona (Seg. 3) SR 64 to Vandolah Rd.	Permitted	5.23	SW 53 - Boran Ranch Mit. Bank
1986401	Ft. Green/Ona Road (Seg. 1) Vandolah to SR 62	Permitted	2.08	SW 53 - Boran Ranch Mit. Bank
2012092	I-4, East of US 98 to East of CR 557 (Sec. 3-5)	Permitted	1.88	SW 47 - Tenoroc/Saddle Creek

4046971	I-75 Bridge Widening over Peace River	Permitted	2.75	SW 52 - Little Pine Island Mit. Bank
4046971	I-75 Bridge Widening over Peace River	Permitted	3.31	SW 69 - Peace Restor.
4082685	US 98 Manor Drive to CR 540A	Permitted	0.63	SW 66 - Circle B Bar Reserve
4110391	US 27 CR 546 to SR 544	Permitted	1.96	SW 66 - Circle B Bar Reserve
4154901	US 17 Charlotte C.L. to SW Collins	Permitted	2.23	SW 85 - Peace River Mit. Bank
4154901	US 17 Charlotte C.L. to SW Collins	Permitted	1.98	SW 53 - Boran Ranch Mit. Bank
4251371	SR 17 @ Mountain Lake Cutoff Intersection Improvements	Permitted	0.16	SW 66 - Circle B Bar Reserve

Table Eleven: FDOT Road Improvement Projects in the South Coastal Drainage

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
1979421	SR 789 Ringling Causeway Blvd.	Permitted	0.27	SW 88 - Curry Creek ROMA
1980051	US 41 Bus. (SR 45) Venice Ave. to US 41 Bypass	Permitted	0.32	SW 88 - Curry Creek ROMA
4063143	I-75 N. River Rd. (CR 577) to SR 681	Permitted	14.55	SW 79 - Fox Creek ROMA
4063143	I-75 N. River Rd. (CR 577) to SR 681	Permitted	0.77	SW 88 - Curry Creek ROMA

Table Twelve: FDOT Road Improvement Projects in the Tampa Bay Drainage

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
2555991	SR 676 (Causeway Blvd.) US 301 to US 41	Permitted	1.40	SW 71 - Boyd Hill Nature Preserve
2555991	SR 676 (Causeway Blvd.) US 301 to US 41	Permitted	1.40	SW 56 - Cockroach Bay (Fresh)
2556301	SR 60 Courtney Campbell to Fish Creek	Permitted	12.20	SW 45 - Gateway Tract
2557031	SR 60 Cypress St. to Fish Creek	Permitted	5.40	SW 75 - Cockroach Bay (Salt)
2557031	SR 60 Cypress St. to Fish Creek	Permitted	0.80	SW 56 - Cockroach Bay (Fresh)
2557031	SR 60 Cypress St. to Fish Creek	Permitted	10.70	SW 67- Apollo Beach

2557031	SR 60 Cypress St. to Fish Creek	Permitted	5.10	SW 62 - Tappan Tract
2557341	SR 676 Maritime Blvd. to SR 60	Permitted	1.50	SW 45 - Gateway Tract
2558881	US 301 Sligh Ave. to Tampa Bypass Canal	Permitted	8.30	SW 71 - Boyd Hill Nature Preserve
2558881	US 301 Sligh Ave. to Tampa Bypass Canal	Permitted	3.00	SW 56 - Cockroach Bay (Fresh)
2558935	SR 574 (MLK) @ I-75	Permitted	0.20	SW 90 - Brooker Ck. Buffer Preserve
2569952	43RD ST N EXTENSION FROM CR 296 (118TH AVE N) TO 40TH STREET N	2013-active	0.76	SW 86 - Mobbly Bayou
2568811	US 19 (SR 55) Whitney Rd. to Seville Dr.	Permitted	0.50	SW 86 - Mobbly Bayou
2568812	US 19 (SR 55) Seville Dr. to SR 60	Permitted	0.20	SW 56 - Cockroach Bay (Fresh)
2568881	US 19 Coachman Rd. to Sunset Rd.	Permitted	0.40	SW 71 - Boyd Hill Nature Preserve
2569051	SR 679 (Bayway) Bunces Pass Bridge # 150	Permitted	0.60	SW 45 - Gateway Tract
2569961	SR 686 AT CR 611 (49TH ST)	2013-active	0.30	SW 86 - Mobbly Bayou
2569312	Gandy Blvd. (SR 694) 9th Street to 4th Street North	Permitted	3.31	SW 86 - Mobbly Bayou
2569571	US 19 SR 60 (Drew St.) to Railroad Crossing	Permitted	0.50	SW 56 - Cockroach Bay (Fresh)
2569941	CR 296 Connector 40th St. to 28th St.	Permitted	1.00	SW 56 - Cockroach Bay (Fresh)
2569942	CR 296 Connector NB I-275 (Ramp P) to WB SR 686	Permitted	1.10	SW 56 - Cockroach Bay (Fresh)
2569981	SR 686 FROM W OF I-275 TO W OF 9TH ST N	2013-active	2.80	SW 86 - Mobbly Bayou
2570701	US 19 (SR 55) 49th St. to 118th Avenue	Permitted	0.10	SW 71 - Boyd Hill Nature Preserve
2571391	SR 688 (Ulmerton Rd.), US 19 to 49th Street	Permitted	0.10	SW 75 - Cockroach Bay (Salt)
4055252	SR 60 (ADAMO DR) FROM E OF US 301 TO W OF FALKENBURG RD	2013-active	0.01	SW 90 - Brooker Ck. Buffer Preserve
4061511	Veteran's Expressway Memorial Hwy. to Gunn Hwy.	Permitted	4.68	SW 78 - Bahia Beach
2583981	I-275 Howard Franklin to Himes Ave.	Permitted	0.00	SW 45 - Gateway Tract
2583982	I-275 Howard Franklin to Himes Ave.	Permitted	1.50	SW 45 - Gateway Tract
2584151	I-4 (SR 400) @ Selmon Expressway	Permitted	6.40	SW 86 - Mobbly Bayou

2588701	I-275 Roosevelt to Big Island Gap	Permitted	9.10	SW 45 - Gateway Tract
4037701	US 19, CR 816 (Alderman) to SR 582 (Tarpon)	Permitted	0.10	SW 71 - Boyd Hill Nature Preserve
4062531	SR 686 (Roosevelt) at 49th Street	Permitted	0.20	SW 45 - Gateway Tract
4062561	East-West Trail, Coopers Bayou to Bayshore	Permitted	0.10	SW 71 - Boyd Hill Nature Preserve
4082011	Himes Ave. at Hillsborough Ave.	Permitted	0.10	SW 71 - Boyd Hill Nature Preserve
4091551	SR 688 (Ulmerton Rd.) Lake Seminole to Wild Acres	Permitted	0.02	SW 86 - Mobbly Bayou
4245501	US 41 (SR 45) FROM MANATEE/HILLS CO/L TO N OF 15TH AV	2013-active	0.54	SW 78 - Bahia Beach
2569311	Gandy Blvd. (SR 694) US 19 to 4th St.	2013-deleted	0.60	SW 87 - Alligator Lake
4113371	US 92 Eureka Springs to Thonotasassa Rd.	Permitted	0.20	SW 82 - Ekker Tract
2569953	SR 688/ULMERTON RD FM E OF 49TH STREET TO W OF 38TH STREET NORTH	2013-deleted	1.00	SW 86 - Mobbly Bayou
4125313	I-275 @ I-275 NB Off-Ramp to SR 60 Airport Flyover	Permitted	0.90	SW 86 - Mobbly Bayou
2569971	SR 686 (ROOSEVELT) FROM 49TH ST BRIDGE TO N OF ULMERTON RD	2013-deleted	0.30	SW 86 - Mobbly Bayou
4143481	36R RPZ	Permitted	7.94	SW 78 - Bahia Beach
4143481	Taxiway V&W	Permitted	0.07	SW 78 - Bahia Beach
4143481	Taxiway B rehab, Bridge and N. Terminal Stormwater	Permitted	3.29	SW 78 - Bahia Beach
4143481	North Terminal Phase 1	Permitted	2.48	SW 90 - Brooker Ck. Buffer Preserve
4143481	Taxiway N Overpass	Permitted	5.88	SW 78 - Bahia Beach
4143481	Runway 17-35	Permitted	6.72	SW 78 - Bahia Beach
4143481	Taxiway S West Extension	Permitted	0.85	SW 78 - Bahia Beach
4143481	Taxiway E Reconstruction	Permitted	2.87	SW 78 - Bahia Beach
4143481	North Terminal Airside 2	Permitted	5.29	SW 90 - Brooker Ck. Buffer Preserve

4143481	North Terminal Airside 3	Permitted	4.29	SW 90 - Brooker Ck. Buffer Preserve
4143481	North Terminal Airside 4	Permitted	3.66	SW 90 - Brooker Ck. Buffer Preserve
4143481	Taxiway A Extension	Permitted	1.44	SW 90 - Brooker Ck. Buffer Preserve
4143481	East Devepment Area (Drew Park Improvements)	Permitted	2.25	SW 78 - Bahia Beach
4143481	South Development Area	Permitted	8.98	SW 90 - Brooker Ck. Buffer Preserve
2571471	SR 688 (Ulmerton Rd.) 38th to I-275	2013-deleted	0.70	SW 86 - Mobbly Bayou
4154892	US 301, Balm Road to Gibsonton Drive	Permitted	11.50	SW 82 - Ekker Tract
4154893	US 301, Sun City Center to Balm Road	Permitted	2.00	SW 71 - Boyd Hill Nature Preserve
4154893	US 301, Sun City Center to Balm Road	Permitted	3.20	SW 82 - Ekker Tract
4168381	US 92 (SR 600 / Gandy) Pelican Sound to Gandy Bridge	Permitted	1.50	SW 86 - Mobbly Bayou
4125311	SR 60 (Memorial HWY) fom I-275 to Spruce	2013-deleted	1.10	SW 86 - Mobbly Bayou
4136222	CR 296(FUTURE SR690) FROM US 19 (SR 55) TO E OF ROOSEVELT/CR 296	2013-deleted	4.59	SW 86 - Mobbly Bayou
4152349	SR 597 (Dale Mabry) Lakeview Dr. to Van Dyke Rd.	2013-deleted	0.30	SW 78 - Bahia Beach
4209331	Dale Mabry Ave. Van Dyke Rd. to Lutz Lake Fern Rd.	2013-deleted	0.90	SW 87 - Alligator Lake
4245613	SR 60 (CCAMPBLL CWY) FROM BAYSHORE BLVD TO E OF TAMPA BAY BRIDGE	2013-deleted	0.34	SW 78 - Bahia Beach
4245611	SR 60 - Pinellas/Hillsborough C.L. to Rocky Point Dr.	Permitted	0.06	SW 86 - Mobbly Bayou
4245614	SR 60 (CCAMPBLL CWY) FROM E OF BRIDGE #138 TO PINELLAS/HILLS CO/L	2013-deleted	0.10	SW 78 - Bahia Beach
4255001	US 41(SR45) FROM N OF LINWOOD DR TO N OF COUNTY LINE RD	2013-deleted	0.20	SW 78 - Bahia Beach
4289241	SR 597 (Dale Mabry) Cheval Blvd. to County Line Rd.	2013-deleted	0.07	SW 78 - Bahia Beach

4289361	SR 60/E ADAMO DR FROM E OF N 22ND ST TO W OF 50TH ST	2013-deleted	0.20	SW 78 - Bahia Beach
4230801	I-275/SR 93 SOUTHBOUND @ BUNCES PASS	2013-deleted	0.20	SW 86 - Mobbly Bayou
4290001	US 41 (SR 45) FROM E OF 47TH ST TO E END BRIDGE #299/338	2013-deleted	0.10	SW 87 - Alligator Lake
4290081	SR 597 DALE MABRY FROM COUNTY LINE RD TO N OF BRINSON RD	2013-new	0.23	SW 87 - Alligator Lake
4290601	SR 686 (ROOSEVELT) FROM N OF 28TH ST N TO N OF GANDY BLVD	2013-deleted	1.25	SW 87 - Alligator Lake
4290732	SR 580(HILLSBOROUGH) FROM E OF AIR CARGO RD TO W OF N LEE PL	2013-deleted	0.20	SW 87 - Alligator Lake
4230881	SR 616 FROM E OF OBRIEN ST TO DALE MABRY HWY	2013-deleted	0.20	SW 87 - Alligator Lake
N/A	Lee Roy Selmon Crosstown Extension - Temporary Haul Road	Permitted	0.21	SW 82 - Ekker Tract

Table Thirteen: FDOT Road Improvement Projects in the Upper Coastal Drainage

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
2563231	SR 52 (SCHRADER HWY) FROM W OF SUNCOAST PKWY TO E OF US 41 (SR 45)	2013-active	4.20	SW 77 - Conner Preserve
2563161	SR 52 Hicks to Moon Lake Rd.	Permitted	1.60	SW 74 - Serenova - Sites 2,3,4,8
2563221	SR 52 Moon Lake to Suncoast Parkway	Permitted	6.70	SW 77 - Conner Preserve
2563242	US 41: from Ridge Rd to N of SR 52	2013-active	9.50	SW 77 - Conner Preserve
2563241	US 41 (SR 45) Tower Rd. to Ridge Road	Permitted	8.85	SW 77 - Conner Preserve
2563321	SR 54 - Rowan Rd. to Mitchell Bypass	Permitted	3.68	SW 77 - Conner Preserve
2563341	SR 52 US 41 to CR 581	2013-active	10.00	SW 77 - Conner Preserve
2563361	SR 54 Mitchell to Gunn	Permitted	6.60	SW 54 - Anclote Parcel
2563371	SR 54 - Gunn Highway to Suncoast Parkway	Permitted	6.00	SW 77 - Conner Preserve
2563391	SR 54 N. Suncoast to US 41	Permitted	7.00	SW 54 - Anclote Parcel

2567742	US 19 from N of SR 580 to Northside	2013-active	0.50	SW 77 - Conner Preserve
2568151	SR 586 (Curlew Rd.) CR 1 to Fisher Road	Permitted	0.08	SW 77 - Conner Preserve
2569031	SR 682 (Bayway Bridge) SR 679 to W. Toll Plaza	Permitted	0.80	SW 70 - Ft. DeSoto Park
2589581	Suncoast Parkway and Ridge Road Interchange	2013-active	2.33	SW 77 - Conner Preserve
2570501	SR 688 (Ulmerton Rd.) Oakhurst Rd. to 119th St.	Permitted	0.20	SW 77 - Conner Preserve
2570831	SR 699 (Gulf Blvd.) - 192nd Ave. to Walsingham/Ulmerton Rd.	Permitted	0.10	SW 70 - Ft. DeSoto Park
2570931	SR 60, Clearwater Harbor Bridge Replacement	Permitted	1.50	SW 45 - Gateway Tract
4058223	US 19 (SR 55) Jump Court to Ft. Island Trail	2013-active	8.90	SW 77 - Conner Preserve
2571741	US 98 Hernando Co. Line to US 19	Permitted	1.40	SW 77 - Conner Preserve
2572982	CR 578 (County Line Rd.) US 19 to East Rd.	Permitted	0.60	SW 77 - Conner Preserve
2572983	CR 578 (CLR) FROM East Rd to Mariner Blvd	Permitted	0.21	SW 77 - Conner Preserve
2572985	CR 578 (County Line Rd.) Suncoast Parkway to US 41	Permitted	0.29	SW 77 - Conner Preserve
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	2013-active	0.75	SW 77 - Conner Preserve
4037711	US 19 - Republic Drive to CR 816 (Alderman Rd.)	Permitted	0.10	SW 77 - Conner Preserve
4058222	US 19 (SR 55) Green Acres to Jump Ct.	Permitted	0.53	SW 77 - Conner Preserve
4079513	SR 50 US 19 to Mariner Dr.	Permitted	1.25	SW 77 - Conner Preserve
4091541	SR 688 (Ulmerton) - Wild Acres to El Centro/Ranchero Blvd.	Permitted	0.62	SW 77 - Conner Preserve
4107552	SR 679 (Pinellas Bay Structure E) at Intercoastal Waterway	Permitted	0.40	SW 70 - Ft. DeSoto Park
2572992	CR 485 (Cobb Road); from SR 50 to US 98	2013-deleted	6.20	SW 77 - Conner Preserve
4188602	US 19 (SR 55) Continuous Right Turn Lane	Permitted	0.40	SW 77 - Conner Preserve
4271571	US 19 (SR 55) FROM NEW YORK AVE TO PASCO/HERNANDO CO/L	Permitted	0.10	SW 77 - Conner Preserve
4300211	CR490A/HALLS RIVER FROM W OF HALLS RIVER TO E OF HALLS RIVER	2013-deleted	0.60	

4306601	ALT US19 (SR 595) FM N OF SR 586/CURLEW RD TO N OF WHISPER LAKE R	2013-deleted	0.80	
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Table Fourteen: FDOT Road Improvement Projects in the Withlacoochee River Basin

FM No.	Project Description	FDOT Project Status	Total Impacted Acreage	Mitigation Location
2012041	I-4 East of CR 557 to Osceola County (Seg. 6-7,9)	Permitted	3.88	SW 59 - Hampton Tract
2012092	I-4 East of US 98 to East of CR 557 (Sec. 3-5)	Permitted	18.88	SW 59 - Hampton Tract
2426263	I-75 Hernando Co. Line to Florida Turnpike	2013-active	10.82	SW 84 - Colt Creek State Park
2571651	US 41 from SR 44 to SR 200	2013-active	0.70	SW 92 -Halpata Tastanki Preserve
2571631	SR 44 US 41 to CR 470	Permitted	7.90	SW 64 - Withlacoochee S.F. - Baird
2571641	SR 44 CR 470 to Withlacoochee River	Permitted	13.90	SW 64 - Withlacoochee S.F. - Baird
2571841	US 41 (SR 45) Watson St. to SR 44 East	Permitted	0.10	SW 64 - Withlacoochee S.F. - Baird
4110112	I-75 (SR 93) FROM PASCO/HERNANDO CO/L TO US98/N SR50/CORTEZ BVD (Design-Build)	2013-active	7.96	SW 84 - Colt Creek State Park
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	2013-active	3.17	SW 84 - Colt Creek State Park
4230961	SR 33 at CR 474	2013-active	1.00	SW 92 -Halpata Tastanki Preserve
4245241	SR 50 Bridge Removal over Van Fleet Trail	2013-active	0.50	SW 84 - Colt Creek State Park
4063291	I-75 Lk. Panasoffkee Bridge	Permitted	5.93	SW 57 - Lake Panasoffkee
4092071	CR 470 (Gospel Isle)	Permitted	0.30	SW 64 - Withlacoochee S.F. - Baird
4295821	I-75/ SW 95th St. Interchange	2013-active	0.00	SW 92 -Halpata Tastanki Preserve
2426262	I-75 Hernando Co. Line to SR 470	2013-deleted	0.00	SW 84 - Colt Creek State Park
2571882	SR 200 US 41 to Marion Co. Line	2013-deleted	2.80	SW 92 -Halpata Tastanki Preserve

4110122	I-75 SR 50 to Hernando/Sumter CL	2013-deleted	0.01	SW 84 - Colt Creek State Park
4271651	US 301/98 (SR 35/700) Pioneer Museum Rd. to Mosstown Rd.	2013-deleted	0.20	SW 84 - Colt Creek State Park

MITIGATION BANK EVALUATION

Purchases through the FDOT Mitigation Program

Chapter 373.4137, F.S., which establishes the FDOT Mitigation Program, requires that the District consider the “purchase of credits from public or private mitigation banks permitted under s. 373.4136 and associated federal authorization and shall include the purchase as a part of the mitigation plan when the purchase would offset the impact of the transportation project, provide equal benefits to the water resources than other mitigation options being considered, and provide the most cost-effective mitigation option.” For about the first ten years of the FDOT Mitigation Program very few mitigation banks were available for use. As mitigation banks became available, the purchase of mitigation bank credits was considered in accordance with the statute. To date, mitigation for 17 FDOT road improvement projects is provided at one or more mitigation banks. Overall, six of eight mitigation banks considered have been used. The road improvement projects and the mitigation banks that have been used are listed in Table Fifteen. Descriptions of the mitigation banks used are included in the FDOT Mitigation Project Details section.

Table Fifteen: FDOT Road Improvement Projects for which mitigation is provided by mitigation bank credit purchased through the FDOT Mitigation Program.

FM No.	Project Description	Mitigation Location	Total Impacted Acreage
1937911	US 17 (SR 35) CR 74 to CR 764 North	SW 53 - Boran Ranch Mit. Bank	0.27
1937941	SR 776 CR 771 to Willow Bend Road	SW 52 - Little Pine Island Mit. Bank	2.08
1937981	US 17 (SR35) CR 764 South to CR 764 North	SW 53 - Boran Ranch Mit. Bank	3.60
1938851	SR 72 Sarasota Co. Line to SR 70	SW 53 - Boran Ranch Mit. Bank	1.19
1941021	US 17 (SR 35) SR 64 to Peace River Bridge	SW 53 - Boran Ranch Mit. Bank	2.30
1945101	US 27 Lake Glenada to Hal McRae	SW 49 - Reedy Ck. Mit. Bank	0.39
1979421	SR 789 Ringling Causeway Blvd.	SW 88 - Curry Creek ROMA	0.27
1980051	US 41 Bus. (SR 45) Venice Ave. to US 41 Bypass	SW 88 - Curry Creek ROMA	0.32
1984711	Trabue Harborwalk Bike Path	SW 52 - Little Pine Island Mit. Bank	0.16
1986371	Ft. Green/Ona (Seg. 2) Vandola to North of	SW 53 - Boran Ranch Mit. Bank	7.22

	Vandolah		
1986381	Ft. Green/Ona (Seg. 3) SR 64 to Vandolah Rd.	SW 53 - Boran Ranch Mit. Bank	5.23
1986401	Ft. Green/Ona Road (Seg. 1) Vandolah to SR 62	SW 53 - Boran Ranch Mit. Bank	2.08
2012041	I-4, East of CR 557 to Osceola County (Sec. 6-7,9)	SW 49 - Reedy Ck. Mit. Bank	2.35
4046971	I-75 Bridge Widening over Peace River	SW 52 - Little Pine Island Mit. Bank	2.75
4063143	I-75 N. River Rd. (CR 577) to SR 681	SW 79 - Fox Creek ROMA	14.55
4063143	I-75 N. River Rd. (CR 577) to SR 681	SW 88 - Curry Creek ROMA	0.77
4130423	I-75 from Tucker's Grade to N. Jones Loop Road	SW 52 - Little Pine Island Mit. Bank	1.10
4154901	US 17 Charlotte C.L. to SW Collins	SW 85 - Peace River Mit. Bank	2.23
4154901	US 17 Charlotte C.L. to SW Collins	SW 53 - Boran Ranch Mit. Bank	1.98
Total			50.84 acres

Purchases made directly by FDOT

The largest difficulty in performing a mitigation bank analysis when the FDOT Mitigation Plan is developed is determining whether mitigation bank credit will be available and whether the purchase would be the most cost effective mitigation option at the time the FDOT project is submitted for permitting. With mitigation bank options and FDOT mitigation needs constantly changing, this mitigation bank analysis becomes quickly outdated. For instance, the final mitigation bank evaluation performed by the FDOT in December, 2012 to finalize the 2013 Mitigation Plan project inventory, did not consider the Green Swamp Mitigation Bank or the Withlacoochee Wetland Mitigation Bank since Federal approvals had not been issued. However since then, representatives for these mitigation banks stated that Federal approvals would likely be issued while the 2013 FDOT Mitigation Plan is being finalized.

This situation is best remedied with the FDOT performing a mitigation bank evaluation at the time permit applications for roadway improvement projects are prepared. This concept was included in the 2012 Mitigation Plan. This combined with the federal permitting requirement that a mitigation bank evaluation be conducted in the course of evaluating a permit application, result in three mitigation banks being used or proposed to be used for 21 FDOT projects in this year's Plan. These projects are listed in Table Sixteen. However, if at the time of permit application preparation, sufficient or appropriate mitigation bank credit is not available; then mitigation for these road improvement projects may be provided through the FDOT Mitigation Program, if mitigation is available. Since mitigation for these projects is provided outside the FDOT Mitigation Program, project descriptions for these mitigation banks are not included in the FDOT Mitigation Project Details section.

Table Sixteen: FDOT Road Improvement Projects for which mitigation has been or will be provided by mitigation bank credit purchased directly by the FDOT².

FM No.	Project Description	Mitigation Bank(s) Evaluated	Mitigation Bank Use (acres)
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	Upper Coastal Mitigation Bank	15.24
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	North Tampa Mitigation Bank	7.22
2587362	I-75 (SR 93) FROM NORTH OF SR/CR 54 TO NORTH OF SR 52 (Design-Build)	North Tampa Mitigation Bank	7.09
4136222	CR 296(FUTURE SR690) FROM US 19 (SR 55) TO E OF ROOSEVELT/CR 296	Tampa Bay Mitigation Bank	4.59
2569952	43RD ST N EXTENSION FROM CR 296 (118TH AVE N) TO 40TH STREET N	Tampa Bay Mitigation Bank	2.79
4290601	SR 686 (ROOSEVELT) FROM N OF 28TH ST N TO N OF GANDY BLVD	Tampa Bay Mitigation Bank	1.25
4125311	SR 60 (Memorial HWY) fom I-275 to Spruce	Tampa Bay Mitigation Bank	1.10
2569953	SR 688/ULMERTON RD FM E OF 49TH STREET TO W OF 38TH STREET NORTH	Tampa Bay Mitigation Bank	1.00
2578623	SAM ALLEN Rd; from Alexander St to Park Rd	North Tampa Mitigation Bank	0.90
4055252	SR 60 (ADAMO DR) FROM E OF US 301 TO W OF FALKENBURG RD	Tampa Bay Mitigation Bank	0.85
2571471	SR 688 (Ulmerton Rd.) 38th to I-275	Tampa Bay Mitigation Bank	0.70
2569961	SR 686 AT CR 611 (49TH ST)	Tampa Bay Mitigation Bank	0.40
4245613	SR 60 (CCAMPBLL CWY) FROM BAYSHORE BLVD TO E OF TAMPA BAY BRIDGE	Tampa Bay Mitigation Bank	0.34
2569971	SR 686 (ROOSEVELT) FROM 49TH ST BRIDGE TO N OF ULMERTON RD	Tampa Bay Mitigation Bank	0.30

² This is a partial list of all mitigation bank credits purchased by the FDOT since not all FDOT Districts report this information with the inventories submitted for inclusion in the 2013 FDOT Mitigation Plan.

4230801	I-275/SR 93 SOUTHBOUND @ BUNCES PASS	Tampa Bay Mitigation Bank	0.20
4230881	SR 616 FROM E OF OBRIEN ST TO DALE MABRY HWY	Tampa Bay Mitigation Bank	0.20
4255001	US 41(SR45) FROM N OF LINWOOD DR TO N OF COUNTY LINE RD	Tampa Bay Mitigation Bank	0.20
4289361	SR 60/E ADAMO DR FROM E OF N 22ND ST TO W OF 50TH ST	Tampa Bay Mitigation Bank	0.20
4290732	SR 580(HILLSBOROUGH) FROM E OF AIR CARGO RD TO W OF N LEE PL	Tampa Bay Mitigation Bank	0.20
4165612	SR 54 FROM CR 577/CURLEY RD TO CR 579/MORRIS BRDG RD	North Tampa Mitigation Bank	0.10
4245614	SR 60 (CCAMPBLL CWY) FROM E OF BRIDGE #138 TO PINELLAS/HILLS CO/L	Tampa Bay Mitigation Bank	0.10
4290001	US 41 (SR 45) FROM E OF 47TH ST TO E END BRIDGE #299/338	Tampa Bay Mitigation Bank	0.10
Total			45.07 acres

Mitigation Bank Option Evaluation

As mentioned previously, statutory changes made in 2012 direct the FDOT to determine which projects to include or exclude from the mitigation plan by investigating the use of credits from a permitted mitigation bank before those projects are submitted for inclusion in the Plan. The FDOT considered public and private mitigation banks that have both state and federal permits as of December, 2012 and have a service area in which the wetland impact is located. The cost of analysis performed is a comparison of the cost per impact acre established by statute with the cost per credit based on past credit sales. Also the type and amount of mitigation credits available were reviewed to determine whether wetland impacts could be offset. The results analyses for FDOT projects where a mitigation bank option was not identified are listed in Tables Seventeen – Twenty. These road improvement projects will remain in or are added to the FDOT Mitigation Program. However, at the time permit applications are prepared for these projects an updated mitigation analysis will be conducted by the FDOT to determine whether changes to the road improvement project or the available mitigation bank options now make it feasible to offset impacts at the mitigation bank instead of through the FDOT Mitigation Program.

Table Seventeen: Mitigation bank analysis for FDOT Road Improvement Projects in the Hillsborough River Basin

FM No.	Project Description	Mitigation Bank(s) Evaluated	Mitigation Bank Comment
2562432	SR 52 (SCHRADER HWY) FROM CR 581 (BELLAMY	Hillsborough River Mitigation Bank	Federal permit pending

	BRO) TO OLD PASCO RD	North Tampa Mitigation Bank	credits not available
2563341	SR 52 US 41 to CR 581	Hillsborough River Mitigation Bank	Federal permit pending
		North Tampa Mitigation Bank	credits not available
2564222	US 301 (SR 41) SR 39 to South of CR 54	Hillsborough River Mitigation Bank	Federal permit pending
		North Tampa Mitigation Bank	credits not available
4289611	SR 39/JAMES L REDMAN FROM SR 60(HOPEWELL RD) TO N OF CHARLIE GRIF	Hillsborough River Mitigation Bank	Federal permit pending
		North Tampa Mitigation Bank	credits not available
4306851	SR 574 / MLK BLVD AT GALLAGHER ROAD	North Tampa Mitigation Bank	cost
4311371	SR 574/MLK JR BLVD FM E OF MCINTOSH RD TO W OF WHEELER CT	Hillsborough River Mitigation Bank	Federal permit pending
		North Tampa Mitigation Bank	credits not available

Table Eighteen: Mitigation bank analysis for FDOT Road Improvement Projects in the Tampa Bay Drainage

FM No.	Project Description	Mitigation Bank(s) Evaluated	Mitigation Bank Comment
2569981	SR 686 FROM W OF I-275 TO W OF 9TH ST N	Tampa Bay Mitigation Bank	credits not available
4290081	SR 597 DALE MABRY FROM COUNTY LINE RD TO N OF BRINSON RD	Tampa Bay Mitigation Bank	credits not available

Table Nineteen: Mitigation bank analysis for FDOT Road Improvement Projects in the Upper Coastal Drainage Basin

FM No.	Project Description	Mitigation Bank(s) Evaluated	Mitigation Bank Comment
2563341	SR 52 US 41 to CR 581	Upper Coastal Mitigation Bank	credits not available
2567742	US 19 from N of SR 580 to Northside	Upper Coastal Mitigation Bank	credits not available
2589581	Suncoast Parkway and Ridge Road Interchange	Upper Coastal Mitigation Bank	credits not available
4058223	US 19 (SR 55) Jump Court to Ft. Island Trail	Upper Coast Mitigation Bank	credits not available

Table Twenty: Mitigation Bank evaluation for FDOT road improvement projects in the Withlacoochee River Basin:

FM No.	Project Description	Mitigation Bank(s) Evaluated	Mitigation Bank Comment
2571651	US 41 from SR 44 to SR 200	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released
4110112	I-75 (SR 93) FROM PASCO/HERNANDO CO/L TO US98/N SR50/CORTEZ BVD (Design-Build)	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build)	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released
4230961	SR 33 at CR 474	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released
4245241	SR 50 Bridge Removal over Van Fleet Trail	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released
4295821	I-75/ SW 95th St. Interchange	Withlacoochee Mitigation Bank	Federal permit pending
		Green Swamp Mitigation Bank	credits not released

FDOT MITIGATION PROJECTS

There are a total 37 mitigation projects that have been established through the FDOT Mitigation Program contributing to the habitat protection and restoration priorities of various resource agencies. The distribution of projects among resource agencies and the number of FDOT Mitigation projects supported are listed in Table Twenty One.

Table Twenty One: Resource Agencies supporting FDOT Mitigation projects

Project Resource Agency	Number of Projects
Southwest Florida Water Management District	10
Florida Department of Environmental Protection	5
Florida Division of Forestry	1
Alachua County	1
Hillsborough County	9
Manatee County	1
Pinellas County	4
Polk County	2
Sarasota County	2 ³
City of Tampa	1
City of St. Petersburg	1

Two notable Mitigation Projects are Ft. DeSoto Park (SW 70), a Pinellas County project and Circle B Bar Preserve (SW 66), a Polk County project. The seagrass restoration at Ft. DeSoto is recognized by the National Oceanic and Atmospheric Administration with a Coastal America Partnership Award and Circle B Bar Preserve is recognized by both the Audubon of Florida and USA Today for the wildlife use of the habitats that have been restored.

The statute establishing the FDOT Mitigation Program specifies that mitigation projects focus on activities of the water management districts and the Department of Environmental Protection such as Surface Water Improvement and Management (SWIM) projects, land acquisition and control of invasive and exotic plants to the extent these projects meet mitigation requirements for the FDOT road improvement projects. Mitigation Projects that include these specified elements are tallied in Table Twenty Two.

Table Twenty Two: FDOT Mitigation Projects that include elements specified by Chapter 373.4137, F.S.

Project Type	Number of Projects
SWIM Projects	15
Land Acquisition	6
Aquatic/ Exotic Plan Control	14

The number of FDOT projects having substantial wetland impacts requested to be considered in the FDOT Mitigation Program have declined, especially in recent years. With mitigation available through a mitigation bank or a mitigation project already adopted into the FDOT Mitigation Program, there hasn't been a need to add new mitigation projects to the Program since 2008. The three projects that were added in

³ These projects are Regional Off-site Mitigation Areas from which mitigation credits were purchased.

2009 were removed the following year when the FDOT mitigation needs changed. All mitigation projects that remain in the Program will be evaluated to identify which have available mitigation that exceeds the projected need by the FDOT. For these projects, options to reduce excess mitigation will be explored. Furthermore, the ecological benefit projected to be achieved by the active mitigation projects (currently being used for mitigation) is being verified by the Army Corps of Engineers in conjunction with permitting FDOT road improvement projects.

Not only have no new mitigation projects been added to the Mitigation Program but 70% of all the existing mitigation projects have been completed and are in the perpetual management phase. Table Twenty Three summarizes the status of all mitigation projects.

Table Twenty Three: Status of FDOT Mitigation Projects

Project Status	Number of Projects
Perpetual Management	26
Maintenance and Monitoring	4 (includes 1 project implemented by the FEP)
Construction	3 (includes 1 project being implemented by the FDEP)
Design and Permitting	4 (includes 1 project transferred to the FDEP)

Tables Twenty-Four – Thirty-Six that follow contain summary information for all of these mitigation projects. Regional Off-site Mitigation Areas (ROMA) or Private Mitigation Banks where credit was purchased through the FDOT Mitigation Program are also listed. Detailed descriptions for each Mitigation Project follow the summaries and are organized by Project ID.

Table Twenty Four: FDOT Mitigation Projects in the Alafia River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 81	Balm-Boyette-Stallion Hammock Restoration	Yes	No	No	Hillsborough County	Design & Permitting (transferred to FDEP)

Table Twenty Five: FDOT Mitigation Projects in the Charlotte Harbor Drainage

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 52	Little Pine Island Mitigation Bank	No	Yes	No	Private	N/A

Table Twenty Six: FDOT Mitigation Projects in the Hillsborough River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROM A	LandOwner_1	Status
SW 34	Lake Thonotosassa Shoreline Restoration	Yes	No	No	SWFWMD	Perpetual Management
SW 55	Upper Hillsborough 4&5	No	No	No	SWFWMD	Perpetual Management
SW 61	Cypress Creek Preserve, West-Jennings Tract	No	No	No	Hillsborough County	Perpetual Management
SW 63	Hillsborough River Corridor	No	No	No	SWFWMD	Perpetual Management
SW 77	Conner Preserve	No	No	No	SWFWMD	Perpetual Management
SW 84	Colt Creek State Park, Phase 1	no	No	No	FDEP	Construction
SW 84	Colt Creek State Park, Phase 2	No	No	No	FDEP	Design & Permitting
SW 84	Colt Creek State Park, Phase 3	No	No	No	SWFWMD	Design & Permitting

Table Twenty Seven: FDOT Mitigation Projects in the Kissimmee Ridge Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 49	Reedy Creek Mitigation Bank	No	Yes	No	Private	N/A

Table Twenty Eight: FDOT Mitigation Projects in the Little Manatee River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 83	Little Manatee River-Lower Tract	No	No	No	Hillsborough County	Perpetual Management

Table Twenty Nine: FDOT Mitigation Projects in the Manatee River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 50	Terra Ceia Restoration	Yes	No	No	FDEP	Perpetual Management
SW 65	Rutland Ranch-South Tract	No	No	No	SWFWMD	Perpetual Management
SW 80	Hidden Harbour	No	No	No	Manatee County	Construction

Table Thirty: FDOT Mitigation Projects in the Myakka River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 31	Cattle Dock Point, Phase II	Yes	No	No	FDEP	Perpetual Management
SW 51	Myakka River State Park	No	No	No	FDEP	Maintenance & Monitoring (implemented by the FDEP)

Table Thirty One: FDOT Mitigation Projects in the Ocklawaha River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 58	Barr Hammock-Ledwith Prairie	No	No	No	Alachua County	Perpetual Management
SW 76	Lake Lowery Tract	No	No	No	Polk County	Perpetual Management

Table Thirty Two: FDOT Mitigation Projects in the Peace River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 47	Tenoroc-Bridgwater Tract	No	No	No	FDEP	Perpetual Management
SW 53	Boran Ranch Mitigation Bank	No	Yes	No	Private	N/A
SW 66	Circle B Bar Preserve	No	No	No	Polk County	Perpetual Management
SW 69	I-75 Peace River Bridge Restoration	No	No	No	FDOT	Perpetual Management
SW 85	Peace River Mitigation Bank	No	Yes	No	Private	N/A

Table Thirty Three: FDOT Mitigation Projects in the South Coastal Drainage

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 79	Fox Creek ROMA	No	No	Yes	Sarasota County	N/A
SW 88	Curry Creek ROMA	No	No	Yes	Sarasota County	N/A

Table Thirty Four: FDOT Mitigation Projects in the Tampa Bay Drainage

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 45	Gateway Restoration	Yes	No	No	Pinellas County	Perpetual Management
SW 56	Cockroach Bay Restoration-Freshwater	Yes	No	No	Hillsborough County	Perpetual Management
SW 62	Tappan Tract	Yes	No	No	City of Tampa	Perpetual Management
SW 67	Apollo Beach Nature Preserve	Yes	No	No	Hillsborough County	Perpetual Management
SW 71	Boyd Hill Nature Preserve	No	No	No	City of St. Petersburg	Perpetual Management
SW 75	Cockroach Bay Restoration-Saltwater	Yes	No	No	Hillsborough County	Perpetual Management
SW 78	Bahia Beach	Yes	No	No	Hillsborough County	Construction
SW 82	Ekker Tract	Yes	No	No	Hillsborough County	Maintenance & Monitoring
SW 86	Mobbly Bayou Wilderness Preserve, Phase 1	Yes	No	No	Pinellas County	Perpetual Management

SW 86	Mobbly Bayou Wilderness Preserve, Phase 2	Yes	No	No	Pinellas County	Design & Permitting
SW 87	Alligator Lake Management Area	Yes	No	No	Pinellas County	Maintenance & Monitoring
SW 90	Brooker Creek Buffer Preserve	No	No	No	Hillsborough County	Design & Permitting

Table Thirty Five: FDOT Mitigation Projects in the Upper Coastal Drainage

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 54	Anclote Parcel	No	No	No	SWFWMD	Perpetual Management
SW 70	Ft. DeSoto Park	Yes	No	No	Pinellas County	Perpetual Management
SW 74	Serenova Preserve-Sites 2, 3, 4, 8	No	No	No	SWFWMD	Perpetual Management
SW 77	Conner Preserve	No	No	No	SWFWMD	Perpetual Management

Table Thirty Six: FDOT Mitigation Projects in the Withlacoochee River Basin

Project ID	Project Name	SWIM Project	Mit Bank	ROMA	LandOwner_1	Status
SW 57	Lake Panasoffkee Restoration	Yes	No	No	SWFWMD	Perpetual Management
SW 59	Hampton Tract	No	No	No	SWFWMD	Maintenance & Monitoring
SW 64	Withlacoochee State Forest-Baird Tract	No	No	No	Division of Forestry	Construction (implemented by the FDEP)

SW 84	Colt Creek State Park, Phase 1	No	No	No	FDEP	Construction
SW 84	Colt Creek State Park, Phase 2	No	No	No	FDEP	Design & Permitting
SW 92	Halpata Tasthanaki Preserve	No	No	No	SWFWMD	Perpetual Management

SW-31 CATTLE DOCK POINT, PHASE II MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland and upland creation, restoration and enhancement			
Landowner	Board of Trustees of the Internal Improvement Trust Fund; Southwest Florida Water Management District	Management Entity	Florida Department of Environmental Protection	
County	Charlotte	Watershed	Myakka River	
Water bodies	Myakka River, Charlotte Harbor	Water body Designations	SWIM water body	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1937941	SR 776 CR 771 to Willow Bend Road ¹	8.88	4316676.000	1996-01986

PROJECT DESCRIPTION

A. Overall project goals: The primary goal of the project was to create intertidal and salt-marsh wetland habitat within heavily disturbed property co-owned by the SWFWMD and FDEP. Prior to construction, this tract was predominately a dredged boat basin that connected to the Myakka River (refer to Figures A & B). Constructed in 2004-2005 (Figure C), Phase II removed extensive exotic vegetation (predominantly Brazilian pepper) that dominated the site, followed by grading the historically filled area to create a habitat mosaic of upland and wetland habitat (Figures C & D, site photos). The Phase I project (total 18 acres) was constructed in 2001 to provide appropriate mitigation for wetland impacts associated with an adjacent segment of SR 776 (Willow Bend Rd. to Collingswood Blvd.). The Phase I habitat improvements were selected to provide SR 776 mitigation a year prior to commencement of the FDOT Mitigation Program in 1996.

¹ This project has an additional 2.08 acres of open water impact mitigated through the purchase of 2.08 credits from the Little Pine Island Mitigation Bank (SW 52).

B. Brief description of pre-construction habitat conditions: Historically, the filled upland areas (six acres within Phase I, eight acres within Phase II) were formed as a result of disposal and spreading of material dredged as a result of constructing the boat basin during the early 1900's (Figure B). The basin was used to load cattle on barges for transport on the Myakka River and downstream to Charlotte Harbor. The uplands were almost totally covered with dense coverage of nuisance/exotic vegetation, particularly Brazilian pepper within Phase II and Australian pine for the peninsula associated with Phase I. A narrow littoral zone of 40-50 ft. (total 1.2 acres) of mangrove habitat was present along the border between the dredged basin and the filled upland (Figures B-D). Overall, except for the minor mangrove fringe habitat, the project area for Phases I and II areas provided extremely limited and poor habitat conditions to support wildlife activities.

C. Brief description of construction activities and current habitat conditions: The Phase II project included initial eradication of nuisance & exotic vegetation, followed by grading and removing the filled upland to create appropriate intertidal marsh elevations (total 6 acres) and three upland habitat islands (total 1.5 acres) in the marsh. The dredged material was deposited to fill a portion of the boat basin to create salt-marsh "platforms" (total - 8 acres).

The intertidal marsh is hydrologically connected to the basin via culverts, and a meandering channel was constructed in the marsh to provide tidal flushing and fish access (refer to photos). After the appropriate grades were established in 2005, the intertidal marsh and salt-marsh were planted and currently have extensive coverage of herb species such as saltmarsh cordgrass (*Spartina alterniflora*) and black rush (*Juncus roemerianus*) in the low marsh grade elevations; bordered with sand cordgrass (*Spartina bakeri*) and seashore paspalum (*Paspalum vaginatum*) in the high marsh grade elevations. Mangrove species have naturally recruited and generated within the salt-marsh areas, particularly in the marsh platforms. Small portions of the marsh platforms also have appropriate elevations that formed rare and unique saltern habitat (photos). The upland islands were also planted and have dense ground cover vegetation, and the existing mangrove littoral zone (1.2 acres) was enhanced with the eradication of B. pepper that had encroached upon the perimeter. The total habitat creation, restoration, and enhancement is 16.8 acres; which doesn't include the extensive secondary ecological benefits in association with Phase I and open water components of the dredged basin. The basin was not totally filled to allow access and foraging opportunities for aquatic wildlife species, including manatees and American crocodile that have been documented at the site.

The success criteria has been achieved and reflects a minimum 70% coverage of desirable species in the project area, and less than 5% coverage of exotic and nuisance species. Monitoring was conducted four years post-construction to evaluate species survival, percent cover, invasive exotic plants, and maintenance activities conducted to ensure and enhance habitat conditions. Periodic monitoring is conducted to evaluate and determine additional management and maintenance activities necessary to maintain and improve upon successful habitat conditions.

Long term maintenance of the project has been minimal since the appropriate saltwater wetland grade elevations provide opportunities for appropriate seed source recruitment and generation, while minimizing conditions for exotic and nuisance species to germinate. Maintenance includes periodic herbicide treatments to eradicate exotic species that have primarily generated within the upland islands and upper sideslopes of the constructed wetlands in Phase I & II.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts associated with SR 776 included 2.2 acres (borrow pit), 2.1 acres (open water), 3.1 acres (mangrove), 1.4 acres (exotic shrub habitat), and 2.1 acres of ditches; for a total of 8.8 acres of impacts that represented a dominance of low quality habitat. The only high quality habitat impact was the mangrove. The mitigation project includes a mosaic of saltwater wetland habitat creation (14 acres) and upland habitat restoration (1.5 acres). The mangrove impacts are appropriately compensated with the enhancement of the existing mangrove habitat, as well as the mangrove habitat naturally generating within Phase I and the salt-marsh habitat (site photos). The open water impacts were appropriately mitigated with purchasing non-forested wetland credits from the Little Pine Island Mitigation Bank (refer to SW 52). The permitted wetland impacts associated with this SR 776 segment are the only impacts that were designated and permitted for mitigation at Cattle Dock Point, Phase II.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: Cattle Dock, Phase II provides appropriate wetland mitigation for the predominantly low-quality SR 776 wetland impacts, as well as for the high quality impacts associated with the mangrove habitat. The mitigation includes creation of similar habitat within close proximity to the wetland impacts; on publicly-owned land that was in need of major restoration, and adjacent to other constructed mitigation compensating for wetland impacts associated with the adjacent SR 776 segment (Phase I). Due to the low quality habitat associated with the open water impacts, the associated mitigation was compensated with purchasing non-forested mitigation bank credits at the adjacent Little Pine Island Mitigation Bank. The mitigation bank could not be nominated to provide mitigation for the mangrove wetland impacts since the bank is located in the adjacent Charlotte Harbor Drainage Basin and the wetland impacts occurred in the Myakka River basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: Cattle Dock, Phases I and II were SWIM sponsored projects constructed on property co-owned and managed by the SWFWMD and FDEP.

PROJECT IMPLEMENTATION

Construction of Phase I was completed in the summer, 2001 and achieved success criteria by 2004. Phase II construction and planting were completed in the summer, 2005, followed by four years of periodic maintenance & semi-annual monitoring, perpetual management &

maintenance to eradicate exotic and nuisance vegetation is conducted by FDEP staff assigned to the Charlotte Harbor State Preserve.

Entity responsible for construction: Construction completed in 2005 by private contractor working for the WMD.

Entity responsible for monitoring and maintenance: Private consultants on contract with the SWFWMD conducted semi-annual monitoring through 2009; periodic monitoring conducted by WMD staff and herbicide maintenance conducted by FDEP staff as part of normal land management activities.

Time frame for implementation: Commenced: Planning & Design - July, 1999 Completed: Construction – 2004-2005, maintenance & monitoring – 2005-2009, perpetual maintenance & management by FDEP

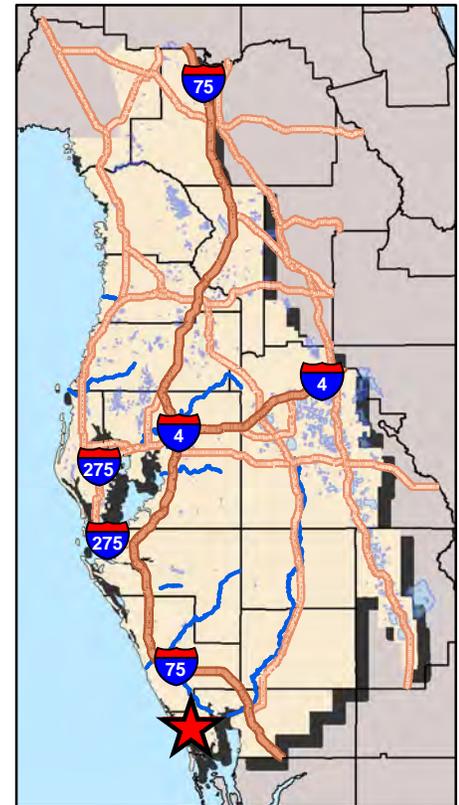
Project cost: \$ 710,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-Construction (2005)
4. Figure D-Construction (2008)
5. Photographs (2012)

SW 31 - Cattle Dock Point, Phase II

Figure A - Location



Legend

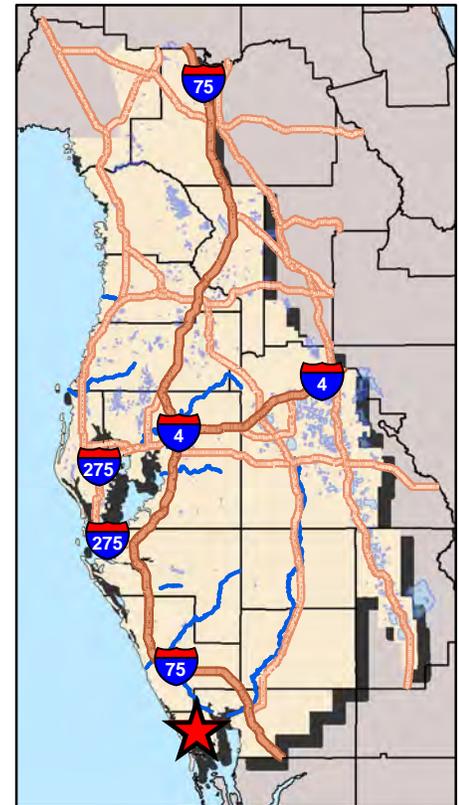
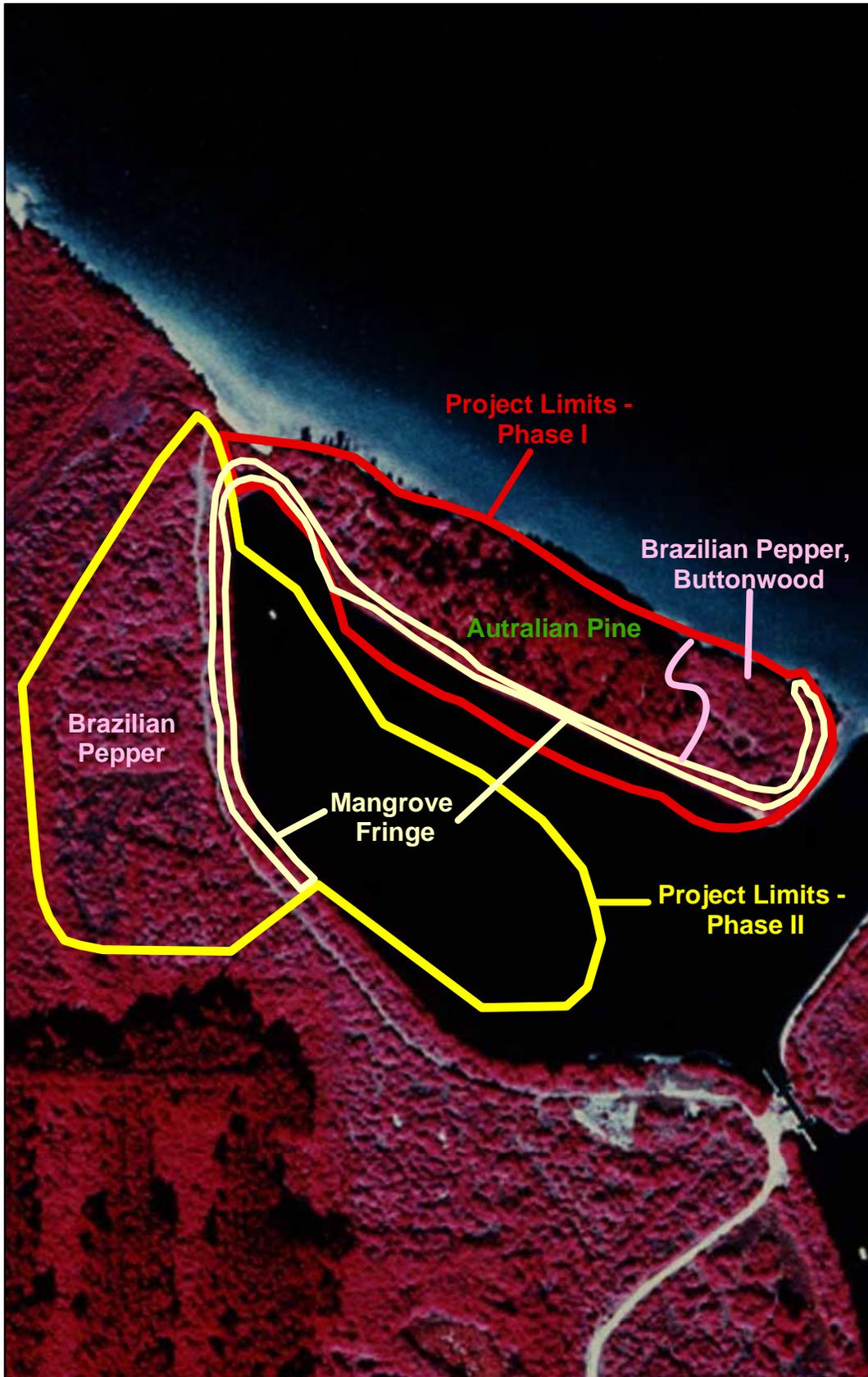
 Project Location



0 0.25 0.5 1 Miles

SW 31 - Cattle Dock Point, Phase II

Figure B - Pre-Construction (1999)



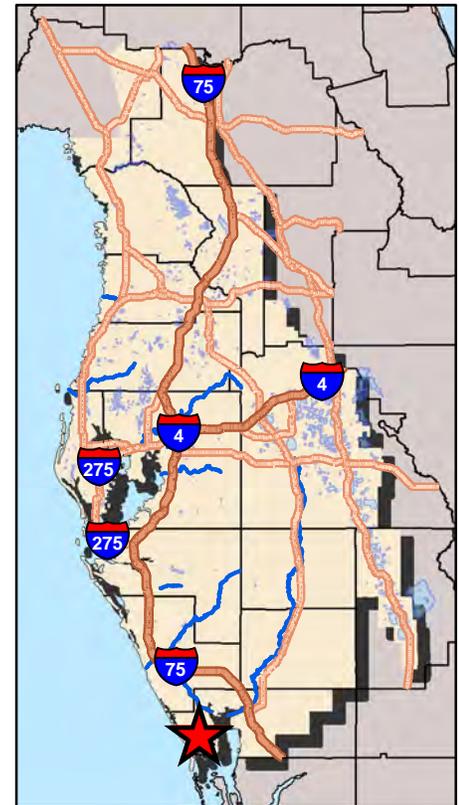
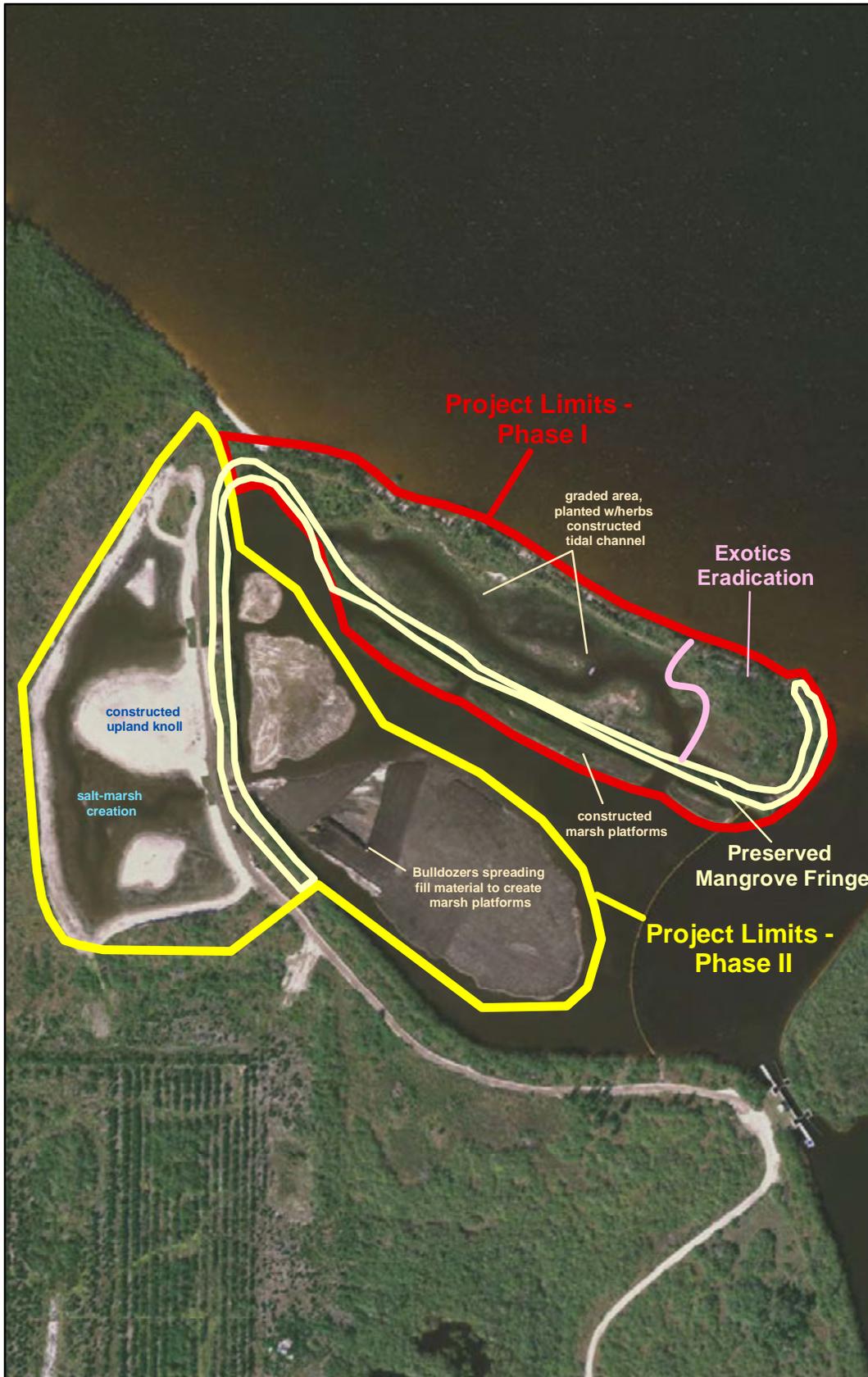
Legend

- Project Limits - Phase I
- Project Limits - Phase II



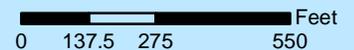
SW 31 - Cattle Dock Point, Phase II

Figure C - Construction (2005)



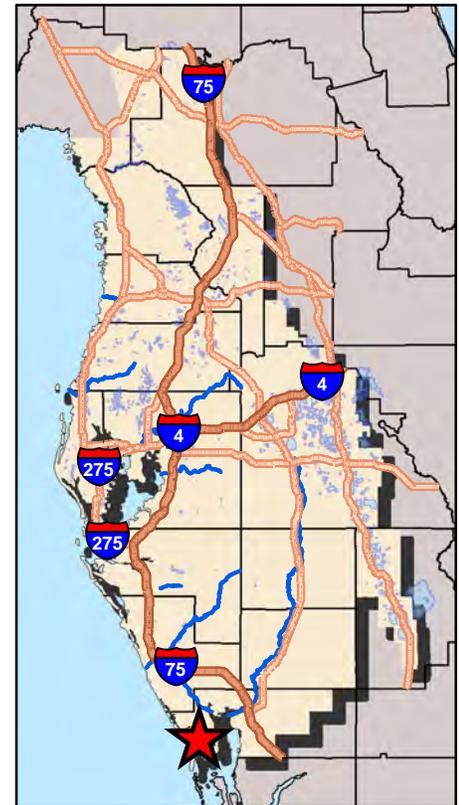
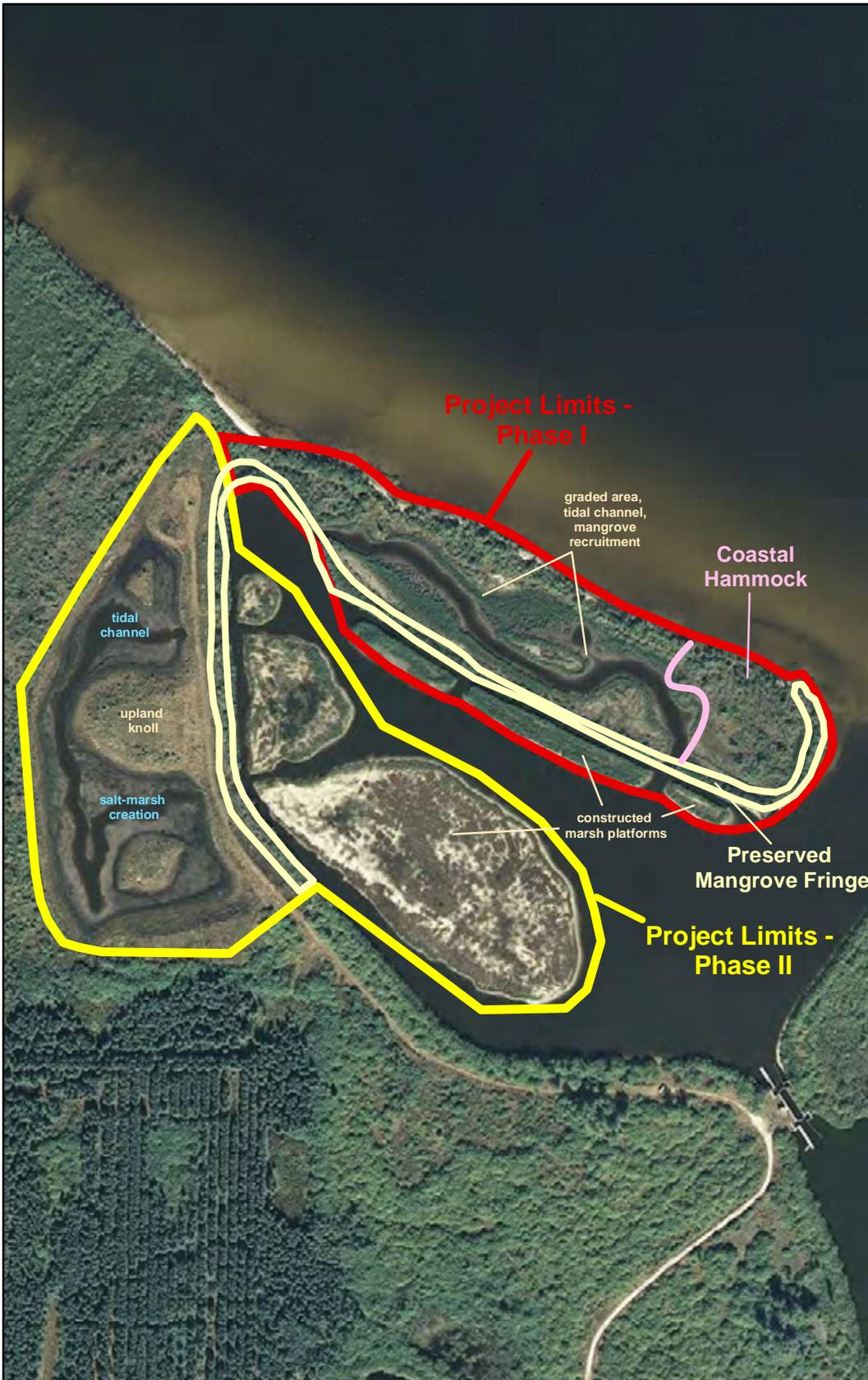
Legend

-  Project Limits - Phase I
-  Project Limits - Phase II



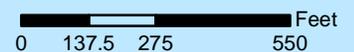
SW 31 - Cattle Dock Point, Phase II

Figure D - Construction (2008)



Legend

-  Project Limits - Phase I
-  Project Limits - Phase II

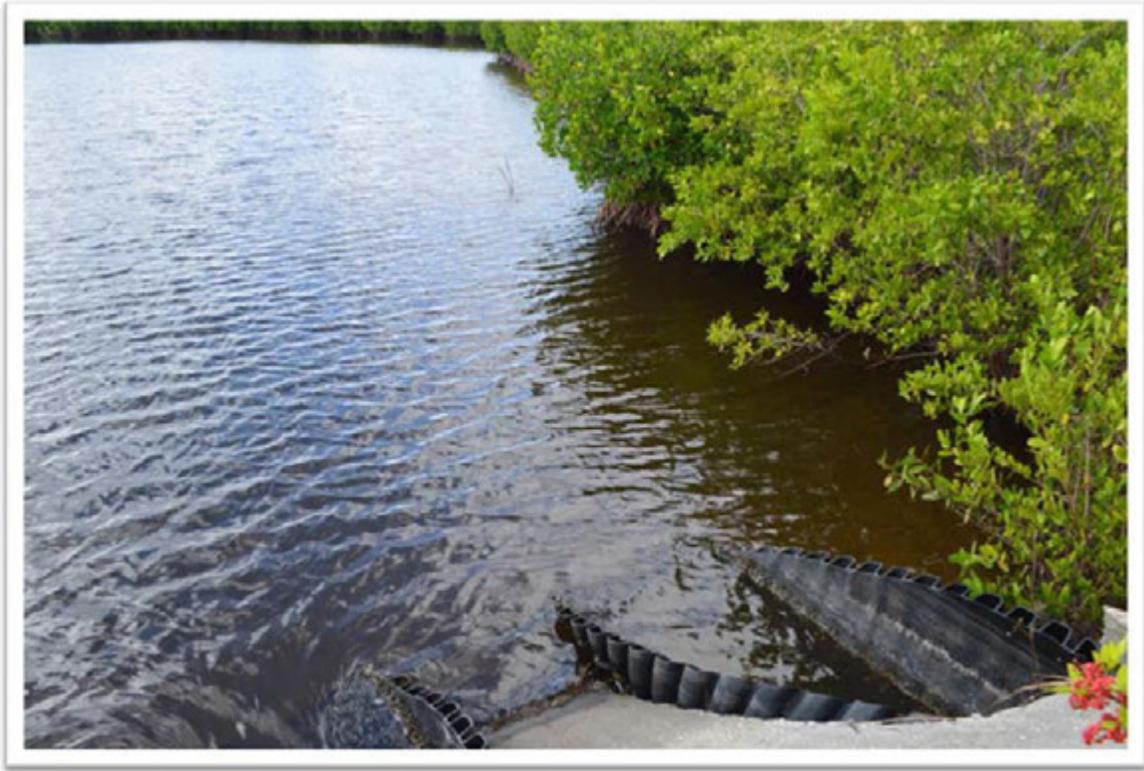




Cattle Dock showing established mangroves along tidal creek.



Cattle Dock showing established mangroves along tidal creek.



Cattle Dock showing culverts installed to reconnect tidal flows.



Cattle Dock showing culverts installed to reconnect tidal flows.

SW-34 LAKE THONOTOSASSA SHORELINE RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland enhancement and restoration			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Hillsborough		Watershed	Hillsborough River
Water bodies	Lake Thonotosassa, Baker Creek		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2563431	SR 54 - US 41 to Cypress Ck	14.2	4319567.000	1995-01451 (IP-ES)

PROJECT DESCRIPTION

A. Overall project goals: The primary goal was to improve fish and wildlife habitat, and water quality functions and benefits through enhancement and restoration of 98 wetland acres along the southeastern shoreline of Lake Thonotasassa.

B. Brief description of pre-construction habitat conditions: Historically the southeast shoreline of Lake Thonotasassa included a large wetland that was historically filled with lake bottom sediment and hydrologically separated from the lake by a constructed berm and seawall. Historic contributing basin flow from the south through the wetland was diverted straight into the lake by the construction of the Baker Creek Canal. The 78-acre filled area was converted to a bahia pasture with collector ditches that drained surface water west to a lower elevation retention collection area adjacent to the berm. The retention area generated a marginal, low quality, soft rush marsh that, when periodically inundated, water was pumped over the berm to maintain relatively dry conditions to improve pasture conditions. A separated 19-acre portion of the project included a wetland-dredged pond referred to as “Otter Lake” and a collection ditch that had minimal hydrologic connectivity into the lake.

C. Brief description of construction activities and current habitat conditions: The restored and enhanced marsh and planted cypress appropriately compensate for the acreage and function of the marsh, open water, and cypress wetlands impacted by the expansion of the SR 54 segment. No additional roadway wetland impacts are proposed for mitigation at the site

Success criteria and associated monitoring plan. Success criteria included a minimum 85% coverage of desirable species in the eastern half of the restored wetland and less than 10% exotic / nuisance species. Supplemental planting occurred in the fall, 2003 and late 2004 to achieve additional coverage. The western portion of the marsh has been allowed to provide more open water to attract associated wildlife species.

Long term maintenance plan. Herbicide maintenance was conducted quarterly for six years post-construction, currently herbicide treatments conducted on semi-annual schedule by the WMD-Operations Dept. for perpetual maintenance & management.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:

PROJECT IMPLEMENTATION

Entity responsible for construction: Construction completed in 1999 by private contractor working for the SWFWMD.

Entity responsible for monitoring and maintenance: Private consultants on contract with the SWFWMD conducted monitoring through 2007

Timeframe for implementation: Commence: January, 1998. Complete: Construction completed in late 1999, supplemental planting in the fall, 2003 and 2004; perpetual maintenance conducted by the SWFWMD-Operations.

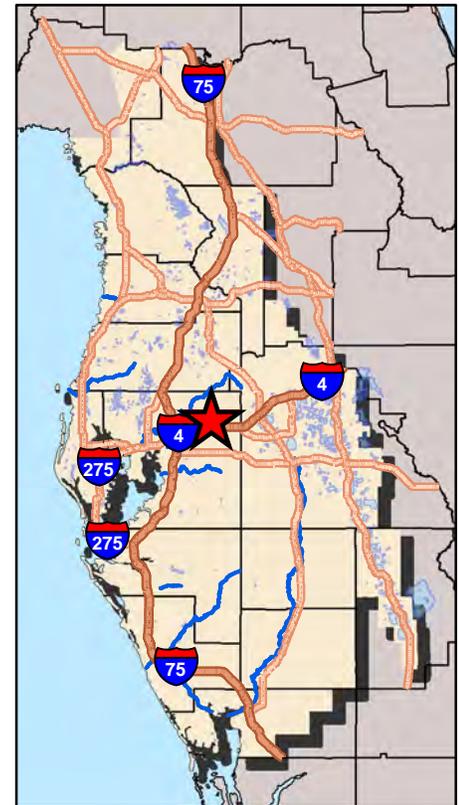
Project cost: \$820,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-Post-construction (2009)
4. Photographs (2012)

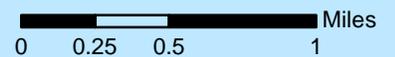
SW 34 - Lake Thonotosassa Shoreline Restoration

Figure A - Location

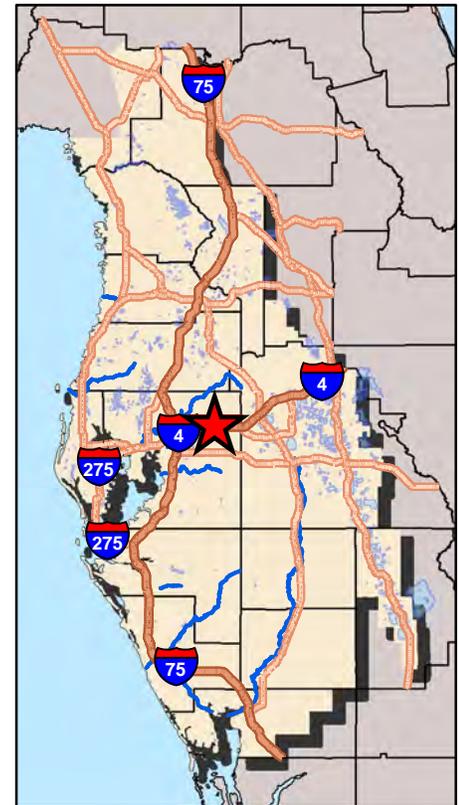
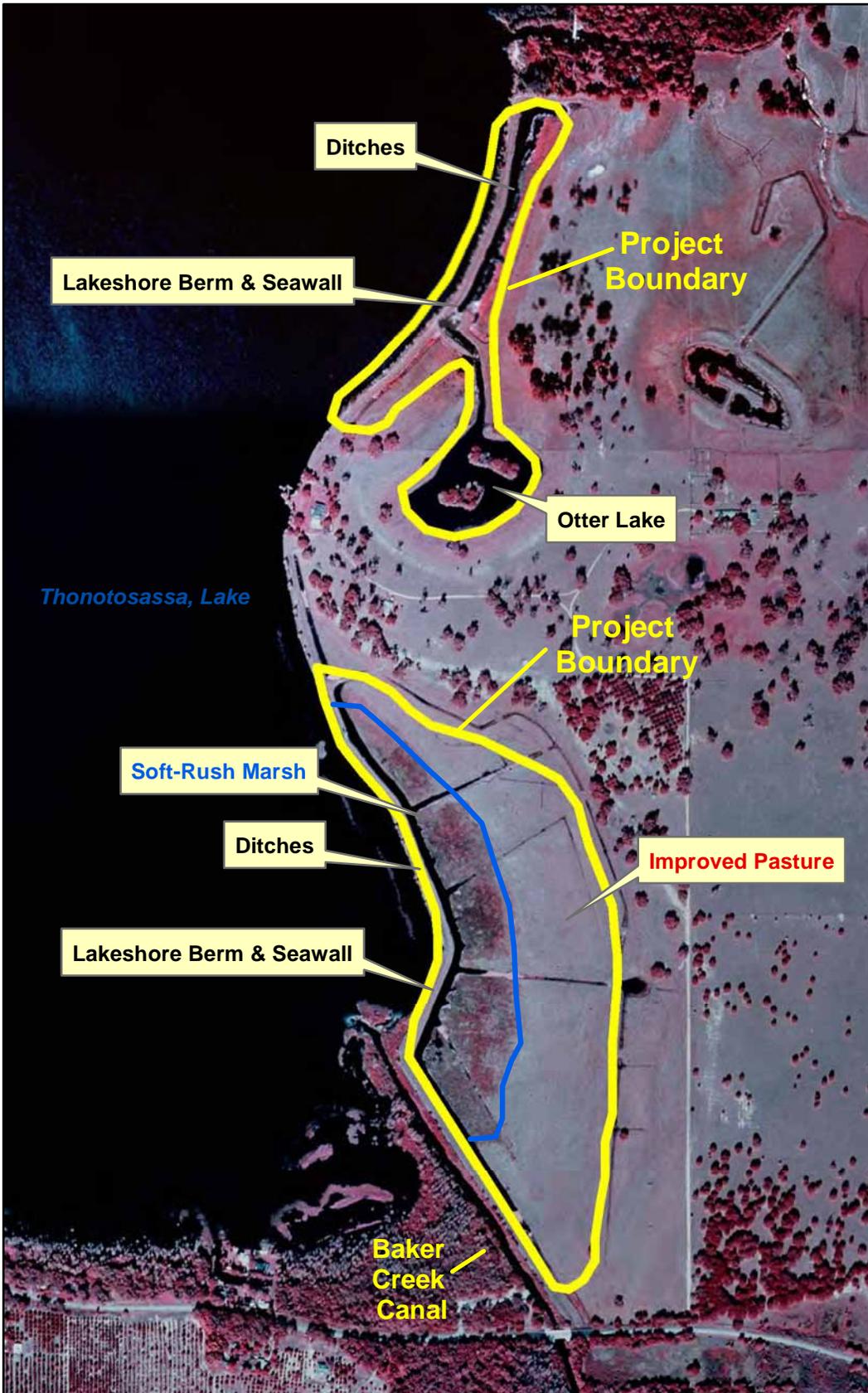


Legend

 Project Location



SW 34 - Lake Thonotosassa Shoreline Restoration Figure B - Pre-Construction (1999)



Legend

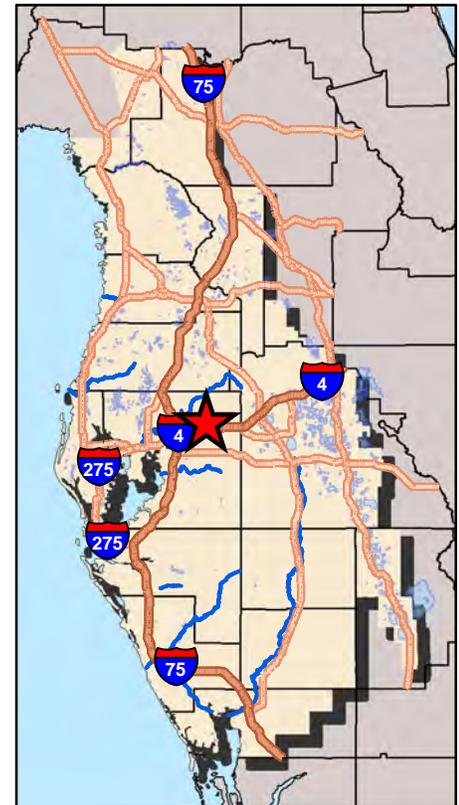
 Project Location



0 300 600 1,200 Feet

SW 34 - Lake Thonotosassa Shoreline Restoration

Figure C - Post-Construction (2009)



Legend

 Project Location



0 300 600 1,200 Feet



Lake Thonotosassa Shoreline Restoration: Photo shows berm breach creating outfall to lake.



Lake Thonotosassa Shoreline Restoration: Photo shows berm breach creating outfall to lake.



Lake Thonotosassa Shoreline Restoration: Photo shows berm breach creating outfall to lake.



Lake Thonotosassa Shoreline Restoration: Photo shows berm breach creating outfall to lake.

SW-45 GATEWAY RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland and upland restoration and enhancement			
Landowner	Pinellas County		Management Entity	Pinellas County
County	Pinellas		Watershed	Tampa Bay Drainage
Water bodies	Tampa Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2556301	SR 60 Courtney Campbell to Fish Creek	12.20	43000920.005	2001-05084 (IP-MN)
2557341	SR 676 Maritime Blvd. to SR 60	1.50	4413736.003	1995-02501 (IP-ES)
2569051	SR 679 (Bayway) Bunces Pass Bridge # 150	0.60	52-0148752-001	1991-00289 (IP-AM)
2570931	SR 60, Clearwater Harbor Bridge Replacement	1.50	44021540.001	2002-4966 (IP-TF)
2583982	I-275 Howard Franklin to Himes Ave.	1.50	43002958.006	2005-3876 (IP-JF)
2588701	I-275 Roosevelt to Big Island Gap	9.10	43001034.006	1994-02523 (IP-ES)
4062531	SR 686 (Roosevelt) at 49th Street	0.20	44007482.012	2002-06320 (NW 14)

PROJECT DESCRIPTION

A. Overall project goals: To restore and enhance estuarine wetland and coastal upland habitats within the Gateway Tract owned and managed by Pinellas County Environmental Management

B. Brief description of pre-construction habitat conditions: The project area includes the western half of the Gateway "North Tract" and the entire "South Tract" (Figures B & C). The majority of the earthwork construction areas within both tracts included uplands that were heavily dominated by Melaleuca and Brazilian pepper. The majority of the uplands within the north tract had fill material placed on historic estuarine wetland habitat. Within the north central area of the north tract, the designated mitigation area includes mangrove habitat with an extensive "checkerboard" mosquito-ditch system. The spoil mounds adjacent to the ditches had extensive and dense coverage of Brazilian pepper.

C. Brief description of construction activities and current habitat conditions: Restoration commenced with herbicide eradication and mechanical removal of the exotic vegetation in early 2004 (Figure B). Proper erosion control methods were installed, followed by necessary earthwork activities in the upland areas to create lagoons and salt-marsh habitat. A few of the ditch and adjacent spoil mounds were regraded to create channels necessary to improve tidal connectivity to Tampa Bay. For the first time conducted in Florida, a unique spoil removal method was also applied to the construction effort. Referred to as "hydroblasting," this method was utilized in order to gain access into the mangroves without impacts that would otherwise occur with traditional construction equipment. Hydroblasting uses traditional pumps and high-pressure fire hoses to spray and displace the majority of the soil material; primarily into the adjacent mosquito ditches. By lowering the spoil mounds to below high tide elevations, the B. pepper cannot re-establish. Mangrove seedlings have naturally recruited and generated within the footprint of the removed spoil material (photos). Earthwork conducted in areas to create and restore appropriate wetland grades were followed by planting of high and low salt-marsh habitat, including a few areas of unique and rare saltern habitat. Remnant coastal flatwood and hammock habitats in the south tract received supplemental planting after eradication of the exotic species. The combination of coastal upland & wetland habitat improvements have dramatically improved conditions for more access and use by wildlife species. Additional details are provided in Attachment A and the species listings.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The restored and created salt-marsh and lagoon habitats, enhancing and restoring mangrove habitat compensate with higher quality and quantity of appropriate habitat than the wetland impacts. Approximately 30% of the total wetland impact mitigated at the site was associated with the I-275 (Roosevelt to Big Island Gap segment) expansion adjacent to the mitigation area, essentially providing an on-site mitigation option. This I-275 construction can be observed being conducted concurrently with the mitigation construction in 2004

(Figure B). Other than wetland impacts associated with the referenced FDOT projects, no additional roadway projects are proposed for mitigation within this Gateway project.

The salt-marsh, open water, and upland habitats were restored with a combination of exotics eradication, appropriate grading, and planting with native species. The dominant wetland plantings included smooth cordgrass, marshhay cordgrass, sand cordgrass, seaside paspalum, and needle rush. These species have recruited and generated extensively in the construction area, particularly the smooth cordgrass in the low marsh and seaside paspalum within the high marsh areas. As part of the mitigation effort, mangrove habitat were enhanced by removing the spoil mounds associated with the mosquito ditches. Historically, enhancing and restoring mangrove habitat with mosquito ditches have been a very problematic process. Unless continuously maintained, cutting Brazilian pepper from the spoil mounds is only a temporal solution since they will regenerate as long as the spoil is still present. To rid a mangrove area of exotics without conducting continuous maintenance, the spoil mounds have to be graded below high tide elevations. However, utilizing construction equipment typically results in mangrove impacts since access to the various mounds require crossing through mangroves. The pepper roots also firmly hold the spoil material, made up of shell, sand, and limerock. This limits the capabilities of using small grader equipment. As a result of these problems, the resource agencies associated with mangrove habitat enhancement had essentially avoided attempting to restore mosquito ditch systems.

Therefore, the "hydroblast" method was first proposed and adopted at Gateway. After herbicide and manual cutting of the B. pepper and other exotics, staked silt screens and floating barriers were strategically installed to control sedimentation prior to commencing earthwork. The 35-acres of mangrove habitat had pressurized water pumped through a fire hose to "washdown" the spoil mounds. This grading method has allowed tides to evenly sheet flow under the mangroves, eliminated the opportunity for B. pepper regeneration, and allowed the opportunity for mangrove seedlings to generate (photos & the "white spots" on the Figure C aerial). Evaluation has indicated this method to be an ecological benefit yet economical construction method for future mangrove enhancement activities. In fact, for mitigation credit associated with another project, additional spoil mound hydroblasting was conducted at Gateway just east the designated FDOT mitigation boundary on the north tract. This area is evident by the "white spots" depicted on the Figure C aerial.

This mitigation is associated with an initial and long-term restoration objective for the public lands within the Gateway and adjacent Weedon Island areas owned and managed by Pinellas County. A 5-year period of maintenance & monitoring extended beyond the construction period until the end of 2009. Perpetual maintenance is conducted as necessary by Pinellas County as part of normal land management activities to maintain and improve upon the successful habitat conditions and functions. The maintenance of the project has been minimal since the constructed wetland grades allow for sufficient tidal fluctuation, so the planted and naturally recruited vegetation have had high survival rates, with extensive recruitment and generation. Maintenance has been primarily related to spot herbicide treatments since salt water substantial limits the re-establishment of exotic vegetation.

Qualitative monitoring was conducted semi-annually for five years post-construction, with annual reports documenting habitat conditions and various activities implemented during the previous year. Current habitat conditions are depicted in the attached site photographs. The achieved and maintained success criteria included a minimum 90% survivorship for planted material for one year after planting, total 85% cover of planted and recruited desirable species, and less than 5% exotic and nuisance species. Natural recruitment and generation of mangroves have occurred within the displaced spoil mounds and portions of the planted salt marsh habitat. In addition, a few graded marsh elevations are slightly above high tide elevations, providing for less frequent inundation associated with extreme high tides. This condition allows for the establishment of rare and unique saltern formations within the salt-marsh habitat. Saltern habitats typically provide opportunities for birds and mammals to access and forage for fiddler crabs that often inhabit these areas.

Overall, the Gateway restoration project has been very successful with a diverse assemblage of habitat conditions that attract extensive & diverse wildlife species. Over 80 bird species have been documented within the restored and created habitat areas. Attached is a listing of observed wildlife and vegetative species, and photographs of pre-post construction habitat conditions.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The Tampa Bay Mitigation Bank (TBMB) is located within the Tampa Bay Drainage basin, but had not received permits during the period of mitigation selection.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: Gateway Restoration is a SWIM-sponsored project conducted on property owned by Pinellas County.

PROJECT IMPLEMENTATION

Entity responsible for construction: Construction was conducted by a private contractor selected by the SWFWMD.

Entity responsible for monitoring and maintenance: Private contractors selected by the SWFWMD conducted five years of maintenance & monitoring. The project achieved success criteria, and in 2010 was adopted into Pinellas County's normal perpetual land management and herbicide maintenance activities.

Timeframe for implementation: Commence: Design Complete, 2002 Complete: Construction Spring-Summer, 2004; followed by five years of maintenance and monitoring; then perpetual maintenance & management.

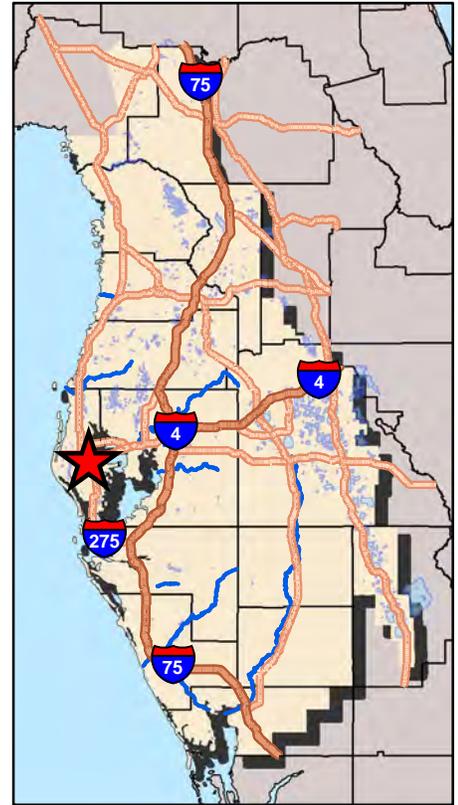
Project cost: \$1,498,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (2004)
3. Figure C-Post-construction (2008)
4. Photographs (2003, 2004, 2009)

SW 45 - Gateway Restoration

Figure A - Location



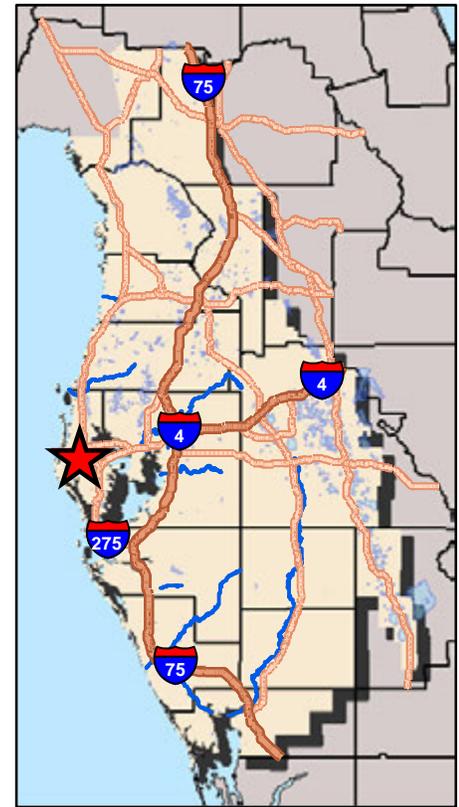
Legend

 Project Location



0 400 800 1,600 Feet

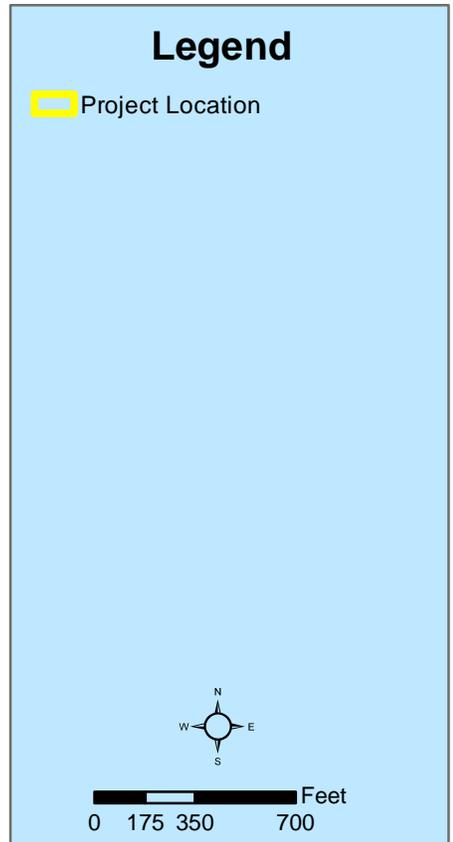
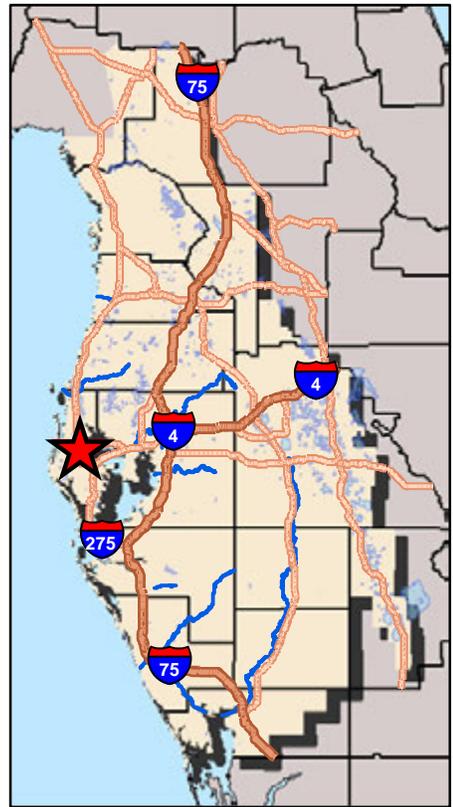
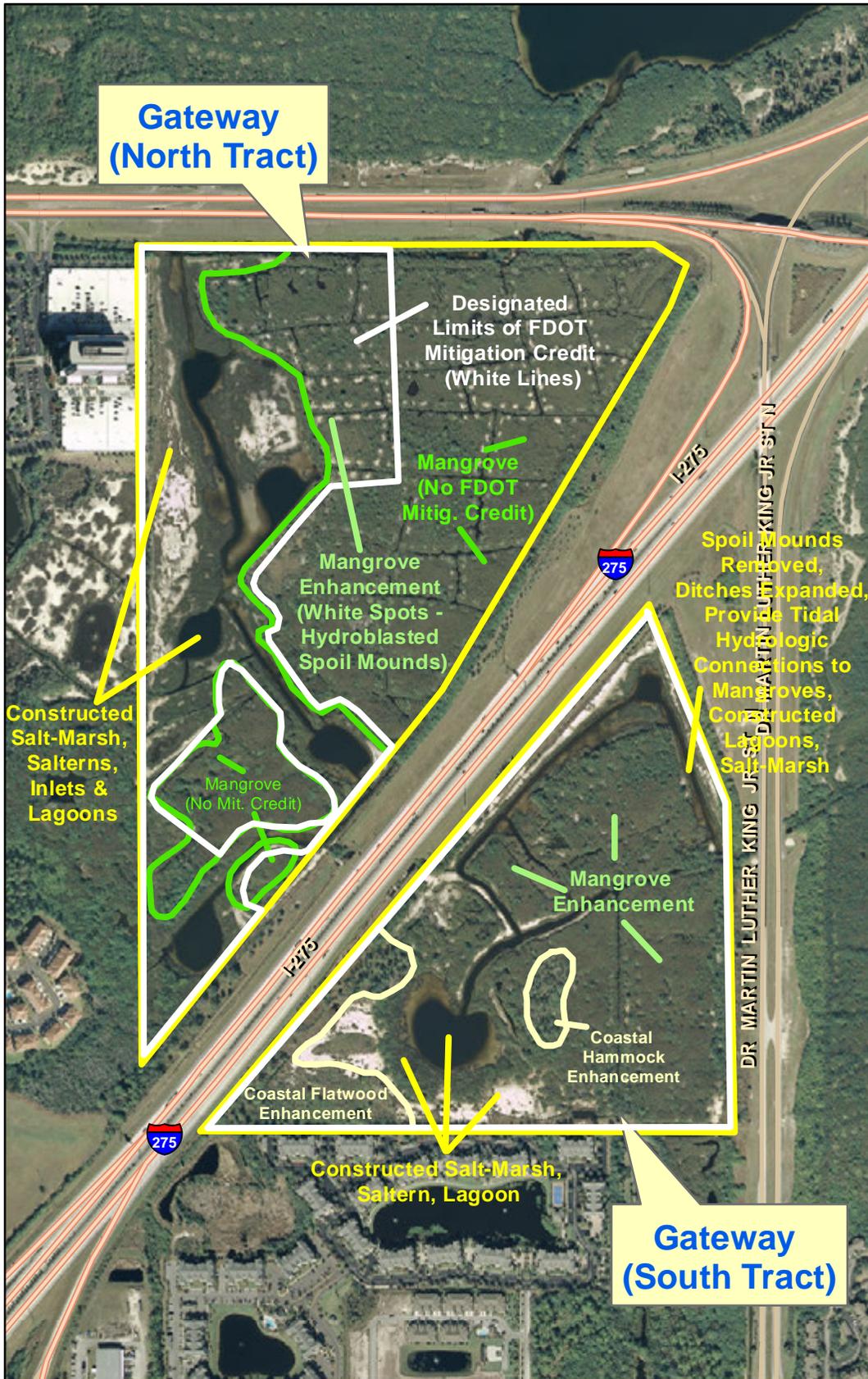
SW 45 - Gateway Restoration Figure B - Pre-Construction (2004)



Legend

Project Location

SW 45 - Gateway Restoration Figure C - Post-Construction (2008)





North Tract (2003) – pre-construction view looking south over Ulmerton Road (foreground). The dark green forested areas adjacent to Franklin Templeton building (lower right) are predominantly dense stands of Melaleuca and Brazilian pepper. Remaining portion to I-275 (middle) is mangrove habitat.



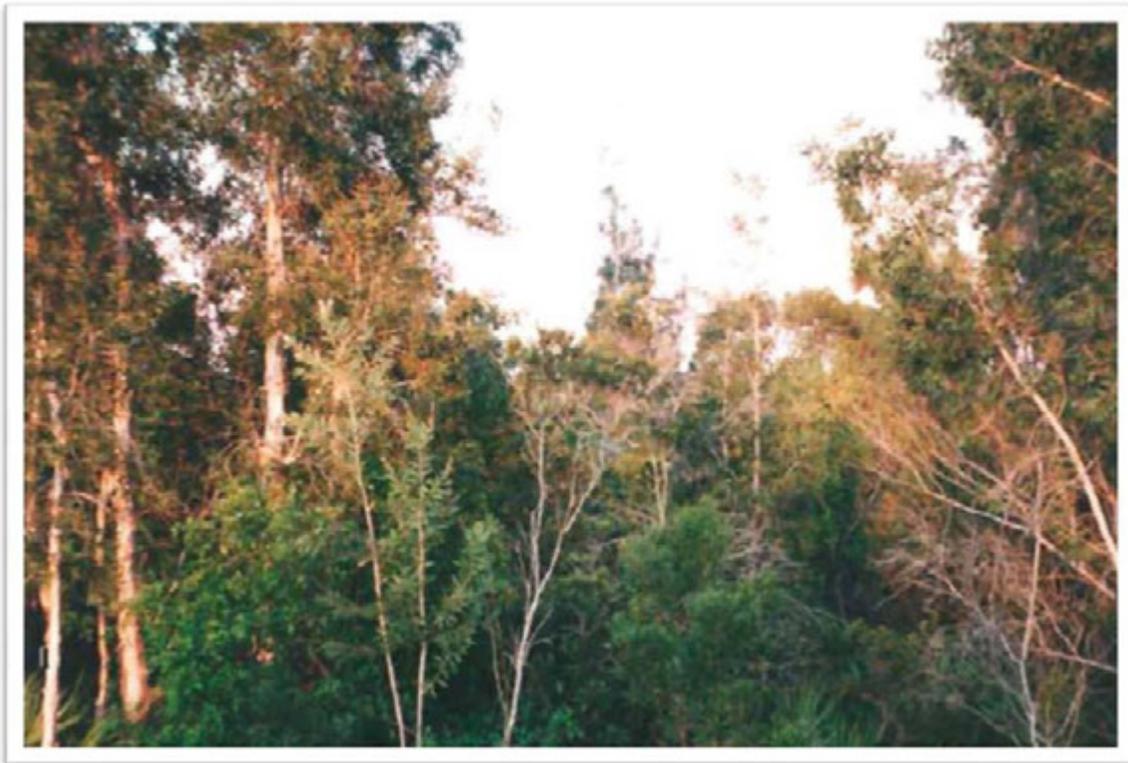
North Tract (2004) - same view just after completion of earthwork to construct tidal channels, lagoons, and salt-marsh habitat. White spots within the mangroves are locations where B. pepper was eradicated and the mosquito ditch spoil mounds were displaced by using the hydro-blast method.



South Tract (2003) – pre-construction view looking north over 9th Street (right) and I-275 (middle). The dark green forested areas adjacent to apartment buildings (lower left) are dense stands of Melaleuca and Brazilian pepper.



South Tract (2004) - same view after completion of earthwork to construct inter-tidal channels, lagoons, salt-marsh habitat, and enhance remnant flatwood habitat (far left).



North Tract (2003) – Pre-construction view from Franklin Templeton building, looking east over dense coverage of Melaleuca and B. pepper in the filled upland area.



North Tract (2009) – same eastern view overlooking the graded upland area at the most northern constructed tidal lagoon, predominantly plantings of smooth cordgrass in the low tide zone around the lagoons, other species include salt-grass, seaside paspulum, needle rush and sand cordgrass at higher elevations. Mangrove seedlings (light green) have naturally recruited and generated; particularly within the low marsh zones.



North Tract (2009) – improved tidal channel connectivity access from the constructed lagoons to Tampa Bay have resulted in productive havens for fish and invertebrate species in the lagoons; and subsequently the bird and mammal species that nest and forage on the property.



North Tract – a portion of the salt-marsh have grade elevations constructed slightly above high tide elevations, allowing for irregular flushing with salt water that established rare and unique saltern habitat. The salterns are productive ecosystems for birds and mammals to forage on fiddler crabs and other species that inhabit the area.



South Tract (2004) – constructed lagoon and planted salt-marsh located within the southeast upland area previously dominated by *B. pepper* & *Melaleuca*. Remnant pine flatwood adjacent to Interstate-275 (background) was protected from construction and the habitat enhanced by eradicating exotic vegetation.



South Tract (2009) – along with the construction of salterns, much of the salt-marsh has transitioned as mangrove species have naturally recruited and generated around the lagoon.



Gateway was the first restoration project in the region to utilize high pressure water hoses to “hydroblast” the mosquito ditch spoil mound material held together by *B. pepper* roots. By displacing the material, *B. pepper* mortality occurs since the roots are exposed to salt water, and the species cannot regenerate when the mounds are lower than high tide elevations.



Existing mangroves adjacent to the graded spoil mounds provide a seed source for natural recruitment and generation of mangrove seedlings within the first year after construction.



The diversity of estuarine habitats at Gateway has resulted in an abundant and diverse assemblage of wildlife use and activity. As depicted in the photograph, seabirds are often observed resting and foraging within the saltern habitats.



Over 80 bird species have been documented to routinely visit Gateway. Along with other wading bird and waterfowl species, unusually high populations of roseate spoonbills have been observed foraging and resting in the northern tract.

SW-47 TENOROC-BRIDGEWATER TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland creation			
Landowner	Florida Fish and Wildlife Conservation Commission	Management Entity	Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission	
County	Polk	Watershed	Peace River	
Water bodies	Lake Parker	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1974711	SR 540 (Cypress Gardens) 9th Street to Overlook	0.41	4417859.000	199403139
1974751	SR 540 (Cypress Gardens) Thornhill Rd. to Recker Hwy.	5.87	4401612.000	199401950
2012092	I-4, East of US 98 to East of CR 557 (Sec. 3-5) ¹	1.88	43011896.026	200204891 (IP-MGH)

PROJECT DESCRIPTION

A. Overall project goals: Creation of wetland habitat within a reclaimed former mine area within the 967-acre Bridgewater Tract (Figure A) within FWC's 7,300-Tenoroc Fish Management Area. Various wetland, water quality and watershed improvements within Tenoroc and adjacent public lands are being pursued and implemented through a joint ecosystem management initiative by FDEP, FWC and SWFWMD for the Upper Peace River Watershed

¹ Impacts in the Withlacoochee River Basin are offset by SW-59 Hampton Tract

B. Brief description of pre-construction habitat conditions: In 2002, the Bridgewater Tract was acquired by the FFWCC as an addition to Tenoroc. As with other areas of Tenoroc, the Bridgewater property was historically mined for phosphate. This mined area was reclaimed to include numerous man-made lakes interspersed with upland ruderal fallow fields dominated by opportunistic and exotic species such as bahia grass, salt-bush, wax myrtle, cogon grass and Brazilian pepper. The designated FDOT mitigation area is within one of those ruderal fields and bordered by three reclaimed lakes (Figure B, pre-construction 2004 aerial). Overall, the pre-construction habitat represented low quality conditions.

C. Brief description of construction activities and current habitat conditions: The designated mitigation is a 25-acre wetland creation area constructed in 2005-2006. The Figure C 2006 aerial depicts the project just after completion of earthwork and prior to planting. An outer facultative zone of forested wetland creation has planted tree species dominated by red maple and bald cypress, with additional coverage provided by popash, sweetgum, laurel oak, water hickory, buttonbush and blackgum. An inner obligate forested zone includes a dominance of planted bald cypress, with additional coverage provided by popash, red maple, buttonbush, and blackgum. The ground coverage of the forested components is dominated soft rush, pickerelweed, and arrowhead. Three obligate marsh pockets are dominated by pickerelweed, arrowhead, bulrush, and fireflag; as well as some open water components. The marsh pockets are connected by creeks to maintain proper hydraulic flow throughout the created wetland. These habitat areas are depicted on Figure D (2009 aerial) and the site photographs. The created wetland habitat and adjacent Bridgewater property is utilized by many wildlife species. Observed avian species include several listed species such as little blue heron, snowy egret, tricolored egret, white ibis, sandhill crane, green heron, little blue heron, wood stork, and osprey. Reptile and mammal species include alligator, cottonmouth, river otter, and bobcat.

The periodic monitoring includes qualitative habitat evaluations within the created wetland (monitoring photos). The monitoring evaluations include documentation of habitat, vegetation, wildlife, hydrologic conditions, maintenance activities. The achieved success criteria required a minimum 90% survivorship of planted stock, vegetative coverage of planted and naturally recruited desirable species exceed the 85% within the facultative zone and outer obligate zones, and herbicide treatments are conducted as necessary to eradicate and maintain less than 5% cover of exotic, nuisance, and undesirable species.

Maintenance by FDEP & FFWCC includes herbicide treatment and eradication of nuisance, exotic, and undesirable species; conducted as necessary to maintain success criteria.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): All the FDOT wetland impacts occurred within the upper watershed of the Peace River in Polk County. The majority of the wetland impacts (6.33 acres, approx. 77%) were to forested habitat. Those wetland impacts are mitigated with the creation of forested wetlands (21.4 acres). Mitigation for the non-forested wetland impacts (1.84 acres) include the creation of marsh habitat (3.7 acres). The 25 acres of wetland creation mitigation is located within a

larger ecosystem habitat plan that includes additional upland and wetland creation, restoration, and enhancement.

Additional wetland habitat activities at Tenoroc and Bridgewater are providing additional mitigation for wetland impacts associated with Turnpike's construction of the Polk Parkway. This additional mitigation is being conducted as part of a 1995 multi-agency agreement (FDOT-Turnpike, USACOE, FDEP, SWFWMD, FFWCC), and separate from the FDOT Mitigation Program (Chapter 373.4137) that commenced in 1996.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the time of mitigation selection, the only permitted mitigation bank selling credits was located within the lower portion of the Peace basin (SW 53 - Boran Ranch, DeSoto County). To mitigate the hydrologic and habitat characteristics of the FDOT wetland impacts in the upper Peace basin, it was determined the habitat plan associated with Tenoroc more appropriately compensates for those impacts. In addition, the majority of the FDOT impacts were associated with forested wetlands. At the time of mitigation selection, all the forested wetland credits at Boran Ranch had been purchased; predominantly by the SWFWMD to provide appropriate mitigation for the FDOT wetland impacts in Hardee and DeSoto Counties.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were currently no proposed SWIM sponsored projects in the Peace River Basin that were appropriate to mitigate for the proposed wetland impacts

PROJECT IMPLEMENTATION

Design & permitting was finalized in late 2003, construction conducted in 2005-2006, followed by periodic herbicide treatment of exotic & nuisance species by FDEP & FFWCC to maintain successful ecological functions and benefits.

Entity responsible for construction: Contractor selected by FDEP & FFWCC

Entity responsible for monitoring and maintenance: FDEP/FFWCC

Timeframe for implementation: Commence: 1998 (evaluation & design) Complete: 2005-06 (construction), followed by periodic monitoring and perpetual maintenance activities.

Project cost: \$650,000 (total)

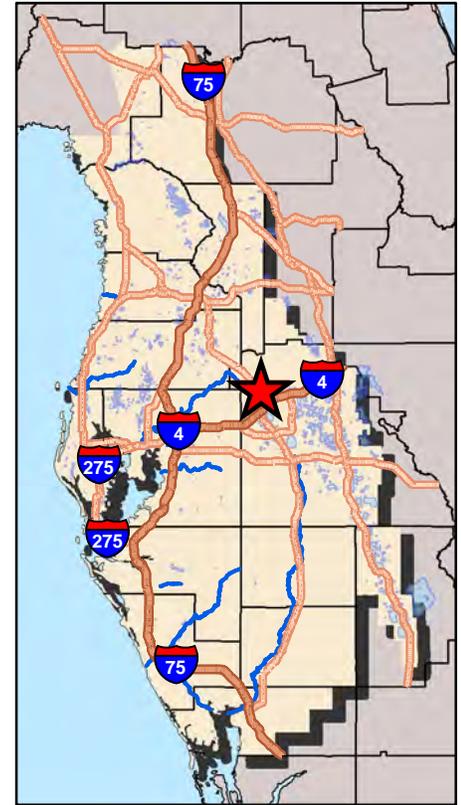
ATTACHMENTS

1. Figure A-Location
2. Photographs (2009)

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SW 47 - Tenoroc/Bridgewater Tract

Figure A - Location



Legend

 Project Location



0 250 500 1,000 Feet



2009 – view from the southern limits of the constructed wetland, looking north over facultative forested wetland creation area. Dominant planted species in the facultative zone include cordgrass, soft rush, sawgrass, St. John’s wort, red maple, sweet bay, slash pine, cabbage palm, and laurel oak.



Along with the open water components, the constructed obligate zone includes plantings of pickerelweed, arrowhead, bulrush, fireflag, wild rice, bald cypress, black gum, pap ash, and red maple. The wetland attracts many wildlife species, particularly a variety of wading bird and waterfowl species.

SW-49 REEDY CREEK MITIGATION BANK¹ MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	Yes
Mitigation Type	Mitigation Bank			
Landowner	Private		Management Entity	Private
County	Polk, Osceola		Watershed	Kissimmee Ridge
Water bodies	Reedy Creek		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1945101	US 27 Lake Glenada to Hal McRae	0.39	4412845.060	1993-42314
2012041	I-4, East of CR 557 to Osceola County (Sec. 6-7,9) ²	2.35	44011896.033	2002-08260 (IP-MGH)

PROJECT DESCRIPTION

A. Overall project goals: Hydrologic enhancement of forested floodplain wetlands associated with Reedy Creek, and restore adjacent upland improved pastures into native flatwoods habitat.

B. Brief description of pre-construction habitat conditions: The Reedy Creek Mitigation Bank (RCMB) covers approximately 3500-acres in northeast Polk County and southwest Osceola County (Figure A). Reedy Creek Swamp is a high quality wetland system, however, was historically logged for cypress and some alterations to hydrologic conditions. The upland

¹ State Permit 970819-11 Federal Permit 1995-07852 (IP-ME)

² Wetland impacts associated with this I-4 segment in the Ocklawaha basin (4.00 acres) are mitigated at SW 76-Lake Lowery Tract and in the Withlacoochee basin (3.88 acres) are mitigated at SW 59 – Hampton Tract.

area along the eastern border of the swamp was historically converted to improved pasture, but restored to pine flatwoods habitat to provide a habitat buffer to Reedy Creek Swamp.

C. Brief description of construction activities and current habitat conditions:

Hydrologic connections to Reedy Creek Swamp were restored and the upland pasture restored to flatwoods habitat with a combination of bahiagrass eradication and implementing a native species planting and seed dispersal program.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):

The RCMB adequately and appropriately compensates for the minor wetland impacts with the combination of wetland enhancement and upland restoration.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:

The Reedy Creek Mitigation Bank is authorized by DEP/WMD permit #: 970819-11 and Army Corps of Engineers permit # 199507852 (IP-ME). The purchase of credits is a cost-effective mitigation option that appropriately compensates for the proposed wetland impacts. At the time the wetland impacts associated with this I-4 segment were within the Ocklawaha basin (4.00 acres mitigated at SW 76-Lake Lowery Tract) and the Withlacoochee basin (3.88 acres mitigated at SW 59 – Hampton Tract), mitigation bank credit sufficient to offset the wetland impacts was not available at the RCMB.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:

There were no existing or proposed SWIM projects in this basin during the mitigation selection.

PROJECT IMPLEMENTATION

Entity responsible for construction: Reedy Creek Mitigation Bank

Entity responsible for monitoring and maintenance: Reedy Creek Mitigation Bank

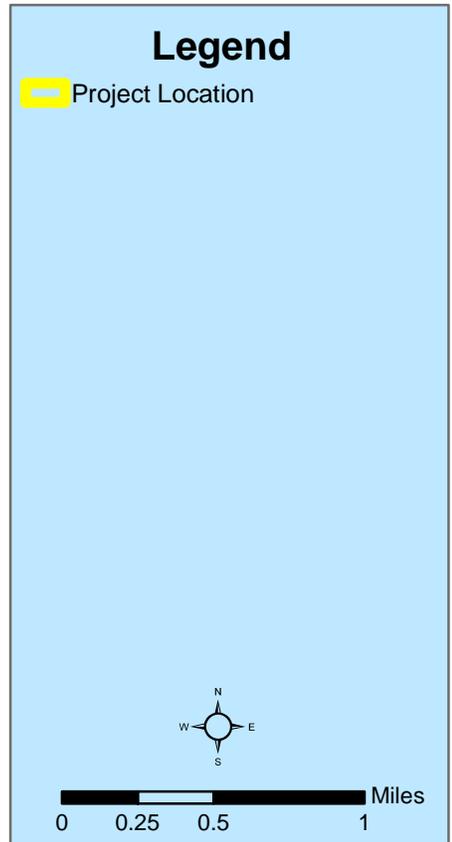
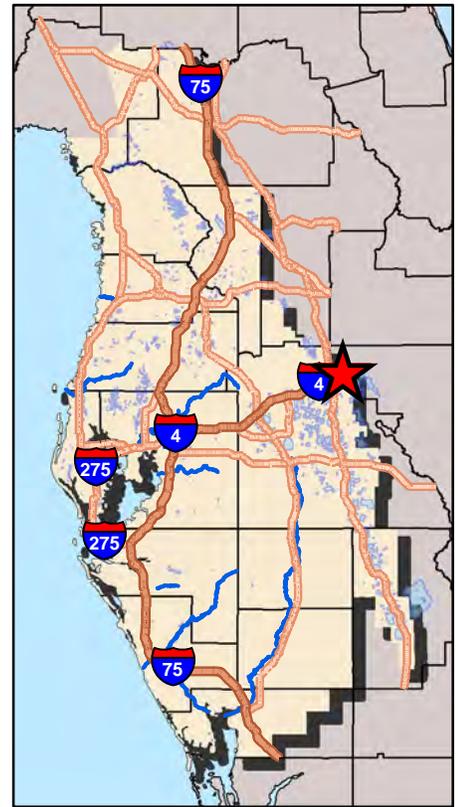
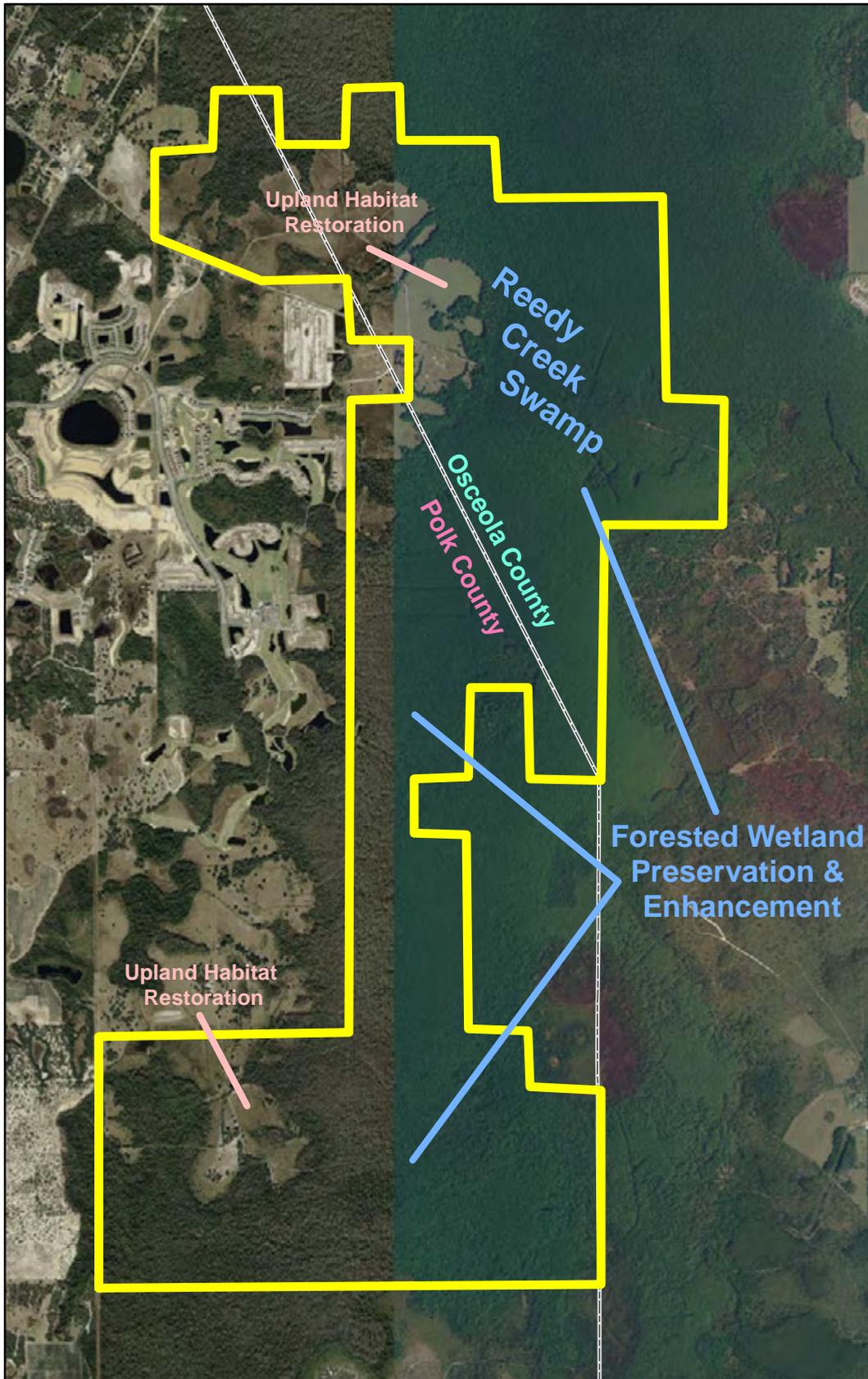
Proposed timeframe for implementation: currently in maintenance & management

Project cost, credit purchase: \$90,965 (total)

ATTACHMENTS

1. Figure A-Location

SW 49 - Reedy Creek Mitigation Bank Figure A - Location & Habitat Conditions (2009)



SW-50 TERRA CEIA RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland and upland restoration and enhancement			
Landowner	Board of Trustees of the Internal Improvement Trust Fund	Management Entity	Florida Department of Environmental Protection	
County	Manatee	Watershed	Tampa Bay	
Water bodies	Manatee River, Tampa Bay, Terra Ceia Bay	Water body Designations	SWIM water body	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1960581	US 301 (Ellenton) - 60th Ave to Erie Road ¹	0.59	4012295.000	199802683

PROJECT DESCRIPTION

A. Overall project goals: Restoration and enhancement of various types of saltwater wetland and upland habitats within the 1700-acre FDEP-owned & managed Terra Ceia Isles property bordering the southeastern shore of Tampa Bay (Figure A).

B. Brief description of pre-construction habitat conditions: Large tracts of once-pristine mangrove forest and intertidal wetlands within the project area were adversely impacted by dredge and fill operations. In addition, much of the existing upland and various wetland habitats had extensive coverage of exotic vegetation including Brazilian pepper, Melaleuca, and Australian pines. These areas provided poor habitat value for wildlife utilizing the Preserve and adjacent estuary. The 20-acre area designated to provide FDOT mitigation is within the eastern portion of the Preserve (Figure A). The pre-construction conditions included

¹ Wetland impacts are located in the Manatee River Basin. Out of basin mitigation is allowed by permits authorizing the road improvement project.

12-acres of mangrove habitat buffered by 8-acres of upland habitat that had extensive coverage of Brazilian pepper (Figure B- 1999 aerial).

C. Brief description of construction activities and current habitat conditions: For the designated FDOT mitigation area, the Brazilian pepper was eradicated and herbicide maintained from regenerating within the upland buffers and planted with native species (cabbage palm, longleaf pine, live oak). As depicted on Figure C, a braided tidal marsh was subsequently constructed in 2007 that further buffers the mangrove habitat. This activity was not quantified for FDOT mitigation credit however the created marsh does increase the habitat value and diversity for the Preserve as well as benefit the designated mitigation area.

The success criteria includes less than 5% cover of exotic species for the 20- acre area providing mitigation for FDOT wetland impacts. Qualitative monitoring occurred through 2008 to ensure success.

The mitigation is associated within larger restoration objectives for the Preserve. The maintenance of the project area is being conducted by FDEP staff, primarily related to herbicide eradication of invasive exotic vegetation and limiting such coverage to less than 5%.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The restored and enhanced upland and mangrove habitats adequately and appropriately compensate for the minor impact acreage and function of the disturbed US 301 wetlands while increasing habitat diversity at Terra Ceia. No additional wetland impacts associated with other roadway projects are proposed for mitigation within this 20-acre area.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks were available during mitigation selection in 1998.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The mitigation activities are in conjunction with a SWIM project located on FDEP property in need of major habitat restoration & enhancement.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private Contractor selected by the WMD & FDEP

Entity responsible for monitoring and maintenance: Maintenance by FDEP staff assigned to the Terra Ceia Preserve, monitoring conducted through 2008 by consultant on contract with the WMD; perpetual maintenance & periodic monitoring after 2008.

Time frame for implementation: Commence: Design in 2000-2001 Complete: Exotic species eradication & planting, 2002; routine herbicide maintenance periodically conducted as necessary by FDEP staff

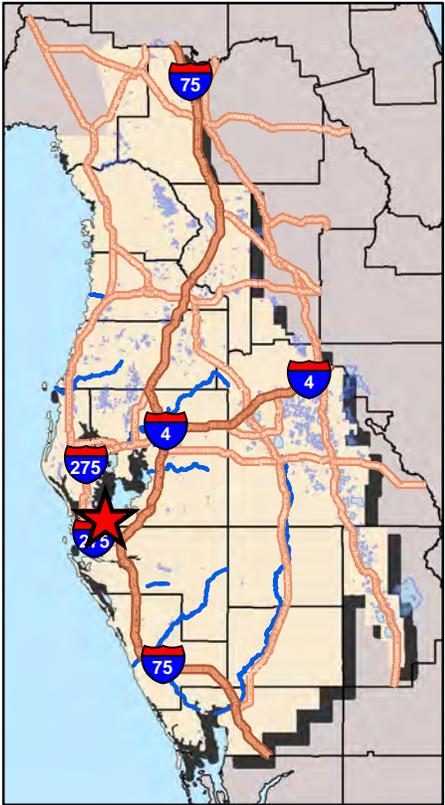
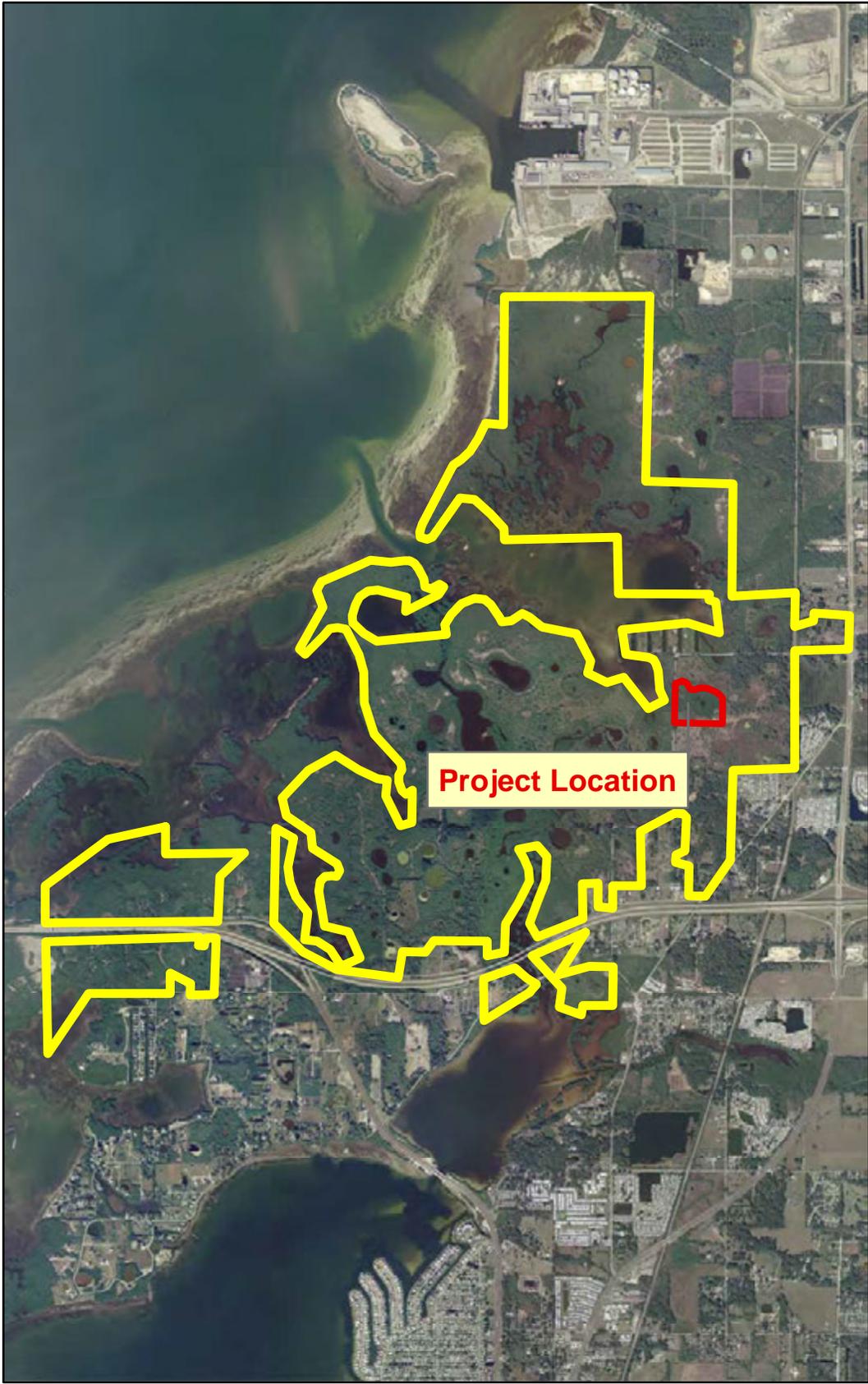
Project cost: \$46,000

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-Post-construction (2009)
4. Photographs (1999, 2009)

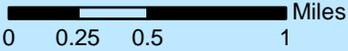
SW 50 - Terra Ceia Restoration

Figure A - Location



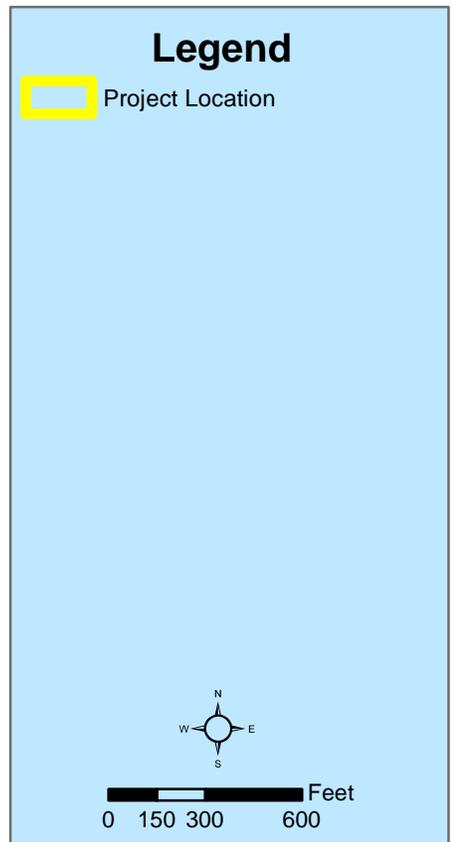
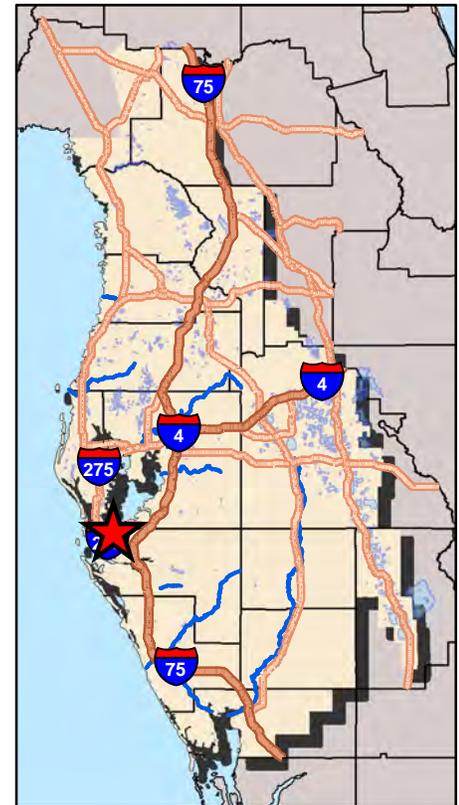
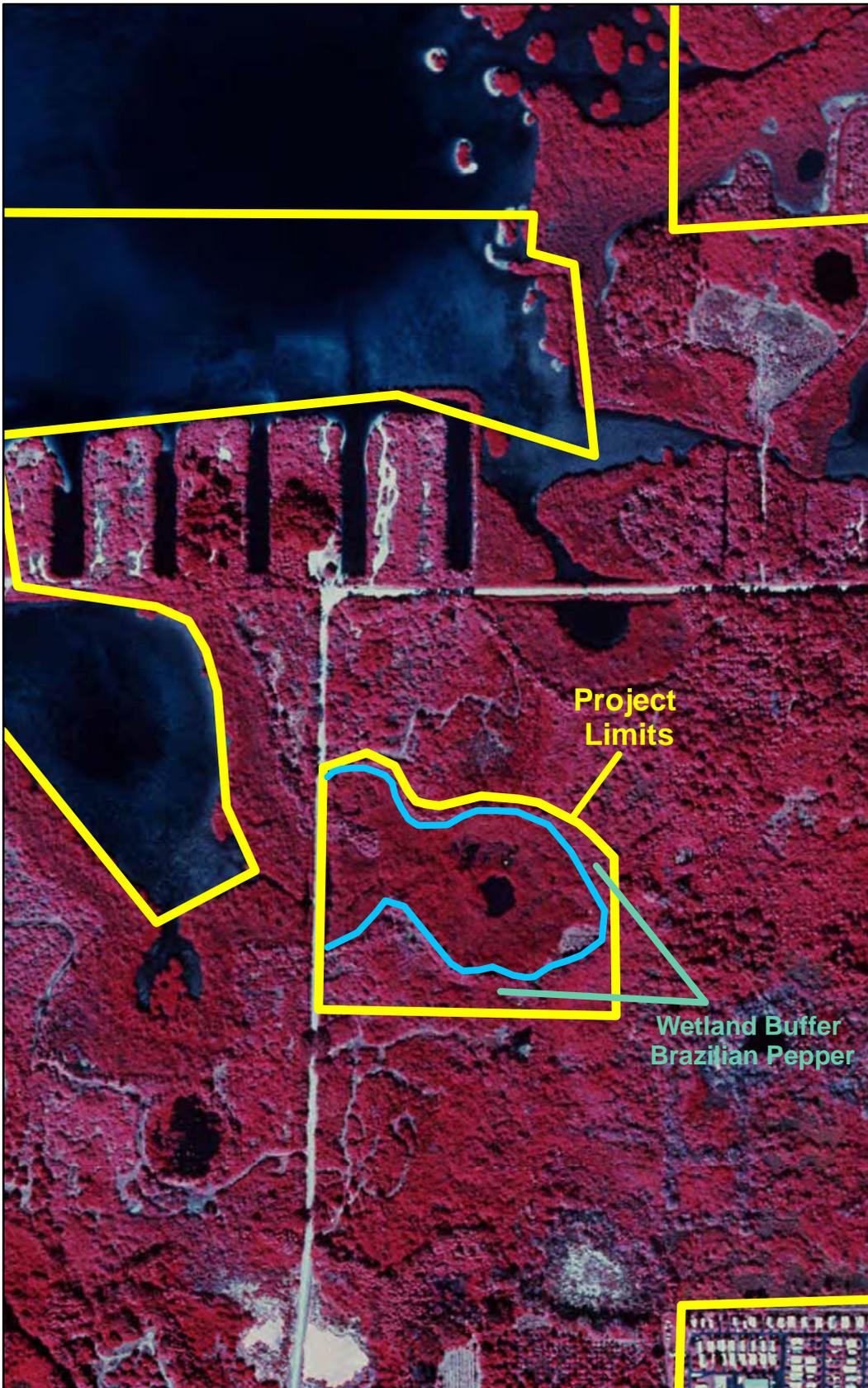
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-  Terra Ceia Aquatic Preserve Boundary
-  Terra Ceia Restoration

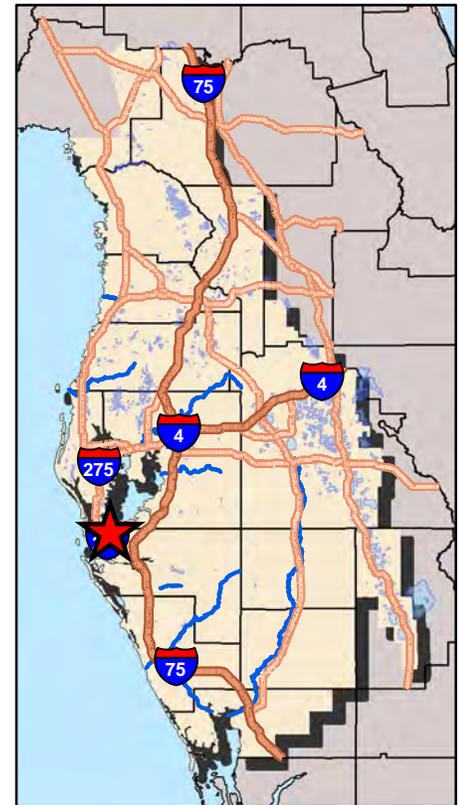
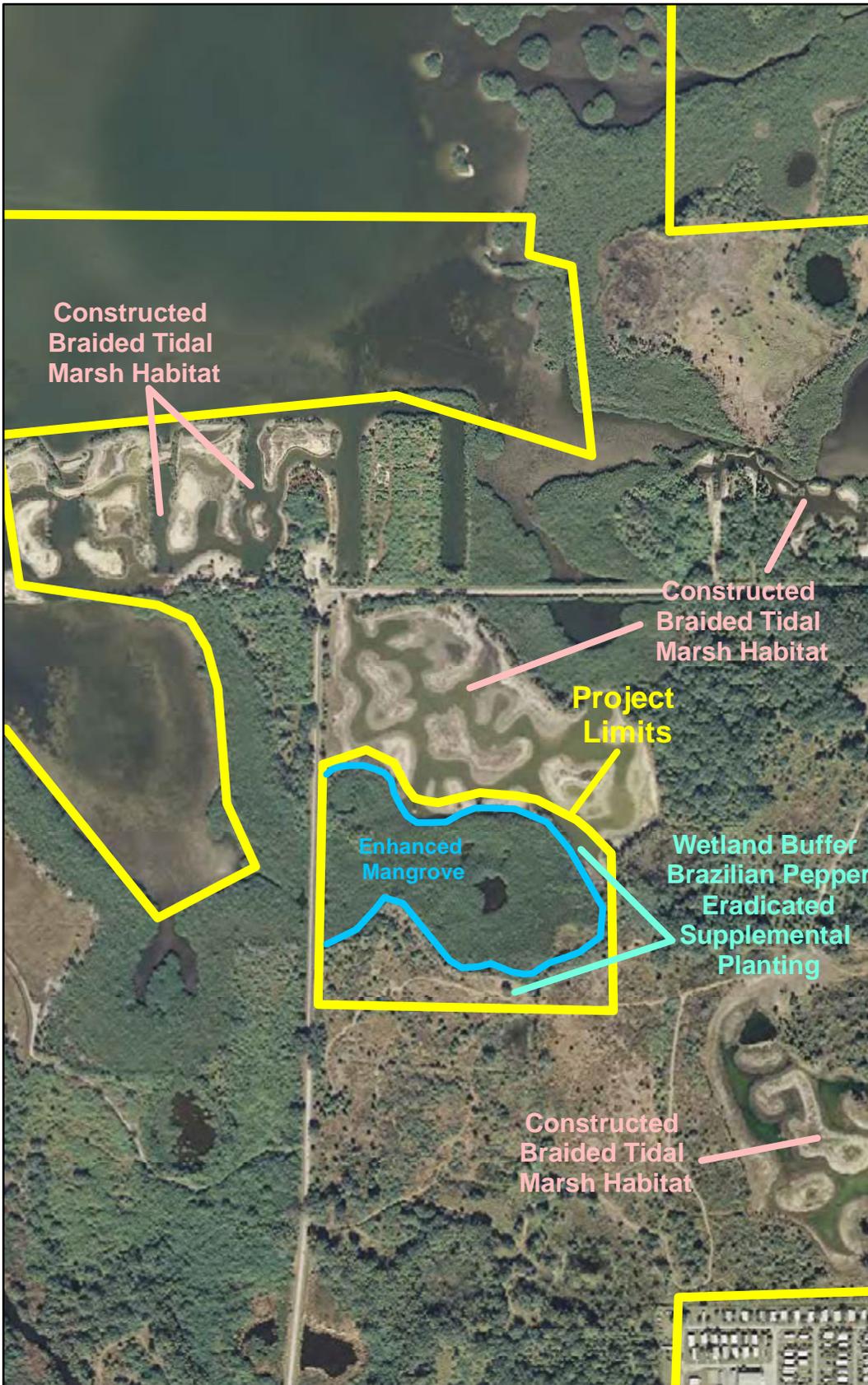


0 0.25 0.5 1 Miles

SW 50 - Terra Ceia Restoration Figure B - Pre-Construction (1999)



SW 50 - Terra Ceia Restoration Figure C - Post-Construction (2009)



Legend

 Project Location







Pre-Construction (1999) – wetlands are buffered by uplands with extensive coverage of exotic and nuisance species such as Australian pine, Brazilian pepper, Johnson grass and dog fennel.



Pre-Construction (1999) – the mangrove is buffered by dense Brazilian pepper, cogon grass and scattered cabbage palm.



Post-Construction Habitat (2009) – exotics have been eradicated, preserved cabbage palms, natural recruitment of salt-bush, wax myrtle and planting of slash pine.



Post-Construction Habitat (2009) – the mangrove in the project area is further enhanced and buffered by the braided tidal marsh habitat constructed along the northern side of the mangrove.

SW-51 MYAKKA RIVER STATE PARK MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Board of Trustees of the Internal Improvement Trust Fund	Management Entity	Florida Department of Environmental Protection	
County	Sarasota, Manatee	Watershed	Myakka River	
Water bodies	Myakka River, Deer Prairie Slough	Water body Designations	Outstanding Florida Water and Florida Wild & Scenic River	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1979251	SR 72 Big Slough to DeSoto C/L	1.49	43018471.000	1998-02683
1980131	SR 72 Deer Prairie to Big Slough	0.87	44018399.000	1998-02683
4138871	SR 72 Myakka River to Big Slough	5.00	43018399.001	2005-7108 (IP-JP)

PROJECT DESCRIPTION

A. Overall project goals: Myakka River State Park & Myakka Prairie ("Park", 37,000 acres, Figure A) is one of the largest state parks in Florida. The Park has a flat topography with a general groundwater and surface water hydrology pattern that flows from north to south. There are two major constructed features where historic flow regime was altered by fill embankment. These include the historic construction of a 9-mile long elevated east-west railroad tram during the early 1900's within the northern portion of the Park, and the elevated SR 72 segment crossing through the southern portion of the Park (Figures A & B). The tram was constructed without use of culverts, blocking the natural southern sheet water flow hydrology pattern; resulting in extended hydroperiods (depth & duration) within many wetlands

to the north and reduced hydroperiods for wetlands south of the tram (Figure B). The fill source for the railroad grade included ditches constructed along each side of the tram. These ditches redirected and funneled contributing flow east and west along the tram to North Deer Prairie Slough. The hydrologic conditions of many wetlands south of the tram have been further altered by inter-connected ditches. The majority of the wetlands within the Park are ephemeral systems, so the altered hydrology, vegetative zonation and restoration of appropriate hydrology and hydroperiods of these wetlands has a direct correlation to the wildlife use, groundwater recharge, flood attenuation and water quality improvements.

B. Brief description of pre-construction habitat conditions: Evaluation by Park staff over many years determined that surface and groundwater hydrology of impacted wetlands in the vicinity of the railroad tram could be achieved by grading the fill material to match historic ground elevations, construction of wet crossings at appropriate locations, and backfilling ditch segments (Figure B). The majority of these activities have been completed and the flow regime successfully restored in the northern areas within the tram vicinity. The third SR 72 project was adopted to the FDOT program in 2004, however the associated design for SR 72 only required the installation of a few cross-drain culverts. FDOT mitigation funds were allocated to install an additional five culverts during the 2008-2009 roadway construction to restore and provide additional hydraulic and hydrologic improvements to benefit wetlands upstream and downstream of SR 72. The only remaining construction activities for the mitigation credits include installing a few reinforced wet crossings within lower segments of the removed tram and backfilling some internal drainage ditches; scheduled to occur during 2011-2012. These construction activities have resulted in restoring historic drainage patterns, attenuation and groundwater recharge within the wetlands and allowed appropriate hydrophytic species to regenerate and recruit into outer perimeters of the wetlands. Natural recruitment of adjacent desirable hydrophytic species within the filled ditches has occurred without the need for supplemental planting. Only portions of wetlands adjacent to the railroad tram, ditch blocks and the SR 72 culvert locations that receive direct hydrologic enhancement are quantified and accounted to provide mitigation credit. This included a total of 1,276 acres of non-forested wetland enhancement, 194 acres of forested wetland enhancement, and 6 acres of non-forested wetland restoration in the location where wetland-cut ditches adjacent to the tram were filled to historic natural wetland grades. Secondary benefits include restoring surface and groundwater flow regimes to thousands of acres of other wetland and upland habitat in the Park.

C. Brief description of construction activities and current habitat conditions: At project completion 80% coverage of desirable vegetative coverage and less than 5% coverage of exotic species within filled ditches are expected. The installed culverts, graded tram and wet crossings will be stabilized to eliminate any potential of erosion & sedimentation conditions, and demonstration of historic sheet flow restoration of drainage patterns. Annual monitoring for a minimum two years post-construction include qualitative documentation and photographs of tram grading to demonstrate vegetative regeneration and restoration of proper drainage patterns. As of 2010, success criteria have been achieved for all the constructed areas.

Maintenance has been and will continue to be conducted as necessary to ensure proper structure and slope stabilization, and eradicate exotic & nuisance vegetative cover within the filled ditches. Due to minimal lack of associated exotic seed source and gradual slope gradients, neither issue has presented any problems.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): All the wetland impacts are associated with three SR 72 segments located through and adjacent to Myakka River State Park (Figure A). The wetland enhancement and restoration activities appropriately compensate for unavoidable wetland impacts that have similar habitat conditions and located adjacent to the wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks were permitted in the Myakka River Basin during the period of adopting the SR 72 segments to the program.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The impacts are not within a SWIM water body and there are no freshwater SWIM projects within the Myakka River basin. However, the habitat improvements provide benefits to the Myakka River, an Outstanding Florida Water and designated as a Wild & Scenic River.

PROJECT IMPLEMENTATION

Entity responsible for construction: FDEP, Division of Recreation and Parks selection of a private contractor

Entity responsible for monitoring and maintenance: FDEP – Park staff

Proposed timeframe for implementation: Design- 1998 - Design First Phase Construction – 2002-2003 Second Phase Construction - 2006-2012 Maintenance & Monitoring - 2003 – 2013 Complete: 2013

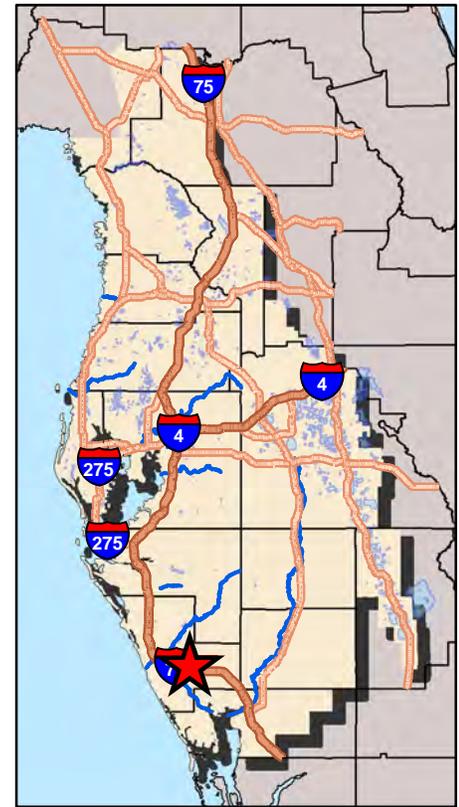
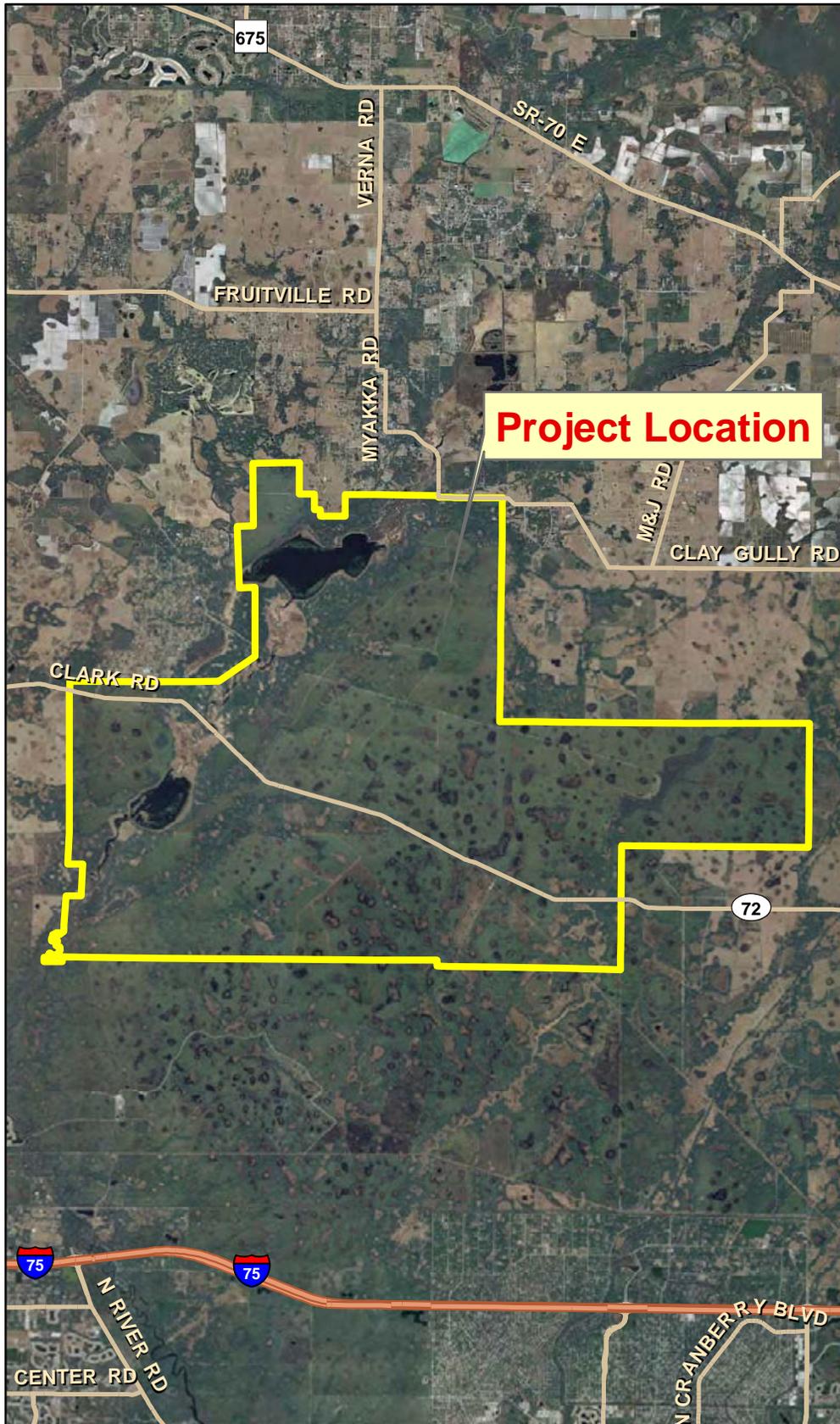
Project cost, estimated: \$580,000 (total)

ATTACHMENTS

1. Figure A-Location

SW 51 - Myakka River State Park

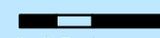
Figure A - Project Location



Legend

 Project Location



 Miles
0 0.5 1 2

SW-52 LITTLE PINE ISLAND MITIGATION BANK MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	Yes
Mitigation Type	Mitigation Bank			
Landowner	Board of Trustees of the Internal Improvement Trust Fund	Management Entity	Private	
County	Lee	Watershed	Charlotte Harbor	
Water bodies	Charlotte Harbor	Water body Designations	SWIM water body	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1937941	SR 776-CR 771 to Willow Bend Rd. ¹	2.08	4316676.000	1996-01986
1984711	Trabue Harborwalk Bike Path	0.16	4417560.001	1997-05303
4046971	I-75 Widen Bridge over Peace River ²	2.75	43021917.000	2001-02749
4130423	I-75 – Tucker’s Grade to N. Jones Loop Rd.	1.10	43035560.000	2001-01386

PROJECT DESCRIPTION

A. Overall project goals: Little Pine Island Mitigation Bank (LPIMB) includes habitat enhancement and restoration within state-owned property (FDEP’s Charlotte Harbor Buffer Preserve) that had extensive coverage of exotic vegetation, particularly Melaleuca, Brazilian pepper and Australian pine. The goal of LPIMB is to eradicate exotic vegetation from

1 An additional 8.92 acres of wetland impacts are mitigated at SW 31 Cattle Dock Point, Phase II.

2 An additional 0.8 acres of mangrove impact are mitigated through on-site restoration activities described in SW 69 Peace River Bridge Restoration.

approximately 1,600-acres of disturbed coastal marsh, salt flats, mangroves, and pine flatwoods. This included constructing temporary haul roads restoring wetland grades and associated hydrology by backfilling approximately seven miles of mosquito ditches.

B. Brief description of pre-construction habitat conditions: Mangrove species existed within undisturbed portions, particularly along the perimeter of the 4,700-acre island (aerial photos). However due to historic construction of mosquito ditches, the altered hydrology resulted in the substantial invasion and dominance of exotic species such as Australian pine, Brazilian pepper and predominantly Melaleuca that formed very dense populations over half of the 1,600-acre restoration area.

C. Brief description of construction activities and current habitat conditions: Commencing in 1997, the LPIMB construction activities primarily included exotics eradication and restoring appropriate wetland grades by filling the mosquito ditches with the adjacent spoil piles (Figure B), thus resulting in restoration of appropriate wetland hydrology. The eradication of exotic species included mechanical cutting and mulching the tree material. The mulch quantity (average 30 tons of biomass per acre; over five million Melaleuca trees) was too extensive as an on-site soil amendment because the dense coverage would substantially limit the regeneration of native vegetation. Instead, the mulch was hauled and burned as a fuel source by at a sugar processing plant. As eradication and hydrologic restoration were conducted, native herbaceous and shrub species naturally regenerated with minimal need for supplemental planting. In order to access and restore the site without turbidity, impermeable liners were used to enclose the fill roads used to haul cut vegetation to the mulching machine. After all the exotic vegetation was cut and removed from the site, herbicide treatment of the stumps and spraying of any regenerated exotics have continued on a routine schedule. Due to the fact a private entity sponsor (Mariner Properties) has conducted habitat restoration within FDEP-owned public lands, extensive construction requirements have been mandated and adopted by the mitigation bankers. Mariner established a trust fund to provide financial assurance for the perpetual maintenance and monitoring of the restored area by FDEP after all the credits have been sold. In addition, LPIMB credit sales will generate approximately \$1.5 million in user fees that will be provided to FDEP for perpetual maintenance of restored habitat. The restored habitats have resulted in attracting a return of diverse and substantial wildlife populations, particularly a variety of wading birds. Details on the restoration project and wildlife utilization are available through the bank's website address: (www.littlepineisland.com).

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The LPIMB is conducting restoration and enhancement of freshwater and saltwater herbaceous and forested wetland habitats that appropriately and adequately compensate for FDOT wetland impacts with similar habitat functions and benefits in the Charlotte Harbor Basin.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: This mitigation bank is authorized by DEP/WMD permit #

362434779 and Army Corps of Engineers permit # 199400037 (IP-GS). The LPIMB is a private mitigation bank conducted on public lands owned by FDEP.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there was not a SWIM-sponsored project proposed in the Charlotte Harbor watershed that could adequately and appropriately compensate for the proposed wetland impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: Mariner Properties, Inc.

Entity responsible for monitoring and maintenance: Mariner Properties, Inc.

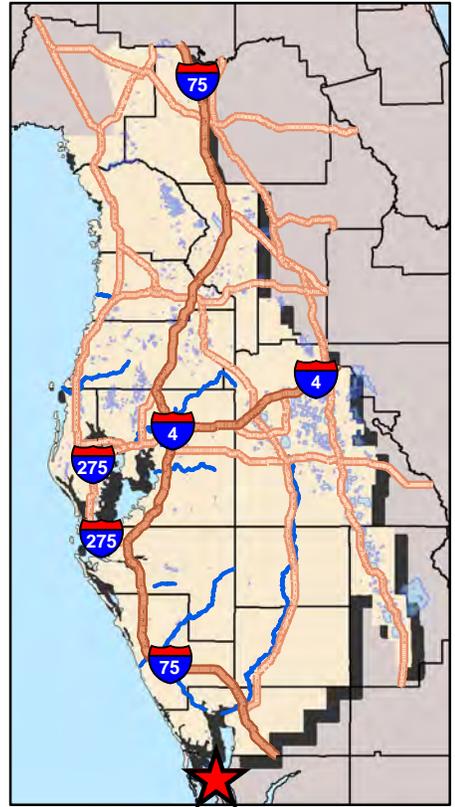
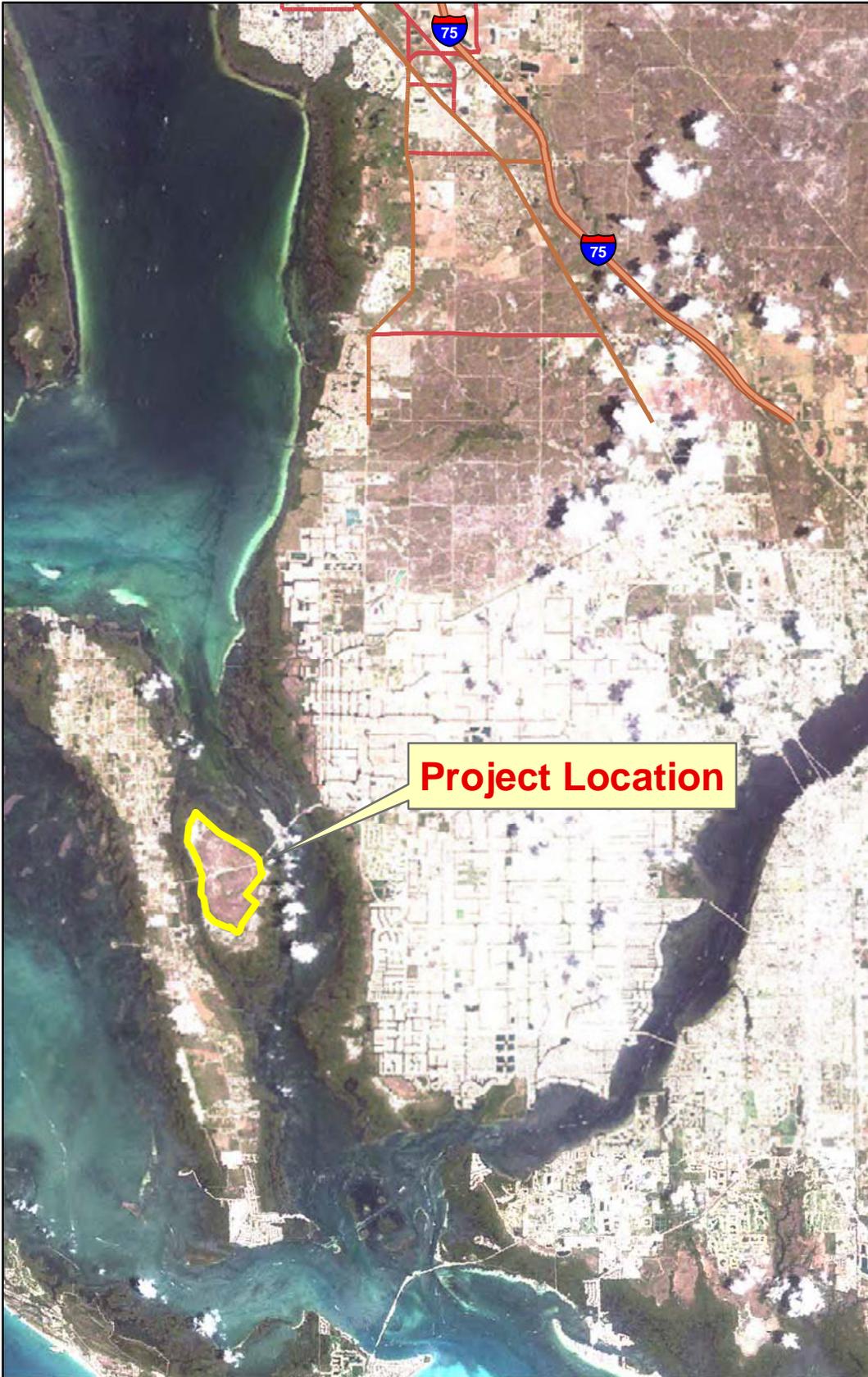
Proposed timeframe: Commence: 1997 Complete: Construction and exotics eradication were completed by 2009, current routine herbicide treatments to maintain mitigation success criteria, perpetual land management and maintenance activities will continue by FDEP.

Project cost, credit purchase: \$294,630 (total)

ATTACHMENTS

1. Figure A-Location

SW 52 - Little Pine Island Mitigation Bank Figure A - Location



Legend

 Project Location


N
W E
S

 Miles
0 1 2 4

SW-53 BORAN RANCH MITIGATION BANK MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	Yes
Mitigation Type	Mitigation Bank			
Landowner	Private		Management Entity	Private
County	Desoto		Watershed	Peace River
Water bodies	Un-named		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1937911	US 17 (SR 35) CR 74 to CR 764 North	0.27	4113562.002	1995-00627
1937981	US 17 (SR35) CR 764 South to CR 764 North	3.60	4317646.002	1995-00267
1938851	SR 72 Sarasota Co. Line to SR 70	1.19	4317646.000	1998-01103
1941021	US 17 (SR 35) SR 64 to Peace River Bridge	2.30	4316955.000	1994-05245
1986371	Ft. Green/Ona (Seg. 2) Vandola to North of Vandolah	7.22	4317734.001	1998-01201
1986381	Ft. Green/Ona (Seg. 3) SR 64 to Vandolah Rd.	5.23	4317734.002	1998-01201
1986401	Ft. Green/Ona Road (Seg. 1) Vandolah to SR 62	2.08	4317734.000	1988-01201
4154901	US 17 Charlotte C.L. to SW Collins ¹	1.98	43013044.006	2007-04765 (IP-JF)

¹ This roadway segment also has proposed forested wetland impacts, compensated by purchasing forested wetland credits from the Peace River Mitigation Bank (SW 85) located in Hardee County.

PROJECT DESCRIPTION

A. Overall project goals: Restoration, enhancement and preservation of freshwater forested and non-forested wetlands previously impacted by agricultural ditching. Restoration and preservation of upland habitat conditions.

B. Brief description of pre-construction habitat conditions: The site is comprised of 132 wetland acres and 272 upland acres (total – 404 acres). Wetlands and uplands were historically drained by agricultural ditches and converted to improved pasture for cattle grazing (Figure B, 1994 aerial). Some of the uplands have flatwood habitat that was preserved as part of the mitigation plan. Along with filling ditches, some of the pasture required minor grading to lower elevations in order to restore appropriate marsh elevations and associated hydroperiods.

C. Brief description of construction activities and current habitat conditions: Riser structures were installed in three outfall ditches to enhance & restore proper wetland hydrology. The top six inches of the pasture surface soils were scraped & stockpiled, followed by grading and removing the underlying six inches of soil matrix. The stockpiled topsoil was evenly distributed across the constructed wetland grade, which allowed appropriate hydroperiods for creation and regeneration of marsh and wet prairie habitat. This is evident in the restored wet prairie marsh depicted on Figure C (2010 aerial). The existing native upland habitat was preserved and converted uplands planted with appropriate species. The project is currently in the maintenance, monitoring and land management period, which includes implementation of a prescribed burn plan.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The mitigation enhances, restores and preserves wetland and upland habitat that appropriately and adequately compensate for the proposed wetland impacts. The following information indicates the wetland impact, habitat type (FLUCFCS), and associated mitigation habitats & credits purchased for the FDOT projects permitted for mitigation at the BRMB:

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The BRMB is a mitigation bank authorized by DEP/WMD permit #: 4914074.04 and Army Corps of Engineers permit # 1996-01134 (IP-ML).

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During mitigation selection, there were no SWIM projects available or currently proposed within the Peace drainage basin to offset the anticipated wetland specific impacts associated with the identified road projects.

PROJECT IMPLEMENTATION

Entity responsible for construction: Boran Ranch Mitigation Bank

Entity responsible for monitoring and maintenance: EarthBalance

Proposed timeframe for implementation: Commence: 1998 Complete: Construction complete, currently maintenance, monitoring, and land management activities.

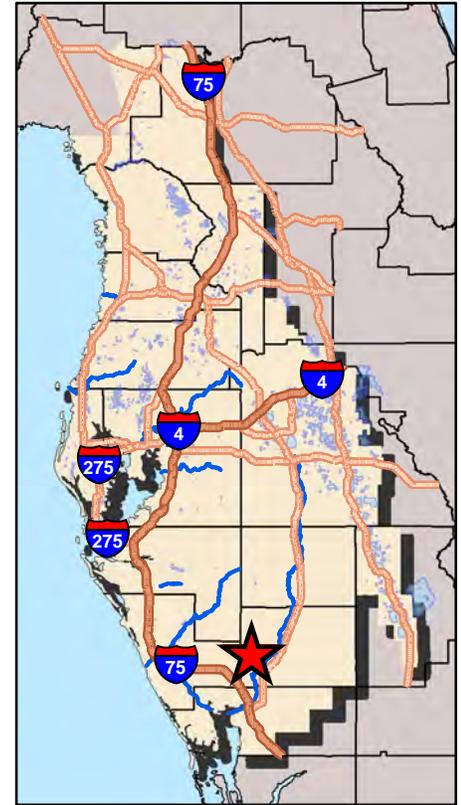
Project cost, credit purchase: \$759,360 (total)

ATTACHMENTS

1. Figure A-Location

SW 53 - Boran Ranch Mitigation Bank

Figure A - Location



Legend

 Project Location



0 0.125 0.25 0.5 Miles

SW-54 ANCLOTE PARCEL MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland creation, enhancement and preservation			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Pasco		Watershed	Upper Coastal Drainage
Water bodies	Anclote River		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2563361	SR 54 Mitchell to Gunn	6.60	43016251.002	199905202 (IP-RGW)
2563391	SR 54 Suncoast to US 41	7.00	43016251.000	199504576 (IP-ES)

PROJECT DESCRIPTION

A. Overall project goals: Public agency (SWFWMD) acquisition, enhancement, and long-term management of 179 acres of high quality habitat including a portion of the Anclote River and associated mixed hardwood floodplain forest, mixed forested wetland (cypress dominant), and buffers of pine flatwoods, and oak hammocks. Mitigation also includes creation of 6-acres of freshwater marsh (Figure B) in a borrow pit that existed on the property. Perpetual management is being conducted by the WMD-LAND Resource Dept. and primarily includes prescribed burns.

B. Brief description of pre-construction habitat conditions: Prior to public acquisition, the tract's habitats were in relatively high quality condition except for the borrow pit and the lack of prescribed burn management in the uplands. Wetland and upland conditions adjacent to the Anclote River includes high quality habitat characteristics that form wildlife & habitat corridors connecting to adjacent public lands associated with over 18,000 acres of property owned and managed by the SWFWMD (Figure A - J.B. Starkey Wilderness Preserve &

Serenova Tract). The mixed forested wetland habitat includes a diversity of tree species such as bald cypress, water oak, latural oak, swamp tupelo and red maple. The wetlands are bordered by pine flatwoods and live oak hammocks.

C. Brief description of construction activities and current habitat conditions: For preservation mitigation credit, the FDOT mitigation program reimbursed the WMD for the 185 acre acquisition. A borrow pit (total 10 acres) has been filled to provide marsh habitat (6 acres – FDOT mitig.) and surrounded by a perimeter of cypress (4 acres – County mitig. for Starkey Blvd.). Of that total area, the WMD constructed 6 acres of freshwater marsh by filling and planting an existing borrow pit (currently under maintenance and monitoring). The adjacent perimeter 4 acres cypress-dominated wetland creation will also be deeded to the WMD upon achieving mitigation success criteria. The uplands have been enhanced by implementing a prescribed burn management plan as an extension of adjacent WMD property, burn cycle 4-5 years.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The mitigation creates and preserves wetlands providing functions similar to those lost due to the expansion of two SR 54 roadway segments located two miles south of the mitigation area (Figure A). The preserved wetlands are buffered by the preservation and enhancement of upland habitat. Other than the two SR 54 segments, there are no additional wetland impacts associated with other roadway projects proposed for mitigation at the Anclote Parcel. The acquisition, preservation, and enhancement of this 185 acre tract appropriately and adequately mitigates for the 13.7 acres of wetland impact at a cumulative ratio of 14 to 1.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks were proposed in the Upper Coastal drainage basin during mitigation selection.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: No SWIM projects were proposed in the Upper Coastal basin during the mitigation selection process.

PROJECT IMPLEMENTATION

Entity responsible for construction & management: Southwest Florida Water Management District – Land Resource Division.

Timeframe for implementation: Commence: July 1999 Acquired: April, 2000, followed by perpetual management

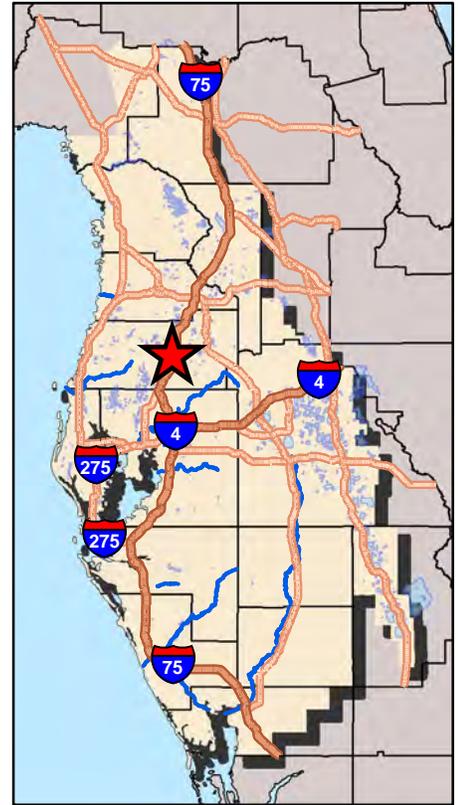
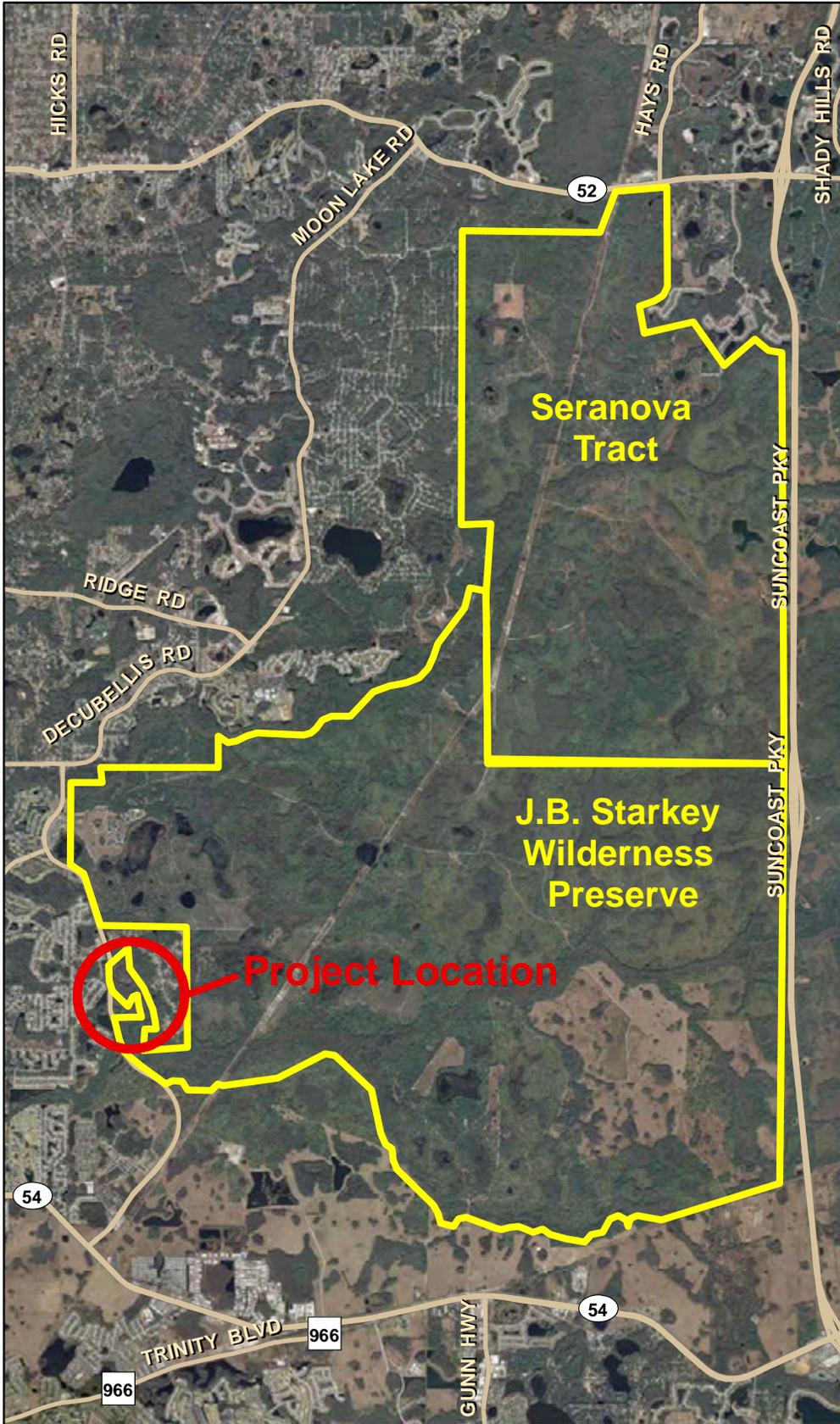
Project cost: \$675,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Habitat Conditions (2009)
3. Photographs (undated)

SW 54 - Anclole Parcel

Figure A - Location



Legend

-  Project Location
-  J.B. Starkey Wilderness Preserve
-  Seranova Tract

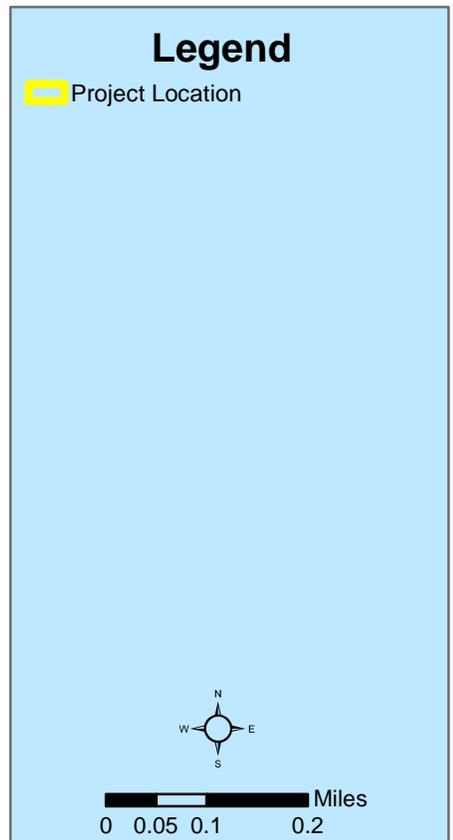
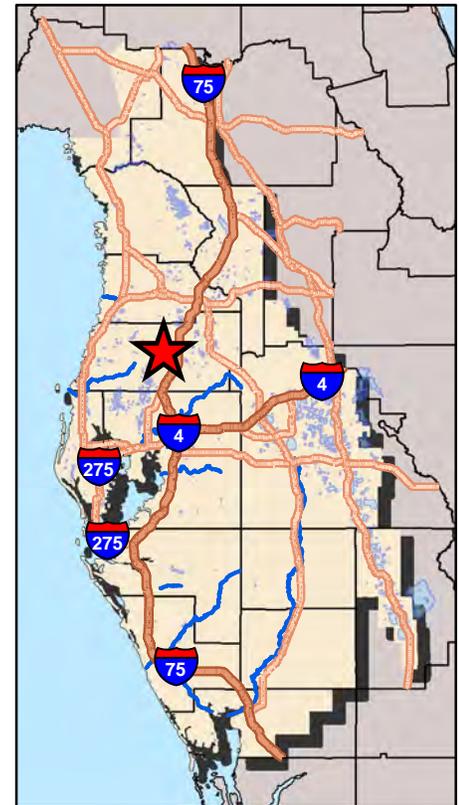
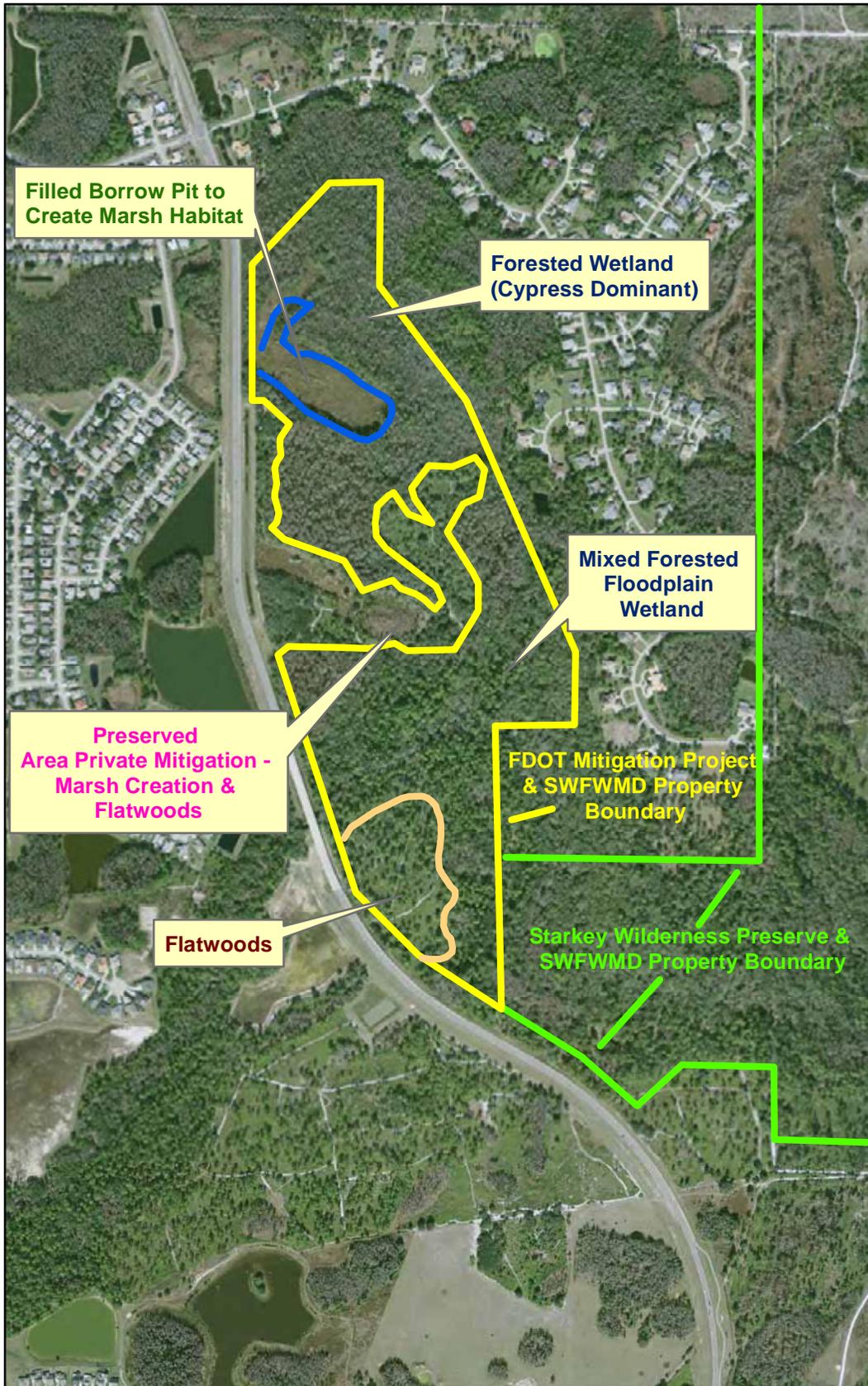




Miles

SW 54 - Anclole Parcel

Figure B - Habitat Conditions (2009)





The mixed forested wetland within the northern portion of the tract is dominated by bald cypress with additional dense canopy coverage provided by red maple, tupelo, dahoon holly, and a perimeter of water & laurel oaks.



The Anclote River meanders through the southern portion. The river has an incised channel predominantly bordered with forested wetlands dominated by laurel oak, red maple, and cabbage palm.



One of the flatwood communities at the site. These areas have not received prescribed burns for several years, allowing the overgrowth of palmetto and generation of wax myrtle and oak species.



One of several small oak hammocks located along the perimeter of some wetlands and sand deposits formed due to periodic overflow of the Anclote River..

SW-55 UPPER HILLSBOROUGH 4 & 5 MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland restoration and enhancement			
Landowner	Southwest Florida Water Management District	Management Entity	Southwest Florida Water Management District	
County	Pasco	Watershed	Hillsborough River	
Water bodies	Hillsborough River	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2012081	I-4 - County Line to Memorial Blvd. -Sec. 1	13.55	4311869.009	199501846

PROJECT DESCRIPTION

A. Overall project goals: Prior to restoration, the SWFWMD's Upper Hillsborough property had a large drainage ditch (total 1.4 miles) and adjacent elevated tram road constructed through and along the perimeter of wetland habitats. The ditch severely dewatered, drained and diverted the groundwater and surface water of wetlands, discharging the water into the headwater wetland floodplain of the Hillsborough River. The goal was to grade the tram road to backfill the ditch, thus restoring appropriate wetland grade elevations and associated hydrology to enhance the existing wetland habitats, while restoring wetlands within the footprint of the tram road and ditch.

B. Brief description of pre-construction habitat conditions: The designated project area (320 acres) included the most northern portion of the WMD's Upper Hillsborough tract, which is also contiguous to thousands of acres of the WMD's Green Swamp Wilderness Preserve (Figure A). The drainage ditch was large (30-40 ft. wide, 5-8 ft. in depth), draining the groundwater associated with the adjacent wetlands. The adjacent tram road (15-20 ft. wide, 3-5 ft. above natural grade) was located along the north side of the ditch. The tram road would

stop and divert any minimal surface water away from the historic drainage pattern that contributed to downstream wetlands south of the ditch (Figure B). The majority of the enhanced wetlands (113 acres) are mixed forested systems, and there are two non-forested wetlands (9 acres) that were borrow pits dredged within former upland habitats. The wetlands exhibited various signs of stress from decreased water levels such as tree fall, soil loss, upland species encroachment, and changes in plant species composition. For example, laurel oak and red maple recruited and generated within the cypress/tupelo-dominated forested wetlands, and nuisance upland species such as pokeweed and dog fennel invaded the forested wetlands and the marshes.

C. Brief description of construction activities and current habitat conditions: The ditches were backfilled from the adjacent tram fill material during the spring and summer, 2001. Some of the restored wetland grades were planted with cypress to aid in restoring 12 acres of marsh and forested wetlands within the footprint of the former ditch & tram road. Hardwood and cypress saplings have also naturally recruited within the restored wetland footprint. Eleven surficial aquifer monitor wells were installed within the proposed wetland enhancement areas during the construction period in Spring 2001, during which time there was no groundwater within six feet of the surface grade elevation at each of the associated wetlands. Since completion of construction, the groundwater and surficial hydrology and hydraulic drainage flow patterns have been restored to historic conditions (Figure C, photos); with appropriate surface water hydroperiods during the rainy seasons. The restored hydrology has resulted in the mortality of nuisance and upland species, allowing for the recruitment and natural regeneration of hardwood species, maidencane, ferns, and other appropriate hydrophytic species within the natural and restored wetland areas. Cypress saplings planted in 2001 have achieved heights of 25-30 feet in 2009. The restored and enhanced wetland habitats have resulted in an increase in wildlife diversity and access, providing more foraging and denning opportunities.

Success criteria includes documentation of hydrologic restoration of the enhanced wetlands and vegetative re-establishment in the filled ditches, and eradicating and maintaining exotic vegetation below 1% coverage within the enhanced and restored wetlands. Annual monitoring conducted through 2009 conduct qualitative evaluation of the enhanced wetlands (habitat, vegetation, hydrology, wildlife). All success criteria has been achieved with semi-annual site evaluations conducted to ensure success is maintained.

Herbicide maintenance to eradicate nuisance & exotic vegetation is conducted as necessary to maintain success criteria; no maintenance activities have been necessary since 2005. Normal land management activities include periodic prescribed burns within the adjacent flatwood habitats.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Being located within a dense industrial area along the first segment of Interstate-4 (western-most segment in Polk County), the 13.5 acres of wetland impacts associated with the roadway improvements were very low quality systems. Restoration construction within the Upper Hillsborough tract has resulted in large-scale, regional improvements to wetland

functions and ecological benefits that appropriately and adequately compensate for the low quality wetland impacts. No wetland impacts other than those associated with the construction of the first segment of Interstate-4 in Polk County are designated for mitigation at the Upper Hillsborough 4&5 project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: No mitigation banks were existing or proposed in the Hillsborough River drainage basin during the selection of mitigation for the I-4 wetland impacts.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The only SWIM project within the basin at the time of mitigation selection was Lk. Thonotassassa (SW 34); which provides mitigation to off-set wetland impacts associated with another FDOT project.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD, Operations Division

Entity responsible for monitoring and maintenance: SWFWMD – Regulation Performance Mgmt. & Land Management

Proposed timeframe for implementation: Commence: January 1999, Planning & Design Complete: September 2001 (Construction); followed by periodic maintenance and perpetual management.

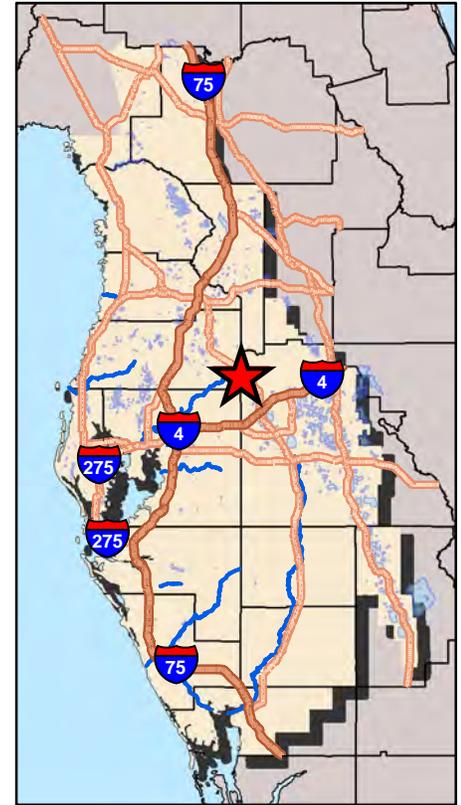
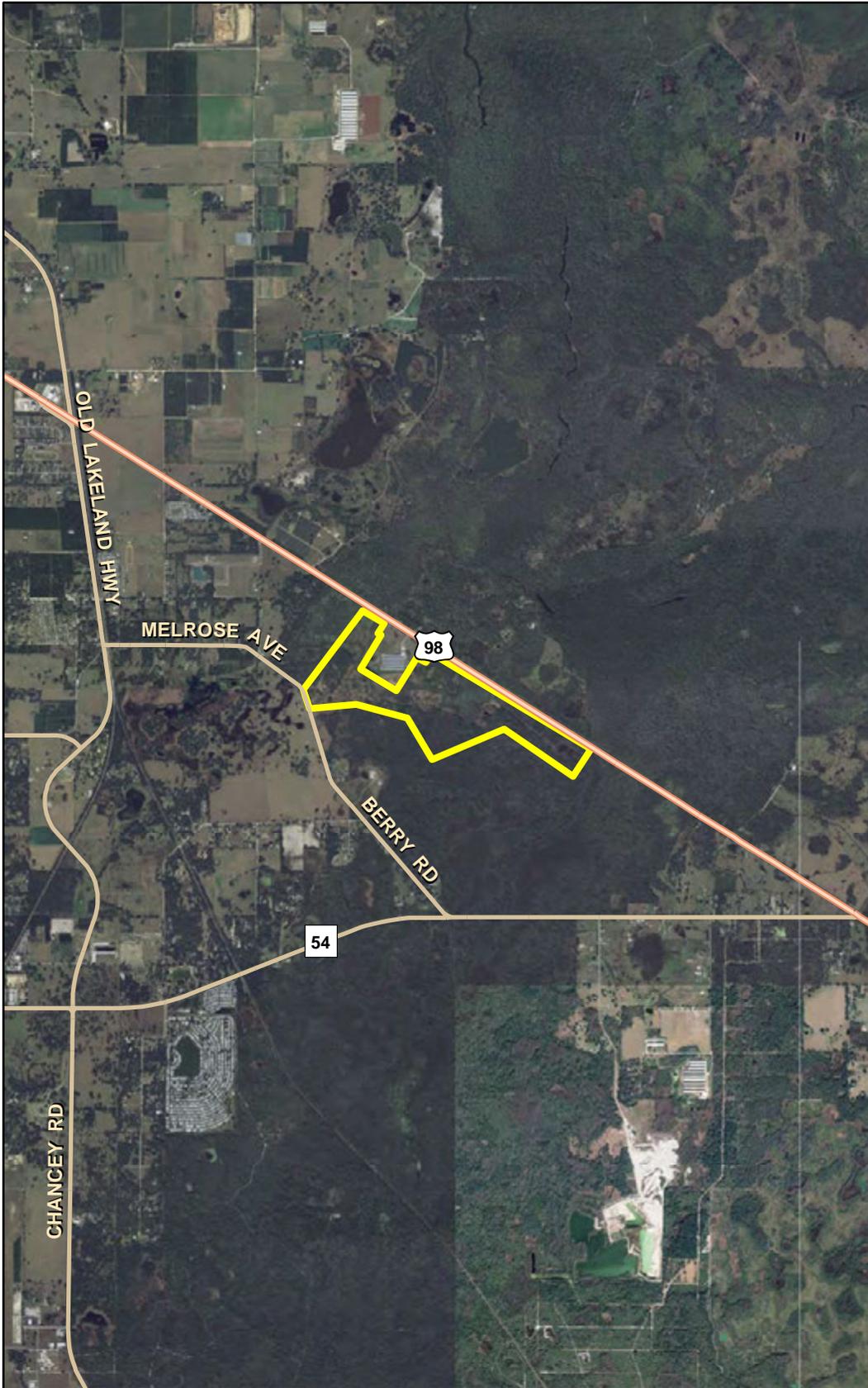
Project cost: \$230,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1970s)
3. Figure C-Post-construction (2006)
4. Photographs (2000, 2001, 2009)

SW 55 - Upper Hillsborough 4 & 5

Figure A - Location



Legend

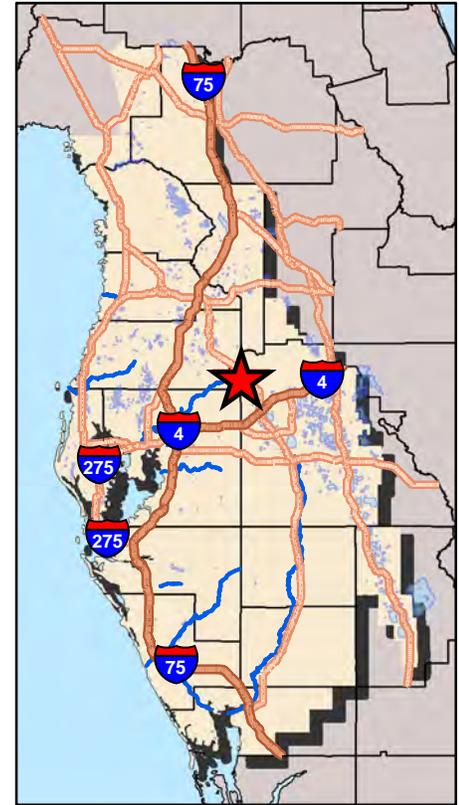
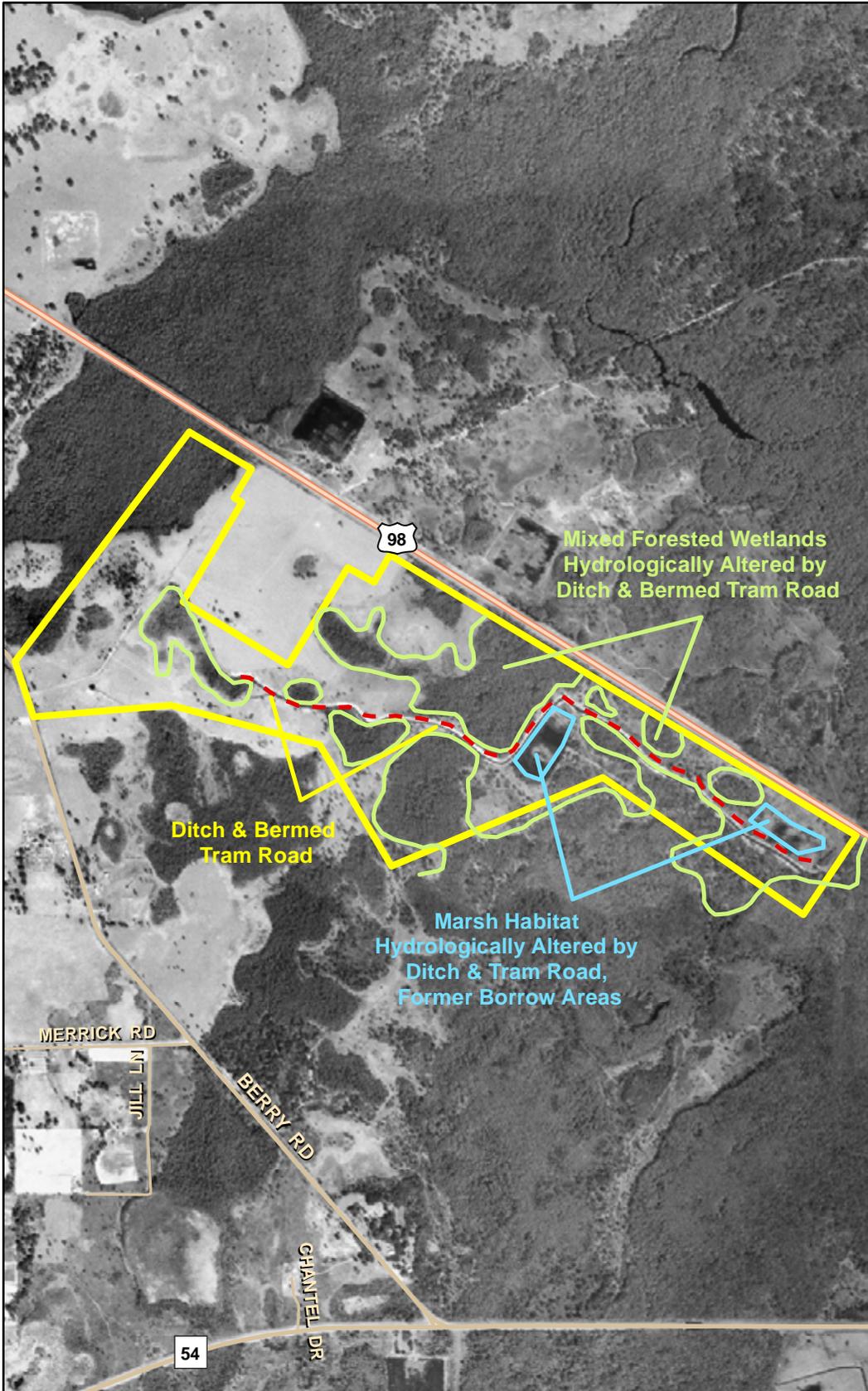
 Project Location



0 0.25 0.5 1 Miles

SW 55 - Upper Hillsborough 4 & 5

Figure B - Pre-Construction (1970s)



Legend

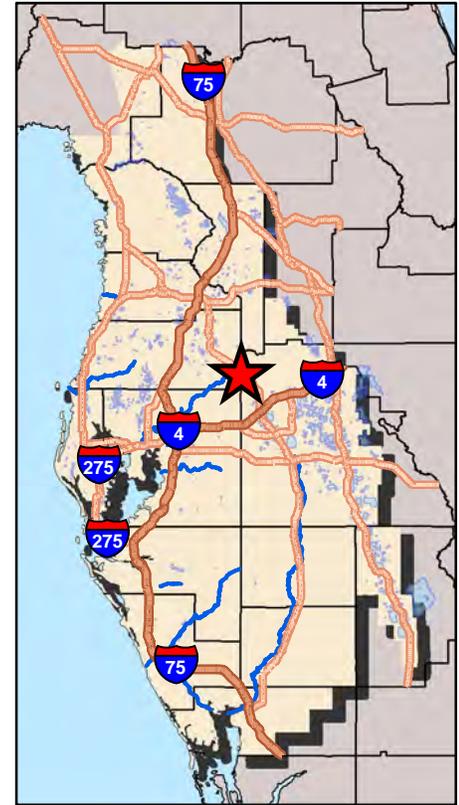
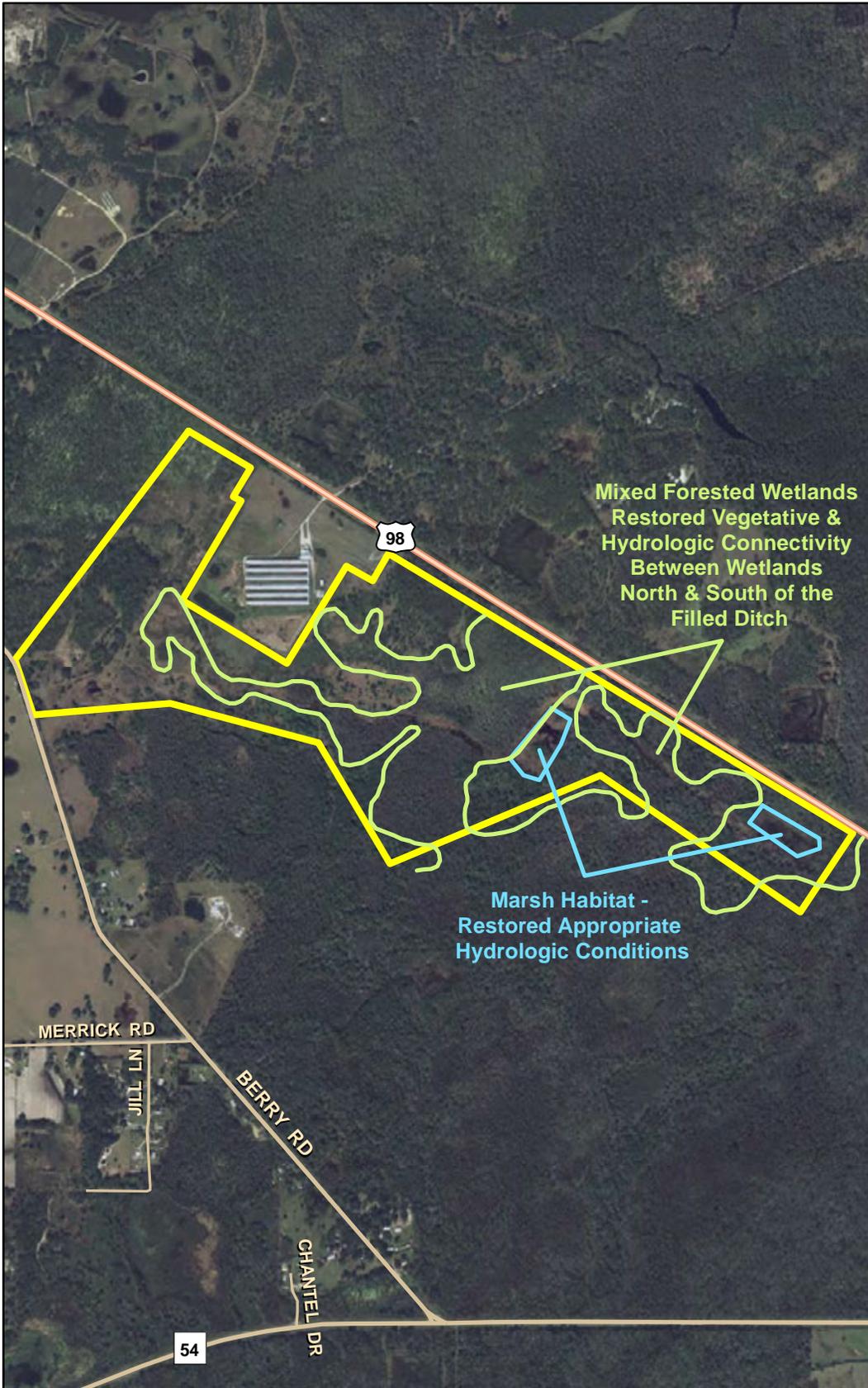
 Project Location



0 500 1,000 2,000 Feet

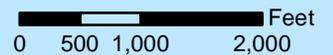
SW 55 - Upper Hillsborough 4 & 5

Figure C - Post-Construction (2006)



Legend

 Project Location





Spring, 2001 – view of the 1.3 mile east-west ditch prior to construction. The associated tram road fill material is located adjacent to the road (right). The substantial ditch dewatered the adjacent wetlands and the tram road diverted historic wetland drainage flow patterns.



Summer, 2001 – same view as above, the ditch has been backfilled with the tram fill material. Ground and surface water sheet flow hydrology and associated hydroperiods have been restored to adjacent wetlands and within the footprint of the ditch & tram road.



Summer, 2009 – same view as the previous photos. The restored wetland grade has naturally generated with herbs such as maidencane and broomsedge. Planted cypress and generated hardwoods & shrubs (e.g. red maple, sweet gum, wax myrtle) are present along the forested wetland edge (left).



Summer, 2009 – majority of cypress planted within filled ditch has grown to heights taller than 20 ft., with hardwood saplings recruiting & generating within herbs.



Summer, 2000 – along with bisecting some wetlands, ditch was also located along the perimeter of some wetlands (right), with associated deposited fill (left) blocking and diverting contributing flow to the wetlands.



Summer, 2001 – same view of ditch segment after backfilling spoil material into the ditch. Some oak trees (left) were preserved from the earthwork activity.



Summer, 2009 – the preserved laurel oak on the slight mound (center) was present along the lower inner edge of the tram road; the removed road (left) and filled ditch (right) has naturally generated ephemeral wetland habitat with slash pine & maple recruited over generated sedges.



Summer, 2009 – this filled ditch and removed road segment has generated dense coverage of maidencane and soft rush that recruited from adjacent cypress dome.



Summer, 2000 – prior to construction, monitor wells installed within wetlands have water levels consistently 4-5 feet below grade. No water stains on the well casings indicate the lack of adequate & appropriate hydroperiods.



Summer, 2009 – as evident by the water stains on the well casing, restored hydrology has resulted in appropriate surface water hydroperiods within the wetlands during the rainy season.

SW-56 COCKROACH BAY - FRESHWATER MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland creation, wetland and upland restoration			
Landowner	Hillsborough County	Management Entity	Hillsborough County	
County	Hillsborough	Watershed	Tampa Bay Drainage	
Water bodies	Tampa Bay, Cockroach Bay	Water body Designations	SWIM water body	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2555991	SR 676 (Causeway)-US 301 to US 41 ¹	1.40	43027063.000	2004-5583 (IP-MIS)
2557031	SR 60 Cypress St. to Fish Creek ²	0.80	43002958.004	200205816 (IP-MN)
2558881	US 301- Sligh to Tampa Canal ¹	3.00	43024246.000	200206711 (IP-JPF)
2568812	US 19 (SR 55) – Seville Dr. to SR 60	0.20	44025287.002	20062199 (IP-JPF)
2569571	US 19 SR 60 (Drew) to Railroad Crossing	0.50	4411760.000	199400606 (NW-PB)
2569941	CR 296 Connector, 40 th St. to 28 th St	1.00	43008898.006	20031070 (IP-JPF)
2569942	CR 296 Connector, NB I-275 (Ramp P) to WB SR 686	1.10	43018980.001	20049454 (IP-JPF)

1 Wetland impacts are also offset at SW-71 Boyd Hill Nature Park.

2 Wetland impacts are also offset at SW-62 Tappan Tract, SW-75 Cockroach Bay – Saltwater and SW-67 Apollo Beach.

PROJECT DESCRIPTION

A. Overall project goals: Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hillsborough County Conservation Section) effort of habitat creation and restoration on property acquired by Hillsborough County (total 651 acres, Figure A). Through the SWIM Section, the SWFWMD primarily assisted the County with managing the design, construction and creation of the wetland habitats. Hillsborough County conducts the perpetual maintenance and management of the public lands at Cockroach Bay. This designated mitigation area includes freshwater marsh habitat creation (26 acres) that is buffered by the restoration of coastal hammock habitat buffer (7 acres).

B. Brief description of pre-construction habitat conditions: The project site was historically converted from flatwood habitat to row crops. After public acquisition, agricultural activities discontinued and the area was allowed to go fallow; resulting in a dominance of nuisance and exotic species such as Brazilian pepper, elderberry, ragweed, fennel, and various nuisance grass species.

C. Brief description of construction activities and current habitat conditions: The wetland creation activities were constructed on two designated areas, a 20 acre area separated with another 20 acre upland restoration and enhancement area from another 14 acre wetland creation area. The initial activity included site clearing to remove all the exotics and nuisance species. Groundwater monitoring conducted at the sites for a couple years prior to construction aided in determining the appropriate construction of wetland grade elevations necessary to achieve variable hydroperiods within the emergent zones and wet prairies of the marshes. Planting of appropriate species within the marshes was conducted after construction, as well as planting of coastal hammock habitat to help buffer the wetlands. Supplemental plantings within the marsh habitat was conducted in 2006, and routine herbicide maintenance eradicates any recruited and generated exotic and nuisance vegetation; which has been primarily limited to minimal cattail populations.

Prior to construction, the exotic and nuisance species had recruited and generated throughout the fallow farm fields. Construction of palustrine marsh habitat provides a valuable component of habitat diversity for wildlife use to inter-relate between the restored upland and existing, restored, and created estuary habitat at Cockroach Bay. Due to the extensive design effort associated with the entire Cockroach Bay restoration, additional groundwater evaluation for the Cockroach Bay area was required to determine the extent of freshwater and various saltwater wetland creation and restoration components.

In the post-construction condition the dominant vegetation in the emergent marsh zones of both sites include black needle rush (*Juncus roemerianus*) and soft-stem bulrush (*Scirpus validus*). Subdominant species include arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), water hyssops (*Bacopa monnieri*), water pennywort (*Hydrocotyle umbellata*), saltmarsh aster (*Aster subsulatus*), and ludwigia (*Ludwigia leptocarpa*). Dominant vegetation in the high marsh/wet prairie includes sand cordgrass (*Spartina bakeri*), marsh-hay

cordgrass (*Spartina patens*), salt grass (*Distichlis spicata*), hairawn muhly (*Muhlenbergia capillaries*). Subdominant species include seaside oxeye (*Borriachia frutescens*). Cabbage palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*) and various sedge species provide the dominant species in the coastal hammock areas that buffer the constructed marshes. Cattails (*Typha* spp.) comprise less than 1% total coverage. Appropriate wetland hydrology and hydroperiods are present within the created marsh habitat, providing ephemeral marsh habitats of variable hydroperiods and concentrated emergent zones during the dry seasons.

The concentration and variation of surface waters in the marshes provides substantial foraging opportunities for wildlife use. The created marshes are buffered by upland restoration areas, including a 20-acre upland parcel located between the two designated mitigation areas. This combination and mosaic of upland and wetland habitats at Cockroach Bay provide more opportunities for wildlife access, foraging and denning. Observed and documented wildlife use of the project sites is extensive, evident by the substantial foraging opportunities available to the extensive bird populations that visit the created marsh habitats. Commonly observed species include red-winged blackbird (*Agelaius phoeniceus*), anhinga (*Anhinga anhinga*), great blue heron (*Ardea herodias*), cattle egret (*Bubulcus ibis*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), great egret (*Casmerodius albus*), turkey vulture (*Cathartes aura*), belted kingfisher (*Ceryle alcyon*), killdeer (*Charadrius vociferous*), black vulture (*Coragyps atratus*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), white ibis (*Eudocimus albus*), common moorhen (*Gallinula chloropus*), Florida sandhill crane (*Grus canadensis*), wookstork (*Mycteria americana*), white pelican (*Pelecanus erythrorhynchos*), double-crested cormorant (*Phalacrocorax auritus*), rosette spoonbill (*Platalea ajaja*), glossy ibis (*Plegadis falcinellus*), common grackle (*Quiscalus quiscula*), royal tern (*Sterna maxima*), American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), mosquito fish (*Gambusia holbrooki*), and raccoon (*Procyon lotor*).

The maintenance activities are conducted by a licensed herbicide contractor working for the SWFWMD through 2010, and predominantly associated with herbicide eradication and control of invasive exotic vegetation that primarily included minimal coverage of cattails generated in the emergent zones and Brazilian pepper in the coastal hammock. Maintenance was conducted quarterly for the first five years post-planting and has allowed for establishment of desirable plants and limiting exotic & nuisance vegetation. Periodic maintenance and prescribed fire activities are conducted as necessary by Hillsborough County Conservation staff to consistently achieve and exceed the success criteria. Conservation's maintenance crew is stationed at a building facility at the County's Cockroach Bay property, less than a mile from the designated mitigation area.

Monitoring was conducted semi-annually with annual reports prepared through 2008. Monitoring included qualitative evaluation and photo documentation of the mitigation area, evaluating and documenting species survival, coverage, wildlife use, exotic & nuisance species, and recommended actions necessary to ensure and enhance success. Monitoring reports were discontinued after 2008 since dense coverage of desirable species and minimal nuisance or exotics were present and maintained since 2006; thus limiting the ability for

cattails and other exotic species to recruit and generate. The site continues to be monitored at least a couple times a year to make sure the desired habitat conditions are maintained and evaluate wildlife use. The success criteria included a minimum 90% survivorship for planted material for one-year post planting (achieved with supplemental planting), a total 85% cover of planted and recruited desirable species, and less than 5% exotic and nuisance species cover. The site's success conditions consistently exceed the success criteria.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the roadway wetland impacts included low quality marsh habitat. The creation of palustrine marsh habitat (26 acres) and restoration of upland habitat buffer (7 acres) appropriately and adequately mitigate in advance for these impacts at a cumulative ratio of 4.3 to 1. Other than the wetland impacts associated with the seven roadway projects, no additional wetland impacts will be proposed for mitigation within this habitat project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the basin at the time of mitigation selection was the Tampa Bay Mitigation Bank, which is also within the Cockroach Bay area. However, the mitigation bank was not constructed nor had available mitigation credits during the period of mitigation selection for the wetland impacts.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This habitat project is part of a large County and SWIM effort to create and restore habitat within the Cockroach Bay property. The Cockroach Bay restoration effort is guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including agencies, landowners, and the Tampa Bay Mitigation Bank. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions. Ecosystems transition from upland to wetland habitat, followed by salinity gradients of freshwater to estuarine wetlands. A braided tidal wetland creation project was also selected and constructed in 2005 for the FDOT mitigation program (SW 75 - Cockroach Bay Restoration – Saltwater). Another 40 acre wetland creation area was constructed between the SW 56 & SW 76 projects to provide mitigation for wetland impacts associated with the extension of the Selmon Expressway (Figures A-E). Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the designated mitigation projects have been ecologically beneficial and very successful.

PROJECT IMPLEMENTATION

Entity responsible for construction: Contractors working for the SWFWMD-SWIM Section

Entity responsible for monitoring and maintenance: SWFWMD, Hillsborough County and contractor

Proposed timeframe for implementation: Commence: Design & Permitting, 2002-03

Complete: Construction & Planting, 2003-05, followed by semi-annual monitoring through 2008 and quarterly maintenance through 2010; followed by perpetual maintenance & management by the Hillsborough County Conservation Section when necessary. A prescribed fire through the habitats was conducted in the spring, 2009 that aided in generating new herb growth.

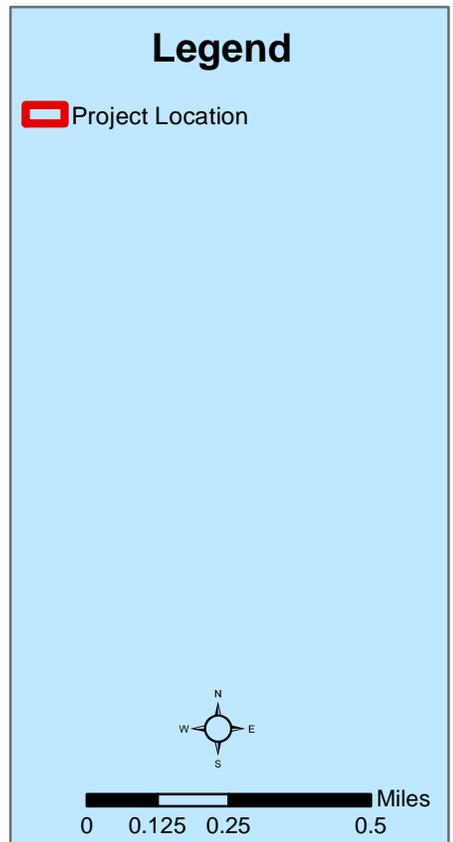
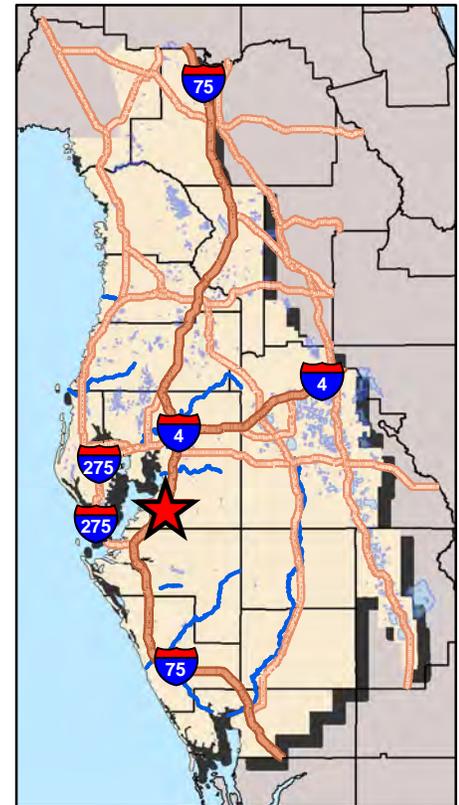
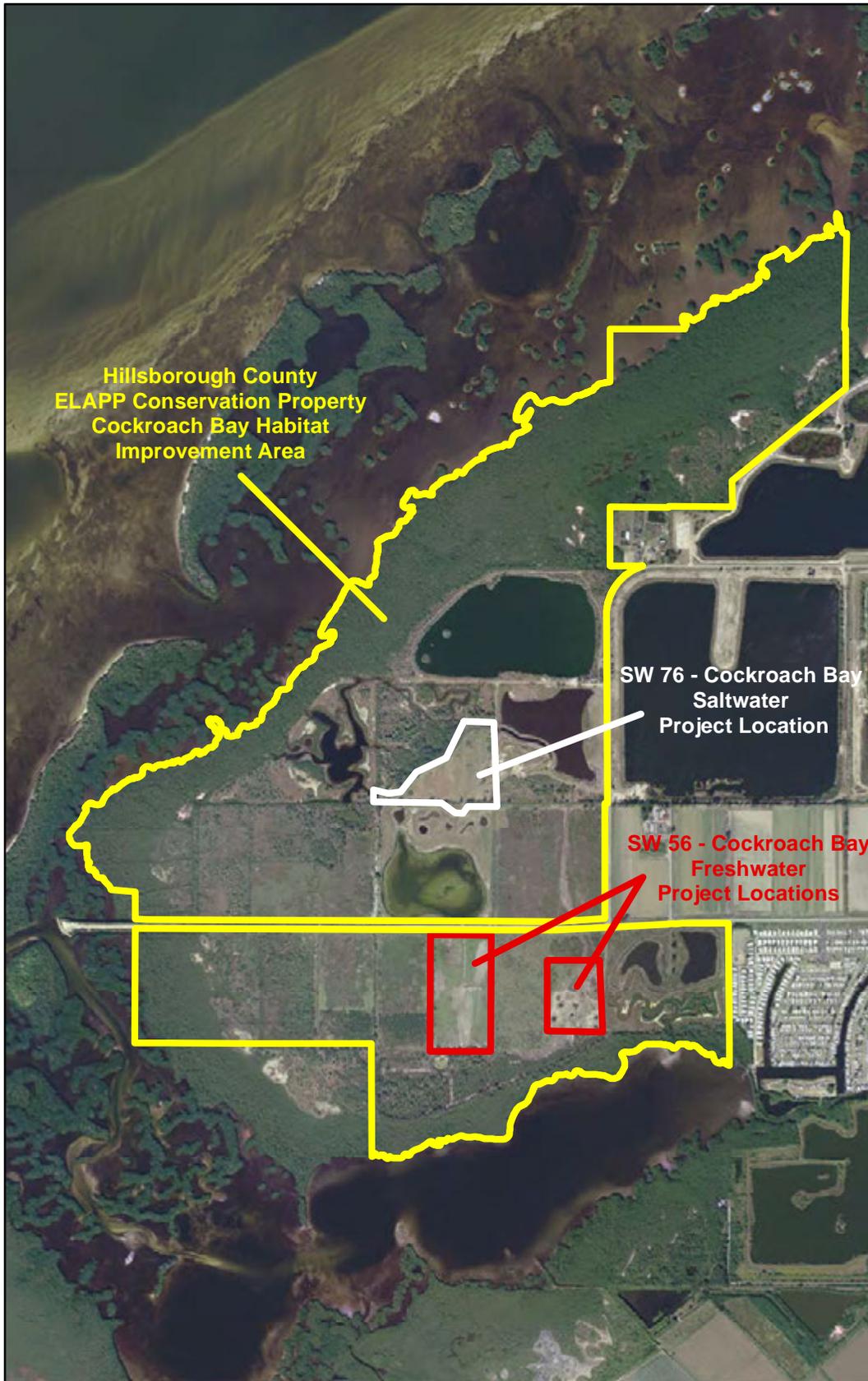
Project cost: \$741,458 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-During-construction (2004)
4. Figure D-Post-construction (2005)
5. Figure E-Post-construction (2009)
6. Photographs (2002, 2009)

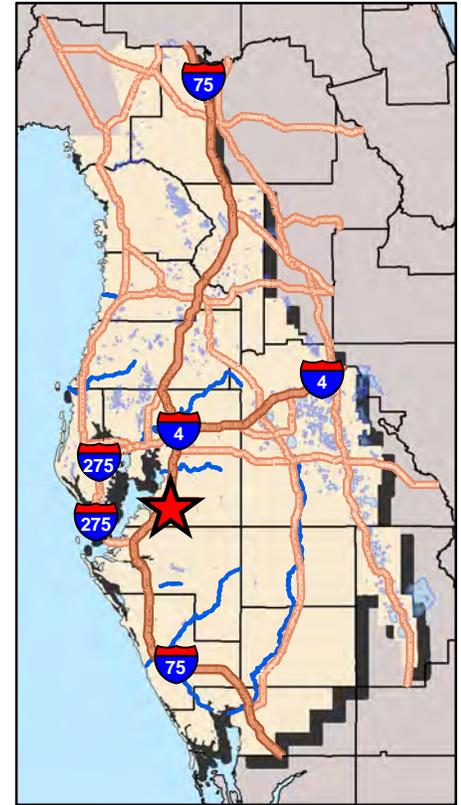
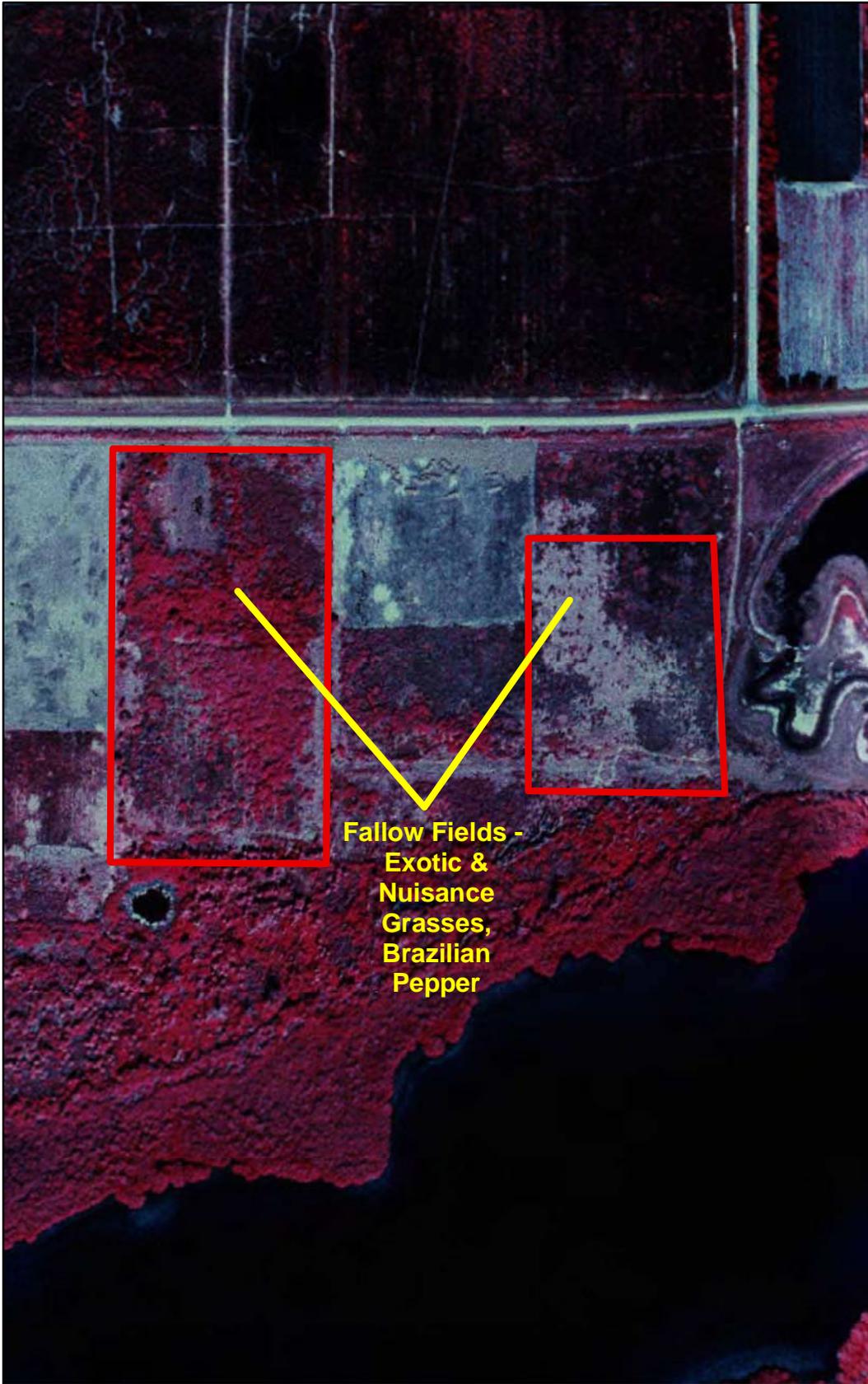
SW 56 - Cockroach Bay Restoration (Freshwater)

Figure A - Location



SW 56 - Cockroach Bay Restoration (Freshwater)

Figure B - Pre-Construction (1999)



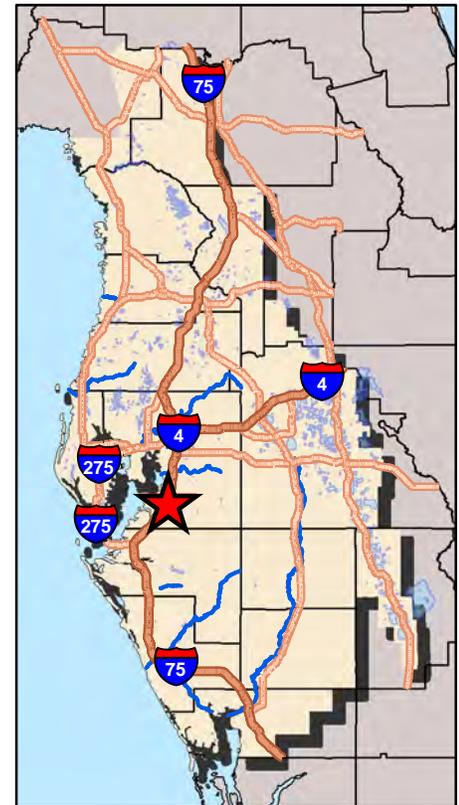
Legend

 Project Location



0 175 350 700 Feet

SW 56 - Cockroach Bay Restoration (Freshwater) Figure C - During Construction (2004)



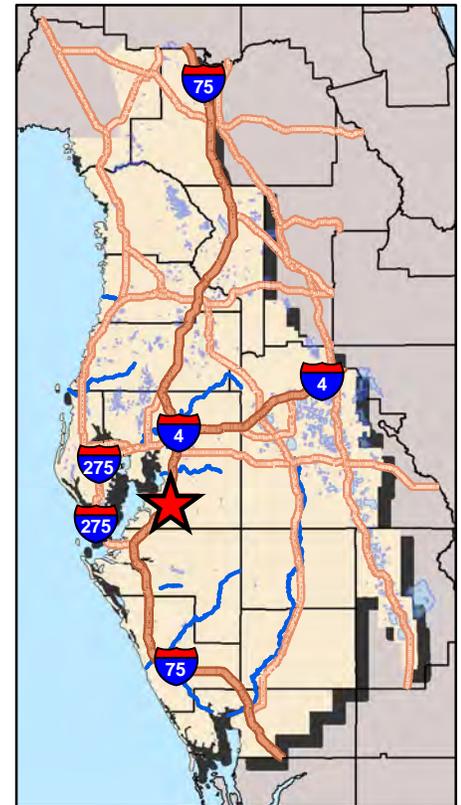
Legend

 Project Location



0 175 350 700 Feet

SW 56 - Cockroach Bay Restoration (Freshwater) Figure D - Post-Construction (2005)



Legend

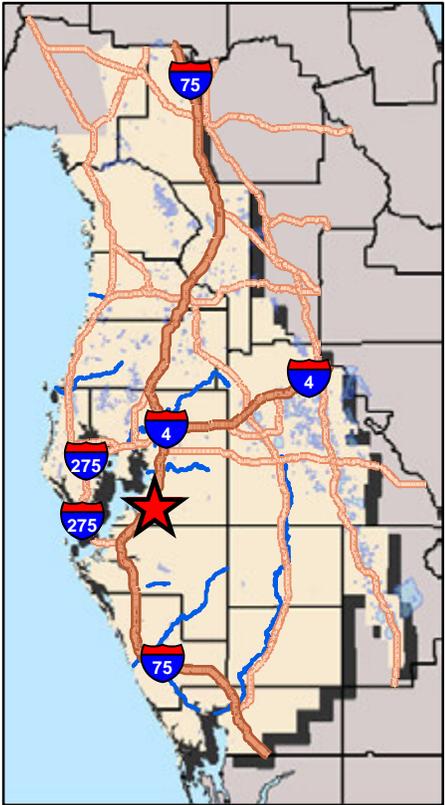
 Project Location



0 175 350 700 Feet

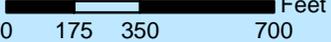
SW 56 - Cockroach Bay Restoration (Freshwater)

Figure E - Post-Construction (2009)



Legend

 Project Location





Pre-Construction (2002) – previously a row crop field prior to public acquisition, the site had generated extensive coverage of exotic and nuisance species such as Brazilian pepper, dog fennel, ragweed, ruderal grass species such as Guinea grass, and Australian pine.



Pre-Construction (2002) – view from Cockroach Bay Road looking south over the site. The low quality ruderal habitat would have eventually transformed into a dense thicket of Brazilian pepper. Scattered cabbage palms (right) were preserved within the marsh creation design & coastal hammock buffer restoration activities.



Current Post-Construction (2009) – created emergent marsh zones have dominant coverage provided by bulrush and black-rush, with additional coverage provided by pickerelweed, arrowhead, and water hyssops. The emergent zones have concentrated shallow surface water during the dry season, providing foraging opportunities for many wading bird and waterfowl species.



Current Post-Construction (2009) – created wet prairies have dominant coverage provided by sand cordgrass, salt-grass, broosedge, and hairawn muhly. These ephemeral zones provide foraging, nesting, and denning opportunities for wildlife species that also utilize the emergent zones and adjacent upland habitats. The project's southern limits and adjacent coastal hammock habitat bordering Cockroach Bay are evident in the background.

SW-57 LAKE PANASOFFKEE RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Sumter		Watershed	Withlacoochee River
Water bodies	Lake Panasoffkee		Water body Designations	SWIM water body, Outstanding Florida Water

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4063291	I-75, Lk. Panasoffkee Bridge	5.93	4320508.000	200000754 (NPR-KF)

PROJECT DESCRIPTION

A. Overall project goals: Restoration of Lake Panasoffkee fisheries habitat was the primary goal of the project, with secondary objectives of eradicating exotic and nuisance vegetation.

B. Brief description of pre-construction habitat conditions: Prior to restoration construction, Lake Panasoffkee suffered due to the extensive buildup of inorganic sediments and shallowing of the lake that destroyed extensive fisheries spawning and habitat, as well as substantial generation of nuisance and exotic emergent vegetation in the lake. The restoration plan incorporated several steps to improve the fisheries habitat, restore the shoreline, and facilitate navigation.

C. Brief description of construction activities and current habitat conditions: The Lake Panasoffkee Restoration Council recommended removal of the inorganic sediments from the lake bottom, with hydraulic dredging the major element of the restoration plan. The dredging followed a six step approach presented in the Lake Panasoffkee Restoration Plan (Attachment A) as reported to the State Legislature. STEP 1 included a Pilot Project of dredging completed in the summer, 2000. The dredging plan included various grade depths associated with the

lake. STEP 2 included dredging almost 5 million cubic yards of sediments from approximately 1,010 acres (30% of the lake bottom grade) to hard bottom. Approximately 75 acres of this dredging phase was selected to provide mitigation for the open water wetland impacts associated with the construction of the I-75 bridge crossing over Lake Panasoffkee. This dredging phase was conducted in 2004, and the entire lake dredging project was completed in 2008.

This project restored critical open water habitat in Lake Panasoffkee, an Outstanding Florida Water. The bottom elevations are deep enough to exclude emergent species, thus ensuring the persistence of open water habitat necessary to restore the desired fish habitat. Therefore, it was determined monitoring and success criteria wasn't necessary.

The mitigation is associated with the larger Lake Panasoffkee dredging project. Maintenance is primarily related to control of invasive aquatic vegetation, however only the dredging activity is designated for the FDOT mitigation credit.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The FDOT project impacts included open water habitat associated with the area between the two I-75 bridge spans that cross along the southeast portion of Lake Panasoffkee (Figure A). The roadway open water wetland impacts and location match the habitat improvements associated with Lake Panasoffkee. This I-75 Bridge project resulted in the only wetland impacts designated for mitigation at the Lake Panasoffkee Restoration project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there wasn't an existing or proposed mitigation bank within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: Lake Panasoffkee is a SWIM project and the FDOT mitigation program provided much needed funds to this multi-million dollar project while adequately and appropriately compensating for unavoidable wetland impacts to the lake.

PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by the SWFWMD – SWIM Section.

Entity responsible for monitoring and maintenance: Contractor selected by the SWFWMD.

Timeframe for mitigation area implementation: Commence: Spring, 2004 Complete: Winter, 2004

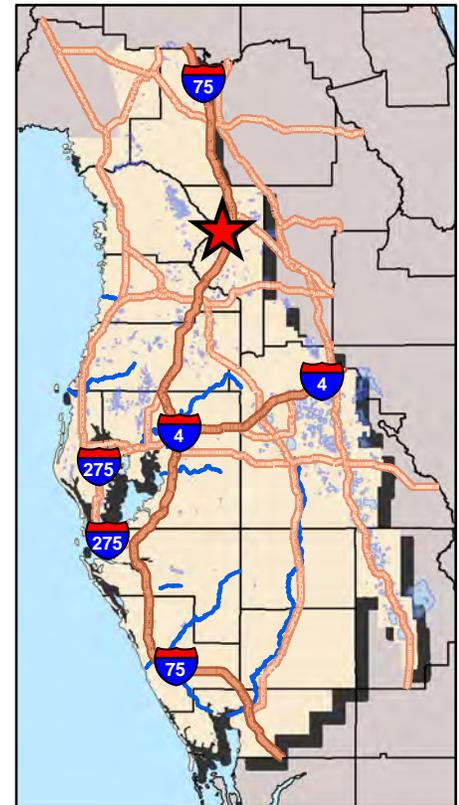
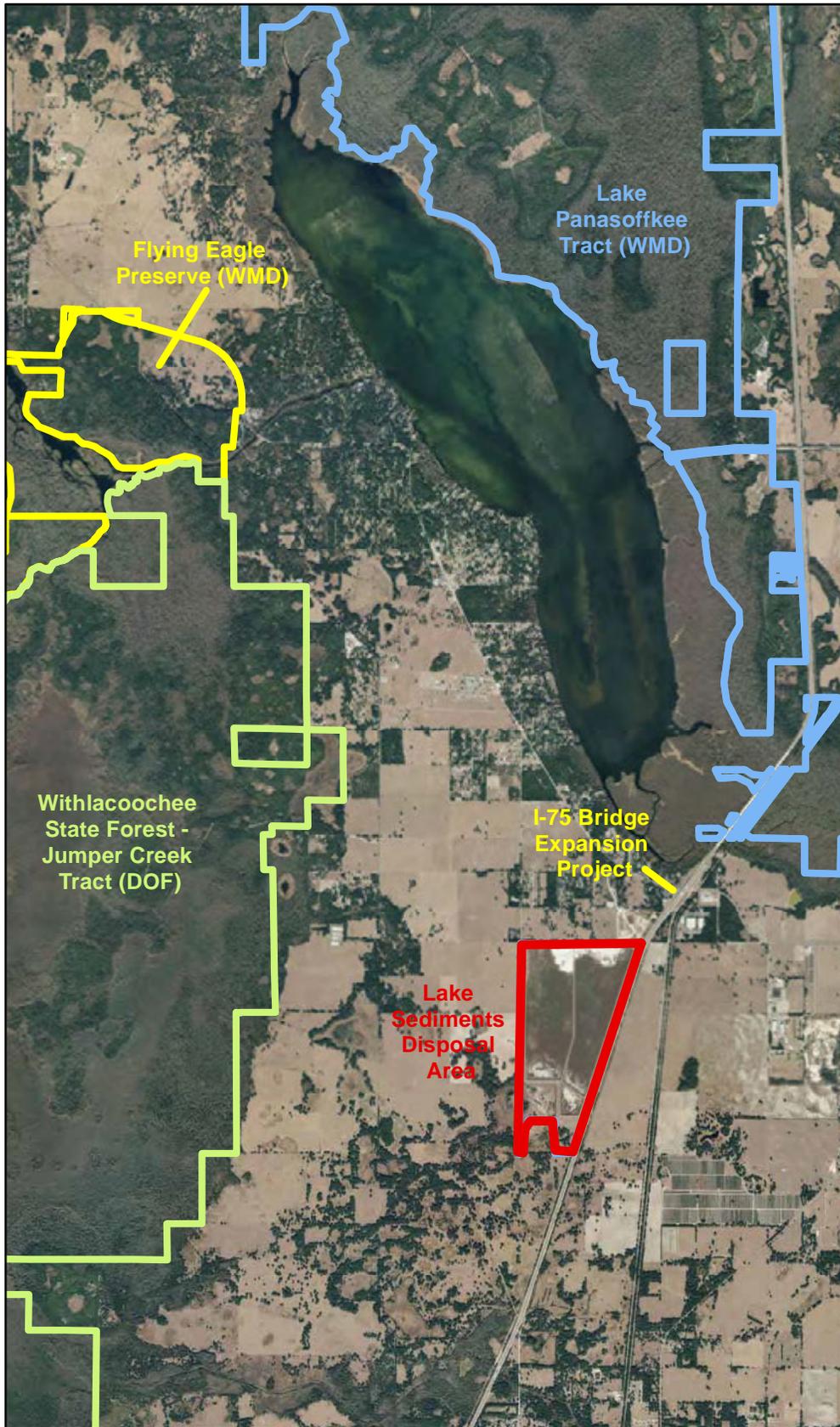
Project cost: \$469,733 (total)

ATTACHMENTS

1. Figure A-Location
2. Photographs (2008, 2009)

SW 57 - Lake Panasoffkee Restoration

Figure A - Location



Legend



Project Location





View of the barge used to hydraulically dredge the inorganic sediments accumulated within the bottom grades of Lake Panasoffkee.



Aerial view of the sediment disposal cells constructed south of the lake (top of photo), the I-75 bridge wetland crossing being mitigated with this project is on the top right side of the photo.

SW-58 BARR HAMMOCK – LEDWITH PRAIRIE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland preservation			
Landowner	Alachua County		Management Entity	Alachua County
County	Alachua		Watershed	Ocklawaha River
Water bodies	Ledwith Lake		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
238641	US 27 Levy Co. Line to SR 326	3.50	43014024.002	NPR
238679	US 27 SR 326 to CR 225a	1.09	43008697.001	199702099 (NW)
238719	SR 40 CR 328 to SW 80th	0.08	44022268.000	NPR

PROJECT DESCRIPTION

A. Overall project goals: As part of the Alachua County Forever land acquisition program, the project goal includes the public acquisition, preservation, and enhancement of 2,303 acres of high quality upland and wetland habitat (Figure A). The acquisition includes a 353-acre portion of an approximately 1,800-acre marsh prairie referred to as Ledwith Lake (Figures B & C). The northern boundary of the tract adjoins another large marsh prairie (Levy Lake), a 3,100-acre marsh placed within a conservation easement through the NRCS – Wetland Reserve Program. In turn, the Levy Lake property is contiguous to several thousand acres of regionally significant preserved habitat associated with Paynes Prairie State Preserve (Figure B). The Ocklawaha basin has minimal coverage of wetland habitat, with the majority associated with the Ledwith and Levy Lakes. As a result, acquisition and preservation of the Barr Hammock - Ledwith Prairie property was considered an important and critical pursuit to protect important and rare water and wetland resources in the basin. The nomination and

selection of this tract to the FDOT mitigation program was conducted in 2001, with the acquisition finalized by Alachua County in September, 2006.

B. Brief description of pre-construction habitat conditions: The northern portion of the tract includes a mixture of upland mixed coniferous/hardwood habitat, along with mixed hardwood wetland forests. The forested wetland habitat has diverse canopy coverage provided by sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), laurel oak (*Quercus laurifolia*), swamp chestnut oak (*Quercus michauxii*) and other hardwood species. The forested upland component includes pignut hickory (*Carya glabra*), live oak (*Quercus virginiana*) and pine (*Pinus taeda*). The Ledwith Lake marsh prairie has a few pockets of open water and extensive herb coverage provided by pickerelweed (*Pontederia cordata*), smartweed (*Polygonum* spp.), maidencane (*Panicum hemitomon*), spatterdock (*Nuphar lutea*), and soft rush (*Juncus effuses*) (refer to photos). Extensive vegetative diversity and wildlife presence have been documented in the marsh and adjacent upland habitat. Natural resource evaluations were conducted and available from Alachua County and the FDOT Mitigation Program Manager

C. Brief description of construction activities and current habitat conditions: This Barr Hammock - Ledwith Prairie acquisition is part of an east-west corridor of proposed public land acquisitions between Ocala National Forest and the Waccasassa River. A hydrologic evaluation of Levy Lake and Ledwith Lake will determine if and when the surface water elevations should be revised with the existing culverts and flashboard risers in order to enhance wetland hydroperiods (photos). Other enhancement activities include the elimination of cattle grazing within the marsh prairie to minimize encroachment of nuisance vegetation, eradication of exotic and nuisance species, and adopting a prescribed fire management plan for the tract.

In collaboration with FDEP, Alachua County will prepare and implement a perpetual management plan that includes appropriate land management activities such as eradication of exotic and nuisance species and prescribed fire management plan. A long-term maintenance plan is not included as part of this mitigation plan since only preservation credit is applied for the FDOT mitigation credit.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): With the minimal presence of public lands and few wetlands within this predominantly upland basin, there are very limited wetland enhancement & restoration opportunities in this basin. The Ledwith Lake marsh prairie is one of the few and largest wetlands within the basin, exhibits high quality wetland functions and value that deserve protection through a public land acquisition program. The marsh and adjacent forested wetland and upland habitats provide appropriate mitigation for the wetland impacts. After acquisition was final, the SWFWMD reimbursed Alachua County for the costs associated with acquiring 60-acres of marsh prairie and 10-acres of mixed forested wetland habitat (70 acres x \$4,352 per acre = \$304,640). To date, all the anticipated FDOT wetland impacts in the basin are associated with non-forested habitat. However, reimbursement for a proportion of forested wetland habitat is conducted as a precaution in case there are unforeseen forested wetland

habitat impacts associated with future FDOT projects. The reimbursement of the land acquisition costs associated with 70 acres of the tract provides more than adequate and appropriate preservation mitigation credit to compensate for the permitted FDOT wetland impacts. In the future, if FDOT proposes future additional wetland impacts in the basin, remaining available mitigation credits will be evaluated to determine if they are appropriate to provide compensation.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection and reimbursement to Alachua County, there were no existing or proposed mitigation banks within this basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: There are no SWIM projects or SWIM water bodies within this basin.

PROJECT IMPLEMENTATION

Entity responsible for construction: No construction necessary, any revisions to Ledwith Lake hydrology will be conducted in coordination between Alachua County, FDEP, and the SJRWMD.

Entity responsible for monitoring and maintenance: A joint agreement between Alachua County and FDEP staff (Paynes Prairie State Preserve) will coordinate the long-term maintenance & management of the tract. Monitoring is not necessary or proposed for the preservation mitigation credit.

Timeframe for implementation: Commence: Summer, 2001 Complete: Land acquisition completed in September, 2006

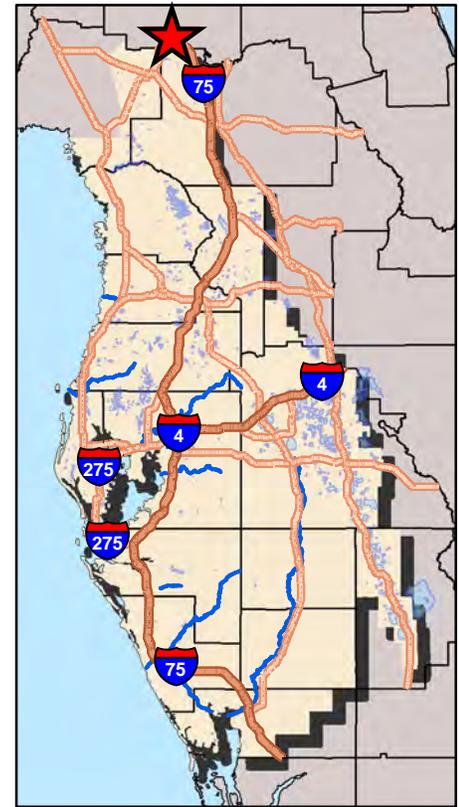
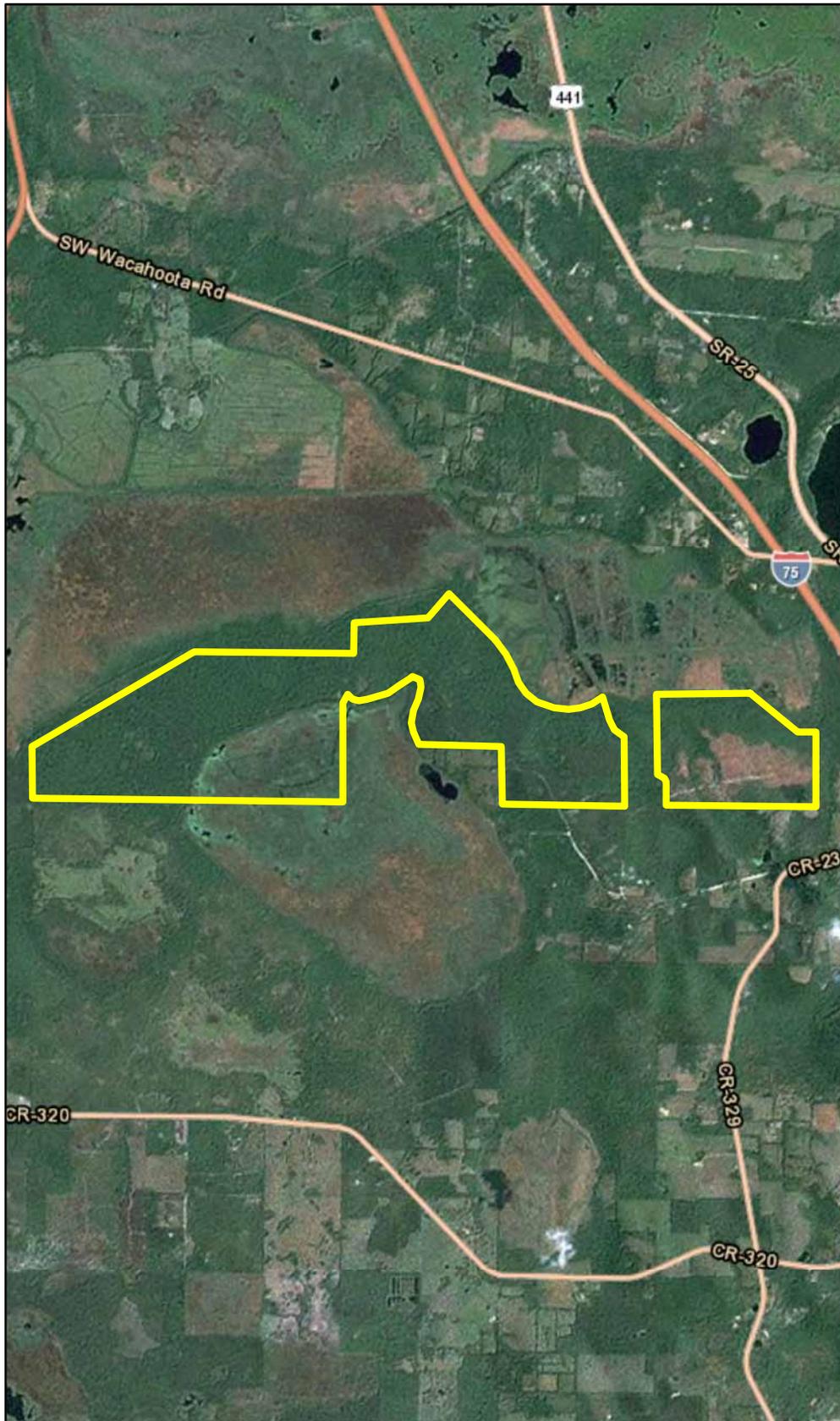
Project cost: \$304,640 (total)

ATTACHMENTS

1. Figure A-Location
2. Photographs (undated)

SW 58 - Barr Hammock - Ledwith Prairie

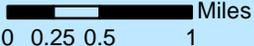
Figure A - Location



Legend

 Project Location



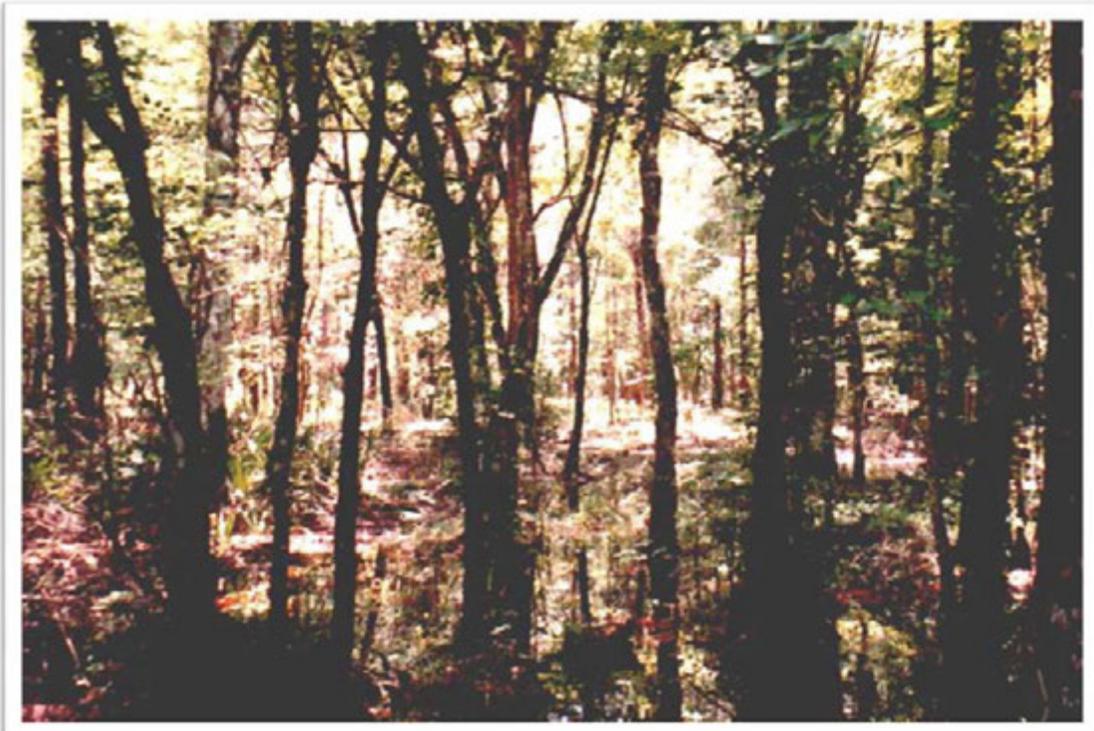




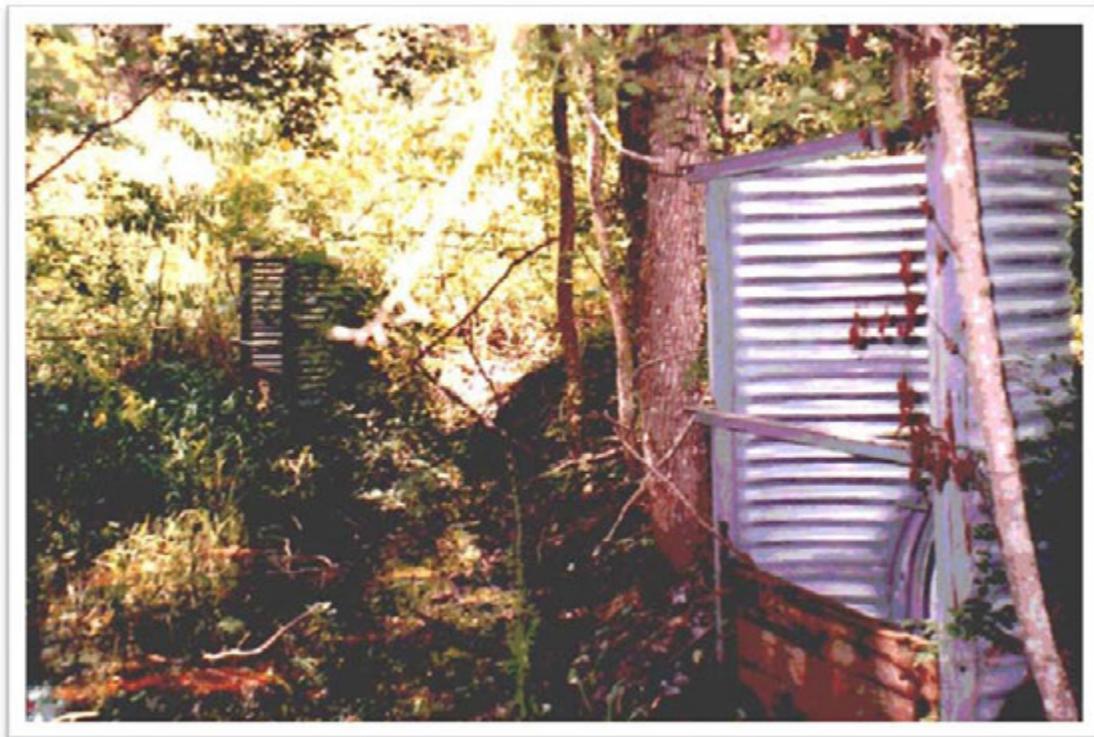
View of Ledwith Lake from the western marsh boundary. The marsh prairie has diverse vegetative cover including a dominance of pickerelweed, floating pennywort, smartweed, spatterdock, soft rush and maidencane.



Open water areas in Ledwith Lake are few and predominantly located within the perimeter of the marsh prairie. Hardwood wetlands rim portions of the marsh, short transitions to upland hardwood hammocks.



Some wetland hardwoods rim Ledwith Lake and within the hydrologic connection between Levy lake and Ledwith Lake (shown above), dominance of laurel oak, red maple, sweetgum and swamp chestnut oak that transition to upland hardwood hammocks of pignut hickory and live oak.



Ledwith Lake outfall structures with flashboard risers that control the water elevation and flow north to Levy Lake.

SW-59 HAMPTON TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Southwest Florida Water Management District	Management Entity	Southwest Florida Water Management District	
County	Polk	Watershed	Withlacoochee River	
Water bodies	Gator Creek, Colt Creek, Sapling Drain, Bee Tree Drain	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2012041	I-4 East of CR 557 to Osceola County (Seg. 6-7,9) ¹	3.88	43011896.032	19943591 (IP-MGH)
2012092	I-4 East of US 98 to East of CR 557 (Sec. 3-5) ²	18.88	43011896.026	200204891 (IP-MGH)

PROJECT DESCRIPTION

A. Overall project goals: The Hampton Tract was acquired by the SWFWMD in 1999. Located adjacent to over 260,000 acres of public lands, the Hampton Tract was an important acquisition for the protection, restoration and enhancement of native habitat within the Green Swamp's Designated Area of Critical State. The tract has a 22 mile ditch network that has extensively dewatered and drained many of the wetland habitats on the property. The goal is to restore hydrologic drainage patterns to restore and enhance the functions and benefits

¹ Segment 7 of this project is in the Kissimmee Ridge Basin and the wetland impacts are mitigated at SW-49 Reedy Creek Mitigation Bank. Wetland impacts in the Ocklawaha River Basin are offset at SW-76 Lake Lowery.

² A portion of this project is located in the Peace River Basin and wetland impacts are being mitigated at SW-47 Tenoroc-Bridgewater Tract.

associated with 1,606 acres of impacted wetland habitats, with secondary benefits to other wetland and upland habitats within the property.

B. Brief description of pre-construction habitat conditions: The site is located within the Green Swamp (Designated Area of Critical State Concern), and has over 60% of the adjacent property (north and west) also under public ownership by the SWFWMD, referred to as "Green Swamp Wilderness Preserve (Figure A). The tract's habitat and land-use is dominated by approximately 2,400 wetland acres (predominantly mixed forested and cypress systems), 4,200 acres of pine flatwood & upland hardwood hammocks, and 1,000 acres of previously improved pasture that have been gradually converted to pine silviculture operations since the WMD's acquisition of the property in 1999. The objective is for the pine plantations to gradually eradicate bahia as a result of shade and pine straw, then thinning pines to establish native groundcover vegetation components necessary for restoring pine flatwoods.

The site's historic drainage pattern meandered from east to west, receiving contributing flows from property east of the Hampton Tract. During the late 1940's and early 1950's, the construction of large drainage ditches (Colt Creek Drain, Sapling Drain, Bee Tree Drain) and smaller connecting ditches resulted in a more direct drainage and discharge of surface and ground water to connect with the ditched Gator Creek located along the project's western boundary. The Gator Creek ditch is a major drainage feature within the western Green Swamp, crossing north through the Hampton Tract, other public lands (Green Swamp-East, Colt Creek State Park, Green Swamp-West), then outfalls into the Withlacoochee River. The northern perimeter of the Hampton Tract is adjacent to the forested wetland floodplain associated with the Withlacoochee River. These ditched drainage systems have directly impacted the hydroperiod and vegetative composition of a large percentage of the tract's wetlands, particularly associated with the transition of obligate to more facultative species within the wetlands, and allowing undesirable upland & nuisance species to encroach within the wetlands. Blackberry and grapevine in particular have become problematic nuisance species. Figure B depicts the major ditches, proposed ditch block locations, and hydrologic restoration and primary wetland enhancement areas based on the surface water model. Additional wetlands within the property will received secondary enhancement however those systems has not been proposed for mitigation credits.

A combination of large ditch block construction will be conducted to hydrologically restore and subsequently enhance the ditched wetlands, resulting in mortality of upland & nuisance species and the regeneration of more obligate species that have gradually decreased from the wetlands. This construction will also attenuate the surficial and groundwater hydrology for the entire tract. The ditch blocks will be constructed with the adjacent spoil material disposed during the original dredging operations, and the majority of the blocks will be constructed where the upland-cut ditch sections outfall from wetlands. The typical top-of-block length is 30-50 feet with an additional 80-150 feet of total gradual sideslopes (minimum 10:1) that merge into the ditch bottom grades. The ditch blocks will be stabilized with vegetative cover immediately after construction. The top of the blocks will be constructed to elevations slightly above the adjacent natural grade to avoid overflow of the blocks. Instead, the blocks will divert and restore the contributing flow into and through the historic drainage patterns associated

with the wetland strands. This will not only retain more water within the wetlands throughout the rainy season to restore wetland hydroperiods, but restore surficial groundwater associated with the wetlands during the dry season. This is critical since during extended dry periods, not only is surface water often completely absent from the wetlands but the deep ditches keep the surficial aquifer from even maintaining soil saturation in many wetlands. Extended dry season ground and surface water conditions not only stress and degrade vegetative characteristics, but the ditches remove water sources necessary for all wildlife species. Even though the wetlands have natural cycles of below grade water elevations, the opportunity to maintain some surface water within the ditches without resulting in groundwater drawdown will allow the availability of an important water resource for wildlife use during dry seasons. These extended ditch blocks will also provide easier access for wildlife to cross back and forth between wetlands and uplands. The following information describes the wetland enhancement aspects associated with each major drainage system.

Colt Creek Drain – this drain includes a combination of historically isolated as well as connected forested wetland tributaries within the northern portion of the property. The highest concentration of former isolated and partially connected wetlands for the entire Hampton Tract is associated with cypress systems within the northeastern area. Historically, many of these wetlands only had hydrologic connectivity via surface water that sheet flowed through minor sloughs and hydric flatwoods during the wet season. The high concentration of perimeter ditches around the wetlands have connected and substantially altered the drainage patterns and wetland hydroperiod; short-circuiting flow away from wetlands and directing water through upland-cut ditches instead of the natural meandering drainage patterns. In order to restore the drainage patterns within each of these wetlands, over half of the 52 total ditch blocks are associated with the Colt Creek Drain. The blocks will be strategically constructed at locations within the perimeter ditches to divert and restore contributing water into the adjacent wetlands. As previously noted, the WMD has converted the land use of the northeast upland pastures to silviculture. However, pines were planted at a minimum buffer of 50 feet from the wetlands so that with the restored wetland hydrology will be allowed to naturally generate hydrophytic sedges and rushes to replace the bahia. With the introduction of pines to replace open pasture and the meandering alignment of the wetland strands, additional vegetative cover will increase wildlife movement and corridors to and from upland and wetland habitats. A large ditch and adjacent spoil berm was historically constructed along the northeastern two-mile boundary of the Hampton Tract. This berm acts as a levee, blocking the historic westward drainage pattern of water flow through the property and resulting in surface water impoundment and flooding within private property east of the berm. By constructing two breaches within the spoil berm, historic flow patterns will be restored that will benefit the on-site wetlands while decreasing the periodic flood conditions that occurs on the private property.

Sapling Drain – this drain is a large, straight, east-west ditch that conveys substantial quantities of water from the contributing watershed. Historically the base flow meandered through a cypress strand located less than a few hundred feet north of the ditch drain. Historical aeriels indicate the majority of the existing central fallow field north and south of the remnant cypress strand was historically marsh and wet prairie habitat. The current vegetative

cover in the field is bahia, fennel, pine trees; with shallow collector cross-ditches dominated by soft rush. Historically the remnant strand would have surface water sheet-flow and attenuate through the wet prairie during the rainy season. The surface water model for Sapling Drain has determined the hydrologic restoration can also restore a minimum 40 acres of marsh habitat, however it is anticipated to result in additional 60-100 acres of additional wet prairie restoration. Even though not accounted for in mitigation credit, secondary benefits as a result of the hydrologic improvements are anticipated to result in the generation of an additional 50-100 acres of ephemeral marsh and wet prairie habitat restoration. The restoration of the Sapling Drain marsh system is particularly beneficial since the vast majority of non-forested wetland habitats in the western portion of the Green Swamp were historically converted to improved pastures as a result of drainage ditches.

Bee Tree Drain – this drain was dredged across a meandering mixed forested wetland and through the adjacent upland habitat; short-circuiting the meandering wetland flow pattern westward to discharge directly into Gator Creek. Similar to the Colt Creek Drain, restoring the wetland flow patterns will be conducted by constructing blocks at the wetland/upland boundary interface.

Gator Creek Drain - Gator Creek is one of the major ditch drainage features in the Green Swamp; extending many miles from Interstate-4 to the Withlacoochee River. The ditch itself was dredged through uplands and wetlands to connect with a natural creek floodplain located a few miles south of the Hampton Tract. Historically, the creek floodplain within the Hampton Tract itself had minimal definition of an actual creek channel; with more resemblance to water sheet flow similar to other wetland strands on the property. As depicted on Figure A, the portion of the Gator Creek ditch crosses the southwestern portion of the property, and the reduced hydroperiods have transitioned the floodplain wetland to a mesic hammock; resulting in the recruitment and generation of facultative species such as laurel oak even within the lowest grade elevations of the wetland floodplain.

Due to the close proximity of adjacent upstream residential development south of the Hampton Tract, constructing blocks within the Gator Creek ditch section to restore drainage patterns within the wetland cannot be achievable without altering off-site drainage patterns and increasing the flood potential. However, by constructing two ditch blocks where Bee Tree and Sapling Drains prior to connecting to Gator Creek, this will detain the majority of ditch flow to restore adequate and appropriate wetland hydrology within a portion of the Gator Creek floodplain on the Hampton Tract. By retaining more surface water within the Hampton Tract, this will reduce the contributing flow to the Gator Creek ditch itself and allowing more flow north. In turn, this will reduce flood potential of property to the south.

C. Brief description of construction activities and current habitat conditions: A surface water model evaluation was conducted to determine design features necessary to restore and enhance the hydrology and associated hydroperiods for the majority of the wetlands within the Hampton Tract. The result of that study indicated these hydrologic improvements could be conducted by constructing 52 blocks within designated ditch locations that will redirect and restore surface water flow patterns and associated ground water in the

wetlands. Figure B depicts the proposed block locations and the primary wetland enhancement areas as a result of the hydrologic restoration. The modeling effort was completed in 2010, with proposed block construction will require a total of two months during dry periods in 2011 and 2012. Ten monitor wells were installed within drained wetlands in 2009 to document pre-construction ground and surface water elevations and durations. These wells have continuous automatic recorders that document the ground and surface water levels every 15 minutes, and the data collection will continue to be monitored for a period of at least five years post-construction.

Maintenance activities will be predominantly associated with evaluating and ensuring the structural integrity and suitability of the proposed ditch blocks. At any time should any ditch blocks or associated restoration of historic wetland hydrologic flow patterns are not achieved, corrective action will be taken which will include constructing additional block support. Post-construction inspections of the blocks and drainage patterns will be evaluated on a monthly schedule throughout the first two rainy seasons, and at least quarterly thereafter for two years. Additional inspections and maintenance will be perpetually conducted as part of a normal best land management practices and activities for the Hampton Tract. One of the primary components of the tract's management plan includes prescribed burns. Currently such burns can periodically encroach too far into drained forested wetlands, resulting in vegetative impacts and loss of organic topsoil. With the restored hydrology of those drained wetlands on-site, the prescribed burns will only encroach along the transitional perimeters of the forested wetlands. These transitional areas often become too dense with vegetative species such as wax myrtle and vines, thus restricting wildlife movement. The prescribed burns include the upland/wetland interface to decrease the vegetative coverage that in turn allows more wildlife access and use of all habitat areas.

Commencing in January, 2009, pre-construction hydrologic monitoring currently includes downloads of water table data provided from continuous recorders installed within ten monitoring wells. These well locations are located within wetlands associated with the Colt Creek Drain (5), Sapling Drain (3), and Bee Tree Drain (2); with two of wells located where Sapling & where Bee Tree intersect with the Gator Creek floodplain. These wells will continue to be monitored for a minimum five years post-construction and after success criteria has been met. This will provide at least two years of pre-construction hydrologic monitoring to compare with minimum five year post-construction monitoring to evaluate the restored surface water hydrology and document any potential problems. The monitoring also includes qualitative habitat evaluations and documentation of general wetlands associated with the Colt Creek, Sapling Drain, Bee Tree Drain, and Gator Creek floodplains. This includes conducting semi-annual monitoring (dry and wet season observations) concurrently with downloading data associated with the hydrologic monitoring for a minimum five years post-construction. The qualitative evaluation will include descriptive and photographic documentation of vegetative and habitat conditions, with particular notation of transitional shifts of flora & fauna as a result of the restored and enhanced drainage improvements. This information will be compiled into annual monitoring reports for a minimum five years post-construction.

Success criteria includes demonstration that all the structures function as proposed, and that proper stabilization has occurred and will be maintained around the structures. This documentation will need to demonstrate that the ditch blocks divert flow into the wetlands as designed as well as ditch block stabilization. Shifts in vegetative cover and diversity will be noted in the annual monitoring reports.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The Hampton Tract was selected to provide mitigation for all the anticipated wetland impacts associated with the ultimate build-out of the Interstate-4 transportation improvements through the Withlacoochee basin portion in Polk County, including the high-speed rail facility when it was proposed then subsequently removed from FDOT's work program in 2001 and 2011. The majority of the I-4 wetland impacts include forested wetland habitat, and the remnant non-forested wetlands within the corridor were historically forested wetlands that are maintained by FDOT as non-forested systems due to required vehicular safety zones. The Hampton Tract will receive primary hydrologic restoration toward 1,558-acres of forested wetlands and 48-acres of non-forested wetlands (total 1,606-acres). Even though the hydrologic restoration will also provide ecological benefits to additional wetlands and uplands within the tract, wetlands without direct hydrologic enhancement are not accounted for with mitigation credit. The substantial wetland enhancement within a regionally significant tract will adequately and appropriately mitigate for wetland impact associated with Interstate-4 and potentially future FDOT-related wetland impacts within the Withlacoochee Basin.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the period of mitigation selection, there were no established or proposed mitigation banks within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During the period of mitigation selection, the only SWIM-sponsored project within the Withlacoochee River Basin included restoration activities within Lake Panasoffkee (SW 57); selected for mitigation of wetland impacts associated with the I-75 bridge expansion within the Lake Panasoffkee floodplain.

PROJECT IMPLEMENTATION

Entity responsible for construction: WMD Operations Department

Entity responsible for monitoring and maintenance: The WMD will be responsible for monitoring and maintenance

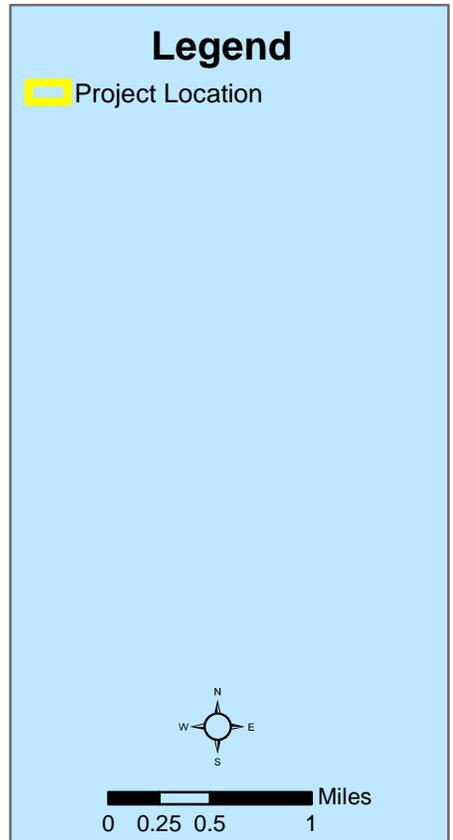
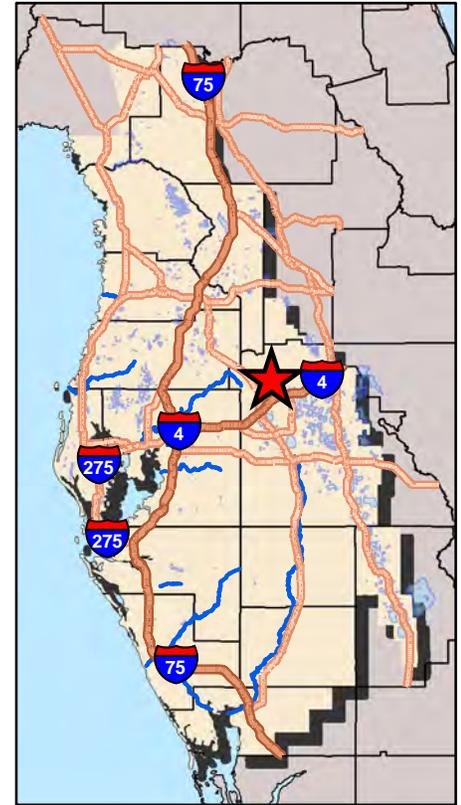
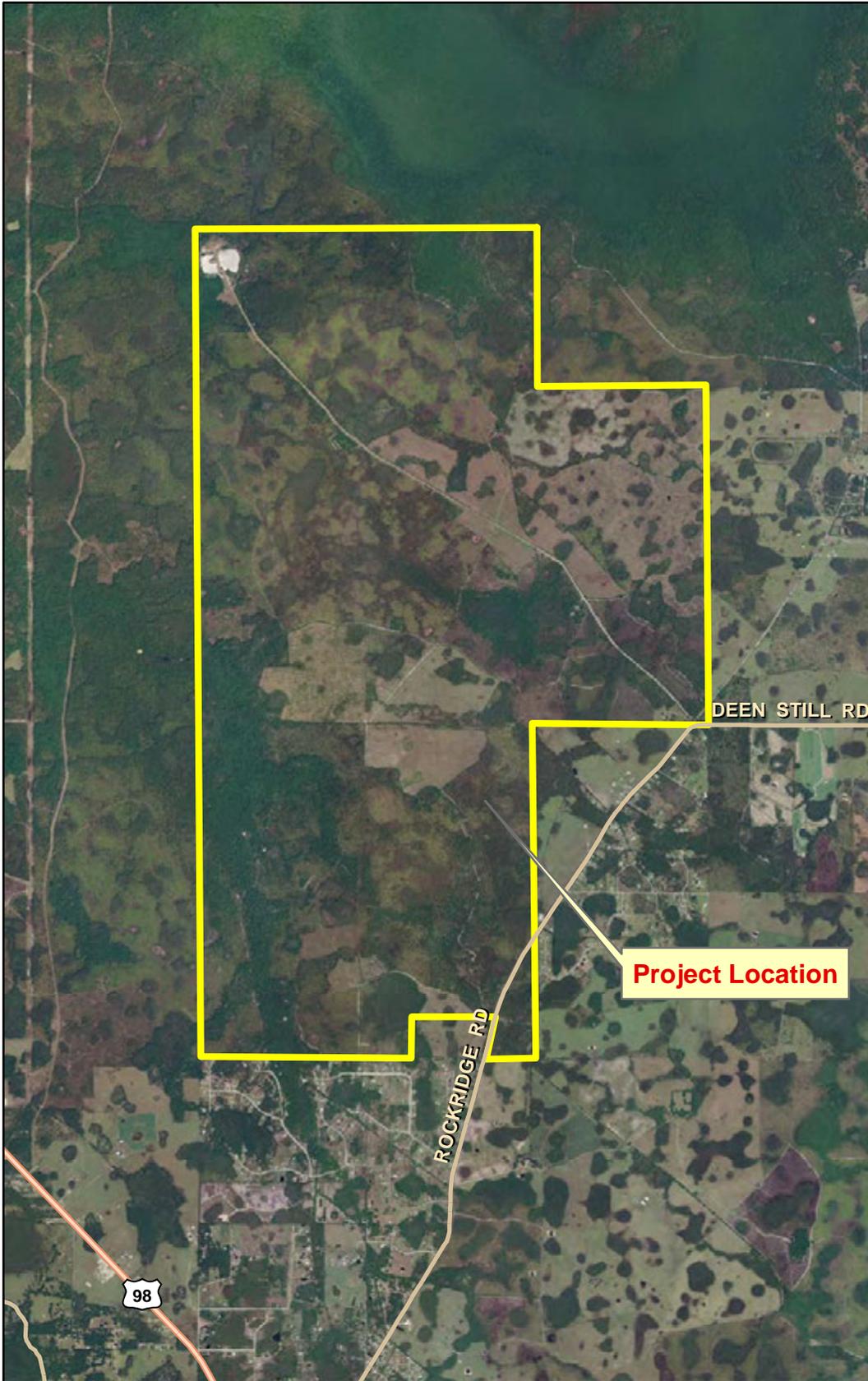
Timeframe for implementation: Commence: site evaluation, engineering & surface water modeling, 2006 -2010, monitor well installation, January, 2009 Complete: construction in 2011-2012, followed by maintenance & additional monitoring.

Project Cost: \$ 397,260.98 (total)

ATTACHMENTS

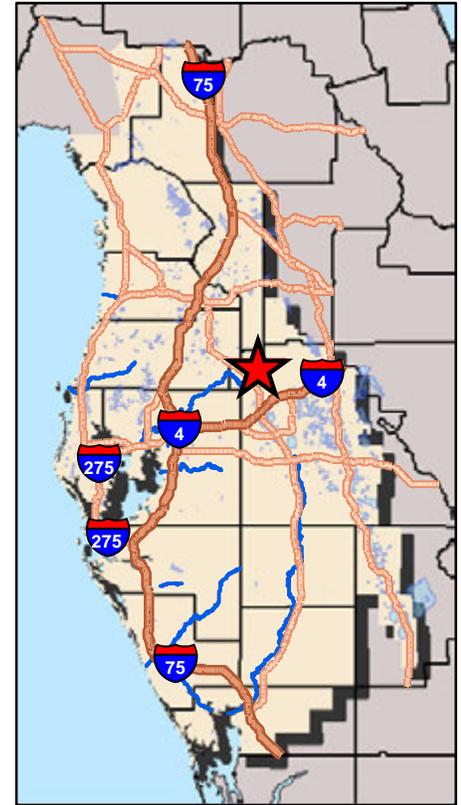
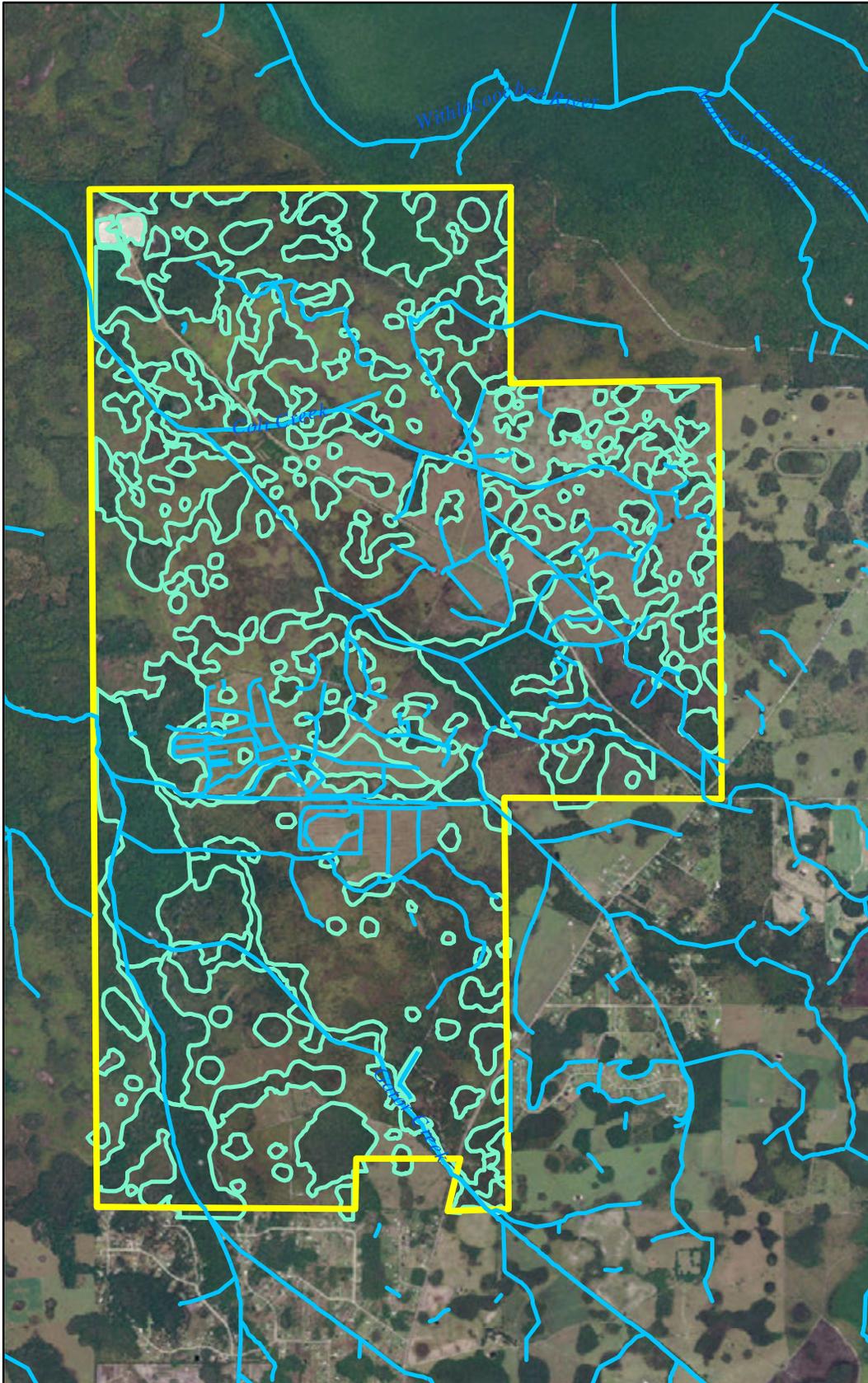
1. Figure A-Location
2. Figure B-Wetland Restoration Areas
3. Photographs (2012)

SW 59 - Hampton Tract Figure A - Location



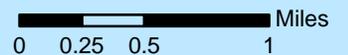
SW 59 - Hampton Tract

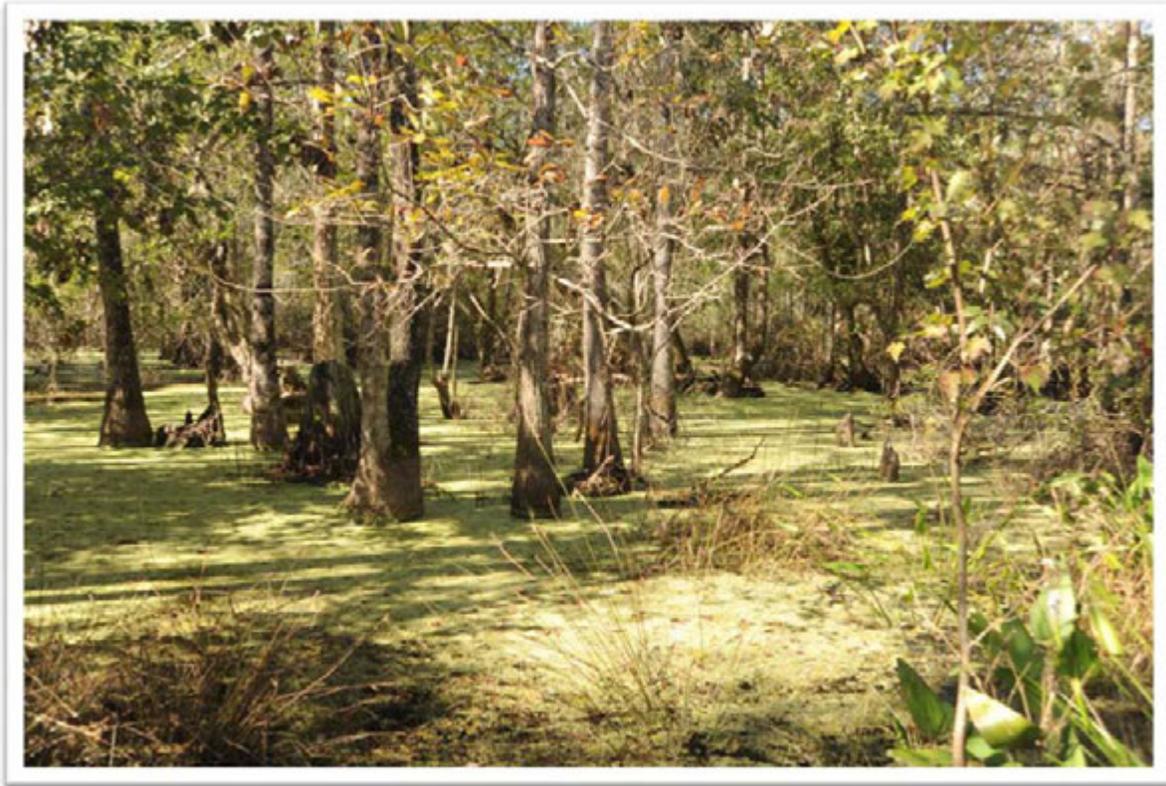
Figure B - Wetland Restoration Areas



Legend

-  Project Location
-  Ditch Blocks





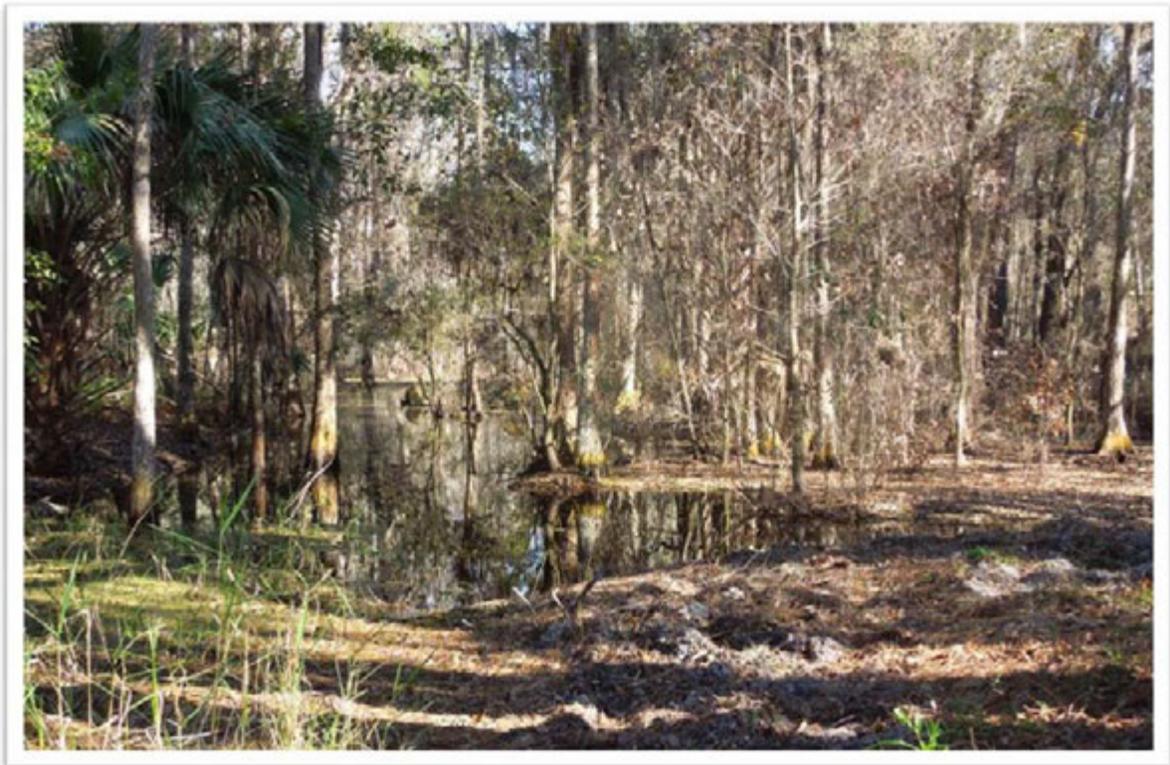
Hampton Tract showing inundation of impacted wetland following the ditch blocks on ditch network.



Hampton Tract showing inundation of forested wetland with pine encroachment within the wetland.



Hampton Tract showing the top of one of the 50 ditch blocks and recruited maidencane.



Hampton Tract showing inundated wetland in the background with ditch block in the foreground.

SW-61 CYPRESS CREEK PRESERVE, WEST – JENNINGS TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland preservation and upland enhancement			
Landowner	Hillsborough County	Management Entity	Hillsborough County	
County	Hillsborough	Watershed	Hillsborough River	
Water bodies	Cypress Creek	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2012171	I-4 West of Memorial Blvd. to west of US 98 - Sec. 2	4.30	43011896.028	199502569 (MOD-MGH)
2555361	SR 39, Blackwater Creek Bridge Replacement	2.10	43020526.000	20000574 (IP-MS)
2558591	SR 678 (Bearss Ave.) Florida Ave. to Nebraska	0.10	44019802.002	200101181 (NW-MS)
2578071	Bruce B. Downs Bike Path Amberly Dr. - Hunter's Green	0.50	44018710.000	199803683
2578072	Bruce B. Downs Bike Path Tampa Limits to Amberly Dr.	0.20	44021434.000	200101187 (NW-MS)
2578391	Alexander Street US 92 to I-4	2.60	43011896.025	200003012 (IP-RGW)
2584131	SR 93 (I-275) US 41 to Pasco Co. Line	7.60	44024745.005	200302685 (MOD-JPF)
2584491	I-4 (SR 400) at Alexander Street Ramp	1.70	43011896.025	200003012 (IP-RGW)
2587341	SR 56, Cypress Creek to CR 581 (B.B. Downs)	5.30	43012944.004	199500079 (IP-MN)

4084602	I-75 Off-Ramp at CR 581	0.50	44021639.000	199803683 (NW-KI)
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PROJECT DESCRIPTION

A. Overall project goals: The preservation and habitat improvements of a 298 acre tract includes a high quality mosaic of native upland and wetland habitat within the Cypress Creek floodplain. The property was a high priority public land acquisition within the Hillsborough County's Environmental Lands Acquisition and Protection Program (ELAPP). The Jennings Tract is adjacent to several hundred acres of other County-owned property east of the tract, referred to as Cypress Creek Preserve, East (Figure A). After the Jennings Tract acquisition in 2000, the County acquired an adjacent 100-acres of similar high quality habitat north of the tract.

B. Brief description of pre-construction habitat conditions: The native habitat components of the site represent high quality value and functions relative to wildlife habitat, species richness & diversity, and connectivity to both on- and off-site habitat conditions. There is mixed forested wetlands (153 acres) surrounding mesic hardwood hammocks (95 acres), pine flatwoods (17 acres), and palmetto prairies (14 acres). The only non-native habitat is a bahia pasture (19 acres), along the western edge of the parcel (Figure B).

In addition to preservation of high quality mixed forested wetland (153 acres) and hardwood hammock uplands (95 acres), the mitigation activities include enhancement of pine flatwoods (17 acres), palmetto prairie (14 acres), and restoration of improved bahia pasture (19 acres) to pine flatwoods. Due to the scale limitations and dense canopy cover, and the high percentage of hydric soil mapped on the soil survey, the presence of several mesic hardwood hammocks are not easily observed on the aerials. The diverse combination and adjacent proximity of upland and wetland habitat communities provides substantial foraging, denning and access opportunities for many wildlife species.

The hardwood hammocks include a dominance of live oak, Southern magnolia, sweet gum, water oak; a sub-canopy of saw palmetto, cabbage palm, beautyberry, salt-bush, buckthorn; and ground coverage dominated by small panicums (*Dicanthelium spp.*). Due to the range of forested wetland grade elevations, there is diverse canopy and sub-canopy coverage dominated by laurel oak, sweet gum, red maple, bald cypress, American elm, sweet bay, cabbage palm, tupelo and ironwood. Ground cover is dense in the transitional wetland areas, minimal in the obligate zones where rainy season water levels are typically above surface grades. Dominant ground cover species include cabbage palm saplings, various sedges and rushes, wild coffee, Jack-in-the-Pulpit, and shield fern. The palmetto prairie and pine flatwoods have a dominance of slash pine (in the flatwoods) over saw palmetto, rabbit tobacco, paw-paw, and bahiagrass. The density of palmetto is generally moderate to low, but has increased in cover since removal of the cattle. Wildlife diversity is high within the forested areas with evidence of deer, raccoon, opossum, armadillo, rabbit and many avian species. Several gopher tortoise inhabit the pasture.

Hillsborough County's Conservation Section has conducted habitat improvements within the Jennings Tract. Various habitat enhancement and restoration activities are being conducted with three types of upland ecological communities. These include the bahia pasture, palmetto prairie, and overgrown pine flatwoods. Except for the pasture, the upland areas are accessed by pre-existing access roads through forested wetland habitat. Restoration activities within the pasture commenced in 2007 with herbicide application of the bahia and a prescribed burn. Eradication of bahia is being conducted along with direct seeding of upland native species and longleaf pine. The palmetto prairie has bahia mixed in with the palmetto and desired native species. Selective herbicide treatments and prescribed burns have minimized the bahia coverage. The overgrown pine flatwoods receive prescribed burns on a 3-5 year rotation to decrease some of the woody understory and selective herbicide of invasive exotic species; which is primarily limited to skunk vine.

C. Brief description of construction activities and current habitat conditions: The activities included the acquisition of property to preserve and manage the high quality forested wetland and upland hardwood hammock habitat. At the request of Hillsborough County, a conservation easement was recorded for the tract and conveyed to the SWFWMD. In 2005, some enhancement of the palmetto prairie habitat commenced with pine plantings. Herbicide eradication and prescribed burning of the bahia pasture was conducted in 2007 to commence flatwood restoration, and are being restored with bahia eradication, native species seeding, and plantings of wiregrass and longleaf pine. The pine flatwoods were overgrown at the time of acquisition and receive prescribed burn management on a 3-5 year rotation to decrease woody understory and selective herbicide of invasive species. County Conservation staff conduct the majority of these activities, with the assistance of contractors for seed collection, plant nursery stock and herbicide applications.

Maintenance activities are primarily associated with implementing the prescribed burn management plan when necessary to achieve and maintain habitat conditions. Depending on the growth rate of vegetation cover within the enhanced and restored upland habitat, these burns are conducted on a 3-5 year cycle, and 10-15 year cycle for the upland hardwood hammocks. Herbicide eradication of existing and generated exotic and nuisance species are conducted as necessary. Other than the bahia, the other problem species of concern for this particular tract include Chinaberry and skunkvine. Herbicide treatments and prescribed burns to eradicate and control bahia within the 19-acre flatwood restoration is also conducted as necessary (photograph).

Qualitative monitoring was conducted semi-annually by a consulting firm on contract with the SWFWMD through 2008. Monitoring stations were established to adequately evaluate and document habitat and wildlife conditions and functions for the various preserved, enhanced and restored ecosystems. The results of the monitoring events were compiled into annual monitoring reports, along with information of the various maintenance and management activities and success trends. Qualitative reviews and collaboration between County & WMD staff continue to evaluate the progress of the upland restoration area and the habitat conditions & wildlife use of the other ecosystems on the property.

Success criteria requirements include the County applying the appropriate maintenance and management practices within the various habitats on the property; such as herbicide treatments of exotic & nuisance species, implementing prescribed fires, and other activities noted within the County's management plans for the property. Flatwood restoration success criteria includes a minimum 100 longleaf pines present within the 19-acre area, and average survivorship of 400 plants per acre of wiregrass and other native herb & shrub species; whether naturally recruited and/or planted from seed, bare root, or containerized material.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority (80%) of the 25 acres of wetland impacts designated for mitigation at the Jennings Tract are associated with forested wetlands. The mitigation project not only includes preservation of 248 acres of high quality mixed forested wetlands and hardwood hammocks, but an additional 50 acres of upland habitat enhancement and restoration that buffer the wetlands. No additional wetland impacts associated with other roadway projects will be proposed for mitigation at the Jennings Tract. This mitigation project adequately and appropriately mitigates for the designated wetland impacts with a cumulative mitigation ratio of 12 acres of compensation for every acre of wetland impact.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the selection of the mitigation for the proposed wetland impacts, there were no existing or proposed private mitigation banks in the Hillsborough River basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During mitigation selection, the only SWIM sponsored project in the Hillsborough River watershed was the Lake Thonotassassa Restoration Project (SW 34). The habitat improvements associated with that project are providing mitigation for wetland impacts associated with another FDOT roadway project.

PROJECT IMPLEMENTATION

Entity responsible for construction: Minor construction and planting activities conducted by Hillsborough County Conservation Services staff and contractors working for the County.

Entity responsible for monitoring and maintenance: Private consultants on contract with SWFWMD conducted semi-annual monitoring through 2008; periodic monitoring conducted by WMD staff and herbicide maintenance by County Conservation staff as part of normal land management activities and upland restoration within the former pasture area.

Timeframe for implementation: Commence: Acquisition, Summer, 2000 Complete: On-going habitat improvements as part of perpetual land management activities (e.g. herbicide exotics, fence line clearing, prescribed burns), an upland flatwood restoration within the former pasture area.

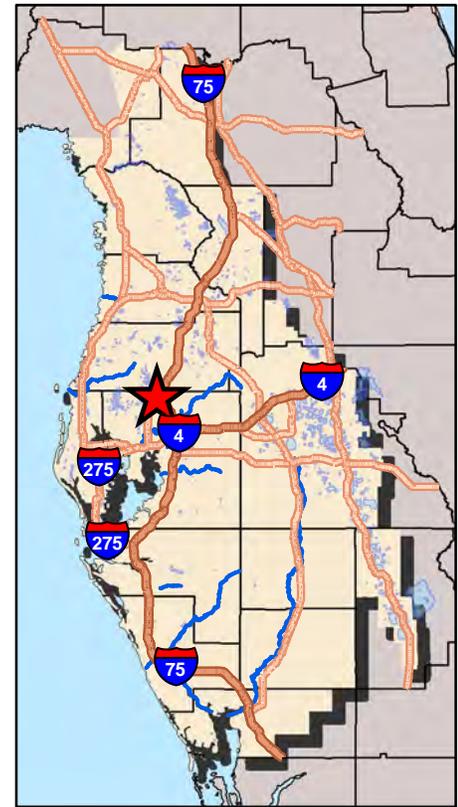
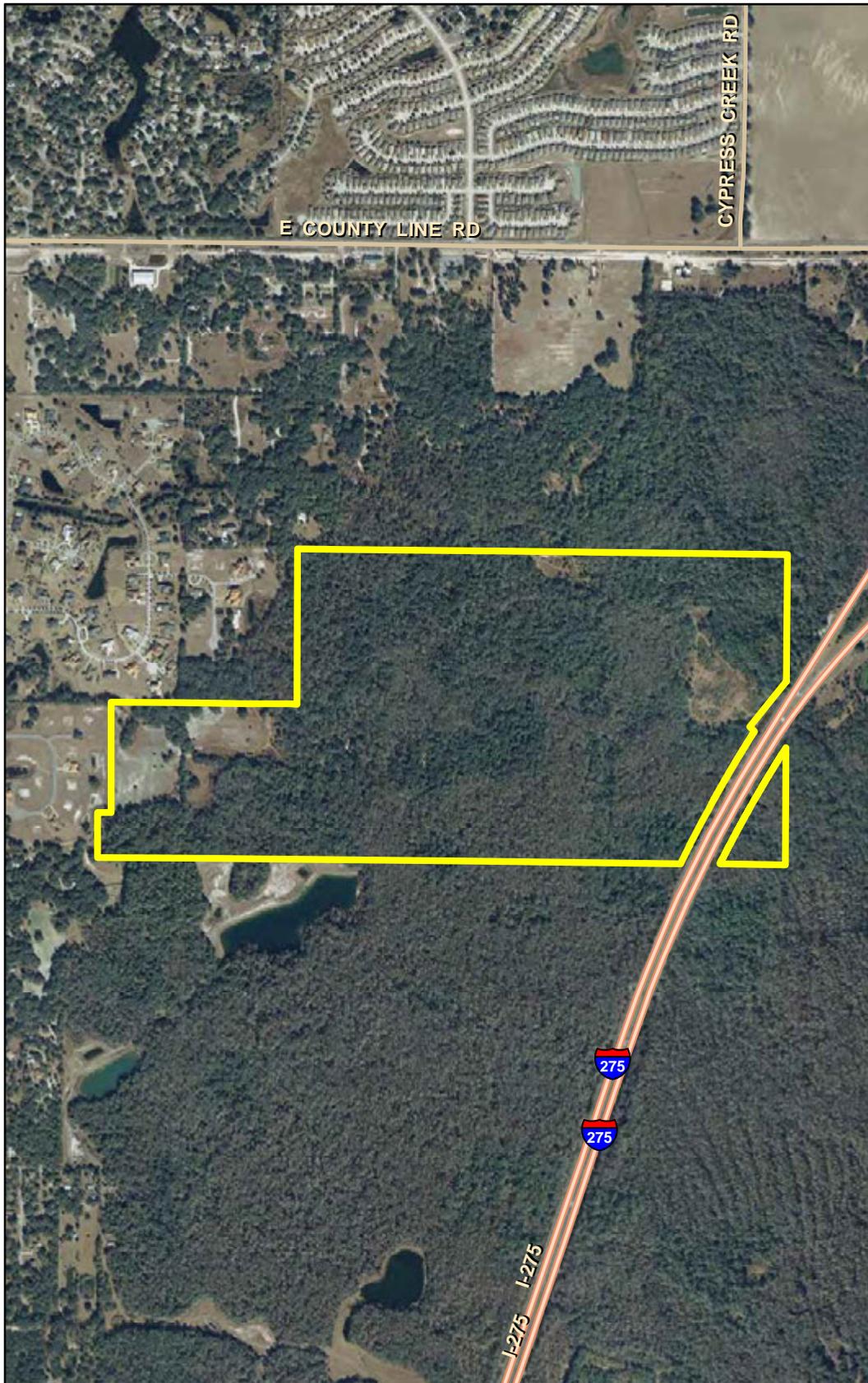
Project cost: \$1,114,400 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Habitats (2008)
3. Photographs (2007)

SW 61 - Cypress Creek Preserve West - Jennings Tract

Figure A - Location



Legend

 Project Location







Upland Hardwood Hammock – The hardwood hammocks have diverse canopy species, dominated by live oak, water oak, Southern magnolia, sweet gum over saw palmetto, beautyberry and buckthorn.



Upland Hardwood Hammock – Transitional area depicting the upland hammock with sweet gum over saw palmetto, dropping in grade elevation to the mixed forested wetland with cabbage palm, laurel oak, maples.



Mixed Forested Wetland- View of one of the lower grade elevations that becomes inundated with surface waters during the rainy season, tupelos and cypress are more common than the higher elevations.



Mixed Forested Wetland-The higher grade elevations are more prevalent than the lower elevations. Mixed hardwoods (laurel oak, sweet gum, American elm, ironwood) are the most common species.



The palmetto prairies have been enhanced with pine plantings, bahia herbicide treatments and incorporating a prescribed fire program.



The upland restoration activities within the western side of the tract has incorporated a combination of herbicide treatments, prescribed fire program, native species seeding and planting.

SW-62 TAPPAN TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland creation and enhancement; upland enhancement			
Landowner	City of Tampa		Management Entity	City of Tampa
County	Hillsborough		Watershed	Tampa Bay Drainage
Water bodies	Tampa Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2557031	SR 60 Cypress St. to Fish Creek ¹	5.10	43002958.003	200205816 (IP-MN)

PROJECT DESCRIPTION

A. Overall project goals: The Tappan Tract is a SWIM-sponsored project constructed on property owned by the City of Tampa along the eastern shoreline of Old Tampa Bay (Figure A). The goal of the project is to provide some unique wetland and upland habitats on public lands adjacent to existing mangrove habitat along Tampa Bay (Figures A-C). The project included the creation of tidal pool (0.41 ac.), salt marsh (1.19 ac.), and freshwater ephemeral marsh (0.55 ac.) habitats (total 2.15 acres of wetland creation). Enhancement was also achieved to saltern habitat (0.53 ac.), tidal pool/creek (1.18 ac.), mangrove habitat (0.77 ac.) and salt marsh (2.55 ac.) (total 5.03 acres of wetland enhancement). Upland areas and spoil mounds were regraded to restore and enhance into coastal hardwood hammock habitat (1.20 ac.).

B. Brief description of pre-construction habitat conditions: The Tappan Tract property covers approximately 33 acres, including 9 upland acres and 24 wetland acres. This site was historically a coastal pine flatwood adjacent to a mangrove fringe along Tampa Bay. Only the

¹ Mitigation for the saltwater marsh impacts is provided at the SW-67 Apollo Beach and SW-77 Cockroach Bay – Saltwater. The freshwater marsh impacts are mitigated at the SW-56 Cockroach Bay – Freshwater.

eastern portion of the property includes the habitat construction and restoration activities, and the only area providing FDOT mitigation credit. Prior to the construction in 2003, the upland area within the east central portion of the site was primarily a mowed open field with dominant cover of grasses, sedges, scattered cabbage palm, exotic species (Brazilian pepper, Melaleuca), and a few live oaks along the eastern boundary (Figure B, 1999 aerial, site photos). A ridge of stockpiled spoil material was located along the north and northwestern perimeter of the construction area, approx. 10 ft. above natural grade, covered with a dense stand of exotic and nuisance species such as Brazilian pepper, Melaleuca, pokeweed, caesarweed, and elderberry. A shallow-scraped upland area in the southern portion of the property generated some high salt-marsh characteristics. Overall, the project area represented low quality habitat conditions for wildlife use.

As part of the initiative of the SWFWMD-Surface Water Improvement & Management Program (SWIM) and the Tampa Bay National Estuary Program (TBNEP), this site was selected to not only restore upland habitat, but to create and enhance estuarine wetlands that are tidally connected to Tampa Bay. This project was one of the proposed habitat creation and restoration projects under consideration along Tampa Bay, referred to as the South Tampa Greenway, and the site is owned by the City of Tampa.

C. Brief description of construction activities and current habitat conditions:

Construction was conducted in 2003 and 2004, commencing with exotic species eradication, followed by earthwork grading to remove the spoil and some upland soil material to create tidal pool & creeks, saltmarsh, and an ephemeral freshwater marsh (Figure C, 2004 aerial). The salt-marsh enhancement was conducted through decreasing some grade material and using the two constructed tidal pool & creek systems to increase hydrologic connections and flow to the marsh habitat (Figure D, 2008 post-construction & current conditions aerial). Some of the removed spoil and open field was restored to upland flatwood habitat, with supplemental planting conducted to enhance the remnant oak hammock along the east side of the project. Native tree, shrub and herb species were planted in the upland and wetland habitats, followed by routine herbicide treatments to aid in maintaining the habitat conditions. Additional details on the construction, planting, and current conditions provided in Attachment A. Aerials and site photographs depict the pre-post habitat conditions.

Construction grading commenced in 2003 to remove the stockpiled soils with dense coverage of B. pepper, as well as decrease grade elevations to create two tidal pool and creek systems that is bordered by salt-marsh and saltern habitat (Figure C – 2004 aerial during construction, site photos). This grading also increased tidal connection and flow regimes to the existing salt-marsh habitat. Species such as smooth cordgrass (*Spartina alterniflora*), marshhay cordgrass (*Spartina patens*), cordgrass (*Spartina bakeri*), seashore dropseed (*Sporobolus virginicus*), and seaside paspalum (*Paspalum vaginatum*) were planted in the salt-marsh creation. With the seed transport provided by the tidal pools & creeks, mangrove species (*Rhizophora mangle*, *Avicenna germinans*, *Laguncularia racemosa*), and salt-grass (*Distichlis spicata*) have naturally recruited and generated within the salt-marsh habitat. Much of the salt-marsh habitat was purposely graded to elevations at and slightly above high tide elevations. This condition results in irregular flushing with salt water that established rare and unique

saltern habitat (Figure D, site photos). Salterns typically have minimal vegetative coverage due to the concentrated salt on the surface, but are productive ecosystems for birds and mammals that commonly forage for crabs, invertebrates, and other species that inhabit the area.

The ephemeral freshwater marsh is separated from tidal influence, and planted with maidencane (*Panicum hemitomon*), American bulrush (*Scirpus tabernaemontani*), white bacopa (*Bacopa monnieri*), and creeping primrose (*Ludwigia repens*). These species are present with bulrush being the dominant cover. Some of the upland field and fill material were graded to contribute surface water runoff into the ephemeral marsh, then mulched and planted with coastal hammock and flatwood species such as slash pine (*Pinus elliottii*), Florida privet (*Forestiera segregate*), live oak (*Quercus virginiana*), firebush (*Hamelia patens*), beach sunflower (*Helianthus debilis*), red cedar (*Juniperus virginiana*), muhly grass (*Muhlenbergia capillaries*), Christmas berry (*Lycium carolinianum*), beach sunflower (*Helianthus debilis*), and tropical sage (*Salvia coccinea*).

The wetland and upland habitats at Tappan have appropriate hydrology, substantial coverage of desirable species, minimal exotic vegetation, and substantial wildlife use. Commonly observed species include fiddler crab (*Uca pugilator*), blue crab (*Callinectes sapidus*), killifish (*Fundulus* sp.), and raccoon (*Procyon lotor*), red-shouldered hawk (*Buteo lineatus*), belted kingfisher (*Ceryle alcyon*), killdeer (*Charadrius vociferous*), little blue heron (*Egretta caerulea*), oystercatcher (*Haematopus palliatus*), snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), wood stork (*Mycteria americana*), and other wading bird species.

Maintenance is primarily conducted to control of garbage and debris from the site, and to eradicate exotics generated within the site; which are predominantly saplings of Brazilian pepper and melaleuca in the upland areas. Quarterly herbicide maintenance was conducted by private consultants contracted through the SWFWMD through 2009. Perpetual maintenance is conducted when necessary by the City of Tampa Parks Dept. to maintain successful habitat conditions on their property. Qualitative monitoring was conducted semi-annually through 2009, with an annual monitoring report each year to document the habitat conditions and maintenance activities for the previous year. Site reviews continue in collaboration between SWFWMD & City of Tampa. The success criteria included 90% survivorship for planted material, a total 85% coverage of desirable species, and less than 5% cover of exotic and nuisance species. The site's habitat conditions exceed the success criteria.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the wetland impacts designated for mitigation at the Tappan Tract were associated with low quality ditches, with the remaining wetland impacts mitigated at Cockroach Bay (SW 56 - Freshwater and SW 75 - Saltwater sites) and Apollo Beach (SW 67). The mangrove enhancement (0.77 ac.) compensates for the 0.3 acre of mangrove impact. Additional mangrove generation has naturally occurred within the enhanced and constructed salt marsh. For the 3.5 acres of saltwater ditch impacts, the mitigation includes salt salt-marsh creation (1.19 ac.), salt-marsh enhancement (3.06 ac.), tidal pool creation (0.41ac.), saltern

enhancement (0.53 ac.), and tidal pool enhancement (0.72 ac.). For the 0.6 acre of freshwater ditch impacts, the mitigation includes freshwater marsh creation (0.55 ac.) and hardwood hammock enhancement (1.20 acres). Considering 94% of the wetland impacts were associated with ditches, the mitigation is considered appropriate to compensate for these low quality wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The only mitigation bank in the Tampa Bay Drainage Basin is the Tampa Bay Mitigation Bank (TBMB), which was not permitted at the time mitigation selection had to be designated for this FDOT project.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This is a SWIM – sponsored habitat improvement project conducted on property owned and managed by the City of Tampa.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department, planting by private contractor

Entity responsible for monitoring and maintenance: Private consultant on contract to the SWFWMD

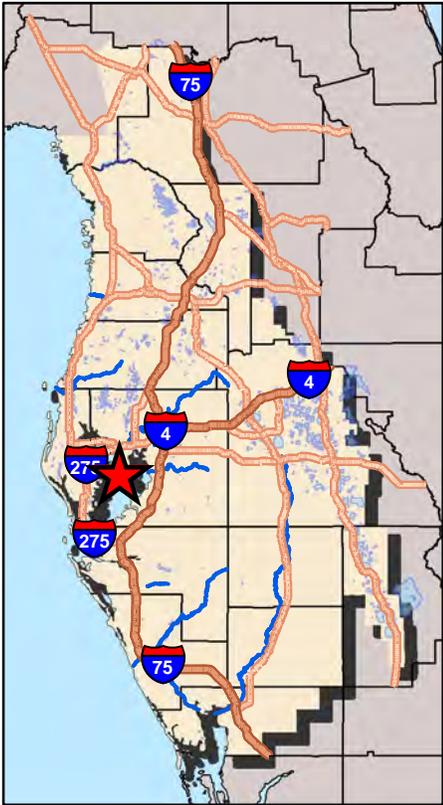
Proposed timeframe for implementation: Commence: Design, 2000, Construction, 2003-2004
Complete: Quarterly herbicide treatments and semi-annual monitoring through 2009, followed by perpetual maintenance as necessary by City of Tampa.

Project cost: \$460,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-During-construction (2004)
4. Figure D-Post-construction (2008)
5. Photographs (2012)

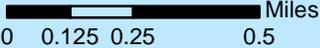
SW 62 - Tappan Tract Figure A - Location



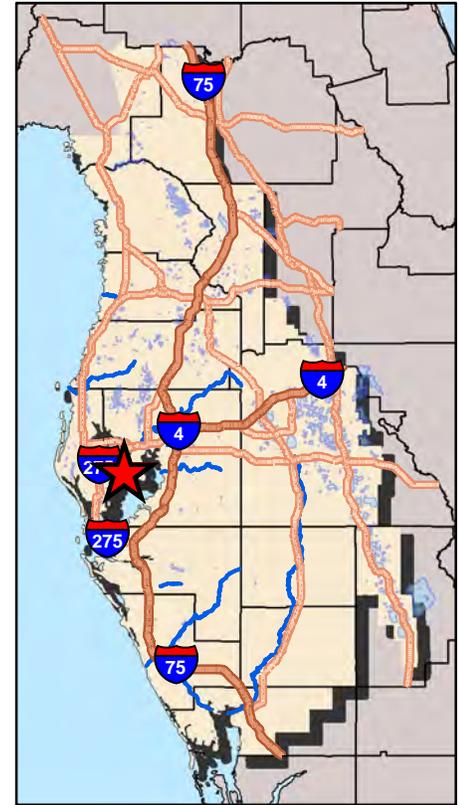
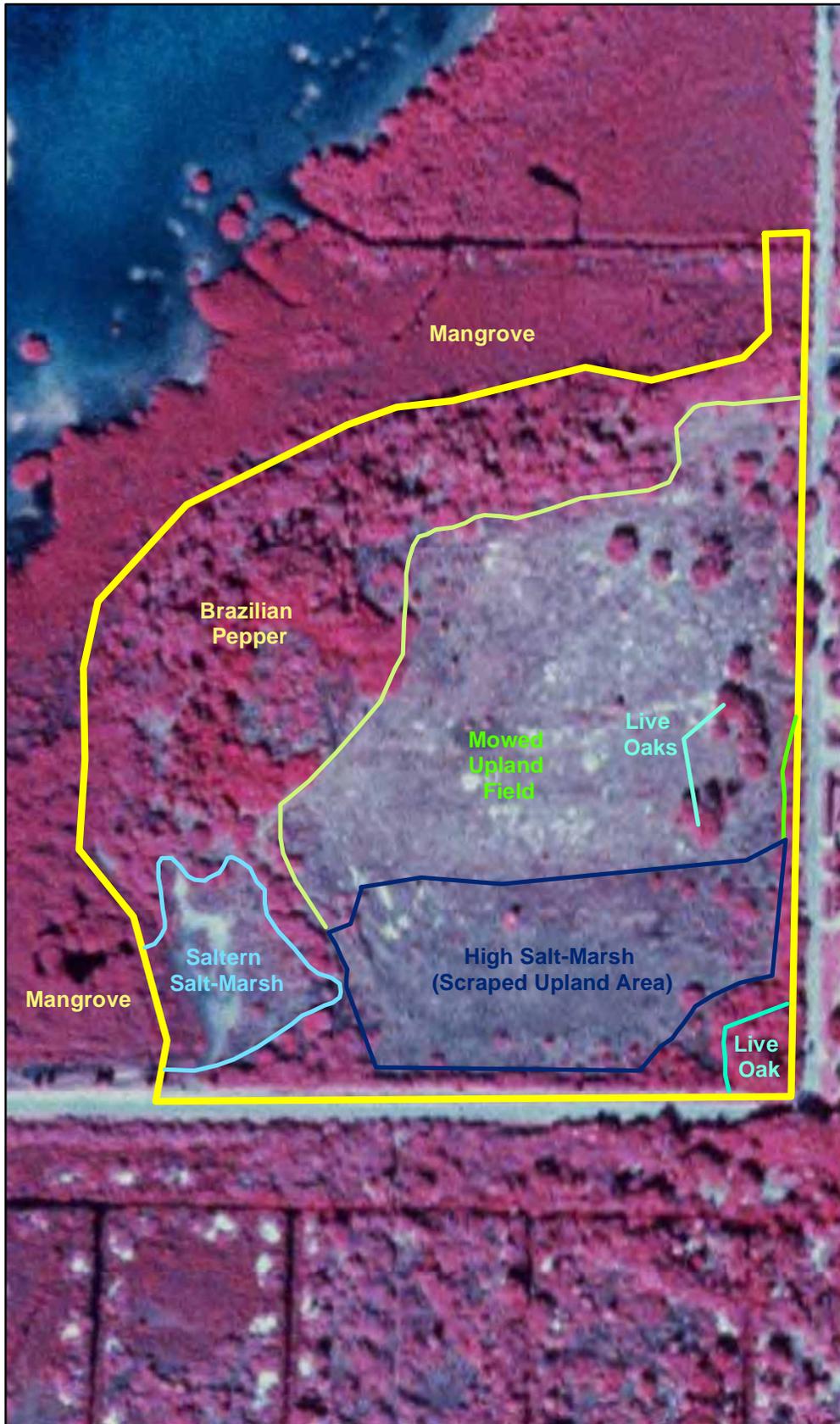
Legend

 Project Location





SW 62 - Tappan Tract Figure B - Pre-Construction (1999)



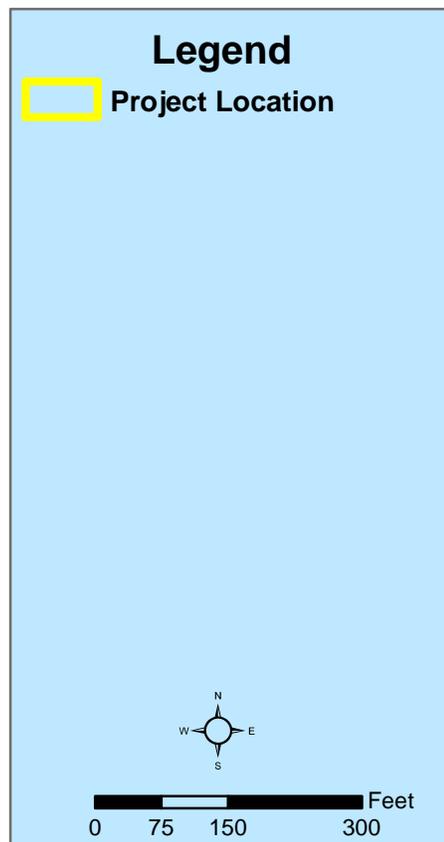
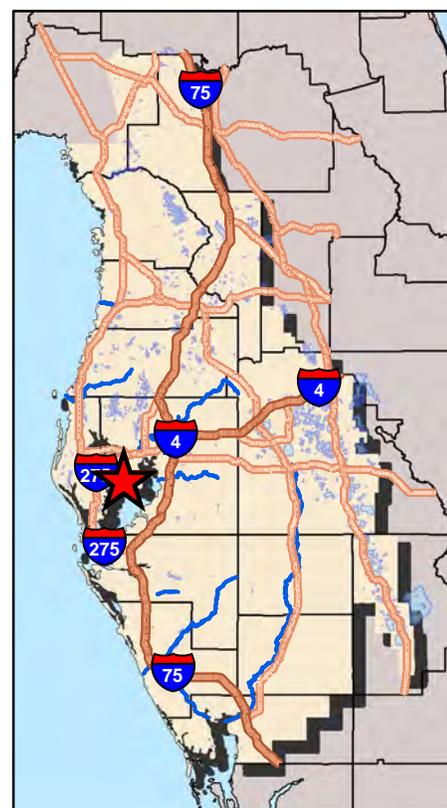
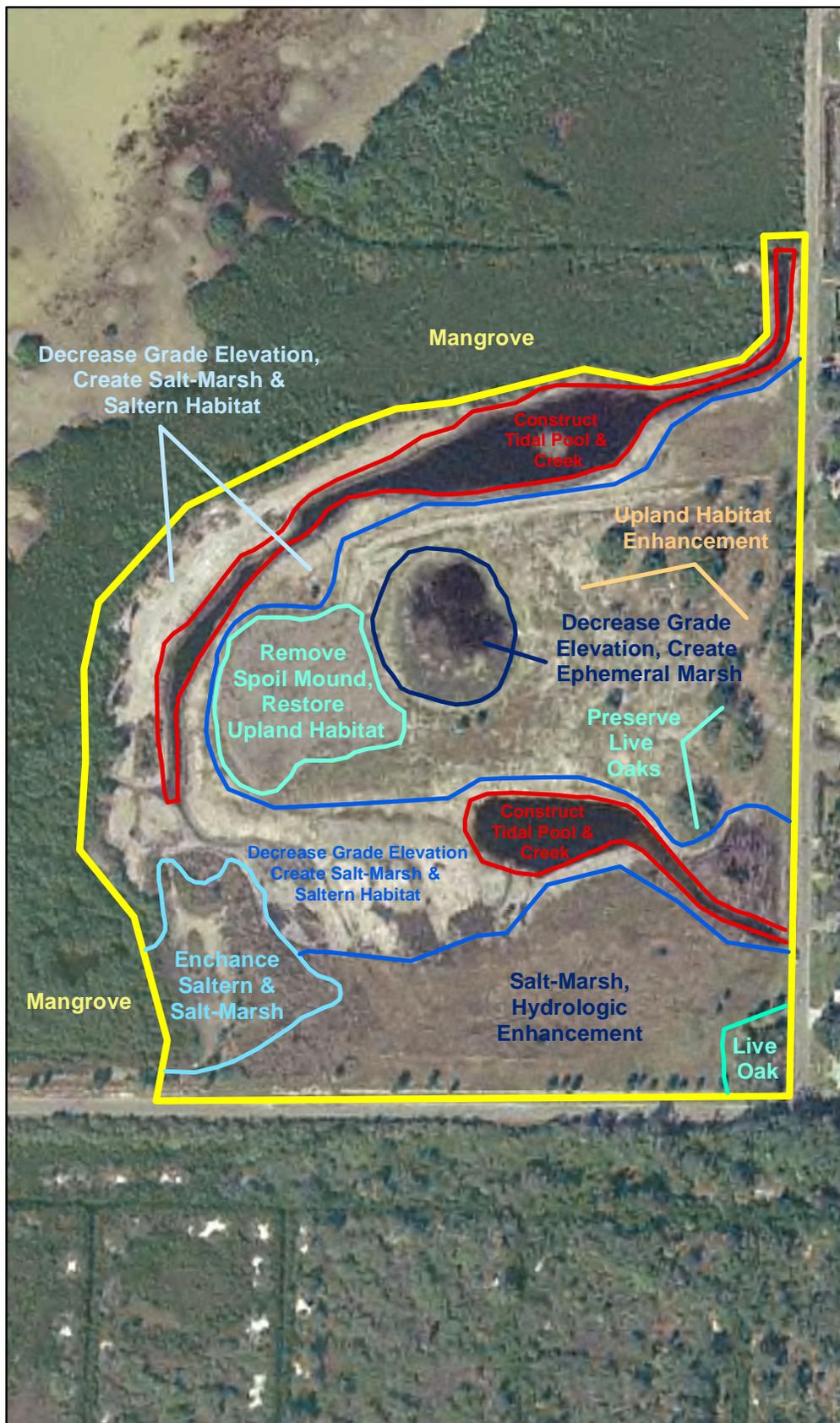
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 Project Location

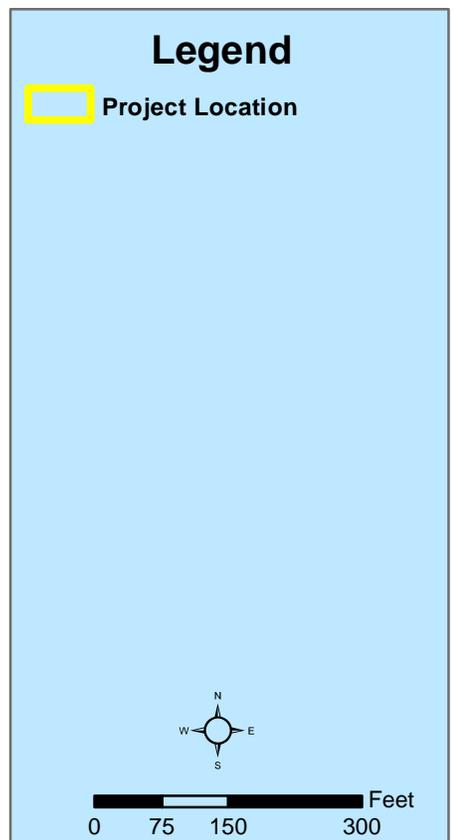
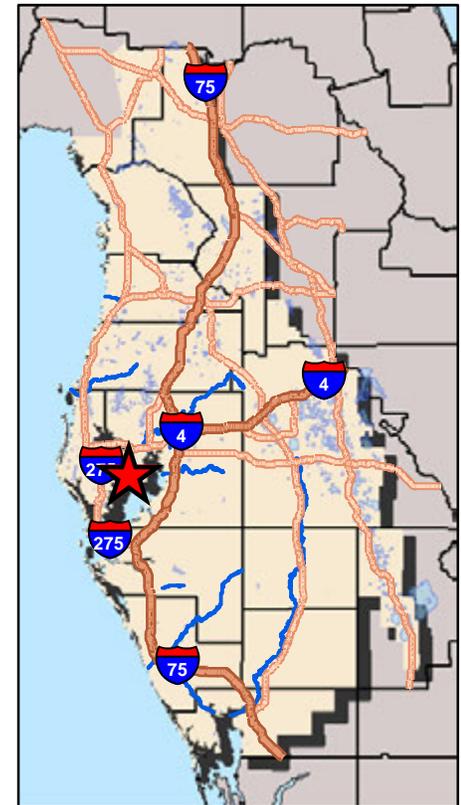
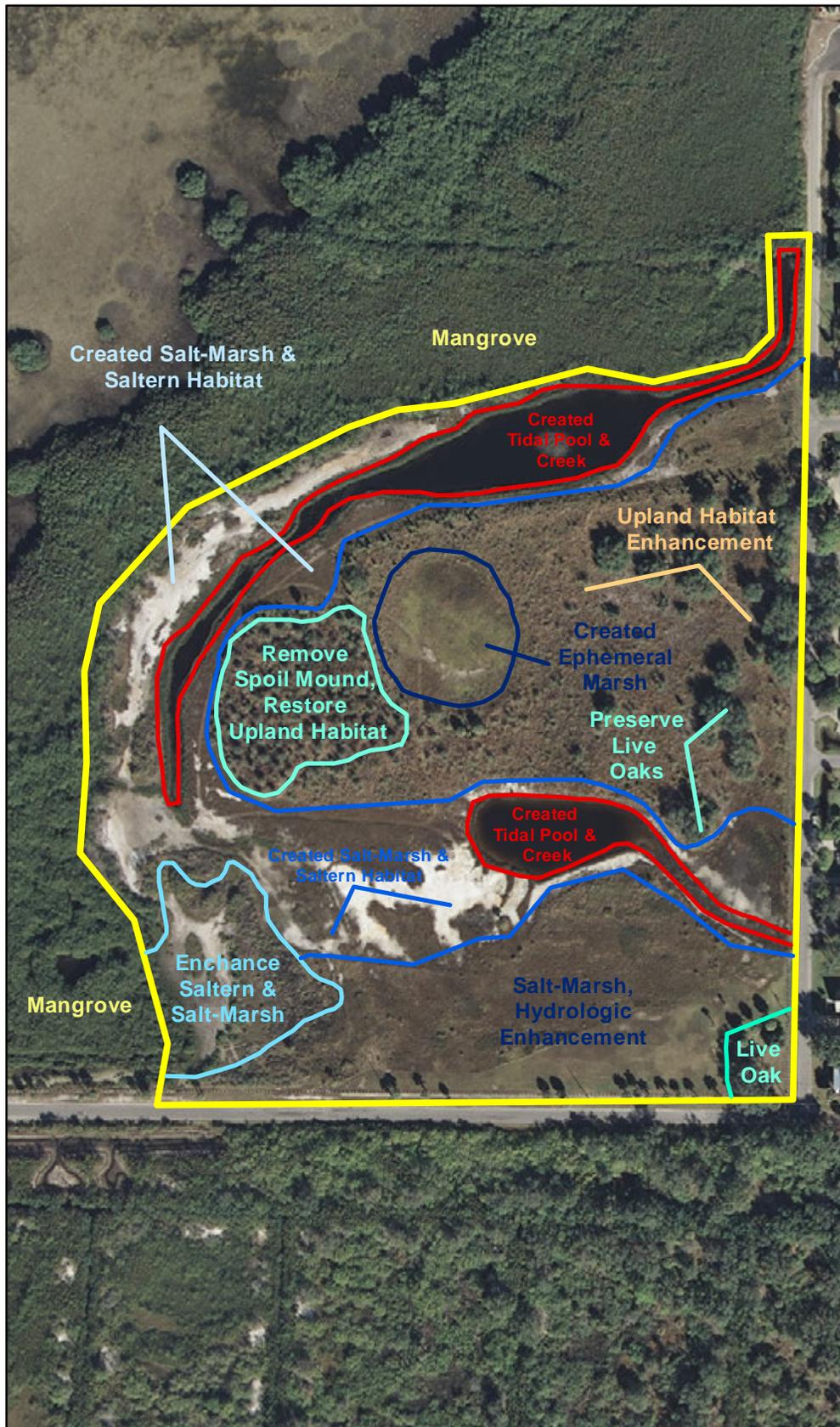


0 75 150 300 Feet

SW 62 - Tappan Tract Figure C - During Construction (2004)



SW 62 - Tappan Tract Figure D - Post-Construction (2008)





Tappan Tract: Tidal lagoon and creek on north boundary.



Tappan Tract: Ephemeral marsh in the western portion of the tract.



Tappan Tract: Created tidal lagoon and creek.



Tappan Tract: Created tidal lagoon and creek.

SW-63 HILLSBOROUGH RIVER CORRIDOR MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland preservation			
Landowner	Southwest Florida Water Management District	Management Entity	Southwest Florida Water Management District	
County	Pasco	Watershed	Hillsborough River	
Water bodies	Hillsborough River	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2563151	US 41 Bell Lake to Tower Road	1.10	4418030.002	199241273 (IP-ES)

PROJECT DESCRIPTION

A. Overall project goals: Acquisition and preservation of a parcel within the Hillsborough River floodplain, a mixed forested wetland (10 acres) that is part of a high quality river floodplain habitat corridor connecting to adjacent property already owned by the SWFWMD (Upper Hillsborough Tract, Figure A).

B. Brief description of pre-construction habitat conditions: The entire 10 acres is mixed forested wetland floodplain with the Hillsborough River meandering through the southern portion of the site (refer to photos). The overstory (canopy >70%) is dominated by red maple, American elm, and laurel oak. Sub-dominants include sweet gum, hackberry, ironwood, bald cypress, and pop ash. Several small natural channels with cypress exist where the river overflows during flood events. A shrub canopy (50-70% cover) in combination with the overstory provides a dense cumulative canopy but still relatively open understory to provide easy wildlife movement. Shrub layer species include the same canopy species with a dominance of elm and additional cover of cabbage palm, Virginia willow, and wax myrtle. Understory vegetation includes smilax, poison ivy, Virginia creeper, wild coffee, and various, small *Panicum spp.* Observed wildlife species include deer, racoon, squirrels, and substantial

bird activity. Periodic review of the site is conducted by the SWFWMD to ensure these high quality habitat conditions are maintained and that no adjacent land use activity encroaches or impacts the habitat.

C. Brief description of construction activities and current habitat conditions: The site is periodically reviewed for security and to ensure high quality habitat conditions are maintained. Efforts continue to hopefully acquire (fee simple or a conservation easement) of the adjacent 20 acre outparcel of floodplain forest east of the tract. This acquisition would finalize a corridor connection to the main Upper Hillsborough Tract (Figure A).

No monitoring, maintenance or success criteria required or proposed due to the high quality habitat conditions. Normal land management activities are conducted to preserve and maintain the habitat conditions.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The Hillsborough River floodplain is an important corridor for wildlife habitat, water quality treatment, and flood attenuation. Only one wetland impact area associated with one roadway project is designated for mitigation with this tract, resulting in the preservation mitigation credit of 10 acres to compensate for 1.1 acres of wetland impact.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of selection, a mitigation bank was not present or proposed within the Hillsborough River basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of selection, the only SWIM-sponsored project within this basin was the Lake Thonotasassa Shoreline Restoration Project; a project selected to mitigate for wetland impacts associated with another FDOT project.

PROJECT IMPLEMENTATION

Entity responsible for construction: No construction activities are necessary

Entity responsible for monitoring and maintenance: Management, security, and any maintenance activities are conducted by the SWFWMD Land Management and Land Use Depts.

Timeframe for implementation: Commence: Summer, 2000 Complete: April, 2001 (acquisition)

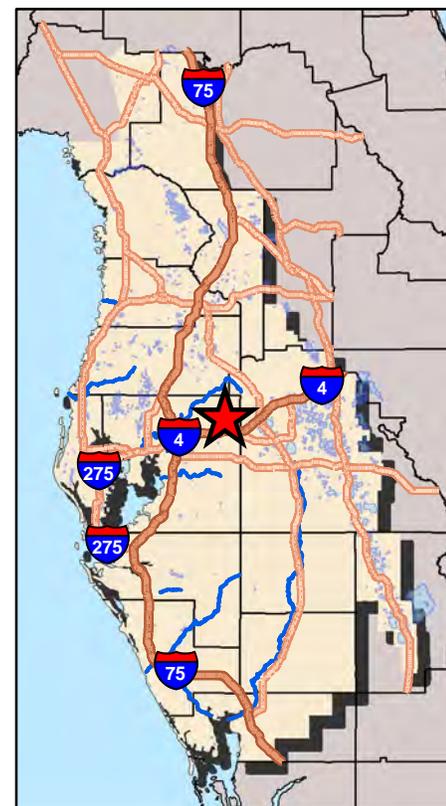
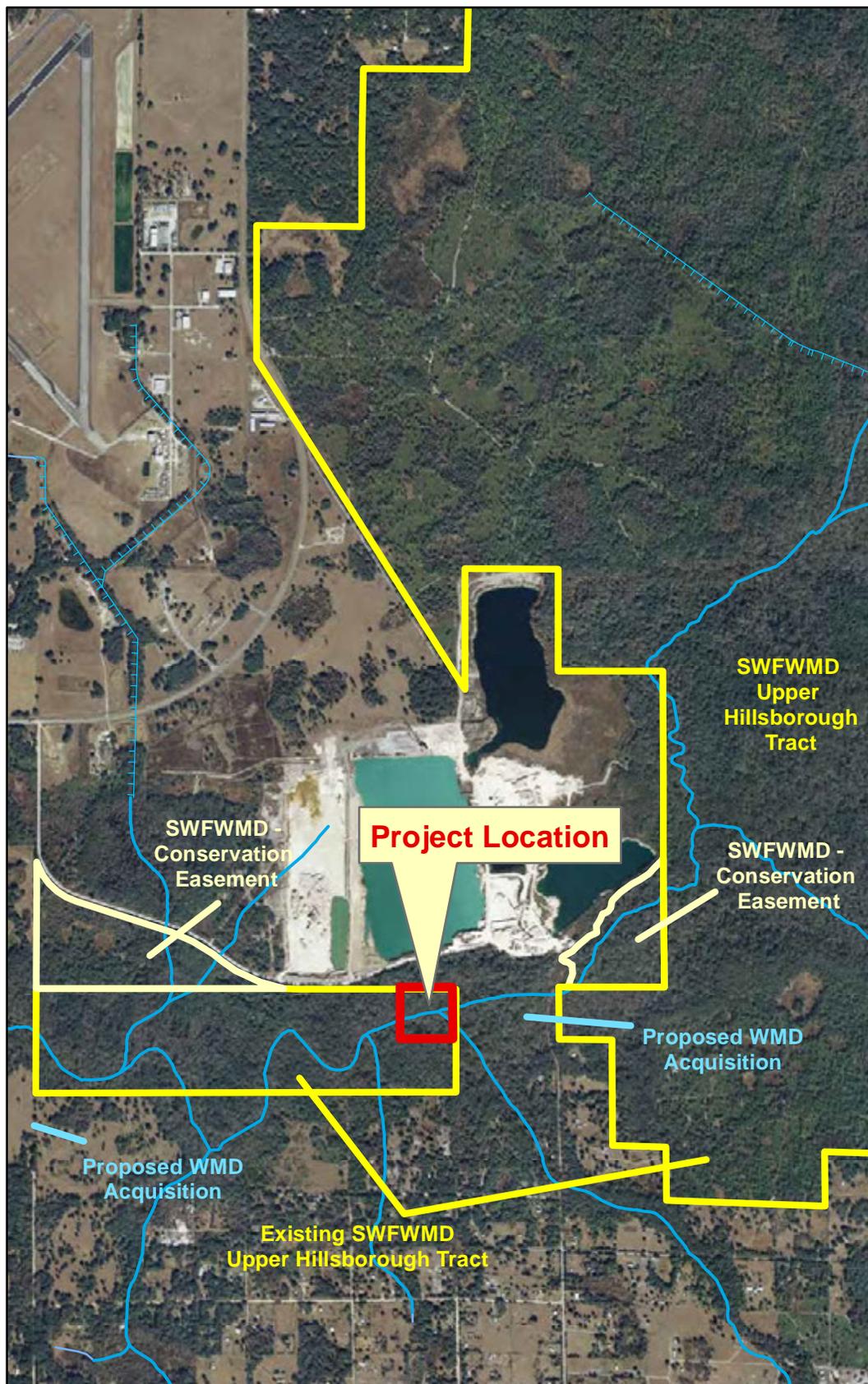
Project cost: \$15,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Photographs (undated)

SW 63 - Hillsborough River Corridor

Figure A - Tract Location



Legend

 Project Location



 Miles
0 0.125 0.25 0.5



View depicting the dense canopy & subcanopy coverage, yet still open ground area for wildlife movement. The white lichens on the cypress (left) delineates a flood elevation a few feet above surface grade



Background depicts an area of very dense subcanopy however small pockets of less canopy (foreground) allow substantial cover of various herbaceous species.



View of the Hillsborough River that substantially meanders through the property, averaging 40-60 ft. wide, very clear & clean water.



One of the many overflow channels within the floodplain, the cypress tend to be concentrated along the channels, various wetland hardwood species dominate the remaining floodplain area.

SW-64 WITHLACOOCHEE STATE FOREST – BAIRD TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Division of Forestry		Management Entity	Division of Forestry
County	Sumter		Watershed	Withlacoochee River
Water bodies	Giddon Lake, Merritt Pond, Goose Pond, Little Withlacoochee River		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2571631	SR 44 US 41 to CR 470	7.90	4310152.003	199606491 (IP-LM)
2571641	SR 44 CR 470 to Withlacoochee River	13.90	4310152.004	199606491 (IP-KF)
2571841	US 41 (SR 45) Watson St. to SR 44 East	0.10	44024198.000	200206293 (NW-KCF)
4092071	CR 470 (Gospel Isle)	0.30	44027068.000	200406915 (NW)

PROJECT DESCRIPTION

A. Overall project goals: The Baird Tract (11,567 acres) is within a portion of the Richloam Management Area (49,000 acres), one of several tracts that make up the Division of Forestry's Withlacoochee State Forest. Prior to public acquisition in 1995, the Baird Tract had extensive alterations to natural drainage patterns as a result of constructed ditches, berms, swales, fire brakes, silviculture bedding, insufficient culverts, railroad trams, and off-site contributing watershed drainage alterations. The proposed project includes the construction and implementation of 72 drainage improvements to restore natural flow patterns within 14

designated surface water management project areas. The project goal is to primarily restore and enhance drainage conditions to enhance over 2,425 acres of wetland habitats.

B. Brief description of pre-construction habitat conditions: The Baird Tract is located within the state-designated “Green Swamp Area of Critical Concern,” an important region where the ground and surface water forms the headwaters of four major riverine systems (Withlacoochee, Hillsborough, Peace, Ocklawaha). The Baird Tract adjoins over 200,000 acres of other public lands that were primarily acquired by the state to protect and enhance wetlands and associated water resources (Figure A). The Baird Tract has an extensive mosaic of wetland systems, slash pine plantations and pine flatwoods managed through the Florida Division of Forestry (FDOF). The wetland systems include a dominance of mixed forested wetlands, forested stream swamps and cypress strands (Figure B). However unlike the majority of the wetland habitats in the Green Swamp that are primarily forested ecosystems, there are also large ephemeral and emergent marshes located on the property (Figure 2 - i.e. Gidden Lake, Merritt Pond, Revel Pond, Goose Pond). The network of ditch and elevated roads were previously constructed to primarily drain surface water more rapidly to the south and west into the Little Withlacoochee River. This has resulted in decreasing the depth and duration of surface water hydroperiods associated with many wetlands within the Baird Tract. Subsequently, this alteration has reduced other wetland functions and associated benefits such as the presence of appropriate and diverse flora & fauna, water quality treatment, flood attenuation, and groundwater recharge. Site details are provided in the permit applications, available upon request from the Florida Department of Environmental Protection (FDEP) who is co-sponsoring the proposed hydrologic restoration project.

C. Brief description of construction activities and current habitat conditions: The pre-construction activities include extensive wetland habitat and drainage evaluation, data collection, and incorporating this information in the surface water hydraulic & hydrologic model (ICPR). This evaluation has determined the possible primary wetland hydrologic improvements that can be conducted, and delineated these improvements into 14 individual surface water management project areas. These specific project locations are depicted on Figure C, with the current hydrologic problems and resolutions described on Table 1. There will be construction of 72 proposed structures to achieve the desired hydrologic restoration associated with the 14 projects. These structures include 45 ditch blocks, with the remaining 27 structures associated with adding and replacing culverts. As a result, the actual footprint of construction-related activities will be minimal, however there will be extensive ecological benefits associated with restored and enhanced wetland hydrology. From a habitat perspective, the restoration will result in a reduction of altered hydrologic conditions that have allowed inappropriate facultative and upland vegetative species recruitment and generation within the wetlands. In turn, the gradual mortality and eradication of these species as a result of the restored hydrology will be displaced by regeneration and recruitment of appropriate hydrophytic species. The restored hydrology and appropriate vegetative conditions will provide wetland habitat functions and benefits that will attract more diversity and utilization by wildlife species. The restored hydrology will also provide more water quality treatment, flood attenuation, as well as groundwater recharge associated with the rare shallow rock & karst

topographic features available on the the Baird Tract. Information on the environmental and engineering evaluations is provided in the permit applications and available from the FDEP.

The monitoring plan includes habitat evaluations, as well as surface water documentation of pre- and post-construction conditions via ten staff gauges with continuous water level recorders installed in 2008 within the tract's wetlands. The water table data will be presented as hydrographs within annual monitoring reports prepared for a minimum of five years post-construction. The initial monitoring report will document pre-construction hydrologic and habitat conditions and the structure construction. Qualitative vegetative and habitat evaluation of the representative wetland enhancement areas will be conducted semi-annually (dry & wet season observations) and concurrently with downloading water level data associated with the hydrologic monitoring. The qualitative wetland evaluation will include descriptive and photographic documentation of vegetative and habitat conditions, with particular notation of transitional shifts of vegetative diversity and wildlife utilization as a result of the restored and enhanced drainage improvements. Success criteria includes the demonstration that the proposed structures (e.g. ditch blocks, culverts, etc.) function as proposed, and that proper stabilization has occurred and will be maintained around the structures. This documentation will need to demonstrate that the proposed ditch blocks detain and/or divert flow as designed, and the new and replaced culverts are conveying flow to designated wetland systems. There is currently less than 5% coverage of exotic and nuisance species within the wetlands proposed for hydrologic restoration, and that percent coverage will not be exceeded post-construction.

Long-term maintenance will be associated with periodic monitoring, maintenance and managing the proposed construction areas (i.e. ditch blocks, culverts, etc.) to ensure that they are properly functioning as proposed, and that there are no existing or anticipated problems with structure erosion or stabilization.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Of the total 22 acres of wetland impacts designated for mitigation through wetland enhancement at Baird, the habitats include 12 acres of mixed forested wetland habitats, 7 acres of marsh, and 3 acres of shrub wetlands. The proposed wetland hydraulic and hydrologic restoration and enhancement will result in biological (flora & fauna) improvements to various wetland habitats at Baird that are adequate and appropriate to compensate for these wetland impacts within the same Withlacoochee River Basin. Of the total 2,425 acres of primary wetland hydrologic restoration designated to provide mitigation at Baird, 2,268 acres are associated with forested wetlands and 158 acres are non-forested wetlands. There will be secondary hydrologic benefits to other wetlands as well as uplands within the property however those are not accounted for in FDOT mitigation credits. Due to the large-scale habitat improvements at Baird Tract, the loss of the roadway wetland habitats will be compensated by the significant ecosystem benefits from the proposed activities.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection for the wetland impacts

associated with the proposed roadway projects, there were no existing or proposed mitigation banks within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, the only SWIM-sponsored project within this watershed was the Lake Panasoffkee Restoration project (SW57), which was selected to provide mitigation to compensate for unavoidable wetland impacts associated with widening the existing I-75 bridge crossing of the Lake Panasoffkee wetland floodplain. Additional wetland hydrologic restoration projects within adjacent public lands have been selected for the FDOT mitigation program within 15 miles south of the Baird Tract (Figure A). These include SW 55 – Upper Hillsborough 4&5 (Hillsborough Basin), SW 59 – Hampton Tract (Withlacoochee Basin), and SW 84 – Colt Creek State Park (Hillsborough & Withlacoochee Basins).

PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor selected by FDEP & FDOF

Entity responsible for monitoring and maintenance: FDEP and FDOF

Proposed timeframe for implementation: Commence: January, 2001-2009 – site evaluations, survey, data collection, engineering consultant selection, surface water modeling, installation of staff gauges with continuous recorders, environmental permitting, contractor selection for construction. Complete: 2010 – 2011 construction, followed by minimum five years of monitoring.

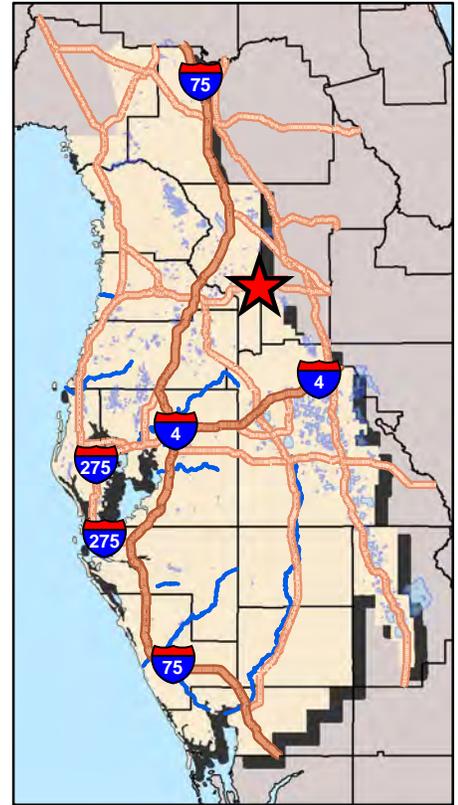
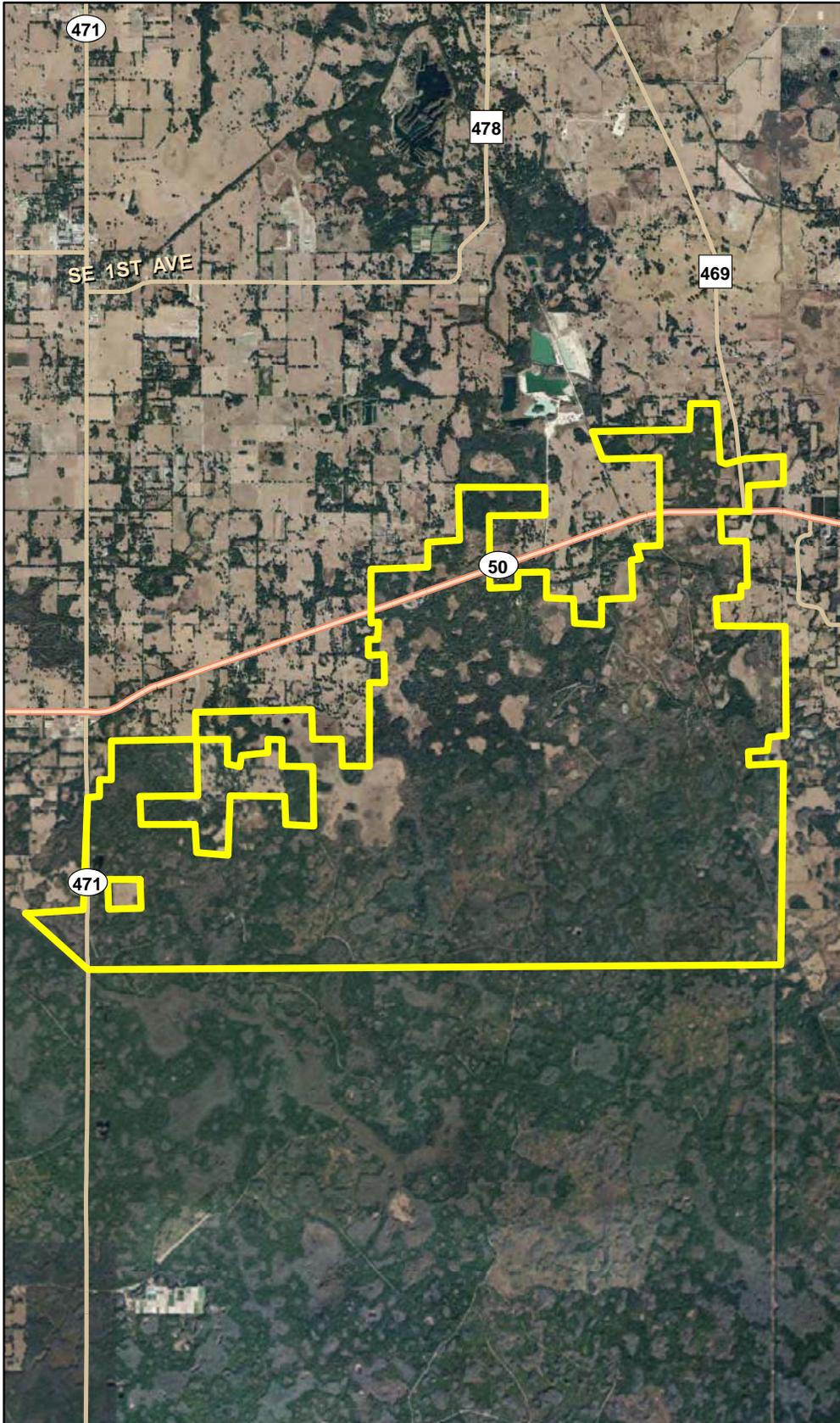
Project Cost, estimated: \$840,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Photographs (2012)

SW 64 - Withlacoochee State Forest - Baird Tract

Figure A - Location



Legend

 Project Location



 Miles



Withlacoochee State Forest – Baird Tract-Photo depicts wetland hardwood swamp adjacent to Giddon Canal.



Withlacoochee State Forest – Baird Tract-Photo shows Giddon Canal following ditch block installation and rehydrated wetland hardwoods.



Withlacoochee State Forest – Baird Tract-Photo shows Giddon Canal following ditch block installation and rehydrated wetland hardwoods.



Withlacoochee State Forest – Baird Tract: Photo depicts culverts installed on the berm near Giddon Canal.

SW-65 RUTLAND RANCH – SOUTH TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland restoration and enhancement			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Manatee		Watershed	Manatee River
Water bodies	Un-named		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1960221	SR 64 (Seg. 1) I-75 to Lena Rd.	2.42	4302058.009	199901379 (IP-KI)
1960223	SR 64 (Seg. 2) Lena Rd. to Lakewood Ranch Rd.	0.80	44016872.018	NPR
1961211	SR 70 (Seg. 1) I-75 to Lakewood Ranch Rd.	0.90	44025920.001	200311659 (IP-MLS)
4043232	SR 70 (Seg. 2) Lake Ranch Rd. to Lorraine Road	3.80	43025920.002	200400032 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: The Rutland Ranch property (also referred to as “Chance Reserve”) is owned and managed by the SWFWMD. The property includes two parcels separated by private lands along Gilley Creek, with this designated mitigation project conducted within the southern tract (Figure A). Prior to public acquisition, over half of the 900-acre south tract was historically used for row crops and cattle (Figure B). The site has 15 wetland areas, the majority are marshes interconnected with large ditches that substantially altered the wetland hydrology and vegetative composition. The project goal included completely filling some ditches and constructing blocks in other ditches to restore ground and surface water hydrology, and subsequently enhance and restore appropriate wetland habitat.

Upland buffers around the wetlands and filled ditches were allowed to regenerate native vegetation and supplemented with plantings to enhance habitat conditions and wildlife corridors between the marshes.

B. Brief description of pre-construction habitat conditions: The SWFWMD acquired the Rutland Ranch property in 1998 for a few major reasons. The tract is located within the Southern Water Use Caution Area (SWUCA), a designated area where groundwater resources are at critical levels that require limitations of water well withdrawals. The property, located less than a mile of the Manatee River and Lake Manatee Reservoir contributes surface and ground water to these water bodies. Land use changes from row crops to less intensive agricultural operations (e.g. cattle grazing) not only place less strain on consumptive use (water quantity) but results in a reduction of nutrients (water quality) that contribute to the watershed and the Manatee River. Acquiring the property also provided the opportunity to restore and enhance wetland and upland habitats in the basin.

The SWFWMD discontinued the row crop operations and implemented a reduced production cattle lease on the tract, with the long-term plan to gradually conduct additional upland restoration and enhancement activities. The pastures on the property are so extensive that restoring them to flatwoods will require time, so a smaller population of cattle was allowed so the pastures don't become overgrown with nuisance vegetation. The cattle production was not only reduced but the cows dispersed over the entire tract. Palmetto prairie dominates the western one-third and southeast corner of the tract. The vegetation of these prairies includes dominance by saw palmetto, broomsedge, and wiregrass.

Ditches excessively drained surface and ground water conditions from the uplands and the majority of marshes located within the pastures (particularly Wetlands 5-11 and 13). These marshes are shallow ephemeral wet prairie wetland systems, with dominant cover of maidencane and moderate coverage of St. John's-wort. Ditches vary in size with the smaller ditches averaging 10-15 ft. wide and 2-3 ft. deep, moderate size drainage ditches are 20-25 ft. wide and 5-8 ft. deep, the large drainage ditches were 25-30 ft. wide and 6-8 ft. deep. Ditch sizes increase as the ditches progressed downstream (south) conveying large volumes of water off-site. These ditches also substantially dropped the groundwater table. Prior to construction, the marshes had very minimal duration and depth of surface water (hydroperiods) due to the ditches. This resulted in substantial alterations in the vegetative components of these wetlands. The marshes transitioned from maidencane-dominated systems to upland and facultative vegetative species such as broomsedge (*Andropogon virginicus* dominant, some *Andropogon glomeratus*). The most extensively ditched marsh was Wetland 12, which had few relic indicators of wetland functions and no evidence that it had retained any surface water for many years. Remnant pockets of maidencane within the cross-ditches were present due to intermittent periods of surface water draining into the large interior collector ditch. Along with the broomsedge, other upland species that recruited into the marsh include gallberry, wax myrtle, and scattered pine (photos). There are five wetlands that had upland spoil ridges present as a result of constructing ditches. These spoil areas were covered with bahiagrass and saltbush.

C. Brief description of construction activities and current habitat conditions: Initial activities included herbicide treatment of exotics and nuisance species within the ditches (predominantly cattails), followed by construction activity to backfill the majority of the ditches as well as install ditch blocks to restore ground and surficial hydrology and appropriate hydroperiods for the majority of on-site wetlands (Figure C – 2010 aerial, pre-post construction photos). Earthwork construction and planting activities were conducted in the spring and summer, 2002. Herb planting was conducted in the exposed earthwork areas of those wetlands where the spoil was cut to backfill the ditches; including the extensive “fish-bone” ditches throughout the largest wetland (Wetland 12). The upland buffers around Wetlands 1-4 and 12 were planted with scattered longleaf pine to increase buffer habitat. Supplemental herb planting, cypress and maple were planted within Wetland 12 in 2004. A total of 2,500 trees and 56,420 herbs were planted and successfully established in association with the habitat improvements. Quarterly herbicide maintenance events and semi-annual monitoring continued through 2009. After 2009, the maintenance events will continue in perpetuity to maintain successful habitat conditions; typically 2-3 annual herbicide treatments and prescribed fire within the palmetto prairie. Semi-annual site evaluations and monitoring have been and will continue to be conducted in perpetuity.

The original construction plan proposed utilizing a dominance of blocks within the ditches to restore wetland in the palmetto prairie. However upon evaluation during major flood events, it was determined that ditch blocks alone could not detain the substantial volume of groundwater drawdown caused by the deep ditches located adjacent to Wetlands 7-9, so total backfill of those ditch segments were conducted during July, 2002. In addition, total filling was conducted for the ditch segment crossing through Wetland 5 and a portion of Wetland 6. However, ditch blocks were constructed in order to protect existing trees and shrubs generated on the spoil while restoring hydrology in Wetland 6. The ditch block option also provides an open water source in the remaining ditch segments for wildlife use during the dry season. After ditch backfill, herb generation and seed recruitment from adjacent native habitat occurred and provides over 90% ground cover of desirable vegetation, resulting in 10 acres of upland habitat restoration in the footprint of the ditches and adjacent spoil material.

After the current cattle lease commenced in late 2002, row crop fields were established with bahiagrass. In order to reduce cattle use of the marshes for a water source, three large cattle ponds were dredged in the pastures. The pre-existing upland habitat buffers of palmetto around Wetlands 1-4 and 12 were not allowed to be removed as part of the cattle lease. Supplemental plantings (1 gallon – 1000 longleaf pines) were planted within these palmetto buffers. An average 50 ft. wide upland corridor of native habitat has been enhanced between Wetlands 3, 4, and 12. Existing palmetto, pines, and myrtles located on spoil material within this corridor were preserved from the construction activity necessary to fill the adjacent ditches. Supplemental trees and native grass seed have replaced the deep ditches with desirable upland vegetation, resulting in two acres of pine flatwood restoration to replace the upland-cut ditches. Pine planting provides 23 acres of upland buffer enhancement around Wetlands 1-4, and 12. There is evidence that the removal of the large upland ditches have provided substantial wildlife movement and corridor connection between the buffer cover along the Gilley Creek tributary north of the site (Wetland 15) to the forested ditch south of the

property (Figure C). The corridors and low cattle stocking rates have allowed wildlife to roam and forage throughout the tract.

Once these spoil areas in wetland marshes were graded to fill the adjacent ditches, herb plantings were conducted within these earthwork areas. After the ditches were backfilled in 2002, an initial planting of herbs was conducted in the footprint of the ditches & spoil. These plantings (total 37,400 plants) included predominantly soft rush for exposed soil in the more ephemeral Wetlands 2, 4, 5, and 6; and arrowhead, pickerelweed, and bulrush in the predominantly emergent Wetland 12. Because of the substantially altered functions and conditions of Wetland 12, the remnant native seed source of hydrophytic herbs were not as prevalent as the ephemeral marshes, so there was not as much natural recruitment of adequate and appropriate vegetative coverage. The planted filled ditches in the wetland were progressing well but there was not as much desired herb generation within the remaining portion of Wetland 12, so a supplemental planting of herbs (19,500 plants) and trees (1,500) included bulrush, alligator flag, pickerelweed, arrowhead, spikerush, sawgrass, spatterdock, cypress, and red maple. An older spoil ridge through the middle of Wetland 12 was covered with oak trees that were not removed during construction to result in mortality from the restored hydrology and create snags for wildlife use.

Hydrologic restoration and enhancement of the marshes have resulted in the enhancement of other wetland functions and attributes. Vegetative shifts transitioned to more desirable and appropriate wetland species and provide foraging opportunities for wildlife. Prior to construction, the marshes within the proximity of the pastures had such limited hydroperiods that they transitioned to vegetative characteristics more indicative of fallow fields (particularly Wetland 12), with minimal wildlife food resources. Opportunities for foraging wading birds were primarily limited to the few, small isolated marshes within the western palmetto prairie. Water and aquatic food resources within the pasture area were primarily limited to high nutrient ditch water. Restoring the isolated systems has increased the water quality treatment opportunities compared to the pre-existing drainage ditches that directly discharged into a nearby potable water source (Lake Manatee Reservoir). Retaining surface water on-site has also resulted in soil infiltration that improve water quality and groundwater recharge.

With restoring marsh hydrology, plantings, and the gradual regeneration and recruitment of desirable hydrophytic vegetation has improved the ecological functions of the wetlands as well as the relationship with the adjacent upland habitats. With the segregated habitat between Wetlands 3, 4, and 12, there wasn't a contiguous corridor of native habitat through the improved pasture. The re-established corridor for wildlife has not conflicted or restricted mobility of the reduced cattle grazing. Reintroduction of appropriate cattle management into the pastures has kept ruderal species from establishing (i.e. salt-bush, fennel). The combination of the marsh restoration, existing native habitat, and the upland corridor has attracted and increased the wildlife opportunities and activities across the property and to adjacent public lands. Wading birds, amphibians, fish, and reptiles are routinely observed on the property.

Pre-construction monitoring was conducted to document pre-existing marsh conditions (hydrology, vegetative coverage & diversity, wildlife use) exhibited in the summer, 2001 and winter, 2002 periods. This information was used as baseline conditions to evaluate the hydrologic and vegetative restoration as a result of the earthwork activities. Semi-annual qualitative monitoring and photographic documentation of vegetative, hydrologic, and wildlife conditions for the various marsh enhancement areas was conducted through 2009. The maintenance activity included quarterly herbicide eradication of all exotic and nuisance vegetation in the wetlands through 2009. After 2009, the herbicide maintenance events are conducted as necessary with a minimum treatment of twice a year. Monitoring events will be conducted at least a couple times a year to evaluate the habitats, wetland functions, wildlife use, and maintenance needs for the tract.

Success criteria includes demonstration of appropriate hydroperiods for the enhanced wetlands, particularly for the more extensive dewatered wetlands (Wetlands 2, 4, 5, 6, 11, and the most altered, Wetland 12). Success criteria required 90% survivorship of planted stock, less than 10% coverage of exotic and nuisance species, and a minimum 85% coverage of desirable species (including existing, regenerated, recruited, and any planted material) within the enhanced and restored marshes and designated upland buffers. As of 2010, the vegetative coverage of desired vegetation exceeds 95%, exotic and nuisance species is typically less than 2% and don't exceed 5%, and all the wetlands demonstrate desired habitat functions and benefits.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):

The mitigation activities resulted in 73 acres of wetland enhancement associated from the hydrologic restoration. The largest wetland (22 acres) had the most altered habitat pre-construction, with minimal functions to even qualify as a wetland. This wetland has received the most ecological improvements as a result of the construction and planting activities. There were also 5 acres of wetland restoration within the footprint of where ditches & adjacent spoil material were graded to match historic wetland grade elevations and planted with herbs. The activities also included 10 acres of upland habitat restoration from grading ditches in the palmetto prairie, and 25 acres of upland habitat enhancement that buffer Wetlands 1-4 and 12. This results in a total mitigation acreage of 113 acres that adequately and appropriately mitigate for the 7.92 acres of roadway wetland impacts. No additional roadway projects have been or will be proposed for mitigation at Rutland Ranch.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection in 2001, there were no existing or proposed mitigation banks within the Manatee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of selection, the only SWIM-sponsored project in this basin was Terra Ceia (SW50). The Terra Ceia project includes restoration and enhancement of salt-water and estuarine habitat, and is providing appropriate FDOT mitigation for salt-water wetland impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD – Operations Department in 2002.

Entity responsible for monitoring and maintenance: Private consultants and contractors working for the SWFWMD.

Timeframe for implementation: Commence: Hydrologic Monitoring, Spring – 2001 Complete: Construction & Initial Planting - 2002, Supplemental Wetland 12 Planting - 2004, quarterly maintenance & semi-annual monitoring through 2009; followed by herbicide maintenance (2-3 events annually), site evaluations and annual monitoring reviews, & normal land management activities (i.e. prescribed fire in the palmetto prairie).

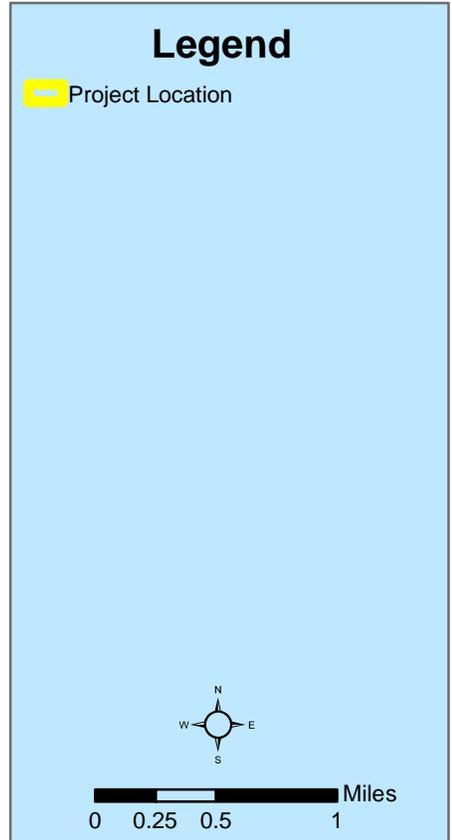
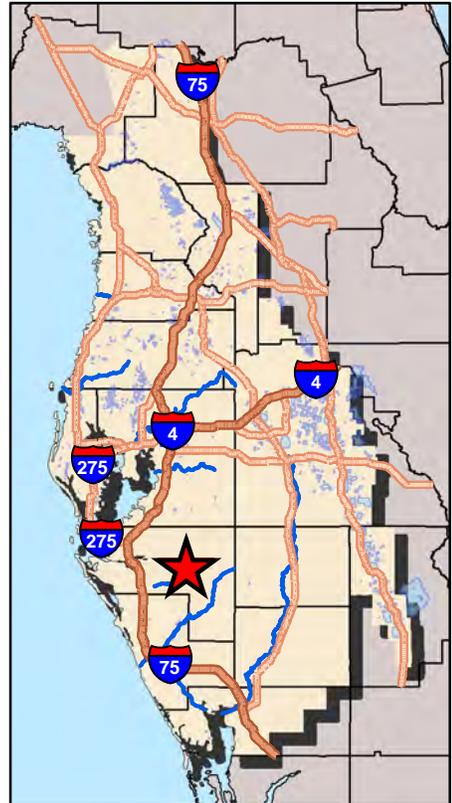
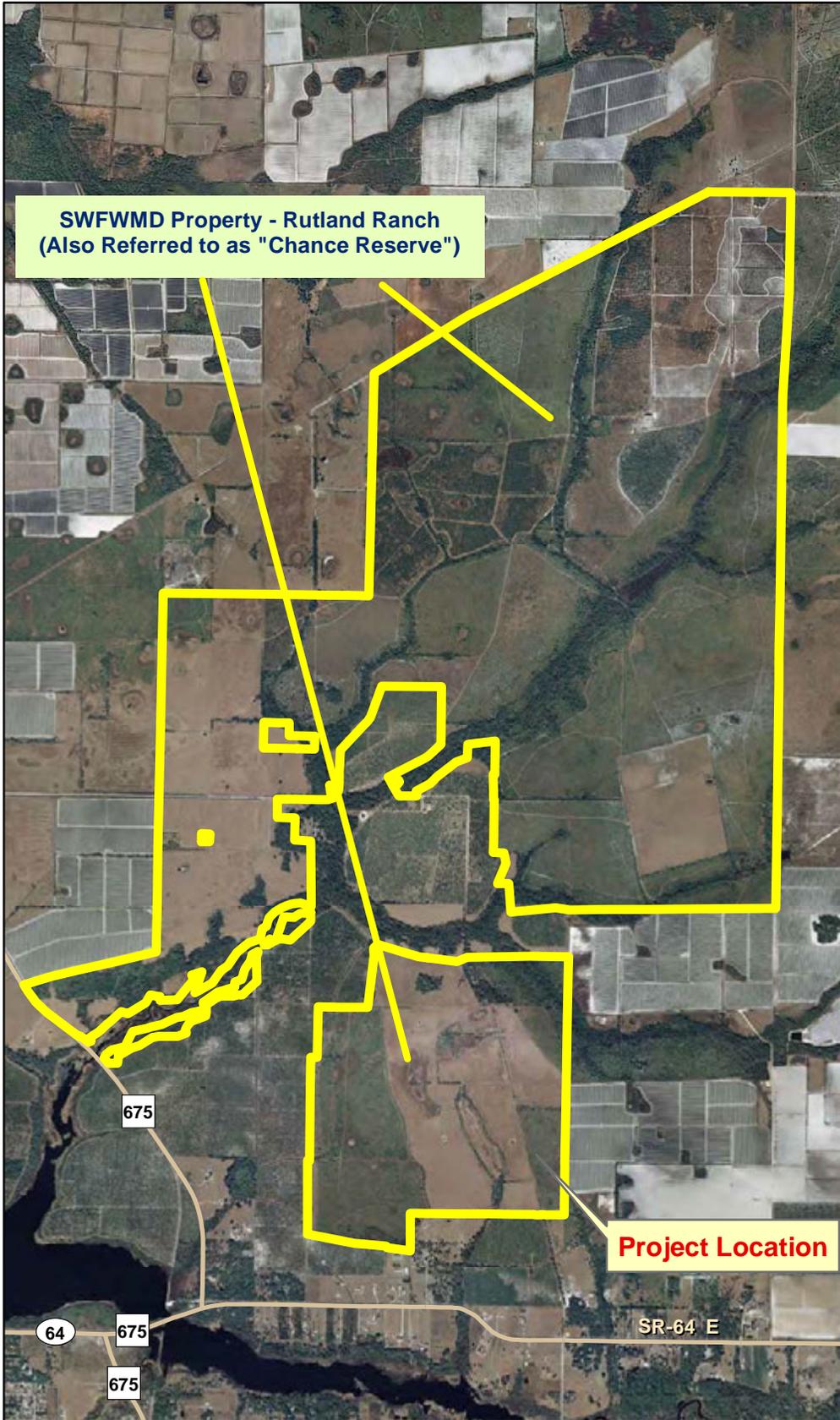
Project cost: \$ 290,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1994)
3. Figure C-Post-constriction (2010)
4. Photographs (2001, 2002, 2009)

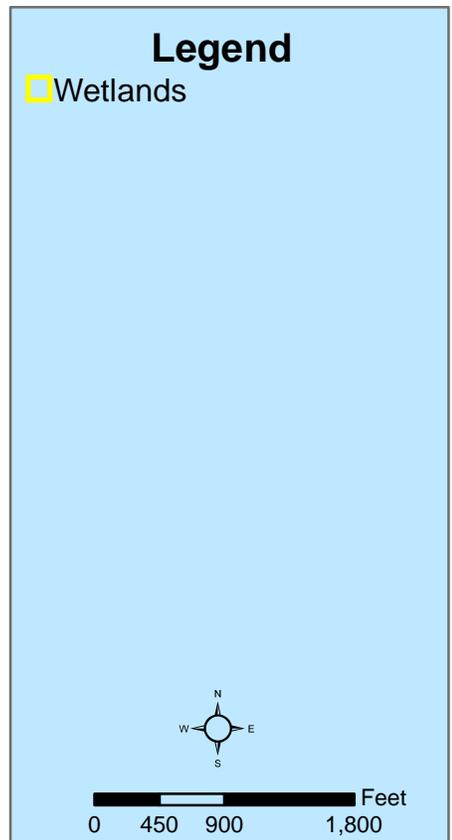
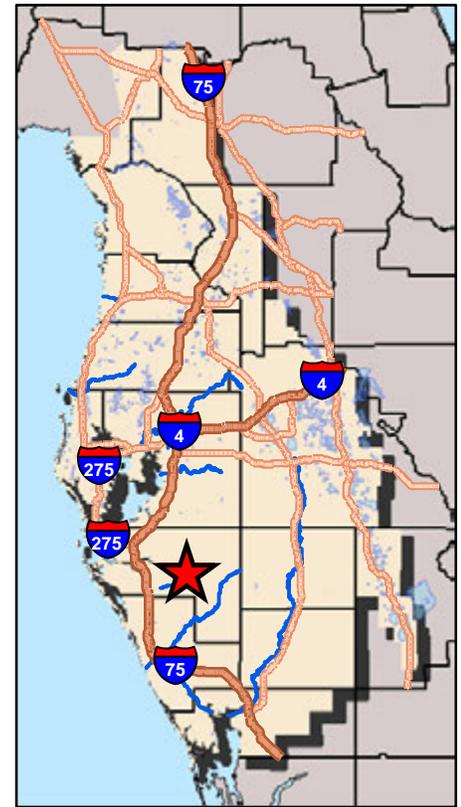
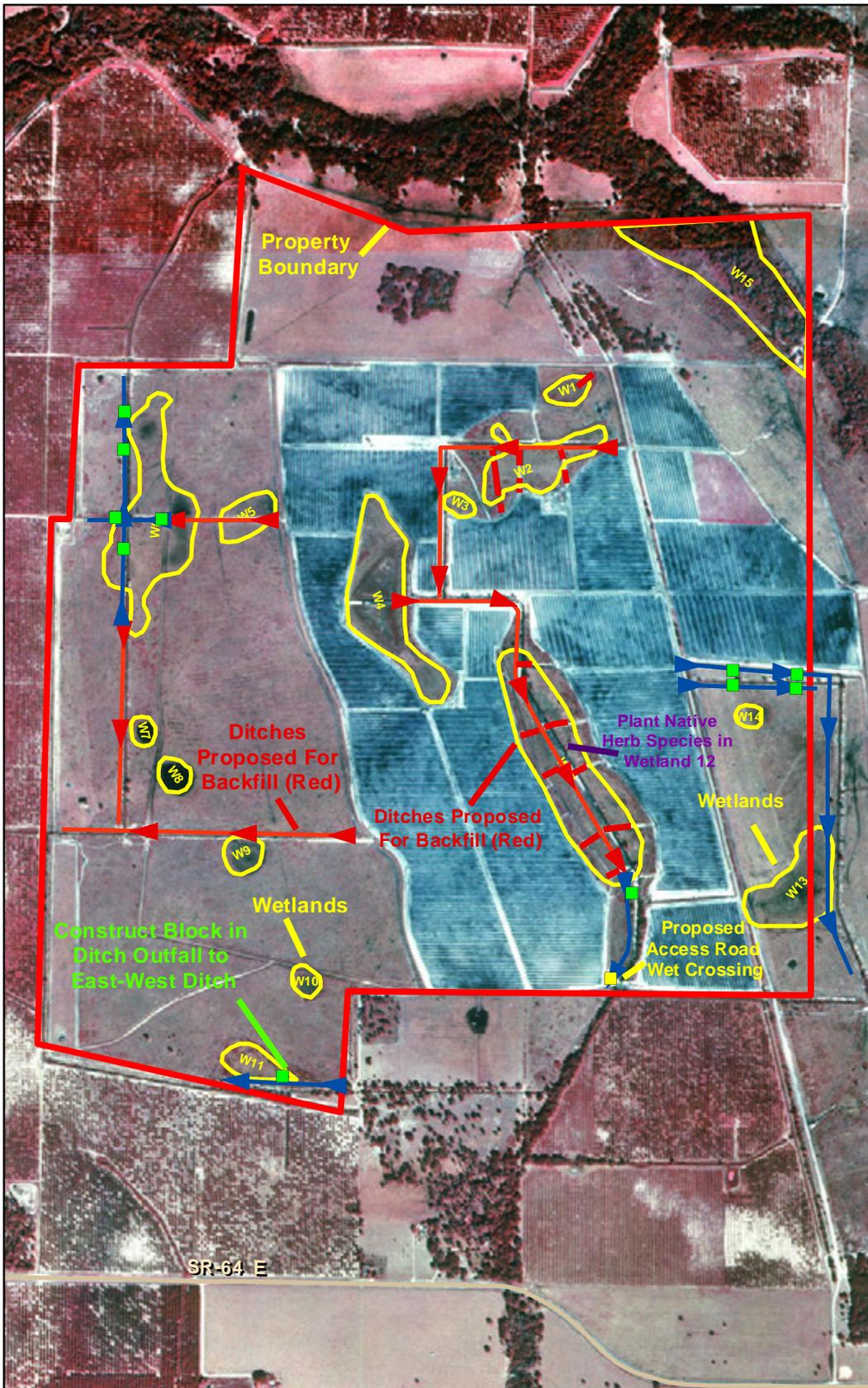
SW 65 - Rutland Ranch - South Tract

Figure A - Location



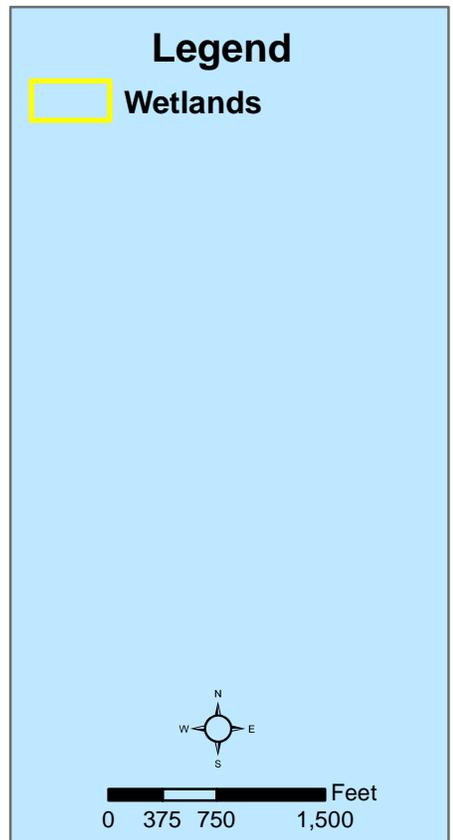
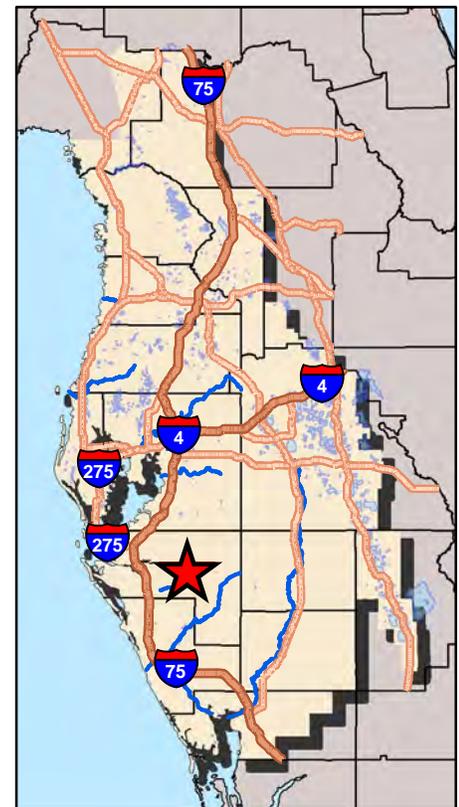
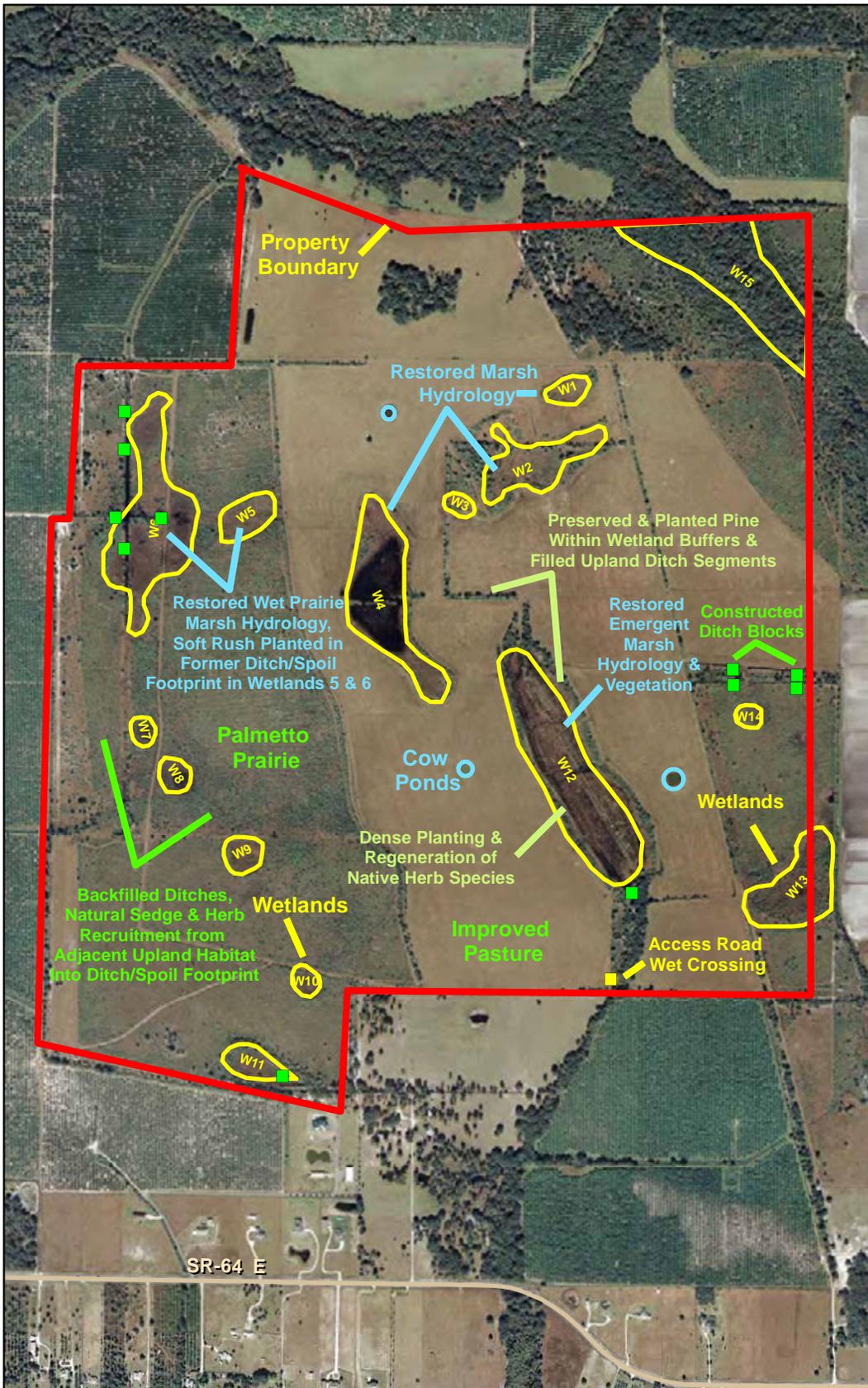
SW 65 - Rutland Ranch - South Tract

Figure B - Pre-Construction Conditions (1994)



SW 65 - Rutland Ranch - South Tract

Figure C - Current Post-Construction Conditions (2010)





Wetland 12 (2001) – Pre-construction view of habitat conditions, due to the substantial water table drawdown associated with the ditch network, the marsh is dominated by upland and facultative species such as broomsedge, gallberry, dog fennel, wax myrtle, and scattered slash pine.



Wetland 12 (Spring, 2002) – view from the southern terminus of the marsh, looking north over the western half of the 22-acre marsh and filled central ditch, trees on right are located on remnant spoil material not used for backfill.



Wetland 12 (Summer, 2002) – summer rains have restored appropriate emergent marsh hydrology, resulting in mortality of upland vegetation and natural generation of hydrophytic herbs.



Wetland 12 (Summer, 2009) – with herb plantings in the filled ditches in 2002, supplemental plantings throughout the marsh in 2004, regenerated and recruited herbs, the marsh has gradually filled in with dense coverage of species dominated by pickerelweed, arrowhead, and fireflag. Some live trees and snags are still present on the remnant spoil mounds.



Wetland 6 (2001) – Pre-construction view of habitat conditions from the eastern portion of the marsh looking west. Under natural conditions, the ephemeral, wet prairie marshes have shallow and short duration hydroperiods, so even small ditches (center) adequately drawdown the water table and substantially reduce the hydroperiod, resulting in the establishment of facultative species such as broomsedge, gallberry, dog fennel, and wax myrtle.



Wetland 6 (Spring, 2002) – same western view over the earthwork area of the graded spoil material and backfilled ditch.



Wetland 6 (Summer, 2002) – summer rains have restored appropriate wetland hydrology; the graded area has been planted with soft rush.



Wetland 6 (Summer, 2009) – the restored ephemeral hydrology has provided longer hydroperiods of shallow surface water, resulting in more desirable and diverse vegetative and habitat conditions utilized by more wildlife. Of particular note is the regeneration and proliferation provided by St. John's-wort.

SW-66 CIRCLE B BAR RESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland creation, restoration and enhancement; upland restoration			
Landowner	Polk County, Southwest Florida Water Management District		Management Entity	Polk County
County	Polk		Watershed	Peace River
Water bodies	Banana Creek Canal, Lake Hancock		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1938991	US 17 Livingston to Hardee County Line	11.59	43022736.000	200105669 (IP-MN)
1940931	US 17 (SR 35) Peace River to Tropicana Rd.	4.42	43016955.001	200102990 (IP-JF)
1971681	SR 60A (Van Fleet Dr.) CR 555 to Broadway Ave.	0.46	44023032.000	2002000069 (NW-MS)
1975331	US 27 Towerview Rd. to SR 540	3.90	43023834.002	200205668 (IP-JF)
1976381	US 98 - Carpenter's Way to Daugherty Road	0.10	44013552.003	200206904 (NW-14)
1976791	US 27 SR 544 to Blue Heron Bay ¹	1.50	43023431.000	200202574 (IP-JF)
1977014	SR 559 Extension SR 655 (Recker Hwy) to Derby Ave.	0.39	44035330.000	200904277
1977051	US 27 SR 60 to Towerview Blvd.	0.19	44023431.003	200402920 (NW-CAS)

¹ Additional impacts for this project are within the Ocklawaha Basin and associated mitigation conducted at SW-76 Lake Lowery.

1977061	US 27 SR 540 to SR 542	3.94	43023431.007	200802283
1977071	US 27 SR 542 to CR 546	0.60	44021373.000	200600538
4082685	US 98 Manor Drive to CR 540A	0.63	44029183.004	200904276
4110391	US 27 CR 546 to SR 544	1.96	43033368.000	200801942 (IP-JPF)
4251371	SR 17 @ Mountain Lake Cutoff Intersection Improvements	0.16	44023020.001	NPR

PROJECT DESCRIPTION

A. Overall project goals: In late 2000, Polk County and SWFWMD co-purchased approximately 1,256 acres (formerly Circle B Bar Ranch) to convert into a wildlife and passive recreational preserve with a long-term objective to restore and enhance upland and wetland habitat throughout the property. The core of the tract had the historic hydrology substantially altered by the construction of the Banana Creek Canal and contributing ditches, converting the majority of historic wetland to improved pasture. Desired restoration and enhancement of wetlands were selected to the FDOT mitigation program in 2001. Following site evaluation, design and permitting from 2001-2004, earthwork construction was conducted in 2005-2006 to remove levees along the western property boundary that blocked and diverted contributing flow from Banana Lake, backfill the majority of the Banana Creek Canal and conveyance ditches to restore sheet flow hydrology, reinforce and elevate two access roads and install culverts to aid in restoring sheet flow hydrology, eradicate pasture grasses, conduct extensive planting, and perpetual herbicide maintenance activities.

B. Brief description of pre-construction habitat conditions: Historically, surface water from Banana Lake maintained a sheet flow hydrology connectivity east through forested and marsh wetland habitat and flowing into Lake Hancock. During the 1940's, the construction of the Banana Creek Canal between the two lakes, along with connecting tributary ditches, substantially drained the wetlands to convert into improved pasture. In addition, a large levee was constructed along the western property boundary (Figure C). This impounded water in the forested wetland west of the project area, diverted the ground and surface water away from the wetlands in the Reserve, and forced water to flow directly into the canal. Spoil material rimmed each side of the canal, so water in contributing conveyance ditches were also pumped over the berms into the canal to flow directly into Lake Hancock. The several decades of extensive drainage and dewatering converted the majority of the historic wetland acreage to improved pastures for intensive cattle grazing (refer to site photos). This resulted in inadequate hydrology to support appropriate wetland habitat benefits and functions to benefit wildlife. Prior to restoration construction in 2005-2006, the majority of the remnant wetlands were associated with a few forested wetlands bordering the pastures and scattered small

ephemeral marsh pockets within the improved pastures. Historically there were additional forested wetlands that were lost as a result of the altered drainage and subsequent muck oxidation resulting in tree fall. In a complete reversal of the impounded surface waters in wetlands west of boundary levee, the remnant forested wetlands in the Reserve no longer had surface water. As a result, the forested areas were used for shade by cattle, with additional trees routinely falling due to the soil subsidence.

C. Brief description of construction activities and current habitat conditions: After the cattle lease was discontinued in 2001, the dewatering pump system was removed and with the rains from El Nino conditions in 2003 and Hurricanes Charley and Frances that crossed near the property in 2004, all drainage was not allowed to be conveyed into the canal in order to commence partial hydrologic restoration necessary to achieve the desired bahiagrass mortality and regeneration of hydrophytic vegetation. Construction activities commenced in the fall, 2005. Two pre-existing north-south berms were substantially regraded to provide necessary structural stability and culverts installed at appropriate locations and elevations to convey and restore the natural sheet-flow wetland hydrology & appropriate hydroperiods. The length of the Central Road is approximately 3000 ft. and 2300 ft. for the Eastern Road. Fill material for the road berm reconstruction was obtained from widening the existing borrow pit within the north side of the property and creating the 2-acre "Gator Pond" marsh within an adjacent upland area. The western access road is a wet crossing constructed with crushed concrete to match adjacent surface grade elevations. After the two access road berms and culverts were constructed, the spoil rim material was used to backfill the Banana Creek Canal segment west of the Center Road and the western boundary levee was removed to restore hydrologic sheet flow patterns throughout the wetland floodplain.

The foundation of restoring the historic western-to-eastern surface water sheet flow was conducted by backfilling the western half of Banana Creek Canal, collector ditches, and the western levee (2,300 ft. long, avg. 30 ft. wide, 5-6 ft. above grade). The reconstruction of the western road included placement of crushed concrete to match adjacent grade elevations in order to not restrict the restored sheet flow. The reconstruction of the two berms into the Center and Eastern Roads resulted in top-of-road elevations averaging 1-2 feet above the adjacent water elevations. There are 8-culvert sets spaced on 500 ft. intervals within the Center and Eastern roads. Each culvert set includes four individual 24-inch culverts installed at slightly different elevations to provide a 12-inch fluctuation range of water elevations. In a stair-step approach, the culvert invert elevations decrease an average of 6 inches between the culverts in the Center, Eastern and Lakeshore berm roads. This restores appropriate sheet flow patterns and attenuation through the enhanced and restored wetland habitats. With the historic muck oxidation altering grade elevations, there are areas of deeper water pockets; particularly the 3-4 ft. depth adjacent to the southern section of the Center Road. These emergent areas provide valuable open-water and obligate marsh habitat for waterfowl, amphibians, fish and reptile species. Other portions of the restored wetlands have more facultative habitat conditions, with variable surface water depths ranging 6-18 inches for hydroperiod durations of 4-8 months. Subsequent to the Circle B Bar Ranch acquisition, additional public land acquisition has occurred around Lake Hancock as part of an effort to partially restore the normal water elevations of the lack by raising the lake's water elevation by

12 inches. With the planned construction of a new lake outfall structure in 2012, the water depth sheet-flow conveyance within the restored wetlands at the Reserve will not be altered; however the wetlands closest to the lake (primarily east of the Eastern Access Road) will have more stable and longer duration hydroperiods. In turn, this will provide a longer and more stable duration for wildlife foraging opportunities. There are also two 48-inch culverts installed in the middle of both the Center and Eastern Roads. These culverts were installed to allow emergency overflow into the remnant eastern portion of the Banana Creek Canal. These culverts have slide gates that can be raised to allow more rapid outfall of surface water directly to the lake in advance of major rainfall or flood events, thus securing and maintaining appropriate water depth in the wetlands to support wildlife.

Approximately half of the historic western forested wetland areas were further restored with the planting of trees (total 54,350) and shrubs (total 12,920). The associated earthwork and much of the open water areas throughout the restored wetlands were also planted with herbs (total 454,390) on 3-ft. spacings. Along with the wetland restoration, pines and myrtles were planted within an adjacent upland buffer where there were no existing forested habitats buffering the south-central boundary of the marsh habitat.

The primary herb planting was conducted within the earthwork locations where the ditches and spoil were graded to restore historic wetland grades, and some areas where natural regeneration or recruitment of desired vegetation did not occur. The majority of the trees were planted within portions of the historic forested wetland area within the western portion of the property. Dominant trees planted include cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica* var. *biflora*), pop ash (*Fraxinus caroliniana*), and red maple (*Acer rubrum*). Additional tree species planted include sweet bay (*Magnolia virginiana*), American holly (*Illex cassine*), sweet gum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), American elm (*Ulmus americana*). Planted shrubs include buttonbush (*Cephalanthus occidentalis*), with wax myrtle (*Myrica cerifera*) in the higher elevations. Along with the natural regeneration of desirable herbs, there were additional plantings of arrowhead (*Sagittaria lancifolia*), bulrush (*Scirpus validus*), duck potato (*Sagittaria latifolia*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), soft rush, sand cordgrass (*Spartina bakeri*), spikerush (*Eleocharis interstincta*), and spatterdock (*Nuphar luteum*). To provide a habitat buffer, the non-forested upland area adjacent to the south-central perimeter of the restored wetland area near the Gator Pond was planted with dense spacings of longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), and wax myrtle.

Overall, the constructed activities have resulted in restoring substantial wetland habitats not only within the Reserve, but enhancing over 40 acres of forested wetland habitat west of the property boundary that received impounded surface water as a result of the western boundary levee. The levee substantially restricted the historic Banana Creek flow from entering the tract and the previous landowner blocked contributing flow altogether during flood events. This additional enhancement of forested wetlands within property owned by the City of Lakeland and USF-PCC Campus is not accounted for with mitigation credit. The Reserve is now considered by Audubon as one of the premier waterfowl and wading bird destinations in the region, and there is substantial use by a diverse assemblage of wildlife species.

Wildlife use of the restored and enhanced wetlands has exceeded expectations, with more species represented than any of the designated FDOT mitigation projects currently on the program. Audubon Christmas bird counts and eBird data collection have documented 112 bird species, including large flocks of migratory wading birds and unusually high populations of rare species such as the migratory American white pelicans (*Pelecanus erythrorhynchos*) and wood storks (*Mycteria americana*). There is one active bald eagle (*Haliaeetus leucocephalus*) nest, and a multitude of amphibian, fish and reptile species routinely observed on the site.

Maintenance activities are conducted to eradicate and control exotic and nuisance species, including perpetual herbicide treatment events conducted a minimum of every other month. Herbicide application is conducted by a licensed applicator under contract with the SWFWMD, with each event typically includes a spray crew of several staff working an entire week throughout the designated mitigation site.

Site inspections are conducted quarterly at a minimum and monitoring is conducted semi-annually to evaluate hydrologic, vegetative and wildlife use across the designated project area. Annual monitoring reports are prepared to document the habitat conditions and wildlife activities observed during the previous year and anticipated maintenance and other activities proposed for the following year. At a minimum, monitoring reports will be prepared for a minimum 10 years post-construction (2006-2016). Depending on the habitat conditions, the annual monitoring may be extended longer. Even if the reports are discontinued, the monitoring will continue to evaluate habitat conditions and necessary maintenance & management activities. Commencing just after construction and planting in early 2006, the Reserve was added to the eBird database. Visitors and bird-watchers visiting the Reserve enter the observed avian species to this database; typically 2-4 monitoring days per month are conducted at the Reserve and recorded, with many daily monitoring events during the winter months when the migratory waterfowl and wading birds are more prevalent.

Success criteria includes 70% coverage of desirable species and less than 10% cover of exotic species in the forested wetland and shallow marsh system, which has primarily included cattails and primrose willow. An 83-acre obligate & open water component of the marsh requires less than 10% vegetative coverage and provides less mitigation credit than the shallow marsh components. The restored forested wetlands require 20% canopy coverage a minimum height of 20 ft. with planted trees before associated mitigation credits can be debited from the ledger. Through 2010, the hydrologic restoration efforts have been successful and within the fluctuation and hydroperiod range necessary and appropriate to continue supporting the substantial wildlife populations that utilize the wetlands. The vegetative components and habitat conditions are also progressing well and except for a portion of the restored forested wetland canopy, exceed the success criteria many years in advance of potential credit release for FDOT's use. The habitat conditions continue to improve as planted and naturally recruited and generated plants mature, eradication of generated exotic and nuisance species, and the decades of agricultural nutrients are processed for uptake and use by the vegetative components.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):

The majority of the wetland impacts are associated with disturbed marsh and mixed forested wetland fringes along FDOT R/W within the Peace River watershed; particularly along US Highway 27 and US Highway 17. The roadway wetland impacts have been appropriately and adequately compensated with the restoration and enhancement of large-scale, diverse and regionally-significant wetland ecosystems that benefit the Peace River watershed. The FDOT permit applications include Unified Mitigation Assessment Method (UMAM) assessments of the wetland impacts. This information is used to appropriately debit from the available UMAM credits associated with the mitigation habitats.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:

The permitted mitigation banks currently selling credits in the Peace River watershed basin include the Boran Ranch Mitigation Bank in DeSoto County and Peace River Mitigation Bank in Hardee County (SW 53 & SW 85 in the FDOT plan). These banks have been selected to provide appropriate mitigation for wetland impacts associated with many roadway projects within the basin. Prior to the establishment of the Peace River Mitigation Bank and after all the available forested wetland mitigation credits were purchased from the Boran Ranch Mitigation Bank, it was necessary to add an additional mitigation project to the FDOT program that had forested wetland credits. This resulted in accepting Polk County's request to nominate the Circle B Bar Reserve to the program. With the conservative budget of \$6.7 million for the completed construction and perpetual maintenance of the habitat improvements (\$30,000 per credit), the Reserve is more cost-effective than the credit prices requested by the currently available mitigation banks.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:

Even though enhancement and restoration of the wetland floodplain is not considered a specific SWIM sponsored project, the site is located between two SWIM-sponsored projects, Banana Lake Restoration (conducted in the late 1980's) and the proposed improvements for Lake Hancock. By restoring and enhancing the wetland functions and values at the Reserve, additional water quality treatment and attenuation reduce the nutrients previously allowed to flow directly into Lake Hancock via the Banana Creek Canal. The enhancement of the entire Peace River watershed has required substantial emphasis on the hydrologic improvements to water quality and quantity within the headwater areas in the basin. In turn, these improvements result in improved water quality and quantity flowing into Charlotte Harbor, another designated SWIM water body.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department constructed in 2005 and 2006.

Entity responsible for monitoring and maintenance: SWFWMD contract for monitoring & perpetual maintenance

Timeframe for implementation: Commence: January, 2001- Fall, 2005 (habitat assessment, vegetative evaluation, soil borings, land surveying, surface water modeling, finalize rehydration and planting plan, permitting, herbicide maintenance) Complete: Spring, 2006 (Construction & Planting, followed by semi-annual monitoring and bi-monthly herbicide maintenance).

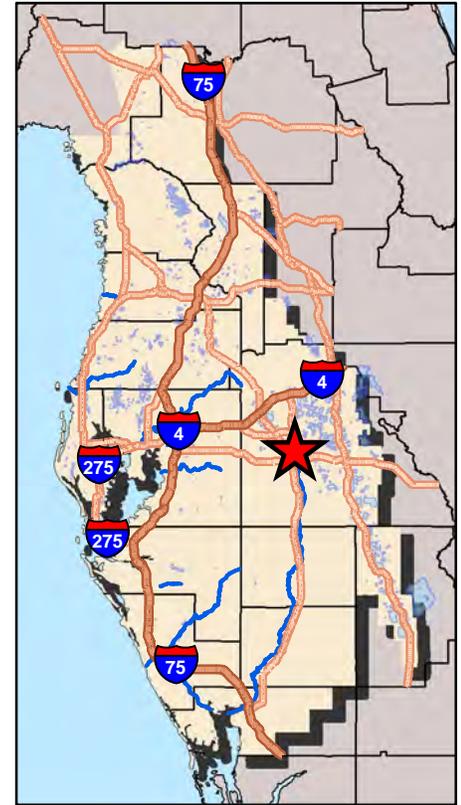
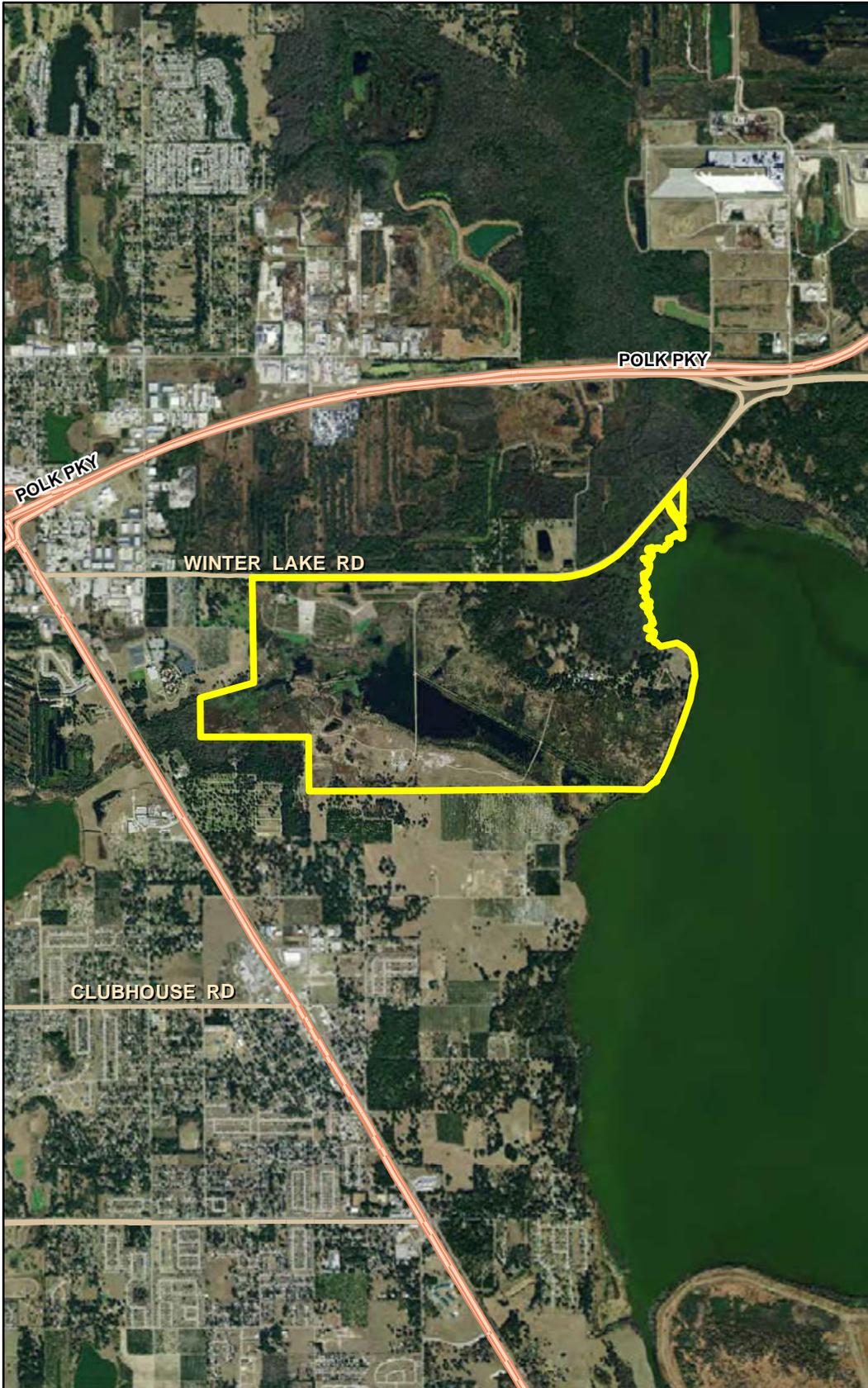
Project cost: \$6,730,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-Post-construction (2009)
4. Photographs (2001, 2005, 2006, 2009)

SW 66 - Circle B Bar Reserve

Figure A - Location



Legend

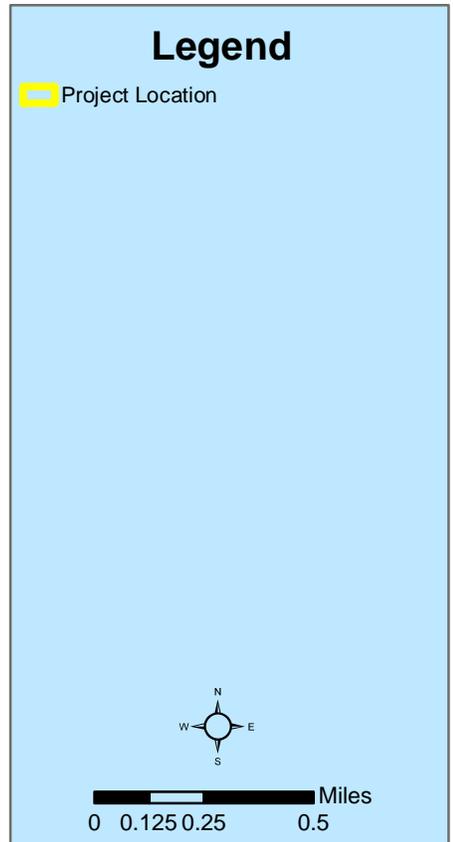
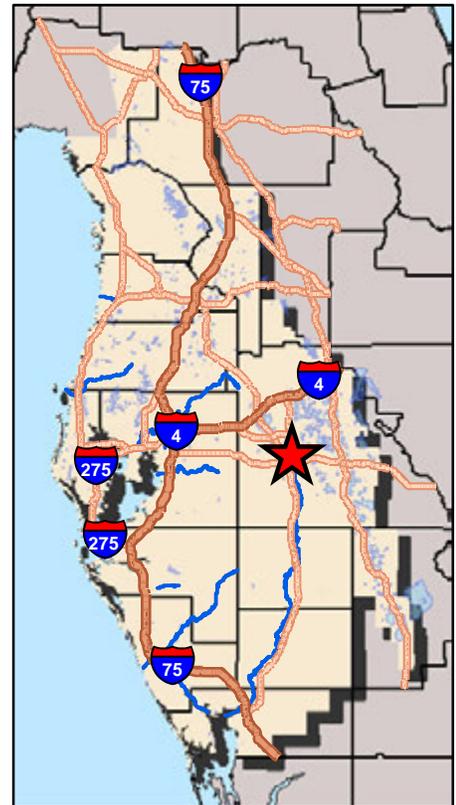
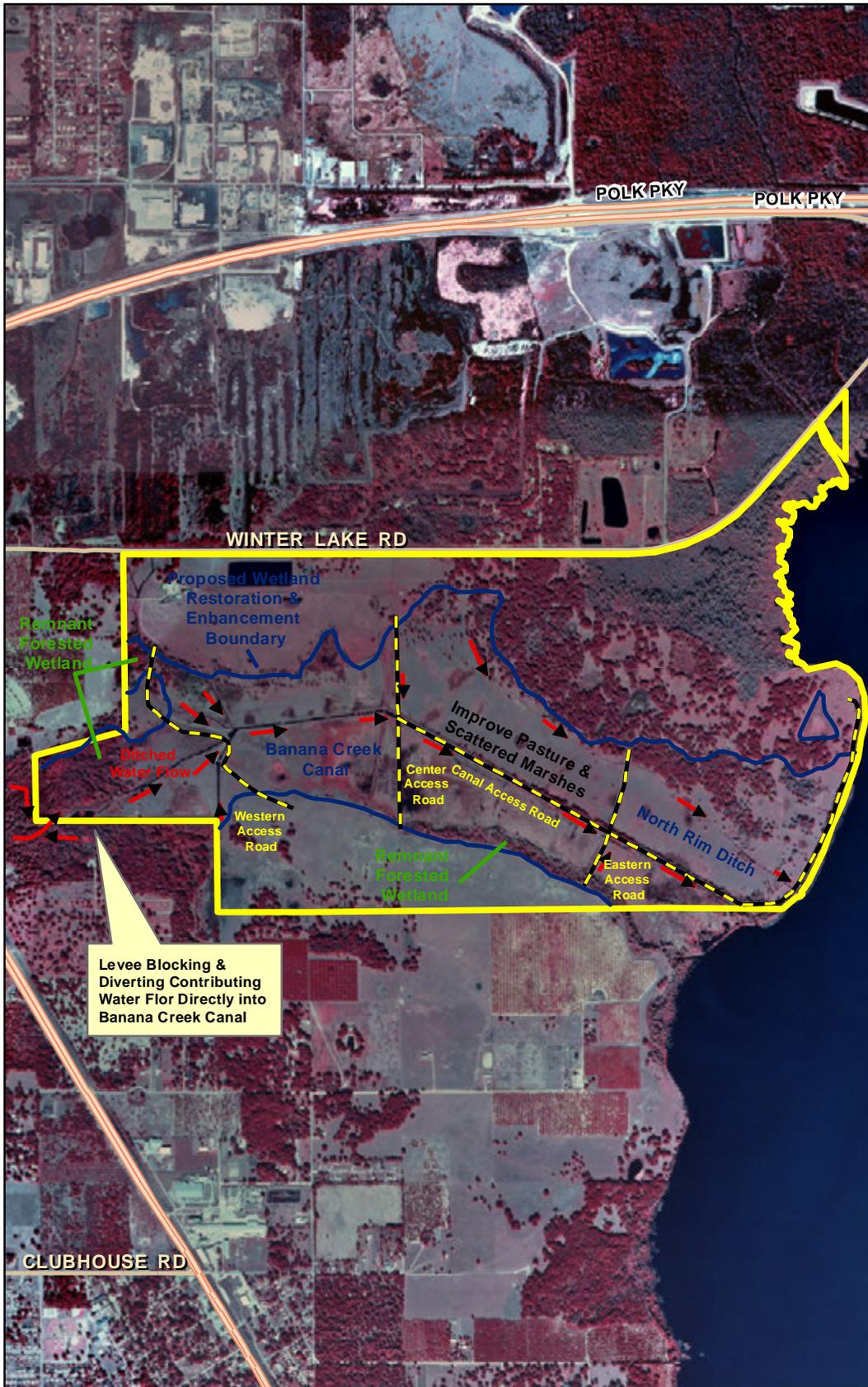
 Project Location



0 0.25 0.5 1 Miles

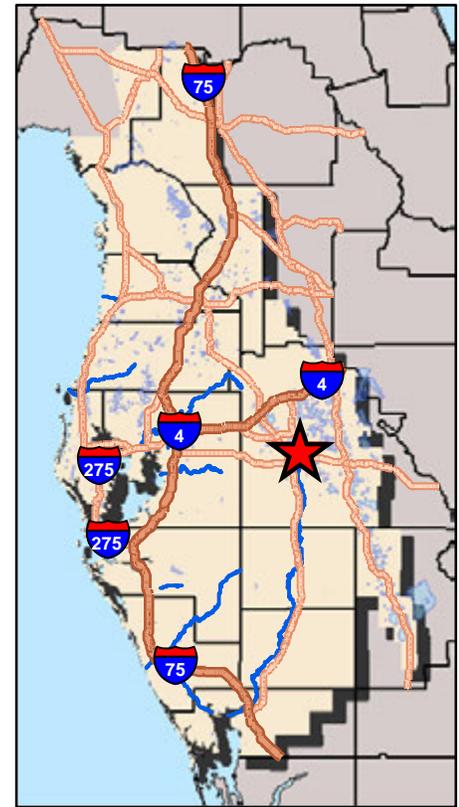
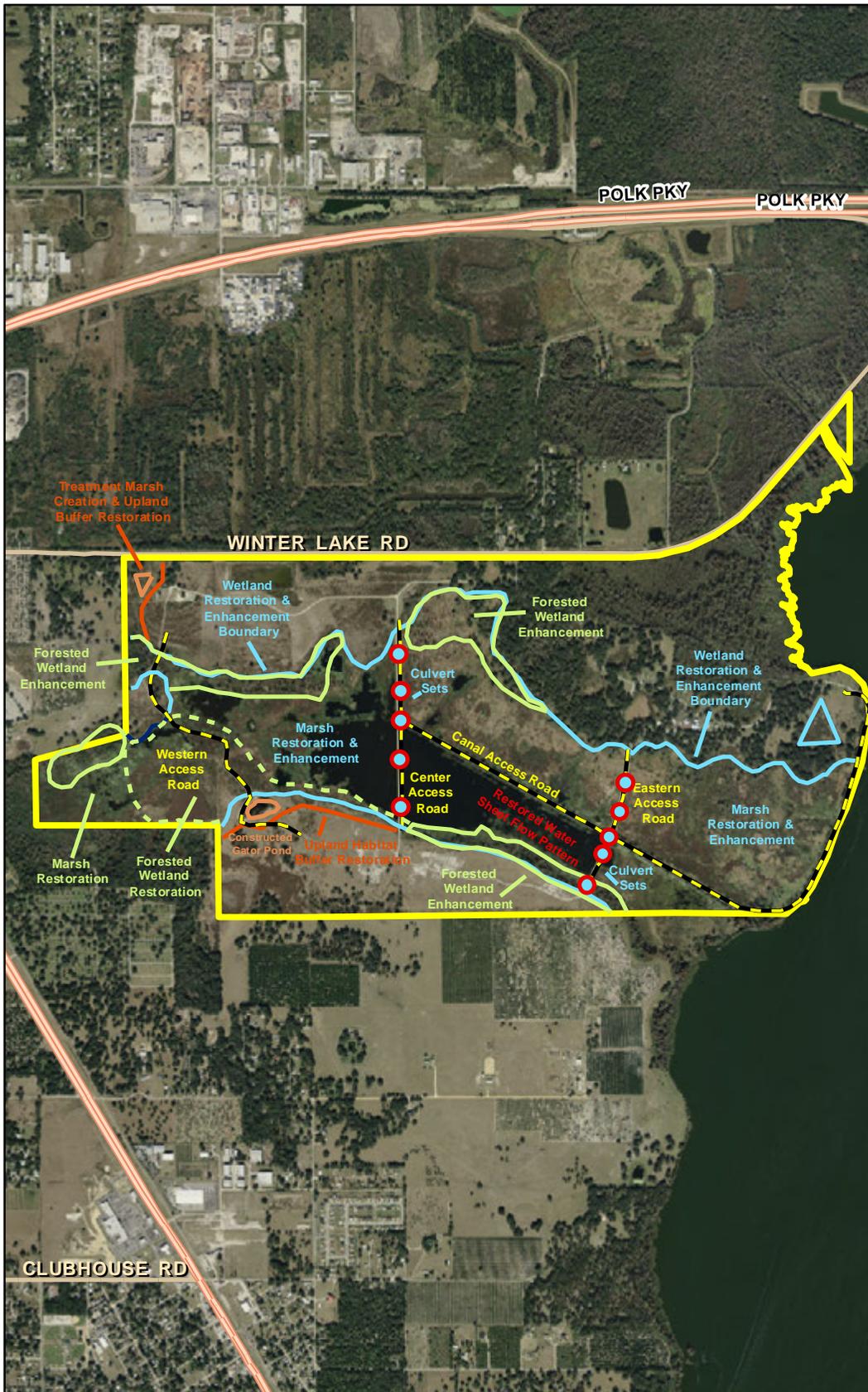
SW 66 - Circle B Bar Reserve

Figure B - Pre-Construction Site Conditions (1999)



SW 66 - Circle B Bar Reserve

Figure C - Post-Construction Site Conditions (2009)



Legend

Project Location



0 0.125 0.25 0.5 Miles



Western Wetland Restoration (2001) – pre-construction habitat conditions include improved pasture and remnant forested wetland (background).



Western Wetland Restoration (2005) – construction equipment moving east back filling the western segment of the Banana Creek Canal and collector ditches.



Western Wetland Restoration (2006) – canal has been filled and removal of western boundary levee has restored the sheet flow hydrology.



Western Wetland Restoration (2009) – the majority of this wetland area has historically forested so appropriate tree and shrub species were planted along with herbs during 2006..



Center Wetland Restoration (2001) – pre-construction view of the center spoil berm and adjacent collector ditch that conveyed water south to the Banana Creek canal.



Center Wetland Restoration (2001) – pre-construction view from atop the center berm looking east over the improved pasture proposed for wetland restoration.



Center Wetland Restoration (2005) – construction of the 2 acre “Gator Pond” in the adjacent southwestern upland pasture provided the fill material necessary to construct the Center Road and Eastern Road.



Center Wetland Restoration (2009) – obligate marsh zones were planted with small islands of pickerelweed and arrowhead. Fish and other food resources are concentrated as water depth decreases during the dry season.



Eastern Wetland Restoration (2001) – pre-construction view from adjacent Lakeshore Road Berm, looking west over the improved pasture proposed for wetland restoration.



Eastern Wetland Restoration (2001) – pre-construction view south toward the Banana Creek canal over the berm that required additional fill to construct the Eastern Road and install culverts to restore sheet flow hydrology.



Eastern Wetland Restoration (2006) – twin 48-inch culverts with slide gates were installed where the Center Road and Eastern Road cross the remnant Banana Creek canal.



Eastern Wetland Restoration (2009) – view from atop the Lakeshore Road berm, looking west over the restored wetland marsh habitat.



Northwest Marsh (2009) – The plantings have matured and recruited to provide dense coverage; marsh provides wildlife habitat as well as water quality benefits.



Substantial wildlife activity at the reserve includes over 112 avian species observed during monitoring and surveys. Three inactive and one active eagle nest are present within the reserve.

SW-67 APOLLO BEACH NATURE PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland creation; upland enhancement			
Landowner	Hillsborough County		Management Entity	Hillsborough County
County	Hillsborough		Watershed	Tampa Bay Drainage
Water bodies	Tampa Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2557031	SR 60 Cypress St. to Fish Creek ¹	10.70	43002958.003	200205816 (IP-MN)

PROJECT DESCRIPTION

A. Overall project goals: The creation of various coastal habitats within an extensive spoil disposal area constructed in 1955 from adjacent dredged material from Tampa Bay. The total project area is 38 acres, on a site purchased through Hillsborough County’s Environmental Lands Acquisition and Protection Program (ELAPP). The tract is owned and managed by Hillsborough County Conservation Section, with the habitat creation constructed in collaboration with the WMD-SWIM Section. The constructed habitats and associated acreage include intertidal low marsh and mangroves (13.8 acres), intertidal high marsh (7.2 acres), intertidal open water (10.8 acres), dunes (1.2 acres), and upland enhancement (5.0 acres). The designated area mitigating for the FDOT wetland impacts include the 13.8 acres of created low marsh, with mangrove species naturally recruiting in the low marsh.

B. Brief description of pre-construction habitat conditions: Prior to construction in 2004, the majority of the site included a relatively level spoil “plateau” essentially covered with a

¹ This project has a total wetland impact of 16.6 acres, 5.3 acres mitigated at Apollo Beach, 5.1 acres mitigated at Tappan Tract (SW 62), 5.4 acres mitigated at Cockroach Bay – Saltwater (SW 75), and 0.8 acres mitigated at Cockroach Bay – Freshwater (SW 56).

monoculture of cogon grass, and minor cover provided by goldenrod, beggar's-tick, dog fennel, ragweed, and several upland grasses. A narrow strip of white and black mangroves were established along the southern shoreline, couple areas of dense concentrations as well as scattered Brazilian pepper; with scattered cabbage palm, salt-bush, wax myrtle, and Australian pine. The site represented very low quality habitat, dominated by exotic vegetation, and minimal benefits for wildlife use.

The vast majority of pre-construction site was low-quality upland habitat from numerous plant species that colonized the site in the 47 years since construction of the filled Apollo Beach peninsula. With sterile dredged soils and minimal seed source of desirable upland species, the "plateau" (average elev. 9-10 ft.) offered little opportunity for desirable species to colonize. Cogon grass (*Imperata brasiliensis*) was the most dominant ground cover species. Other herbs included purple sedge (*Cyperus ligularis*), hurricane grass (*Fimbristylis spathacea*), licorice weed (*Scoparia dulcis*), seaside evening primrose (*Oenothera humifusa*), and camphor daisy (*Haploppus phyllocephalus*). Shrub and tree species were present in the form of scattered individuals and small, dense pockets. Dominant species included Brazilian pepper (*Schinus terebinthifolius*), salt-bush (*Baccharis angustifolia*), wax myrtle (*Myrica cerifera*), lantana (*Lantana camara*), cabbage palm (*Sabal palmetto*), and Australian pine (*Casuarina equisetifolia*). A narrow strip of intertidal wetland exists along the outer, waterward edge of the site. Woody vegetation in this zone consists mainly of white mangrove (*Laguncularia racemosa*) and black mangrove (*Avicennia germinans*), with scattered Brazilian pepper and coinvine (*Dalbergia castaphyllum*). Herbs include sea purslane (*Sesuvium portulacastrum*), saltmeadow cordgrass (*Spartina patens*), and saltwort (*Batis maritima*).

C. Brief description of construction activities and current habitat conditions: In 2004, the majority of the spoil material was hauled off-site and the project site graded to create low and high marsh habitat. The construction emphasized an interconnected network of open water channels and deeper pools, a myriad of planted marsh platforms at various elevations, saltern habitat, sinuous edge communities, and areas of upland enhancement and restoration. The open water component is particularly important in the design to provide feeding and resting habitat for the Florida manatee that frequent the area due to the neighboring warm-water discharge from the Tampa Electric Company's (TECO) Big Bend Power Station.

Several coastal habitats were constructed starting in 2003 and completion in 2004. The open water component (10.8 acres) includes sub-tidal, mudflats, and salterns created between elevations 0.5 feet to deeper than -2.0 feet. The interconnected deepwater channels provide tidal flows into the interior of the peninsula. Deeper pools (greater than -3.0 ft.) were constructed to provide refuge for manatees and juvenile fish. Topographic ridges are constructed in the intertidal zone to trap tidal flows and encourage development of saltern zones.

The intertidal low marsh and mangrove wetland zone (13.8 acres) is designated to mitigate for the FDOT wetland impacts. This zone (elevations 0.5 to +2.0 ft.) was planted with *Spartina alterniflora*, and mangrove species have naturally recruited and generated during the initial growing seasons (photographs). The existing eastern shoreline is dominated by mangroves

and was preserved to inhibit erosion and provide a seed source for mangrove seedling recruitment. The intertidal high marsh (7.2 acres) is constructed between elevations +2.0 to +3.0, with plantings of *Iva spp.*, *Spartina patens*, *Batis maritima*, *Borrchia frutescens*, and *Sesuvium portulacastrum*. Mangrove species have naturally recruited and generated within this zone that add more diversity and supplement the installed plant communities.

A portion of the excavated material was used to construct sand dune habitat along the northern top-of-bank. The dunes and surrounding areas were enhanced by plantings of sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pescaprae*), beach sunflower (*Helianthus debilis*), along with transplanted cabbage palms and prickly pear cactus. Selected upland areas have been enhanced to increase community diversity and offer roosting & nesting areas for a wide variety of bird species that frequent the site.

For estuary creation and restoration projects, proper construction of appropriate wetland grades that allow for sufficient tidal action, the planted vegetation has survived and recruited throughout the wetland. Salt water limits the re-establishment of exotic vegetation. Maintenance to control exotic and nuisance species are generally associated with the upland habitat, which is a low percentage of the project area, and being maintained through the use of herbicide. Brazilian pepper seedlings and cattails periodically generate and are eradicated by licensed herbicide maintenance staff working for the Hillsborough Conservation Section.

Monitoring was conducted semi-annually through 2008, then decreased to annual reviews since success criteria was met and maintained with minimal need for maintenance. Monitoring includes qualitative evaluation and photo documentation of the low salt-marsh areas designated for mitigation, as well as general habitat conditions of the entire project area. The success criteria included a minimum 90% survivorship for planted material, a total 85% cover of planted and recruited desirable species, and less than 5% coverage of exotic species. The designated mitigation as well as adjacent habitats exceed the success criteria. The habitat conditions attract substantial diversity of wildlife and vegetation species.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The 5.9 acres of the saltwater marsh impacts are mitigated by the creation of 13.8 acres of saltwater low marsh habitat. The FDOT mitigation area is buffered with the creation of other estuarine habitats; increasing the ecological value and wildlife benefits of the designated mitigation. No additional FDOT wetland impacts are proposed for mitigation at the project site.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the selection of the mitigation, the Tampa Bay Mitigation Bank (TBMB) was the only proposed mitigation bank within the Tampa Bay Drainage Basin; however the bank was not under construction or had any credits available to sell.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a

SWIM water body: The Apollo Beach restoration project is a SWIM project. Constructed through the WMD-SWIM Dept., the site is owned and managed by the Hillsborough County – Conservation Section.

PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by the SWFWMD – SWIM Dept. in 2004.

Entity responsible for monitoring and maintenance: Consultant working for the District conducted monitoring through 2008, with perpetual maintenance conducted by the Hills. County Conservation Section.

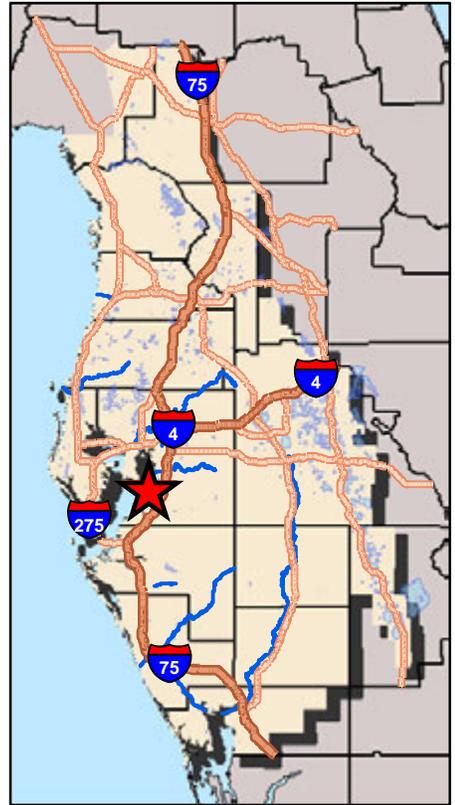
Timeframe for implementation: Design completed and added to the FDOT program in 2002, construction commenced in 2003 and completed in 2004, maintenance & monitoring through 2008, perpetual maintenance conducted when necessary by Hillsborough County.

Project cost: \$450,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (1999)
3. Figure C-Post-construction (2009)
4. Figure D-Post-construction (2011)
4. Photographs (2012)

SW 67 - Apollo Beach Nature Preserve Figure A - Location (1999)



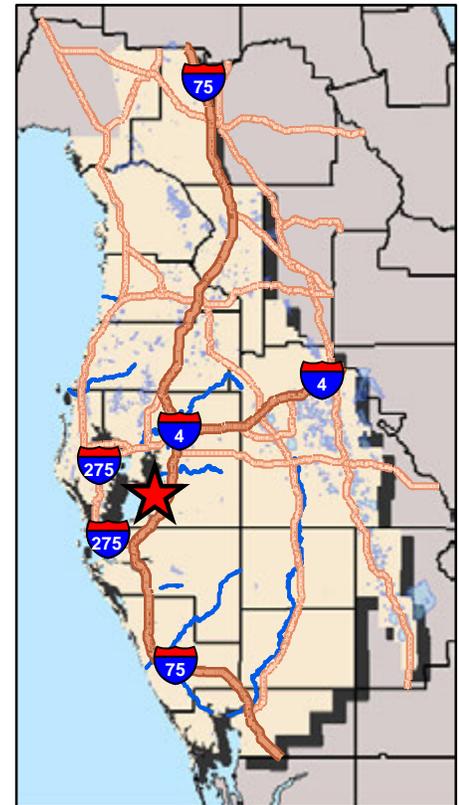
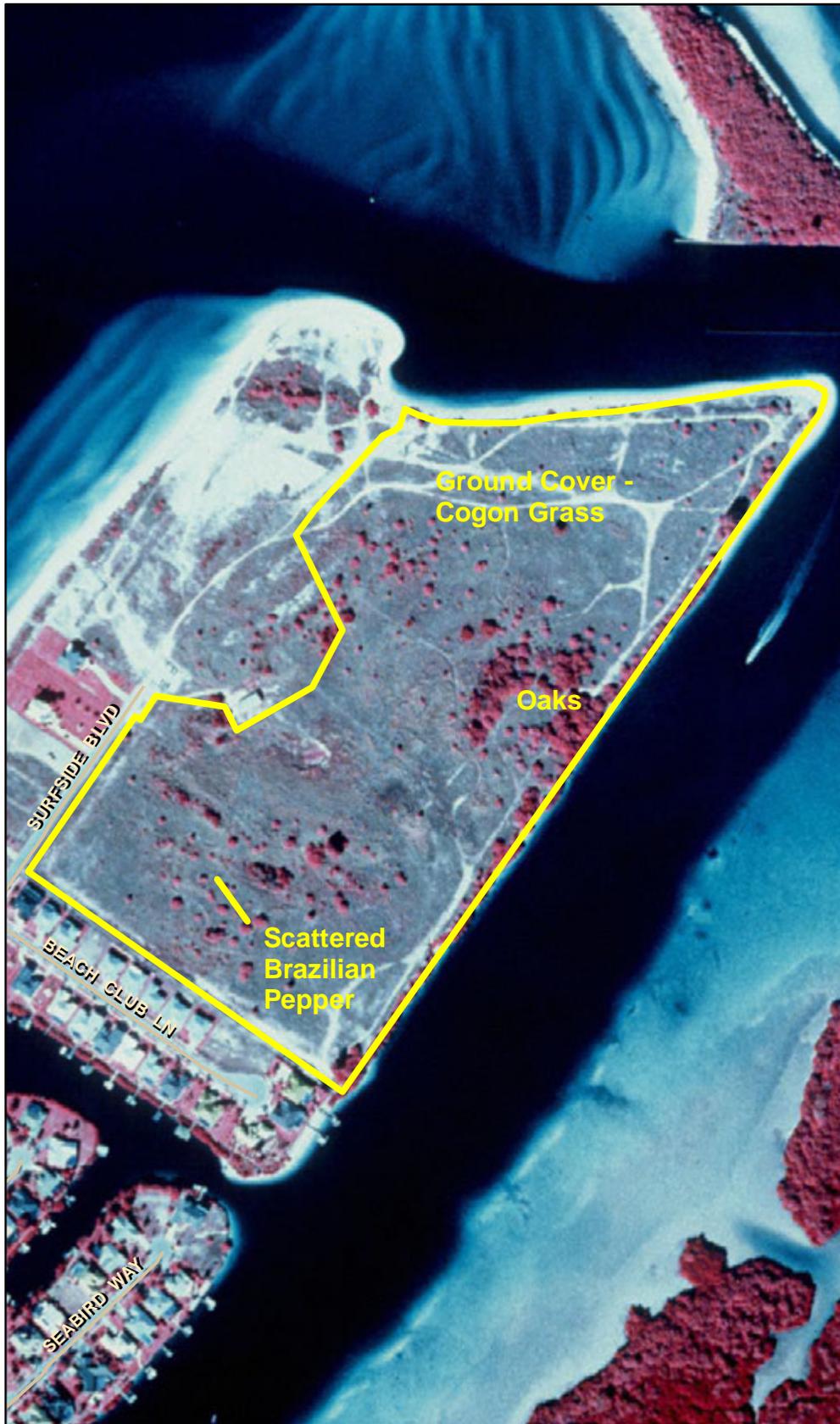
Legend

 Project Location



 Miles
0 0.05 0.1 0.2

SW 67 - Apollo Beach Nature Preserve Figure B - Pre-Construction (1999)



Legend

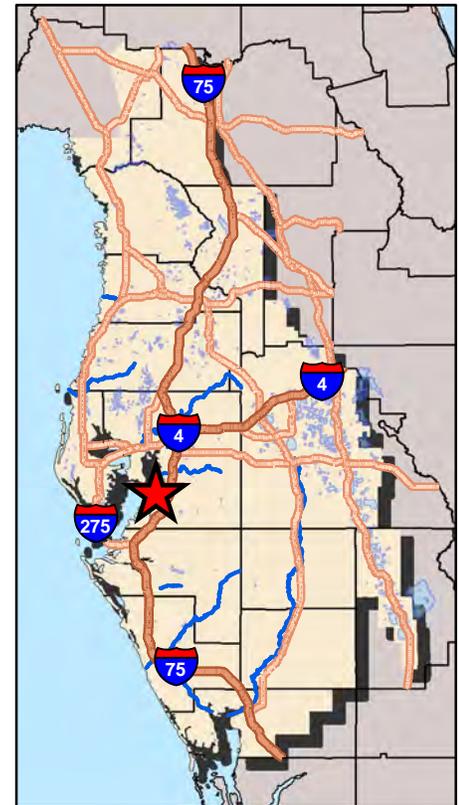
 Project Location



0 150 300 600 Feet

SW 67 - Apollo Beach Nature Preserve

Figure C - Post-Construction (2009)



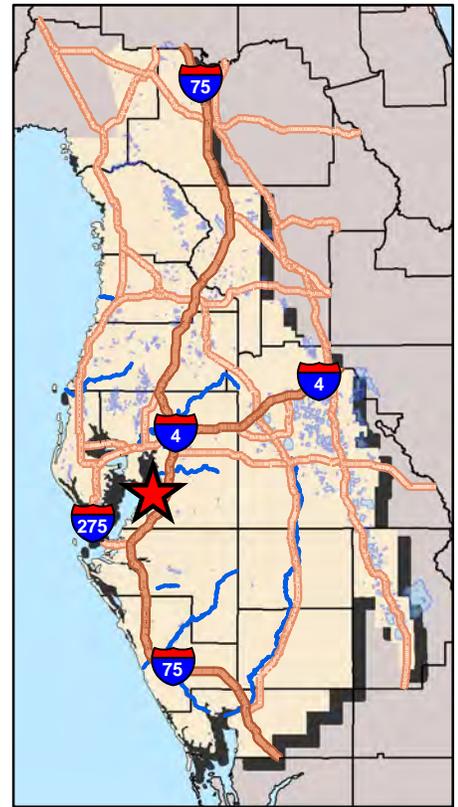
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 Project Location



0 150 300 600 Feet

SW 67 - Apollo Beach Nature Preserve Figure D - Post-Construction (2011)



Legend

 Project Location



0 150 300 600 Feet



Apollo Beach Nature Preserve: Northwest portion of the tract depicting areas of established mangroves and tidal lagoons.



Apollo Beach Nature Preserve: Photo taken facing southeast depicting the established mangrove and tidal pools.



Apollo Beach Nature Preserve: Photo taken facing southeast depicting the established mangrove and inter tidal lagoon.



Apollo Beach Nature Preserve: Photo taken facing southeast depicting the established mangrove and inter tidal lagoon.

SW-69 I-75 PEACE RIVER BRIDGE RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Wetland restoration and enhancement			
Landowner		Management Entity		
County	Charlotte		Watershed	Peace River
Water bodies	Peace River		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4046971	I-75 Bridge Widening over Peace River ¹	3.31	43021917.000	NPR

PROJECT DESCRIPTION

A. Overall project goals: FDOT constructed a new northbound I-75 bridge over the Peace River in 2002-2004. The new span is located between the existing southbound bridge and removed northbound bridge. To remove the northbound bridge span, construction equipment needed access adjacent to the eastern side of the existing span, resulting in 2.51 acres of temporary wetland impact. After the bridge span was removed, the pre-existing non-vegetated, shaded area under the removed span (2.06 ac.) and temporary impact area (2.51 ac.) were planted with white mangrove, saltmarsh bulrush, and black needle rush.

B. Brief description of pre-construction habitat conditions: Prior to the new bridge construction, beneath the former northbound bridge span, there was a dominance of non-vegetated, exposed sand conditions due to shade. Trimmed mangroves were dominant within the proposed temporary impact area of Site C. For Site B (Bird Key), the temporary impact area had some small trimmed mangroves, scattered leather-fern, and primarily non-vegetated

¹ The total proposed wetland impact associated with the bridge construction is 6.06 acres. In addition to the 3.31 acres of impact listed above, there will be 2.75 acres of mangrove & estuarine permanent impacts from shading that will be mitigated through the purchase of mangrove credits from the Little Pine Island Mitigation Bank (SW 52).

areas where previously cut limbs were prevalent over the ground (photo). For Site A, the temporary impact area included a mixture of white & red mangrove along with a dominance of black rush.

C. Brief description of construction activities and current habitat conditions: The bridge contractor constructed the new bridge span before removing the existing northbound span. After the previous northbound span was removed, the contractor conducted additional earthwork to restore pre-construction grade elevations within the temporary impact zones. The enhanced wetlands (under the previous bridge) and restored wetlands (within the temporary impact zone) were planted in July, 2004 with 1100 white mangrove, 4800 black rush, and 1700 saltmarsh bulrush. The planting supplemented the natural regeneration of these same species that had already commenced in these areas after construction. Semi-annual monitoring and quarterly herbicide maintenance was conducted from 2004-2005 when the dense, high quality mangrove coverage excluded generation of exotic and nuisance species. Monitoring continues to ensure successful habitat conditions are maintained.

Success criteria included 90% survivorship of planted stock which included white mangroves (*Laguncularia racemosa*), black rush (*Juncus roemerianus*), and saltmarsh bulrush (*Scirpus robustus*). These same species are naturally recruiting and regenerating at the site. The supplemental plantings were concentrated within the less vegetated areas. Success criteria required a minimum 80% cumulative cover of desirable vegetation, since ground cover within mature mangrove systems are generally sparse. With the proper grading, tidal waters restrict the generation of exotic/nuisance species, which were eradicated during a 2-year monitoring period. The monitoring was conducted on a semi-annual basis through 2006, followed by annual evaluations to ensure the successful habitat conditions are maintained.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): For the on-site mitigation, the permanent loss of 0.7 acre of mangrove/estuarine marsh habitat are adequately and appropriately compensated by the enhancement of 2.06 acres of non- to minimally-vegetated wetlands beneath the previous northbound span. The 2.51 acres of temporary impact to mangrove and saltmarsh habitat was restored in the same location as the impacts. To compensate for the additional 2.75 acres of permanent mangrove and estuarine impact, the impacts are mitigated through purchasing 2.75 credits from the Little Pine Island Mitigation Bank. The high quality habitat conditions of both the on-site mitigation and LPI mitigation banks adequately and appropriately compensate for the associated bridge wetland impacts. No additional roadway wetland impacts will be mitigated with this project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: Due to habitat conditions and proximity to the wetland impacts, the Little Pine Island Mitigation Bank was selected to compensate for some of the wetland impacts associated with this project. However, the I-75 Bridge is within the Peace River Basin and the mitigation bank is within the adjacent and downstream Charlotte Harbor Basin. Selection of an appropriate mitigation project within the basin was required to partially mitigate for wetland impacts, in order to avoid cumulative loss of wetland habitat functions and value within the Peace basin. Since the on-site wetland restoration and enhancement

adequately and appropriately compensates for a portion of the impacts, the mitigation bank provides additional appropriate mitigation for the remaining habitat loss.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were no existing or proposed saltwater restoration SWIM projects proposed in the Peace River basin.

PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor for the bridge construction was responsible for the necessary earthwork to restore grade elevations. A nursery contractor was selected and managed by the WMD for planting and maintenance of the restored wetlands.

Entity responsible for monitoring and maintenance: The maintenance was conducted by a private consultant on contract to the SWFWMD; monitoring by the SWFWMD.

Timeframe for implementation: Commence: Bridge construction was conducted from 2001-2004, planting conducted in July, 2004 Complete: semi-annual monitoring and quarterly maintenance was conducted for two years when dense mangrove conditions limited the opportunity for exotics regeneration. Periodic annual monitoring conducted to ensure conditions are maintained.

Project cost: \$26,000 (total)²

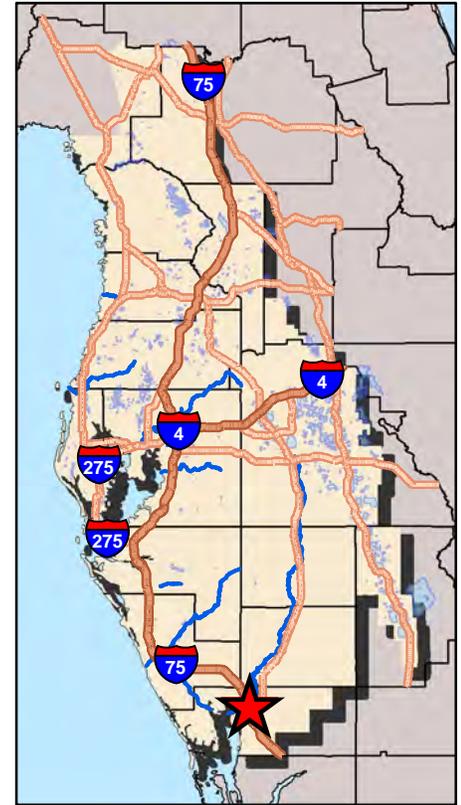
ATTACHMENTS

1. Figure A-Location
2. Photographs (2001, 2003, 2004, 2008)

² Costs do not include some necessary minor earthwork grading conducted by the bridge contractor to restore appropriate wetland grades at the three sites.

SW 69 - I-75 Peace River Bridge Restoration

Figure A - Location



Legend

 Project Location



0 375 750 1,500 Feet



Site A – Pre-Construction (2001) – view from the northern bridge embankment area, looking south over the tidal branch. Brazilian pepper along the embankment with mangroves and black rush.



Site A – Post-Construction (2003) – the new northbound bridge has been constructed and old bridge removed.



Site A (2004) – Planted stock and natural recruitment of desired vegetation provides extensive ground coverage. Herbicide maintenance to eradicate exotics conducted quarterly in 2004 and 2005.



Site A – (2008) – white and red mangroves dominate and successfully cover the cleared area previously under the old bridge.

SW-70 FT. DESOTO PARK – ECOSYSTEM RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Pinellas County		Management Entity	Pinellas County
County	Pinellas		Watershed	Upper Coastal Drainage
Water bodies	Mullet Key Bayou		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2569031	SR 682 (Bayway Bridge) SR 679 to W. Toll Plaza	0.80	4423532.000	NPR
2570831	SR 699 (Gulf Blvd.) - 192nd Ave. to Walsingham/Ulmerton Rd.	0.10	44025373.000	200307110 (NW-14)
4107552	SR 679 (Pinellas Bay Structure E) at Intercoastal Waterway	0.40	47023803.000	200204286 (NW-PW)

PROJECT DESCRIPTION

A. Overall project goals: The Ft. DeSoto Park Aquatic Habitat Management Area includes islands that were physically connected to Mullet Key in the 1960's by the construction of filled causeway roads. Since no bridges or culverts were installed, these causeways blocked historic tidal circulation patterns throughout the interior bay area (Mullet Key Bayou) along the north side of Mullet Key, resulting in severe stress and mortality of seagrass habitat. With construction of a 40-foot bridge span through the Pinellas Bayway causeway, flow patterns will be restored to the inner bays and enhance the health and survivorship of adjacent

seagrass beds. Based on previous studies, the minimal area of seagrass enhancement area associated with the bridge is 230 acres (Figure B), with secondary enhancement of the adjacent mangrove habitat along the causeway and additional seagrass beds further from the structure. Prior to the bridge construction in 2004, due to the substantial ecological benefits, the project was supported by multiple agencies for over 15 years but could not be implemented due to insufficient funds. The ecological value of this project has been recognized with Pinellas County receiving regional, state, and national awards for engineering and environmental excellence.

B. Brief description of pre-construction habitat conditions: Prior to construction, tidal flow patterns filled the inner bays, with slow and often stagnant hydrologic circulation. This recirculation problem resulted in elevated water temperatures in the summer, decrease in dissolved oxygen, water quality degradation, and associated seagrass mortality.

C. Brief description of construction activities and current habitat conditions: With assistance from eight agency funding sources, Pinellas County constructed the bridge span in the location of historically open water break between two islands. This span restores significant hydrologic circulation, enhancing the Mullet Key Bayou areas with the worst water quality and stagnation problems that in turn has improved the health of the seagrass beds and adjacent mangrove habitats along the causeway.

It's noted that the constructed bridge span only has a 4 ft. clearance during high tide, limiting the use of the inner bays to small boats and kayaks. Motor boats are restricted from use in the back bay areas in accordance with Pinellas County habitat protection goals. Installation of rubble rip-rap aprons was necessary to minimize channel and bridge scouring.

No maintenance of the seagrass beds are necessary and specific success criteria are not proposed since restoration of the tidal recirculation occurred as soon as the bridge was constructed, however periodic monitoring is being conducted by Pinellas to evaluate the seagrass health and water quality conditions.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts are associated with minor encroachments into open water, seagrass and mangrove habitats due to urban roadway and bridge expansions in western Pinellas County. Since Ft. DeSoto was first selected to the mitigation program, very minor wetland impacts associated with over a dozen FDOT projects designated for mitigation at Ft. DeSoto were ultimately permitted without requiring mitigation. Therefore, along with the three permitted roadway & bridge projects, additional minor FDOT wetland impacts within the Pinellas Co. portion of the Upper Coastal Basin will be evaluated to determine if they can be adequately and appropriately mitigated at Ft. DeSoto. The most noteworthy impact included the 0.4- acre of shading impact to seagrass associated with the widening of the Pinellas Bayway Bridge. All the roadway and bridge projects are within close proximity of Ft. DeSoto Park and the recirculation project was designated to compensate for these impacts due to the very important and large-scale enhancement opportunities to minimize the continuous degradation of seagrass beds within a designated aquatic habitat management area.

Secondary benefits include restoring tidal conditions to other habitats including adjacent mangroves that border the bays. To date, since the designated FDOT funds (\$110,000) provide 7% of the \$1.6 million bridge budget, an appropriate percentage (16 acres) of the 230 acres of minimal habitat enhancement has been designated for the mitigation. Based on the quality of the wetland impacts and associated mitigation evaluation, this mitigation acreage is more than adequate and appropriate to compensate for the 1.5 acres of wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks within the Upper Coastal Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is also being co- sponsored by the SWIM program.

PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by Pinellas County

Entity responsible for monitoring and maintenance: Pinellas County Department of Environmental Management maintains bridge conditions. Some volunteer seagrass and water quality evaluation is conducted by the County however specific mitigation monitoring was determined to be unnecessary.

Proposed timeframe for implementation: Commence: Design & Permitting, 2000-2003
Complete: Construction - 2004

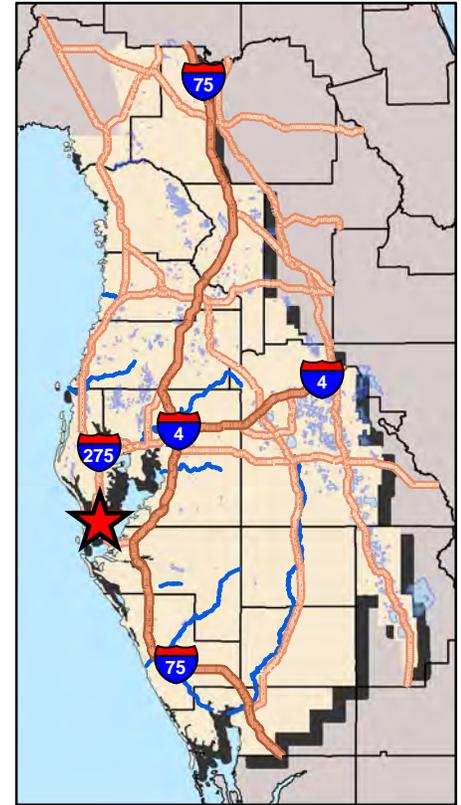
Project cost: \$110,000 (total)

ATTACHMENTS

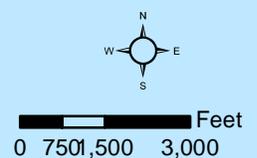
1. Figure A-Location
2. Figure B-Habitat Enhancement Areas
3. Photographs (2004)

SW 70 - Fort DeSoto Park Ecosystem Restoration

Figure A - Location

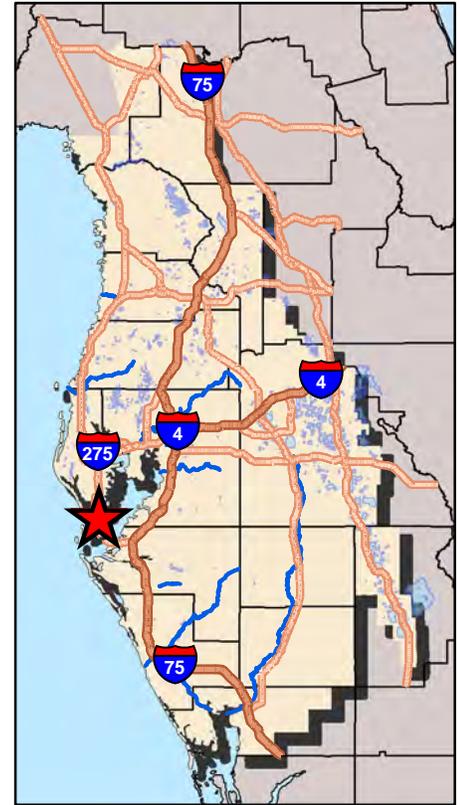


Legend



SW 70 - Fort DeSoto Park Ecosystem Restoration

Figure B - Habitat Enhancement



Legend

 Fort Desoto Habitat Enhancement



0 750 1,500 3,000 Feet



2004 – Ft. DeSoto Park – Ecosystem Restoration – Completion of bridge opening and tidal recirculation project.



2004 – Ft. DeSoto Park – Ecosystem Restoration – Completion of bridge opening and tidal recirculation project.

SW-71 BOYD HILL NATURE PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Wetland and upland enhancement			
Landowner	City of St. Petersburg		Management Entity	City of St. Petersburg
County	Pinellas		Watershed	Tampa Bay Drainage
Water bodies	Lake Maggiore		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2555991	SR 676 (Causeway Blvd.) US 301 to US 41	1.40	43027063.000	200405583 (IP-MIS)
2558881	US 301 Sligh Ave. to Tampa Bypass Canal ¹	8.30	43024246.000	200206711 (IP-JF)
2568881	US 19 Coachman Rd. to Sunset Rd.	0.40	4411760.013	200104383 (IP-PB)
2570701	US 19 (SR 55) 49th St. to 118th Avenue	0.10	44000188.002	200206325 (IP-MGH)
4037701	US 19, CR 816 (Alderman) to SR 582 (Tarpon)	0.10	44022085.001	NW-14 (PCN)
4062561	East-West Trail, Coopers Bayou to Bayshore	0.10	44022718.001	200105298 (NW-PB)
4082011	Himes Ave. at Hillsborough Ave.	0.10	44002448.002	200208419 (NW-MS)
4154893	US 301, Sun City Center to Balm Road ²	2.00	43034464.000	200803613

¹ The freshwater marsh and ditch impacts associated with these projects are being mitigated with habitat activities conducted at Cockroach Bay – Freshwater (SW 56).

PROJECT DESCRIPTION

A. Overall project goals: The enhancement of freshwater forested hardwood wetlands (69.6 acres) and adjacent buffers of upland forested habitat (21.4 acres), and pond (1 acre) by eradication of the extensive cover of exotic and nuisance species; followed by supplemental planting of appropriate tree species. Enhancement activities are part of an overall plan of eradication and maintenance to control undesirable vegetation within the 300-acre Preserve owned and managed by the City of St. Petersburg Parks Dept.

B. Brief description of pre-construction habitat conditions: The enhancement areas include two designated portions of the Preserve. The northwest area includes hardwood hammock wetlands, dominated by laurel oak with additional coverage provided by Brazilian pepper, water oak, live oak, red maple, cabbage palm, and sparse understory dominated by ferns. The area also includes upland hardwood hammock that buffers the adjacent forested wetlands. These hammocks are dominated by live oak, scattered longleaf pine, Brazilian pepper, extensive vines, and where the Brazilian pepper was not dense, an understory of scattered saw palmetto. The density of Brazilian pepper varied with an average sub-canopy cover of 30%. The pepper was much larger and provided more coverage within the wetland portion.

The southeast enhancement area includes approximately half (27 acres) of a forested wetland floodplain associated with Lake Maggiore and is one of the largest forested freshwater wetland habitats within peninsular Pinellas County. This wetland has a more extended hydroperiod than the wetlands in the northeast part of the Preserve. This wetland receives stormwater flow from the contributing basin which is high density residential. The wetland treats stormwater before flowing into Lake Maggiore. During high water conditions, the lake overflows into this wetland, providing even more opportunity for water quality treatment and flood attenuation. Prior to enhancement activities, dominant vegetation within this area included red maple, Brazilian pepper, sweet bay, Carolina willow, primrose willow, elderberry, and grapevine over much of the outer shrub components. Ground cover was sparse due to the heavy shade cover from Brazilian pepper, elderberry and grapevine, but there are various fern species present. Historically, the City could only annually budget and conduct 5-10 acres of habitat enhancement at the Preserve. At that rate, exotics eradication could not be successful due to the continuous seed source recruiting and generating back into previously enhanced areas. Therefore, the combination of mitigation and grant funding allowed the City to hire private contractors to eradicate exotics throughout the Preserve over a shorter duration.

C. Brief description of construction activities and current habitat conditions: Commencing in 2004, the City contracted with private environmental consultants and contractors to eradicate the extensive cover of nuisance and exotic vegetation. The dominant species eradicated from all the areas is Brazilian pepper, which had moderate to very dense cover within the wetland as well as upland habitats. Secondary species eradication included

² Additional wetland impacts are being mitigated on-site by FDOT, the Ekker Tract (SW 82), and the Little Manatee River – Lower Tract (SW 83).

herbicide control and long-term maintenance of primrose willow, elderberry, guinea grass and grapevine. Pepper eradication included a phased approach of herbicide treatment (Garlon) for initial mortality, hand tools and mechanical removal, and transport to the on-site mulching facility. Areas of eradication have exhibited good vegetative coverage of planted and regenerated desirable tree, shrub and herb species. An extensive schedule of herbicide applications continues to minimize recruitment and regeneration of exotic & nuisance species.

The Brazilian pepper received herbicide treatment (Garlon) and manual cutting, with most of the material removed to the nearby mulching and incinerator facility. Herbicide treatment of regenerating and other existing and generated exotic & nuisance species was conducted bi-monthly through 2007, then quarterly treatments through 2010. Supplemental tree and shrub species were planted in areas with minimal tree cover due to existing dense pepper. Dominant tree plantings included sweetgum, red maple, popash; with pines and live oak in the uplands. The Preserve periodically implements prescribed burns as necessary within the uplands to maintain appropriate vegetative coverage and density. Along with the Brazilian pepper eradication, grapevine is the most prolific nuisance species controlled by hand and mechanical methods. The prescribed burning activities aid in minimizing regeneration of the exotic and nuisance species.

Due to the muck and seasonal high water conditions of this swamp, it was necessary to mechanically eradicate and remove the B. pepper during dry season periods. Hydraulic dredging of lake bottom sediments were also conducted in 2004 and 2005; with \$12 million expended by the WMD and the City of St. Petersburg. The combination of the lake dredging and wetland enhancement provides substantial ecological improvement and interdependent mosaic of wetland and surface water habitats. In addition, the City received grants toward funding exotic and nuisance species removal within the remaining areas (primarily upland habitats) of the Preserve not providing mitigation credit. This total eradication effort further minimizes the exotic and nuisance species seed sources that recruit into the wetlands. Wildlife species depend on many upland and wetland ecosystems for various functions and values within their life cycles. With the lake improvement, wetland and upland enhancement activities conducted in the Preserve, this provides an exponential increase of overall ecological value compared to just enhancing one habitat component.

Since exotic species regeneration is generally more problematic soon after initial eradication, bi-monthly herbicide treatments continued through 2007, followed by quarterly treatments through 2009 when success criteria had been achieved and maintained. Afterwards, the Preserve staff continues herbicide treatments to maintain and exceed the successful habitat conditions. The City has exhibited substantial efforts toward eradication of exotic and nuisance species from the upland and wetland habitats throughout the Preserve.

Monitoring includes qualitative analysis of the enhanced habitat on an annual basis. The qualitative information is compiled into annual reports, which also documents maintenance activities and efforts toward maintaining success. Monitoring reports were discontinued after 2009 due to the high success however annual evaluations continue to evaluate conditions, management activities, and any additional need for other activities. Success criteria requires

less than 10% cover of Brazilian pepper, elderberry, grapevine, and primrose willow, and a minimum 90% survivorship of planted stock within each of the two designated mitigation areas.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Freshwater wetlands are less common than saltwater wetlands within the Tampa Bay Drainage Basin, particularly forested wetlands and freshwater systems within Pinellas County. As a result, locating appropriate freshwater wetland mitigation opportunities within this basin is difficult. The Preserve historically had extensive problems with exotic and nuisance species, particularly Brazilian pepper that heavily invaded all the habitat areas. Prior to public ownership, the Preserve was operated by a private entity that planted exotic species. The Preserve staff was diligent in its efforts to eradicate exotic and nuisance species, but lack of funding sources limited such pursuits to small areas of 5-10 acres per year. In order to minimize the continuous recruitment and generation of exotic seed sources within the Preserve, the opportunity to eradicate these species within large segments was particularly important.

The FDOT impacts designated for mitigation at the Preserve includes a dominance of freshwater forested and shrub wetlands. The wetland enhancement areas at the Preserve include portions of a couple of the largest forested freshwater wetlands remaining within peninsular Pinellas County. The Preserve is essentially an oasis for wildlife and wetland functions that were substantially invaded by extensive nuisance & exotic species. With the other habitat enhancements conducted at the Preserve, Boyd Hill provides adequate and appropriate mitigation for the wetland impacts with large-scale, regionally significant and extensive habitat improvements. Boyd Hill is one of the few areas of remnant, large native habitats surrounded by an urban landscape. As a result, the exotics eradication and planting were critical toward attracting and maintaining important wildlife habitat in Pinellas County.

The 57-acre hardwood swamp within the southeast section of the property is partially utilized for FDOT mitigation, with the western half of the swamp's enhancement (30 acres) designated to provide mitigation for six acres of wetland impacts associated with the construction of a Lowe's Department Store in the vicinity.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The Tampa Bay Mitigation Bank (TBMB) is the only mitigation bank within the Tampa Bay basin. However at the time of mitigation selection, bank construction had not commenced and credit sales were not available.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: Several SWIM projects have been selected to provide FDOT mitigation for saltwater wetland and freshwater marsh impacts in this basin. However, at the time of mitigation nomination, none of the SWIM projects in the basin had the opportunity to provide appropriate mitigation for forested freshwater wetland impacts. However the adjacent Lake Maggiore sediment dredging activity was a SWFWMD-SWIM and City of St. Petersburg sponsored habitat improvement project. The Boyd Hill Preserve project was selected due to

the opportunity to appropriately mitigate the proposed wetland impacts with ecologically beneficial habitat improvements.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private environmental contractors working for the City of St. Petersburg Parks Dept.

Entity responsible for monitoring and maintenance: Consultant on contract to the City of St. Petersburg

Proposed timeframe for implementation: Commence: Exotics Eradication 2004-2005
Complete: Minimum five years maintenance & monitoring through 2009, then perpetual maintenance as part of normal land management activities.

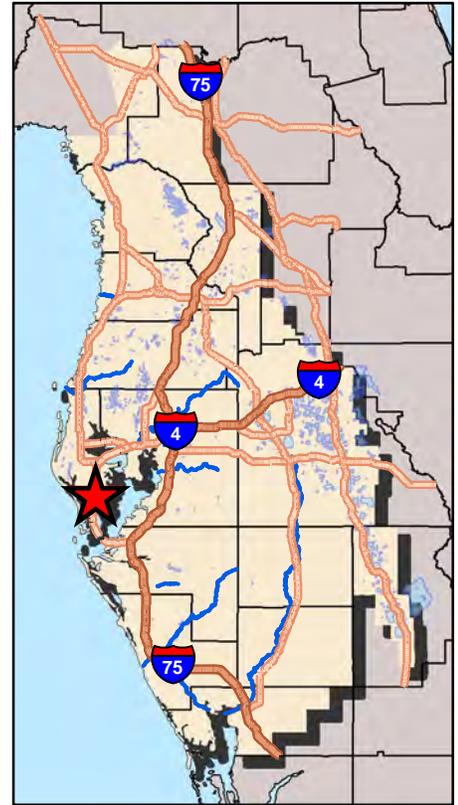
Project cost: \$490,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Mitigation Areas
3. Photographs (2003, 2006, 2008)

SW 71 - Boyd Hill Nature Preserve

Figure A - Location



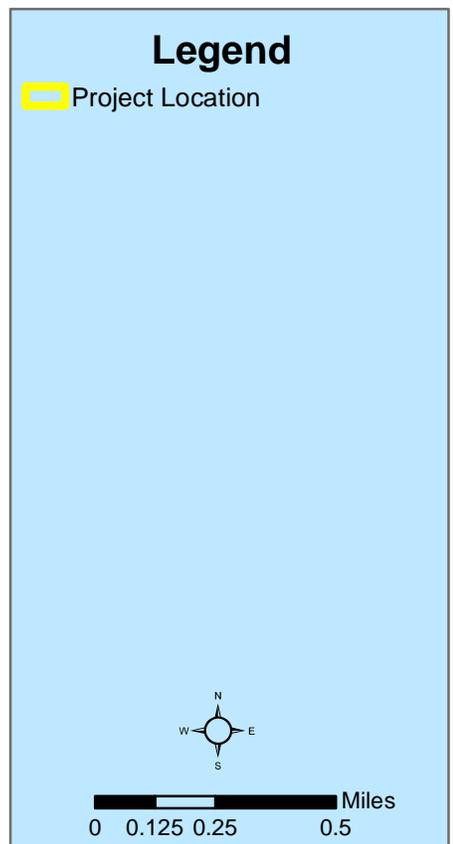
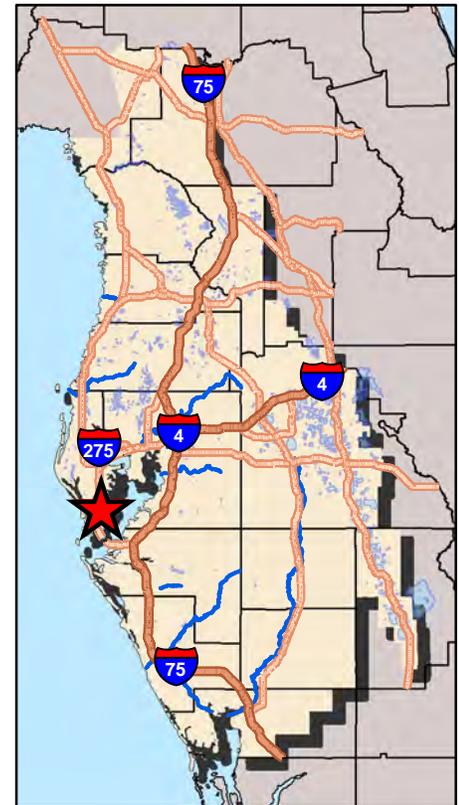
Legend

 Project Location



0 0.125 0.25 0.5 Miles

SW 71 - Boyd Hill Nature Preserve Figure B - Mitigation Areas/Habitat





2003 - portions of both designated wetland habitat enhancement areas had extensive and dense coverage of Brazilian pepper that substantially minimized wildlife access and foraging opportunities.



2003 – majority of the northwest designated mitigation area had less extensive Brazilian pepper coverage mixed within the wetland (right) and adjacent upland habitat buffers (left).



2006 – portion of northwest mitigation area after eradication of dense Brazilian pepper, preserving the remaining native trees and shrubs, and preparing the site for supplemental planting.



2008 – ephemeral wetland in the northwest area that was previously covered with dense Brazilian pepper, natural regeneration of hydrophytic vegetation and supplemental plantings of trees and shrubs.

SW-74 SERENOVA PRESERVE – SITES 2, 3, 4, 8 MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Restoration and enhancement			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Pasco		Watershed	Upper Coastal Drainage
Water bodies	Pithlachascotee River, Five Mile Creek		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2563161	SR 52 Hicks to Moon Lake	1.60	4007804.005	1990IPI-03363

PROJECT DESCRIPTION

A. Overall project goals: The Serenova Preserve and adjacent Starkey Wilderness Preserve (total over 20,000 acres) is owned and managed by the SWFWMD. After extensive evaluation and ranking of wetland restoration and enhancement opportunities within the Serenova Tract, four separate project sites (2,3,4,8) were determined that they could provide the most important wetland hydrologic improvements within the property. Three projects involve culvert installations and removal of berm material associated with the Pithlachascotee River and Five Mile Creek. The Pithlachascotee River has two access road berm crossings (Site 2 - actively used, Site 4 - abandoned) and Five Mile Creek has one crossing (Site 3). Each crossing requires improvements to restore surface water flow conditions through the floodplains and minimize continuous problems with erosion and sedimentation. Site 8 is a large outfall ditch of a cypress system, requiring the construction of ditch blocks in order to restore wetland hydrologic functions.

B. Brief description of pre-construction habitat conditions: The Pithlachascotee River and Five Mile Creek are forested wetland floodplains of relatively high-quality with a diverse canopy cover dominated by laurel oak, sweet gum, cypress, red maple, cabbage palm, and

tupelo. A sub-canopy has saplings of the same species as well as Virginia willow, buttonbush, and wax myrtle. Ground cover is sparse due to canopy cover and dominated by various fern and sedge species. However, hydraulic characteristics of the floodplains have been altered by berms constructed prior to public acquisition, as well as undersized and insufficient culverts. The abandoned Pithlachascotee River crossing had a 600 ft. long berm that blocked and diverted surface water flow to a dredged river channel segment. The river channel had a partially collapsed bridge tressel that would catch debris and block flow. Another 680 ft. long berm crossing of the river is utilized for management access, but had insufficient and undersized culverts. The upstream contributing flow was diverted through just three culverts in the main river channel. As a result, the wetland floodplain upstream of the berm would have impounded surface and less water contributing to the downstream wetland floodplain. The Five Mile Creek roadway crossing had an appropriate size culvert but insufficient rubble rip-rap to control erosion (Site 3). The cypress system associated with Site 8 had a dense canopy and fern understory, but hydrologic indicators demonstrated minimal hydroperiods due to the shallow and wide outfall ditch.

C. Brief description of construction activities and current habitat conditions: To restore the primary flow patterns of the Pithlachascotee River, a surface water modeling effort was contracted in 2006 to determine the appropriate sizes and locations of culverts required for Sites 2 and 3. The modeling effort resulted in replacing the three culverts in the main channel at Site 2 and the installation of two additional culverts at strategic locations where secondary channels historically provided flow to other areas within the floodplain. Evaluation of those culverts after installation has indicated restoration of flow regimes. The access road berm was also stabilized with rubble rock and capped with limerock base material, thus halting the erosion and sedimentation that was occurring with the previous road. The Five Mile Creek access road (Site 3) required resetting of the culvert and adding rubble and base material to stabilize the crossing. The abandoned berm crossing (Site 4) had the fill material backfilled to restore the historic floodplain flow patterns, as well as the removal of the dilapidated bridge. After earthwork, the graded area was stabilized with a seed mix of winter rye and bahia grass. Subsequently, hydrophytic herbs dominated by soft rush and sedges recruited and generated within the area, followed by tree seedlings dominated by red maple that will mature and eventually restore the canopy gap. The berm removal and adjacent backfilled ditch resulted in a one-acre area of restored wetland floodplain. The wide and shallow outfall ditch from the cypress system (Site 8) had three small ponds dredged within the footprint the ditch, with the resulting material used to create two substantial ditch blocks that water stabilized with biodegradable mesh screens and bahia seeding. The ponds provide a valuable water source for wildlife during the dry season, while discontinuing the dewatering of the forested wetland.

The following information provides additional details of the site conditions and improvements. Based on the modeling effort, a minimal acreage of direct wetland enhancement is proposed for mitigation credit. This minimal enhancement is based on wetland floodplain limits of 350 ft. upstream and downstream of each crossing (Sites 2, 3, 4), and the most northern 300 ft. perimeter of the drained cypress wetland associated with Site 8. The enhancement acreage is presented for each site.

Project Site 2 – This access road berm over the Pithlachascotee River is used for maintenance and management of the Serenova property. The three pre-existing 48-inch culverts had water stain indicators that demonstrate normal flow conditions exceeding 70% of the available flow capacity of the culverts, resulting in pooling of water upstream of the crossing and detaining flow from reaching the downstream wetland floodplain. The floodplain crossing is very wide (700 ft.), so the contributing flow is funneled through the large culverts that substantially minimize the expansion of surface water patterns throughout the downstream floodplain, while impounding and extending the hydroperiods of the upstream floodplain wetlands. The pre-existing culverts were undersized and without rip-rap material, scouring of berm material resulted in downstream sedimentation. Restoration of flow patterns included replacing the three main culverts with cross-drains of similar size and dimension, then adding two culverts within two other areas of the berm to restore historic surface water flow conditions to the downstream wetlands. Rip-rap material was placed along the berm and underneath the culverts to eliminate erosion, undermining and dissipate velocities. The berm was then capped with limerock base material. The direct wetland enhancement was estimated at 11 acres (floodplain upstream & downstream - 700 ft. x floodplain width 700 ft. = 11 acres).

Project Site 3 – The crossing of Five Mile Creek had scouring and loss of berm material from around the culvert. Even though this 150 ft. crossing is shorter than Site 2 and the berm much lower, the berm condition was less stable. The scouring resulted in more downstream sedimentation so the culvert was reset and additional berm stabilization included rock rip-rap. Direct wetland enhancement was estimated at 2 acres (floodplain upstream & downstream - 700 ft. x floodplain width 150 ft. = 2 acres).

Project Site 4 – This remnant tram road had a dilapidated bridge and considering there was already accessibility over the Pithlachascotee River at Site 2, neither replacing the bridge nor placing culverts within the access berm were necessary. Similar to the other two floodplain crossings, flow conditions were detained upstream and more concentrated within the main channel, resulting in impounding some water upstream and minimize the spread of water into the downstream floodplain areas. In order to restore normal floodplain flow patterns, the entire berm material was graded in late 2007 and early 2008 to backfill the adjacent ditches. The earthwork area was stabilized by seeding a mix of winter rye and bahia. Natural recruitment and generation of hydrophytic herbs dominated by soft rush and sedge species occurred during subsequent years. Tree saplings (dominated by red maple) have recruited and generated from the adjacent seed source, and gradually the canopy gap will be restored to forested cover. Direct wetland enhancement was estimated at 11 acres (length 700 feet x width 700 feet = 11 acres).

Project Site 8 – This is a large outfall ditch, with a bottom width over ranging 15-30 ft, and top-of-bank width varying 30-50 ft. The ditch depth from top-of-bank varies because most of the ditch was dredged through elevated topography to provide positive hydraulic gradient flow, however some portion of the ditch was over five foot deep. But because of the excessively drained, sandy soil conditions, the ditch hydroperiods are intermittent. Even though the cypress wetland is large, the area of direct wetland enhancement was estimated near the

northern extent of the system. The construction included three ponds dredged from within the ditch and the resulting fill material was used to construct two large ditch blocks. By constructing the ponds and blocks from within the footprint of the previous ditch, the construction was able to avoid disturbing any of the palmetto habitat bordering the ditch. These blocks have halted the dewatering, and the ponds provide a water source for wildlife during the dry season. Direct wetland enhancement was estimated at 2 acres (length 300 feet x width 350 length = 2 acres).

Monitoring was conducted semi-annually through 2010 to ensure structures function as proposed, proper erosion control, and there is appropriate and desirable hydrophytic species being established at the restored wetland (Site 4). Success criteria includes ensuring the hydraulic and hydrologic flow patterns were adequately and appropriated restored, erosion control methods are maintained, and there is less than 5% coverage of any exotic and/or nuisance species vegetation within the restored wetland (Site 4). These successful habitat conditions have been achieve and maintained at all four project sites.

Periodic inspection of the structures, rip-rap, etc. are conducted to ensure they function as intended, and that exotic and nuisance species do not become a problem at any of the sites; the most probable is wetland restoration at Site 4. Due to the minimal presence of exotic or nuisance species on the Serenova property and within the vicinity of the four project sites, there has not been a need to conduct herbicide maintenance at any of the sites.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The SR 52 segment is a few miles northwest of the Serenova Tract. The 1.6 acres of forested wetland impacts are adequately and appropriately mitigated by the 26 acres of habitat enhancement and restoration at Serenova. This mitigation project is only designated to provide mitigation for the wetland impacts associated the SR 52 project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During mitigation selection, there were no existing or proposed mitigation banks within the Upper Coastal Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During mitigation selection, there were no existing or proposed SWIM projects in the Upper Coastal basin that could appropriately provide the mitigation for the proposed impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department

Entity responsible for monitoring and maintenance: Qualitative monitoring conducted annually by WMD staff to evaluate stabilization, hydrology, habitat conditions, and wildlife use.

Timeframe for implementation: Commence: Surface Water Modeling – 2006
Complete: Construction – November, 2007 – April, 2008, followed by semi-annual monitoring by WMD staff through 2010, followed by annual monitoring to evaluate and document site conditions

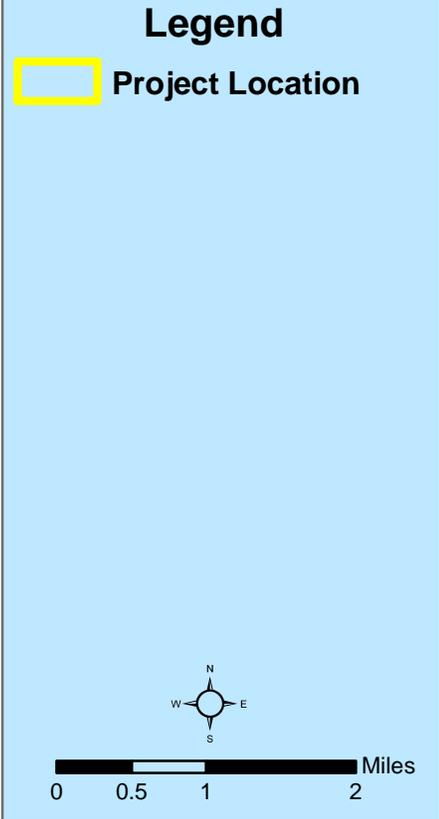
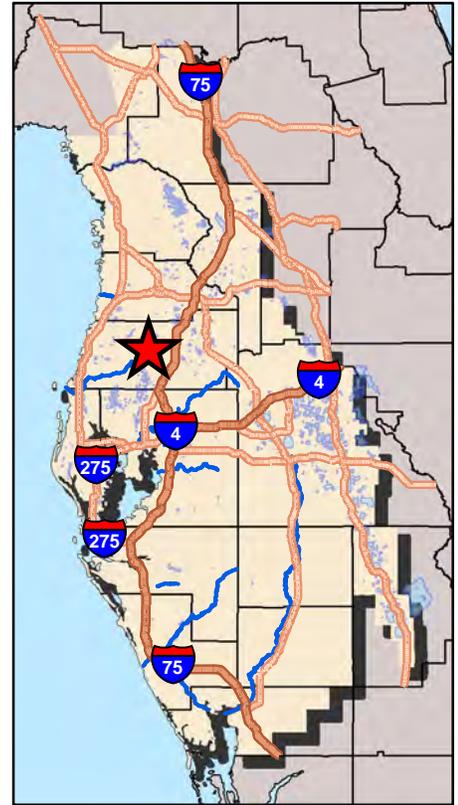
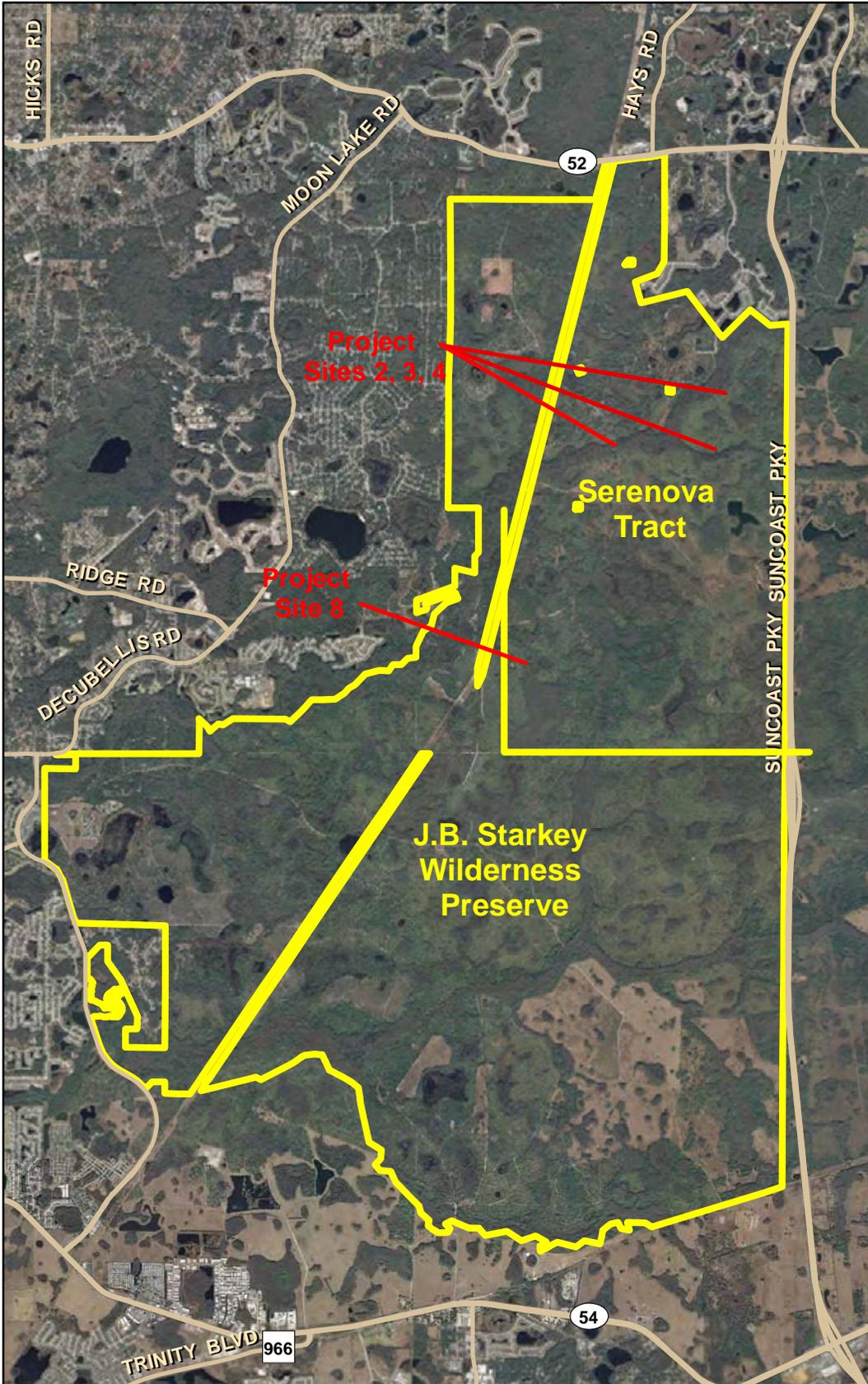
Project cost: \$145,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Project Sites
3. Photographs (2005, 2008, 2009)

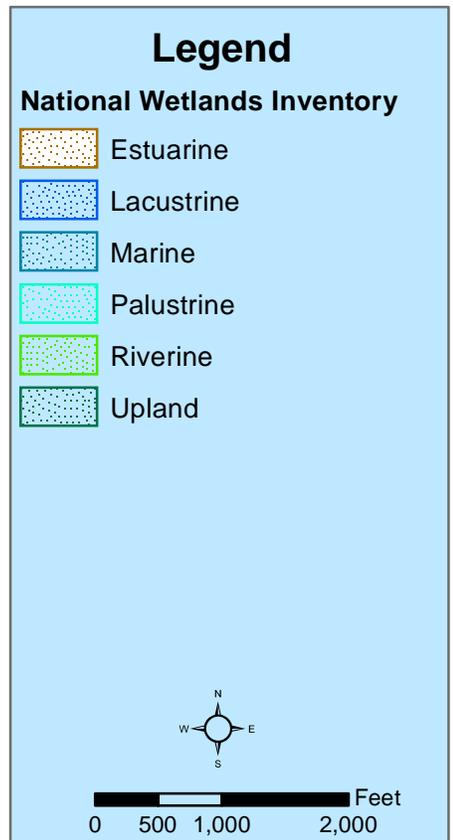
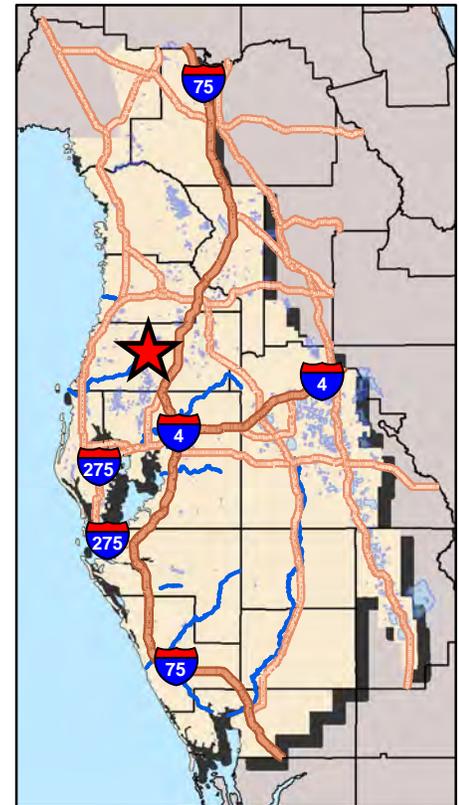
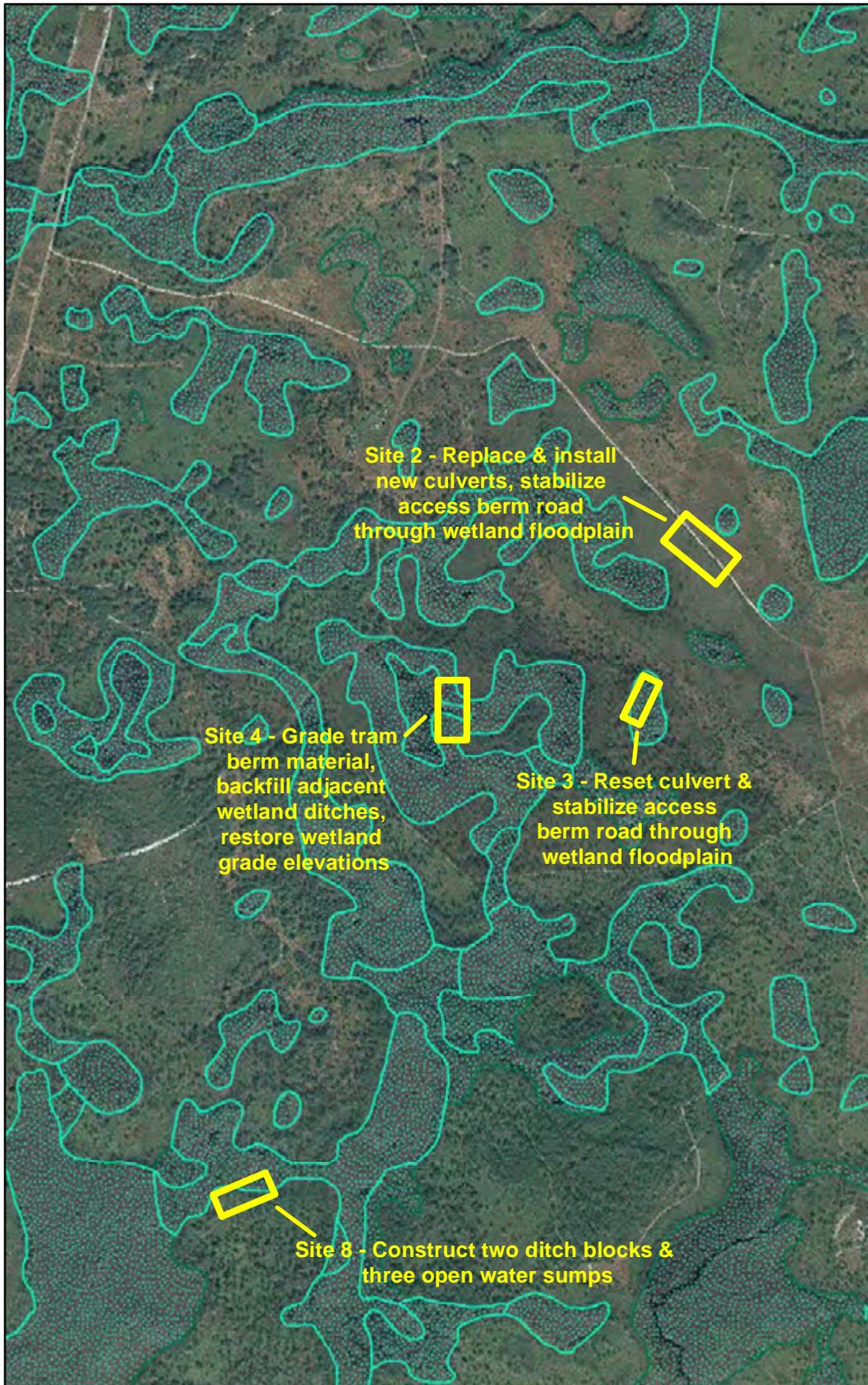
SW 74 - Serenova Preserve Sites 2, 3, 4, 8

Figure A - Location



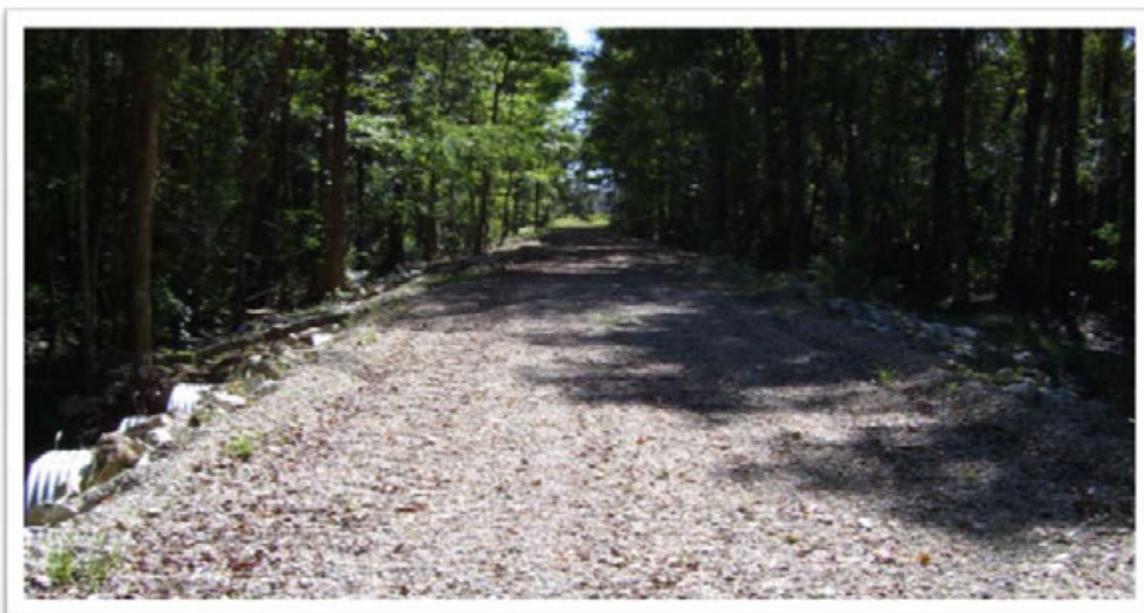
SW 74 - Serenova Preserve - Sites 2, 3, 4, 8

Figure B - Wetlands & Project Sites





Pre-Construction - Site 2 (2005) – these three dilapidated culverts provide the only hydrologic connections from upstream to downstream through the 700 ft. wide Pithlachascotee River wetland floodplain. The sidebanks of the access road berm are unstable from erosion.



Post-Construction - Site 2 (2009) – in addition to the three new culverts installed at the river channel crossing (left), additional culverts were placed at other strategic locations in the berm to restore appropriate hydrologic regimes and connectivity within impounded wetlands upstream and dewatered wetlands downstream. Wildlife routinely utilize the road for access across the floodplain.



During Construction - Site 4 (February, 2008) – berm material has been graded to fill adjacent ditches, followed by seeding with winter rye and bahia for initial soil stabilization. The base flow through the river channel was maintained, however water sheet flow & seepage has been restored through the floodplain wetland.



Post-Construction - Site 4 (July, 2009) – extensive coverage of naturally recruited and generated herbs such as soft rush and sedges; as well as seedlings of hydrophytic trees that will gradually mature to fill in the canopy gap.

SW-75 COCKROACH BAY RESTORATION - SALTWATER MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland creation			
Landowner	Hillsborough County		Management Entity	Hillsborough County
County	Hillsborough		Watershed	Tampa Bay Drainage
Water bodies	Tampa Bay, Cockroach Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2557031	SR 60 Cypress St. to Fish Creek ¹	5.40	43002958.003	200205816 (IP-MN)
2571391	SR 688 (Ulmerton Rd.), US 19 to 49th Street	0.10	44026223.000	200311664

PROJECT DESCRIPTION

A. Overall project goals: Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hillsborough County Conservation Section) effort of habitat creation and restoration conducted on property acquired and managed by Hillsborough County (total 651 acres). Through the SWIM Section, the SWFWMD primarily assists the County with managing the design, construction and creation of wetland habitats. Hillsborough County conducts the perpetual maintenance and management of the public lands at Cockroach Bay. This designated mitigation project includes braided tidal marsh habitat creation (8 acres) connected in a mosaic of and open water tidal pools and channels (7 acres).

¹ The total impacts associated with this project are 16.6 acres. The ditch, pond, freshwater marsh, and mangrove impacts of this project (5.1 acres) are being mitigated at Tappan Tract (SW 62). Approximately half of the saltwater marsh impacts (5.3 acres) are being mitigated at Apollo Beach (SW 67), with the remaining saltwater marsh impacts (5.4 acres) at Cockroach Bay - Saltwater. The remaining impacts (0.8 acre) are freshwater marsh mitigated at Cockroach Bay- Freshwater (SW 56).

B. Brief description of pre-construction habitat conditions: Prior to the habitat construction, the wetland creation site was an upland mowed fallow field that was historically a row crop area. The site is bordered to the west by upland oak hammock, previously constructed estuarine marsh habitats, and the mangrove zone along Tampa Bay. This created estuarine habitat was designed and constructed to achieve a future tidal connection for this additional project. The connection is evident on the pre-post construction aerials within the southwest corner of the project boundary. There was a freshwater wetland creation area constructed within another former upland fallow field south of this FDOT mitigation project area. Separate to the FDOT mitigation program, this additional wetland creation project is also providing mitigation for wetland impacts associated with the expansion of the Selmon Crosstown Extension.

C. Brief description of construction activities and current habitat conditions: The construction activities included dredging the uplands to create saltwater marsh habitat, along with tidal pools and channels that connect to the other created estuarine habitat east of the oak hammock. The constructed saltwater marsh habitat includes low marsh with dense coverage of planted smooth cordgrass (*Spartina alterniflora*), and marshhay cordgrass (*Spartina patens*). The high marsh habitat includes dense coverage of planted knotgrass (*Paspalum distichum*) and sand cordgrass (*Spartina bakeri*). The marshes are in a mosaic with the intertidal pools and braided channels. White mangroves (*Laguncularia racemosa*) have naturally recruited and generated within the marsh habitat. The material dredged during construction was placed into an adjacent shell mine cut east of the site to create additional wetland habitat not associated with the FDOT mitigation program. The site attracts several species of wading birds, and fish species migrate from Tampa Bay into the project site.

Maintenance activities are conducted by a licensed herbicide contractor working for the SWFWMD through 2010, and control of invasive exotic vegetation that has minimally recruited to the site. After 2010, as part of normal maintenance activities conducted throughout the Cockroach Bay property, herbicide maintenance activities will continue to be conducted when necessary by Hillsborough County Conservation herbicide crew that is stationed at the County's Cockroach Bay facilities.

Semi-annual monitoring with annual monitoring reports were prepared by environmental consultants on contract for the SWFWMD through 2008. Monitoring included qualitative evaluation and photos of the mitigation area, to evaluate and document species survival, coverage, wildlife use, exotic & nuisance species coverage, and recommended actions necessary to ensure or enhance success. The project exceeded the required success criteria of 90% survivorship for planted material for one-year post-planting, a total 85% cover of planted and recruited desirable species within the non-open water areas, and less than 2% exotic and nuisance species cover. The site's success conditions consistently exceed and maintain that criteria.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts include 5.4 acres of saltwater marsh habitat and a minor 0.1

acre of mangrove impact. The creation of saltwater marsh habitat and connecting intertidal pools and braided channels were constructed and achieved dense vegetative coverage years in advance of the wetland impacts, and appropriately mitigate for these FDOT impacts at a cumulative ratio of 2.8:1. No additional roadway wetland impacts will be proposed for migration at the project site.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the time of selecting mitigation for the proposed wetland impacts, the only mitigation bank proposed in the basin is the Tampa Bay Mitigation Bank; which is also within the Cockroach Bay area. However the mitigation bank was not under construction nor had available credits during the time of mitigation selection.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is part of a large County and SWIM effort to create and restore habitat within the Cockroach Bay property. The Cockroach Bay restoration effort has been guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including the agencies, landowners, and the Tampa Bay Mitigation Bank. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions. Ecosystems on the property transition from upland to wetland habitat, followed by salinity gradients of freshwater to estuarine wetlands. A freshwater wetland creation and coastal hammock restoration project (total 34 acres) was also selected and constructed in 2004 for the FDOT mitigation program (SW 56 - Cockroach Bay – Freshwater). Another 40 acre wetland creation area was constructed between the SW 56 & SW 76 project areas that provides mitigation for wetland impacts associated with the Selmon Expressway. Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the designated mitigation areas have been ecologically beneficial and very successful.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department constructed the project in 2005

Entity responsible for monitoring and maintenance: SWFWMD, Hillsborough County and contractor

Timeframe for implementation: Commence: Design, 2002 Complete: Construction and planting in 2005, followed by semi-annual monitoring through 2008 and quarterly maintenance (SWFWMD contract) through 2010; followed by perpetual maintenance & management by Hillsborough County Conservation Section when necessary. Due to the successful construction and planting elevations, the saltwater substantially minimizes the potential for

establishing of exotic & nuisance vegetation, so there has been very minimal need for maintenance activities.

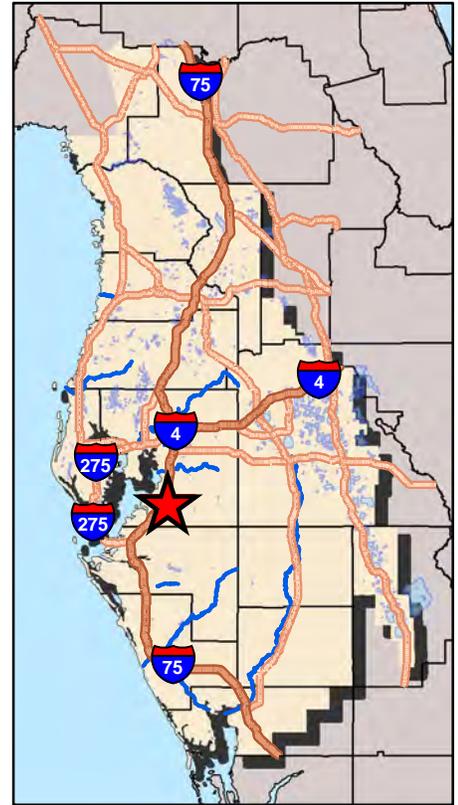
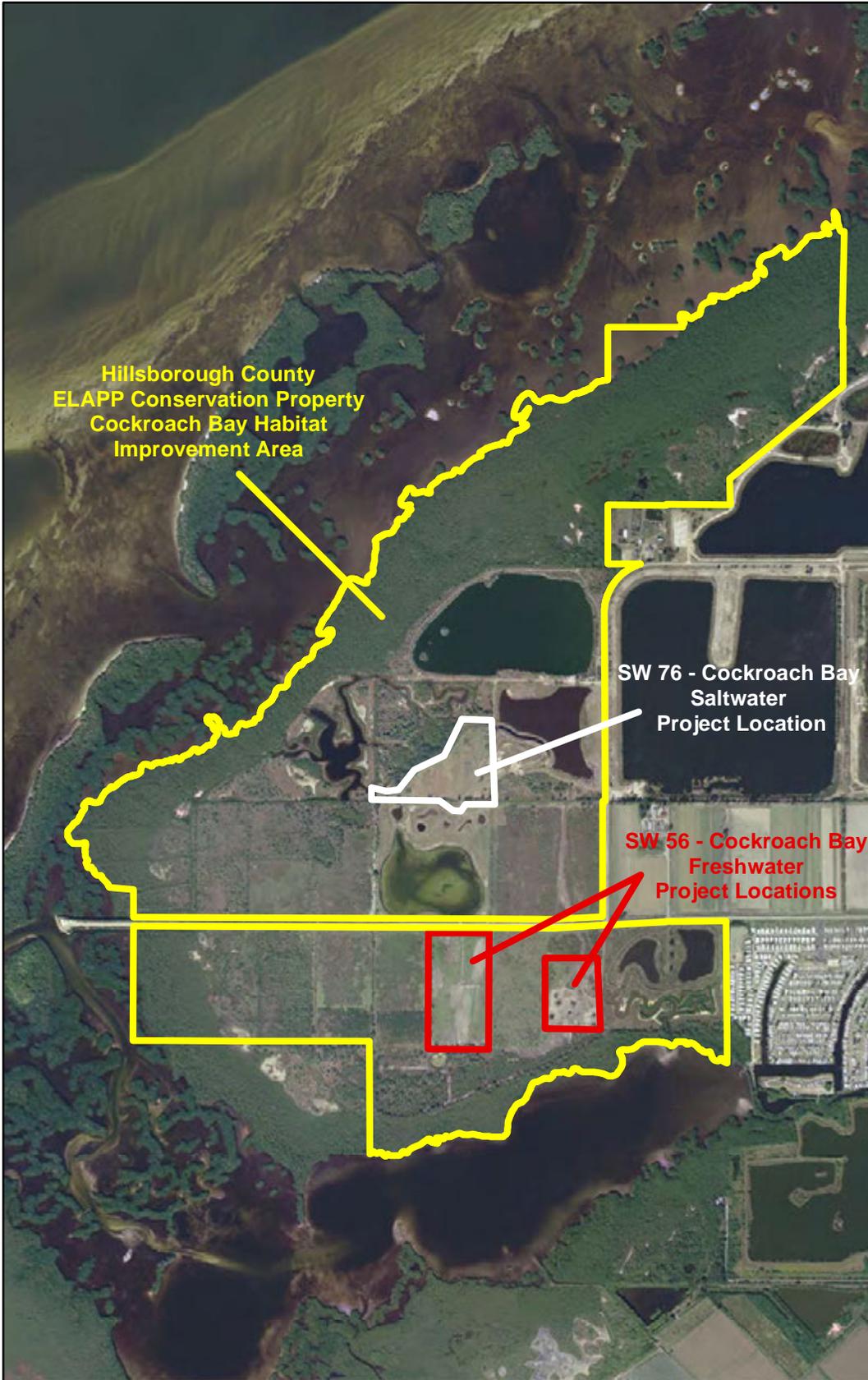
Project cost: \$450,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (2005)
3. Figure C-Post-construction (2009)
4. Photographs (2005,2009)

SW 75 - Cockroach Bay Restoration (Saltwater)

Figure A - Location



Legend

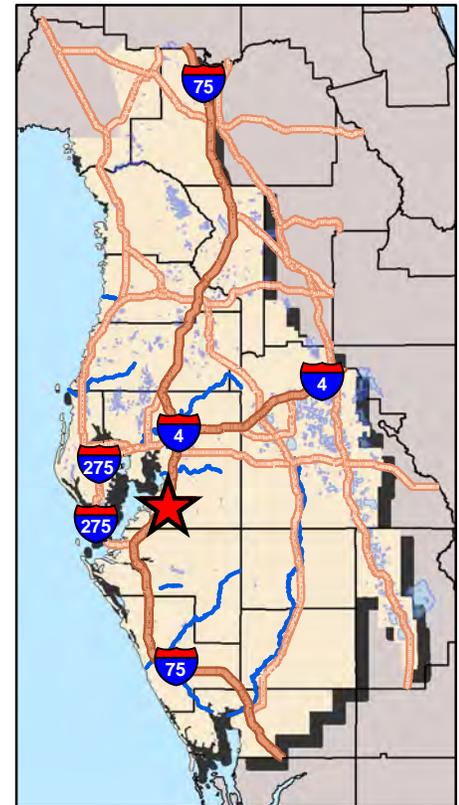
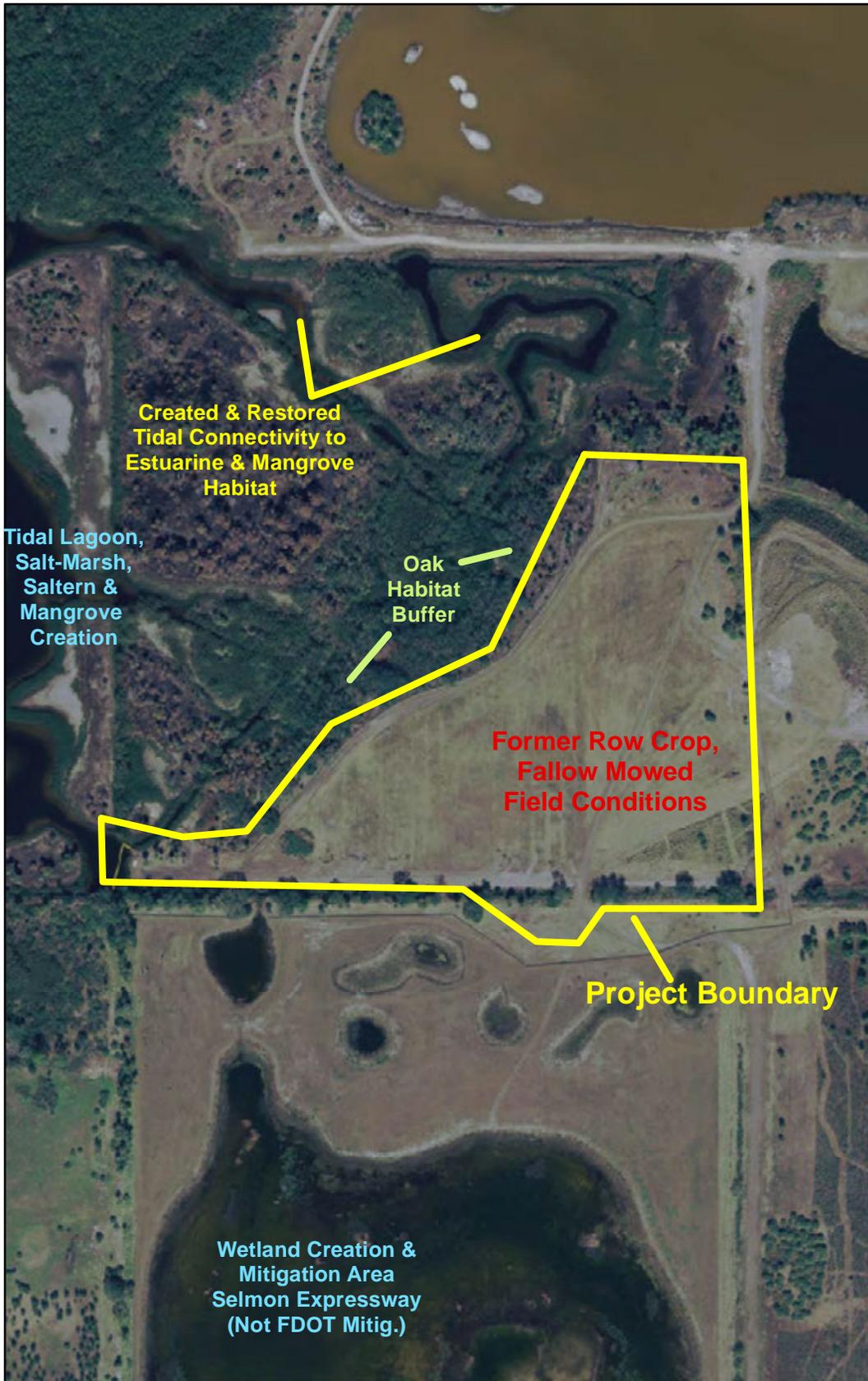
 Project Location



0 0.125 0.25 0.5 Miles

SW 75 - Cockroach Bay Restoration (Saltwater)

Figure B - Pre-Construction (2005)



Legend

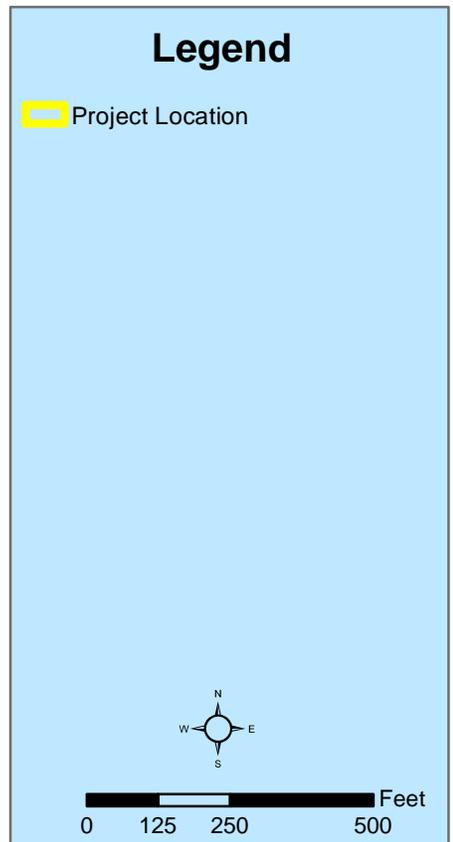
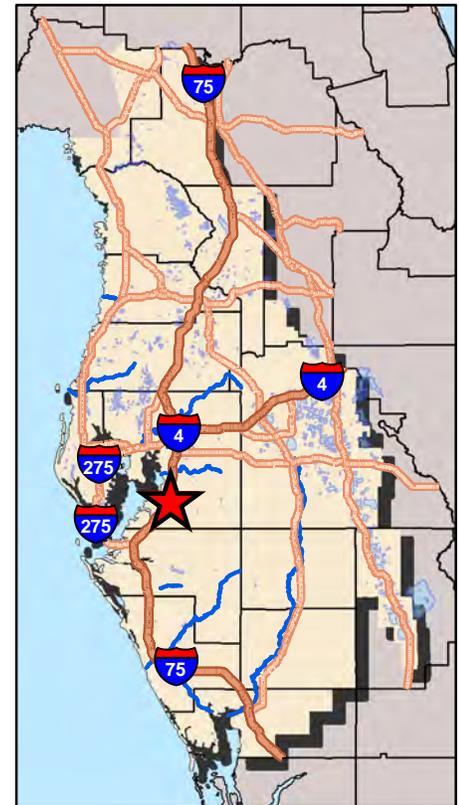
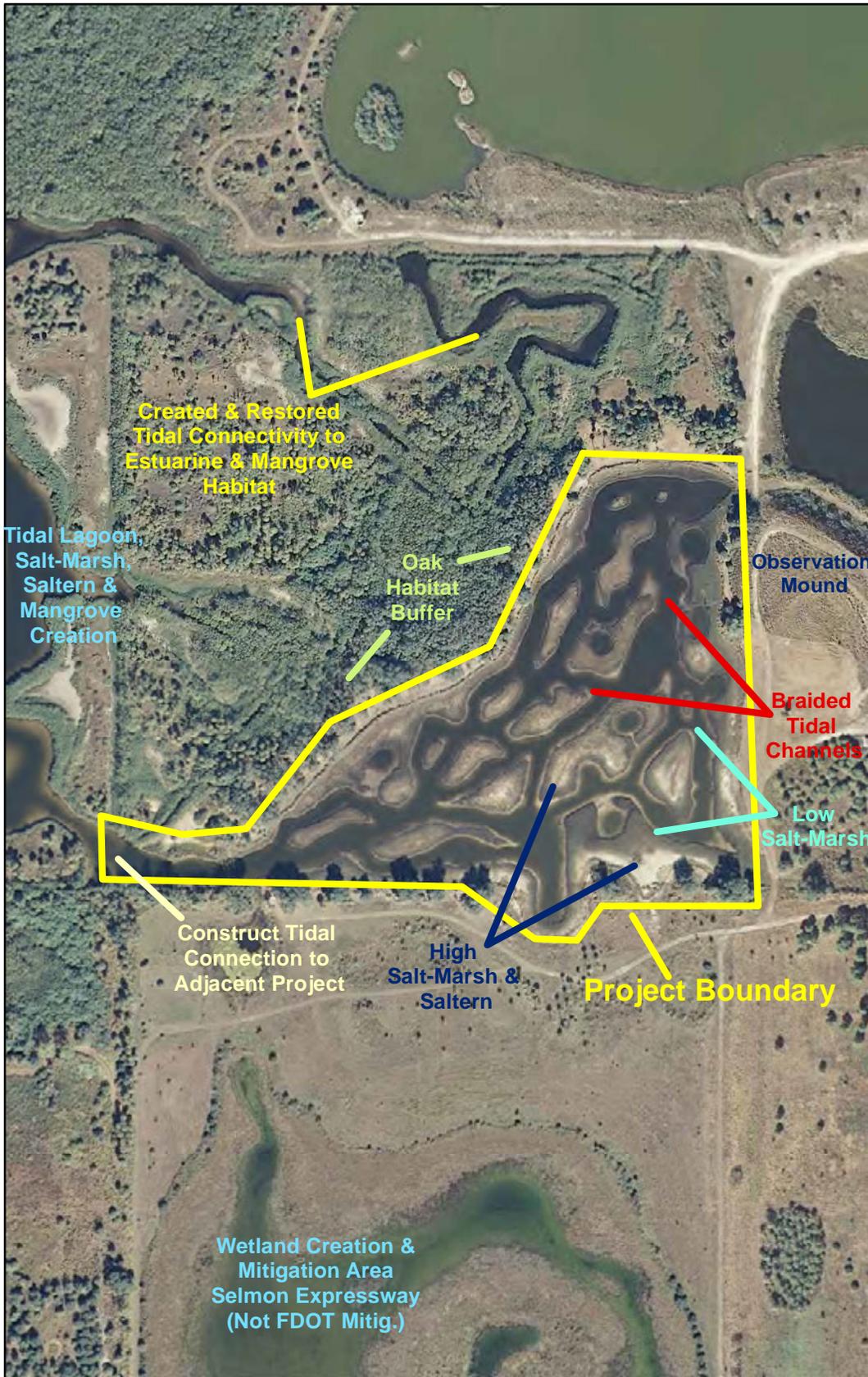
 Project Location



0 112.5 225 450 Feet

SW 75 - Cockroach Bay Restoration (Saltwater)

Figure C - Post-Construction (2009)





During Construction (2005) – view from atop observation mound, looking west over upland field graded to construct braided tidal channels and marsh zones.



Final grades have been achieved but the canal fill block (upper center) has not been breached yet to allow tidal waters to inundate the site. Observation mound is lower left, and freshwater wetland creation is upper left.



Marsh grades are final and the backhoe breaches the canal block to open tidal connection and flow into the constructed wetland.



Tide elevations have equalized and herb planting is depicted, planted species include smooth cordgrass, marsh-hay cordgrass, knotgrass and sand cordgrass along the perimeter.



Current Conditions (2009) – view from atop observation mound, dense cordgrass coverage on the marsh zones separated by braided tidal channels.



2009 - view from northwest project boundary, looking east toward observation mound (background), sand cordgrass perimeter and oak hammock is on the right. Mangrove saplings have generated within some of the marsh zones.

SW-76 LAKE LOWERY TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland preservation			
Landowner	Polk County, Southwest Florida Water Management District	Management Entity	Southwest Florida Water Management District	
County	Polk	Watershed	Ocklawaha River	
Water bodies	Lake Lowery	Water body Designations		

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1976791	US 27 SR 544 to Blue Heron Bay ¹	0.46	43023431.000	200202574 (IP-JPF)
2012041	I-4 East of CR 557 to Osceola County (Sec. 6-7,9) ²	4.35	43011896.032	119403591 (IP-MGH)
4038901	US 27 Blue Heron Bay to CR 547	1.90	43023431.001	200205885 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: The primary goal includes acquisition, preservation, and management of high quality wetland habitat within the Lake Lowery floodplain. The 198-acre portion designated for mitigation credit is part of a 397 acre parcel purchased in Feb., 2002 in a joint acquisition by the St. Johns River Water Management District (SJRWMD) and Polk County. In 2003, Legislative action resulted in the water management review and responsibility of a portion of Polk County transferred from the SJRWMD to the SWFWMD, which included transferring the associated SJRWMD partial ownership of this tract. In addition

¹ Portions of this project are in the Peace Basin and the associated wetland impacts are being mitigated at the Circle B Bar Reserve (SW 66).

² Portions of project is within the Withlacoochee Basin and the associated wetland impacts are being mitigated at the Hampton Tract (SW 59). Another portion of this project is within the Kissimmee Ridge Basin and the associated wetland impacts are being mitigated at the Reedy Creek Mitigation Bank (SW 49).

to providing mitigation for FDOT wetland impacts, the site fulfills overall objectives of acquiring many parcels within the 100-year flood zone of Lake Lowery. The benefits of this acquisition are further enhanced since the tract is adjacent to 5700 acres of habitat owned and managed by the FFWCC, Hilochee Wildlife Management Area, Osprey Unit, as well as located within the Green Swamp Area of Critical State Concern.

B. Brief description of pre-construction habitat conditions: Lake Lowery is a 900-acre lake surrounded by thousands of acres of wetlands and floodplains, including the large wetland associated with this project. The lake and associated wetlands are located in the Green Swamp Area of Critical State Concern and a headwater area for the Palatlahaha, Withlacoochee, and Peace basins. A small portion of the Lake Lowery Tract's northwestern area is within the Withlacoochee basin, but the designated mitigation area is within the Palatlahaha basin, a sub-basin of the Ocklawaha River Basin. The topography for the floodplain wetlands in the vicinity is relatively flat, which has resulted in flooding of homes, septic tanks, wells, and roads. In coordination and cooperation with the SJRWMD, Polk County initiated a priority of land acquisition in the area to minimize the threat of future residential development and associated impact and loss of native habitat, additional flooding, and the inherent water quality degradation caused by such land use conversion.

The wetlands associated with the Lake Lowery Tract is high quality in terms of ecological functions and values. There is substantial species richness, diversity, and dense coverage. The majority of the marsh component is dominated by pickerelweed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), smartweed (*Polygonum* spp.), and a perimeter of sand cordgrass (*Spartina bakeri*). Other common species include arrowhead (*Sagittaria lancifolia*), spikerush (*Eleocharis baldwinii*), and bacopa (*Bacopa caroliniana*). There are scattered small pockets (various sizes of less than 30 ft. diameter to 1-2 acres) of sawgrass (*Cladium jamaicense*) and separate pockets of small Carolina willow (*Salix caroliniana*).

The forested wetland components have a diverse mix of cypress (*Taxodium distichum*) and hardwoods. The most dominant species in the canopy and sub-canopy include bays (*Persea palustris*, *Magnolia virginiana*), and tupelo (*Nyssa aquatica* var. *biflora*); less coverage is provided by red maple (*Acer rubrum*) and dahoon holly (*Ilex cassine*). Due in part to high water conditions and shading, the understory varies in coverage but generally averages 30-60%. The dominant coverage is provided by ferns (*Woodwardia virginica*, *Thelypteris palustris*), and lizard's-tail (*Saururus cernuus*); duckweed (*Lemna* spp.) is common along the water surface.

The adjacent upland buffers of the tract are not designated for FDOT mitigation credit, however these buffers are important components of the acquisition toward maintaining appropriate functions and ecological benefits of the wetland habitat. The pine flatwoods along the western perimeter of the wetland include a dominance of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), fetterbush (*Lyonia ferruginea*), wax myrtle (*Myrica cerifera*), and scattered slash pine (*Pinus elliotii*). The upland buffers for the northern and eastern side of the marsh include a dominance of improved pasture with bahiagrass (*Paspalum notatum*) and scattered fennel (*Eupatorium capillifolium*), euthamia (*Euthamia* sp.), and blue maidencane (*Amphicarpum muhlenbergianum*). As the pasture and pine flatwoods transition into the

wetland, various sedges (*Cyperus* spp.), broomsedge (*Andropogon glomeratus*, *A. virginicus*), and goldenrod (*Solidago* spp.) are present.

The majority of the entire 397-acre tract is a large palustrine marsh with islands of forested wetlands and shrub wetlands, and a partial perimeter of forested wetlands within the southern portion of the tract as described above. The tract is an undivided 50/50 interest ownership between the SWFWMD and Polk County. Mitigation credit is provided by a 198-acre portion of the wetland. The upland buffers provide important functions for the wetland area, but are not designated for mitigation credit. The wetland conditions represent high quality conditions with minimal exotic and nuisance species coverage. Wildlife use is substantial, foraging opportunities for wading birds are high, and sandhill crane nesting is routinely documented within the marsh. Amphibian presence is substantial, particularly the frog population.

Beyond periodic inspections and prescribed burns conducted in the uplands, there are no additional maintenance or management activities currently proposed or adopted for the site. Polk County continues to negotiate the public acquisition of in-holding upland parcels within the tract. However even if these parcels are not acquired, land use zoning requirements preclude the ability to construct houses or other structures on the parcels.

C. Brief description of construction activities and current habitat conditions: The wetlands are of high quality and no direct enhancement is necessary. Indirect enhancement has been provided by removal of cattle and the threat of potential development activities along the perimeter of the marsh through public acquisition. Without the development threat, there is substantially less potential for invasion of exotic/nuisance vegetation and water quality degradation that is often associated with residential development (i.e. septic tanks, fertilizers, etc.). The potential of silviculture activities of the forested wetland components are also removed through public acquisition, protection, and management.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The site was an undivided interest ownership, and the SJRWMD received approval from the regulatory and commenting agencies to designate their 50% interest to also mitigate for FDOT wetland impacts. The FDOT wetland impacts include approximately three acres of forested wetland and four acres of marsh habitat. The preservation of 198-acres high quality marsh, shrub, and mixed forested wetland habitat more than appropriately and adequately compensates for the 6.7 acres of wetland impacts. The designated mitigation proportion includes 37 acres of mixed forested wetland and 161 acres of marsh habitat. Even though not anticipated, there may be some minor future FDOT wetland impacts proposed in the Ocklawaha basin that may be evaluated to also possibly mitigate at the Lake Lowery Tract.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, the SJRWMD considered the use of a mitigation bank to compensate for the anticipated wetland impacts. The only mitigation bank in the basin (Lk. Louisa/Green Swamp Mitigation Bank) has a dominance of xeric habitat restoration and bayhead enhancement. The wetland impacts and mitigation include a dominance of mixed forest and marsh habitat. Therefore, the Lake Lowery option

was deemed by the SJRWMD and other regulatory and commenting agencies to be a more appropriate mitigation option for the proposed impacts.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: There are no SWIM water bodies within this basin.

PROJECT IMPLEMENTATION

Entity responsible for construction: No construction activities necessary or proposed

Entity responsible for monitoring and maintenance: No monitoring or maintenance necessary or proposed

Proposed timeframe for implementation: Commence: Evaluation, 2000 Complete: Acquisition by SJRWMD and Polk County, 2002; SJRWMD was reimbursed by FDOT for their portion of the acquisition, administrative costs, and long-term management to designate 198 acres of mitigation for FDOT impacts; 2003 transfer property interest from SJRWMD to SWFWMD

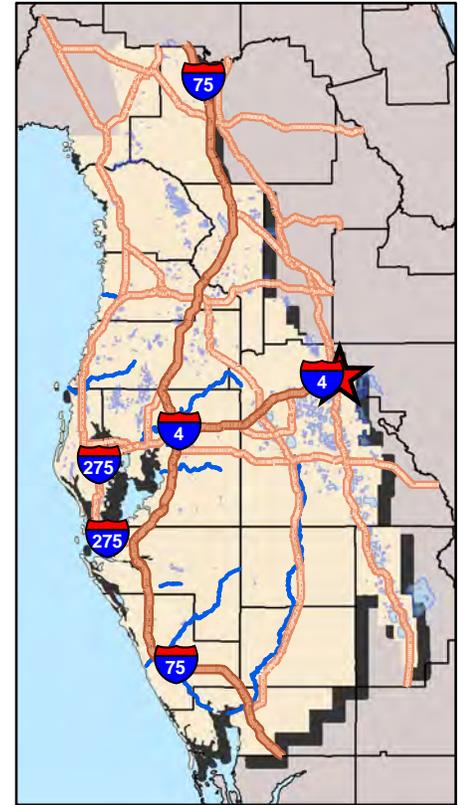
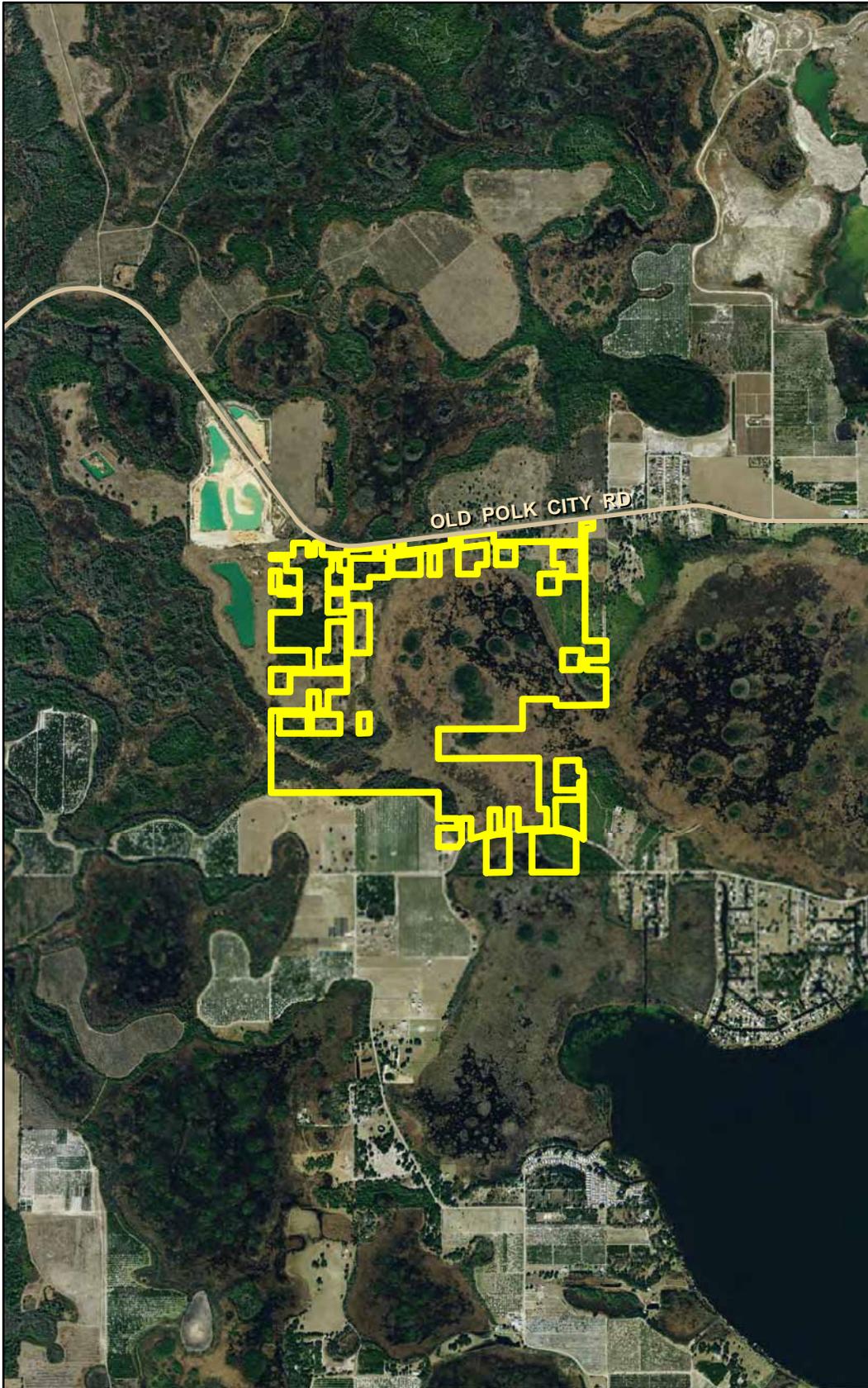
Project cost: \$255,436 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Habitats

SW 76 - Lake Lowery Tract

Figure A - Location



Legend

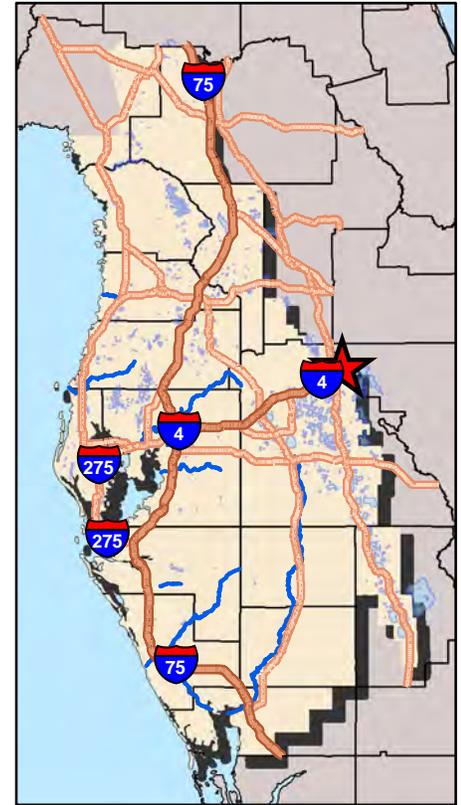
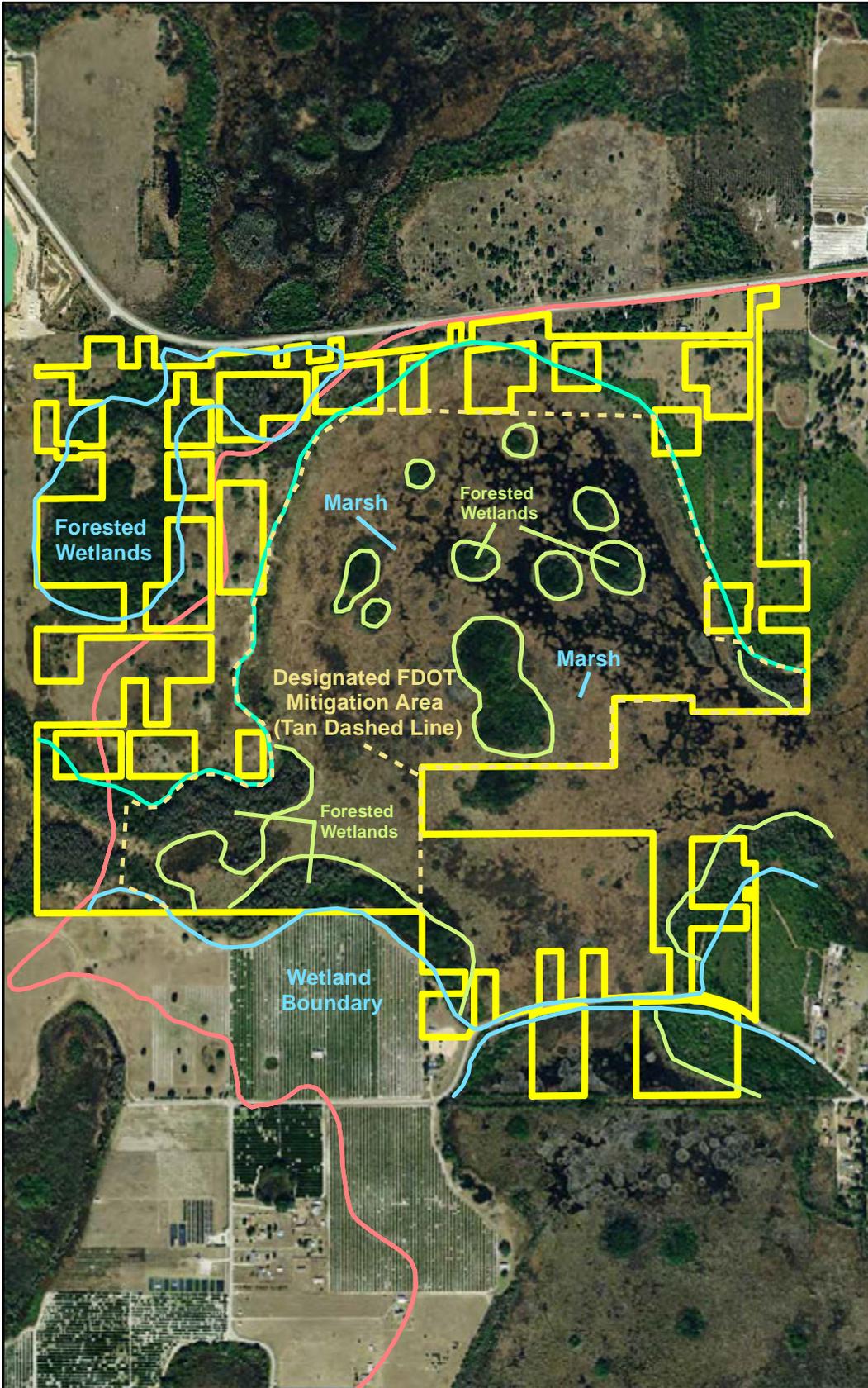
 Project Location



0 0.15 0.3 0.6 Miles

SW 76 - Lake Lowery Tract

Figure B - Habitats



Legend

 Project Location



0 375 750 1,500 Feet

SW-77 CONNER PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Wetland and upland enhancement			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Pasco County		Watershed	Upper Coastal Drainage and Hillsborough River
Water bodies	Un-named		Water body Designations	

IMPACT INFORMATION-Upper Coastal Drainage

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2563231	SR 52 (SCHRADER HWY) FROM W OF SUNCOAST PKWY TO E OF US 41 (SR 45)	4.20		
2563221	SR 52 Moon Lake to Suncoast Parkway	6.70	43007396.001	200206047 (IP-MN)
2563242	US 41: from Ridge Rd to N of SR 52	9.50		
2563241	US 41 (SR 45) Tower Rd. to Ridge Road	8.85	43033570.000	200800329 (IP-JPF)
2563321	SR 54 - Rowan Rd. to Mitchell Bypass	3.68	4011641.004	199302010 (IP-ML)
2563341	SR 52 US 41 to CR 581 ¹	10.00		
2563371	SR 54 - Gunn Highway to Suncoast Parkway	6.00	4316251.000	199905203 (IP-ES)
2567742	US 19 from N of SR 580 to Northside	0.50		

¹ This SR 52 segment has anticipated wetland impacts in the Hillsborough River & Upper Coastal basins. The listed impacts within both basins are conservative and are likely to decrease.

2568151	SR 586 (Curlew Rd.) CR 1 to Fisher Road	0.08	44009837.008	200205245 (NW)
2589581	Suncoast Parkway and Ridge Road Interchange	2.33		
2570501	SR 688 (Ulmerton Rd.) Oakhurst Rd. to 119th St.	0.20	4412347.010	200204931 (NW 14)
4058223	US 19 (SR 55) Jump Court to Ft. Island Trail	8.90	43009590.006	Pending
2571741	US 98 Hernando Co. Line to US 19	1.40	4323430.000	19980341 (IP-KF)
2572982	CR 578 (County Line Rd.) US 19 to East Rd.	0.60	4406732.000	NPR
2572983	CR 578 (CLR) FROM East Rd to Mariner Blvd	0.21	44006732.003	SAJ-2010-01912 (NW-GGL)
2572985	CR 578 (County Line Rd.) Suncoast Parkway to US 41	0.29	44014061.002	NPR
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build) ²	0.75		
4037711	US 19 - Republic Drive to CR 816 (Alderman)	0.10	44022085.001	NW 14 (CN)
4058222	US 19 (SR 55) Green Acres to Jump Ct.	0.53	44009590.005	200803044 (IP-GGL)
4079513	SR 50 US 19 to Mariner	1.25	44035066.000	NPR
4091541	SR 688 (Ulmerton) - Wild Acres to El Centro/Ranchero Blvd.	0.62	44012347.015	201003007 (IP-GGL)
2572992	CR 485 (Cobb Road); from SR 50 to US 98	6.20		
4188602	US 19 (SR 55) Continuous Right Turn Lane	0.40	44027483.001	NW-14
4271571	US 19 (SR 55) FROM NEW YORK AVE TO PASCO/HERNANDO CO/L	0.10	660884.000	2012-00723

² Additional wetland impacts (15.24 acres) in the Upper Coastal Drainage are offset with purchase of mitigation bank credit from the Upper Coastal Mitigation Bank by the FDOT. Additional wetland impacts (4.26 acres) in the Hillsborough River basin are offset with the purchase of mitigation bank credit from the North Tampa Mitigation Bank by the FDOT. Wetland impacts in the Withlacoochee River basin are offset at Colt Creek State Park (SW 84).

IMPACT INFORMATION-Hillsborough River

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2562432	SR 52 (SCHRADER HWY) FROM CR 581 (BELLAMY BRO) TO OLD PASCO RD	0.80		
2563341	SR 52 US 41 to CR 581	42.80		
2564222	US 301 (SR 41) SR 39 to South of CR 54	0.10		
2578623	SAM ALLEN Rd; from Alexander St to Park Rd ³	0.80		
2587362	I-75 (SR 93) FROM NORTH OF SR/CR 54 TO NORTH OF SR 52 (Design-Build) ⁴	2.61		
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L (design-build) ²	4.26		
4165612	SR 54 FROM CR 577/CURLEY RD TO CR 579/MORRIS BRDG RD ⁵	2.00		
4306851	SR 574 / MLK BLVD AT GALLAGHER ROAD	0.20		
4289611	SR 39/JAMES L REDMAN FROM SR 60(HOPEWELL RD) TO N OF CHARLIE GRIF	0.20		
4311371	SR 574/MLK JR BLVD FM E OF MCINTOSH RD TO W OF WHEELER CT	0.20		
4306851	SR 574 / MLK BLVD AT GALLAGHER ROAD	0.20		

PROJECT DESCRIPTION

A. Overall project goals: The Conner Preserve (total 2,980 acres) was acquired by the SWFWMD for public ownership in 2003 and adopted into the mitigation program in 2004. The tract has a diverse mosaic of inter-related wetland and upland habitats within a high priority public lands acquisition area since it is located within a core of surrounding public lands in central Pasco County including Cypress Creek Preserve (7,400-acres), Starkey Wilderness Preserve (18,000-acres), and Cross Bar Ranch (12,500-acres). The overall project goal

³ Additional wetland impacts (0.9 acres) are offset by the purchase of mitigation bank credits from the North Tampa Mitigation Bank by the FDOT.

⁴ Additional wetland impacts (7.09 acres) are offset by the purchase of mitigation bank credits from the North Tampa Mitigation Bank by the FDOT.

⁵ Additional wetland impacts (0.1 acres) are offset by the purchase of mitigation bank credits from the North Tampa Mitigation Bank by the FDOT.

includes enhancement of wetland and upland habitat. There are also several improved pasture islands buffering adjacent wetlands that are being restored into upland habitat communities.

B. Brief description of pre-construction habitat conditions: The Preserve's habitats consist of pine flatwoods, oak hammocks, sandhill, wetlands and improved pastures. Over half of the Preserve is composed of wetlands. The non-forested wetlands include a range of habitat and hydrologic conditions varying from wet prairie, shallow marshes and deeper emergent systems. The forested wetlands are primarily composed of cypress-dominated systems and the remaining predominantly mixed cypress & hardwood communities. Many of the forested wetlands have generated within the outer zones surrounding marsh habitat, as well as cypress strands and cypress dome islands within the interior of many marshes. The wetlands are in moderate to high quality condition, and have adapted to varying hydrologic conditions. Hydroperiod fluctuations have varied due to rainfall conditions and groundwater influence from wellfields in the vicinity (Cross Bar, Cypress Creek). The only area where wetland functions have resulted in noticeable herbaceous vegetative shifts is within the most eastern portion of the property nearest Cypress Creek. As a result of a reduced hydroperiods, many of the emergent marshes within this area have transitioned to more ephemeral and wet prairie systems. From a landscape perspective, prior conversion of upland habitat to improved pastures and minimal land management practices have fragmented the inter-relationship of habitats with adjacent wetland communities. The pastures and previous cattle grazing practices allowed non-native and exotic species to encroach into the wetlands and uplands; particularly pasture grasses, soda apple, skunk vine, camphor trees, and Chinese tallow. Drastic reduction in prescribed fires resulted in inappropriate density and diversity of vegetative species within the uplands; particularly within the buffers closest to the adjacent wetlands. Very dense stands of hardwoods like laurel oaks and wax myrtle minimized appropriate ground cover vegetation and substantially hindered wildlife access between the wetlands and uplands for foraging and nesting opportunities. Several wildlife species have been reported on the Preserve; the most notable listed species observations include Florida scrub jay, bald eagle, Southeastern American kestrel, gopher frog, gopher tortoise, Sherman's fox squirrel, and several wading birds.

C. Brief description of construction activities and current habitat conditions: Primary wetland enhancement has been achieved through eradication of exotic and nuisance species coverage; commencing with mechanical thinning and control of dense vegetative within the facultative wetland zones and adjacent upland buffers. The inappropriate density of hardwoods and myrtles within the wetland fringes and upland buffers were treated with an initial combination of mechanical thinning (hydro-ax), followed by implementation of the prescribed burn management program (3-5 year cycle); thus allowing regeneration of appropriate species. Prescribed fire applications at suitable intervals within the marshes have reduced and prevented encroachment of woody shrubs and trees (particularly exotic and nuisance species such as camphor and Chinese tallow), removed detritus, recycled nutrients, and stimulated the regeneration and recruitment of appropriate hydrophytic herbs. Additional wetland enhancement has occurred through enhancement and restoration of adjacent upland habitats. For the enhancement of upland habitats that buffer the wetlands, herbicide

eradication of exotic and nuisance vegetation have been implemented; particularly for weedy and/or exotic species such as bahia, persimmon, Chinese tallow, laurel oak, and wax myrtle that had encroached upon the pine flatwoods and sandhill communities. Additional habitat enhancement has been achieved by implementing a prescribed burn program that minimizes the regeneration and recruitment of undesirable species. There are five upland pastures buffering wetlands being restored to their historic habitat conditions of pine flatwoods and sandhill. Restoration of these upland areas have included an intense series of prescribed burns, herbicide application and mechanical disking to eradicate the pasture grasses, followed by direct seeding from upland donor sites within other WMD property, and supplemental planting of appropriate desirable species such as longleaf pine, oaks, tarflower, rusty lyonia, staggerbush, and ericaceous shrubs. Due to the availability of donor seed source material and time lag necessary to implement each phase of the restoration activities associated with the upland habitats, each of the five restored uplands had different schedules of implementation. Through 2010, all the pastures have received all the preparation, seeding and planting, and are currently within the management phase of periodic herbicide treatments and prescribed fire applications. Adjacent to the Conner Preserve there are two tracts totaling 560-acres of wetland and upland habitat improvements. These improvements were conducted to provide mitigation credit associated with construction-related wetland and upland habitat impacts within the adjacent residential development (Connerton) located south of the Conner Preserve. These two mitigation tracts have achieved success criteria stipulated in their permits, and associated title has been transferred to the WMD for ownership and perpetual management.

Success criteria includes (1) achieving and maintaining bahiagrass cover to below 20% cover in the former pastures, (2) obtain greater than 80% cover by desirable sandhill and flatwood species in the former pastures, (3) successfully implement prescribed fires through the site, (4) achieve and maintain less than 2% cover of exotic and nuisance species coverage in the wetlands and (5) reduction and maintenance to exclude dense vegetation from re-establishing in the outer zones of the wetlands and adjacent upland buffers.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The Preserve has land within the Hillsborough River Basin and the Upper Coastal Basin. There are 32 roadway projects with mitigation designated at the Preserve. The majority of these anticipated wetland impacts are associated with roadway projects within a 10-mile radius of the Preserve and will have proposed impacts to wetlands with similar habitats as the wetlands within Conner Preserve.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: FDOT evaluation of mitigation bank options available at the time of permit applications for 2012 roadway improvement projects and for the inventory of FDOT roadway improvement projects submitted for inclusion in the 2013 FDOT Mitigation Plan identified 30.55 acres of impact that may be offset with the purchase of mitigation bank credit from the Upper Coastal Mitigation Bank and the North Tampa Mitigation Bank (as footnoted in the Impact Information section above). This exhausts all appropriate credit available at the Upper Coastal Mitigation Bank. It was determined to be not to be cost

effective to purchase mitigation bank credit from the North Tampa Mitigation Bank to offset 0.2 acres of impact for FM 4306851 (SR 574 / MLK Blvd. at Gallagher Road).

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of selection, there were no SWIM sponsored projects proposed in the Upper Coastal or Hillsborough Basins that were appropriate for mitigation credit.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD- Land Resources and Operations Departments.

Entity responsible for monitoring and maintenance: SWFWMD LAND Resources is responsible for maintenance & management. A private contractor selected by the WMD conducted the monitoring through 2009, followed by annual monitoring conducted by WMD staff.

Timeframe for implementation: Commence: Acquisition – end of 2003, Restoration Design – 2004, Restoration Activities, 2005-2015, maintenance & monitoring to achieve success criteria for the entire site 2005-2015, followed by perpetual land management activities by the WMD.

Complete: Maintenance & monitoring complete by 2015 or until success criteria is met for all the sites, followed by perpetual maintenance & management activities.

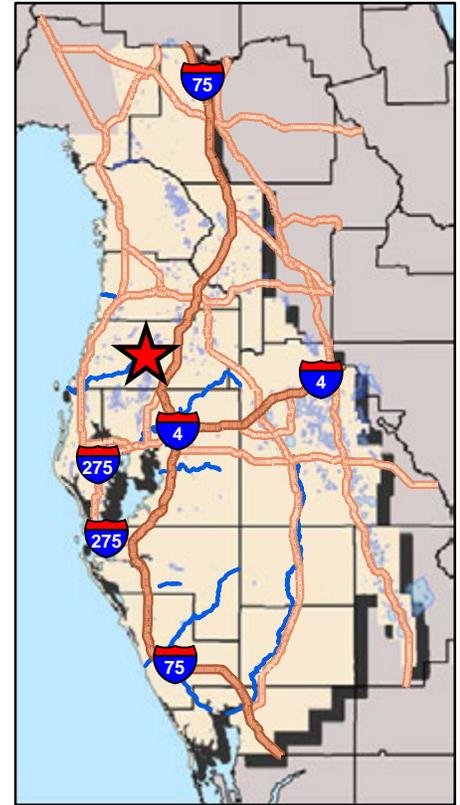
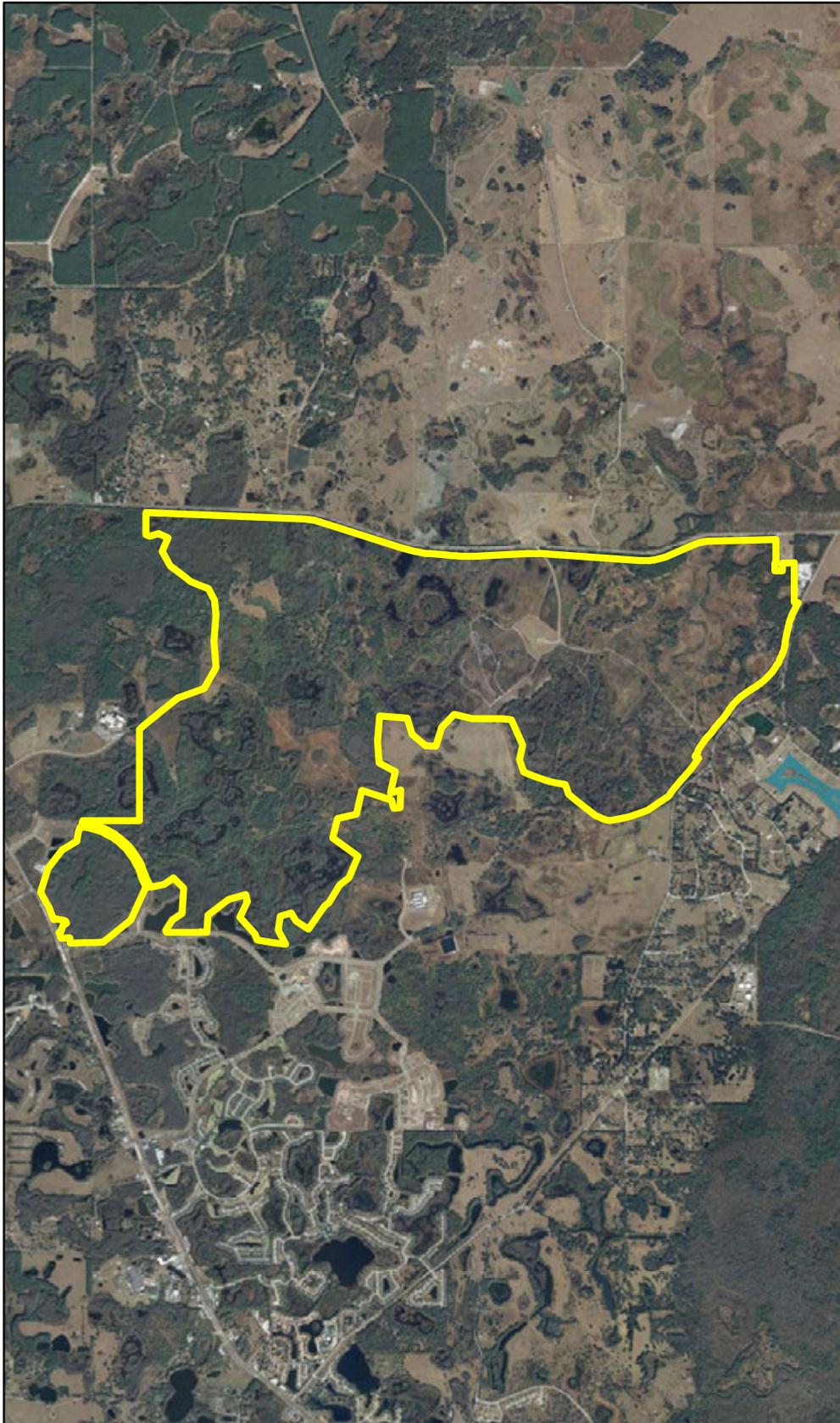
Project cost: \$3,037,200 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Wetland Enhancement Areas
3. Figure C-Pre-construction (2004)
4. Photographs

SW 77 - Conner Preserve

Figure A - Location



Legend

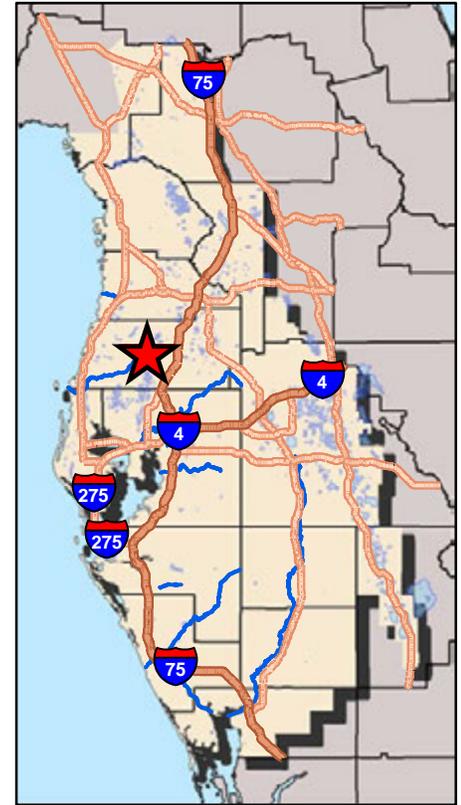
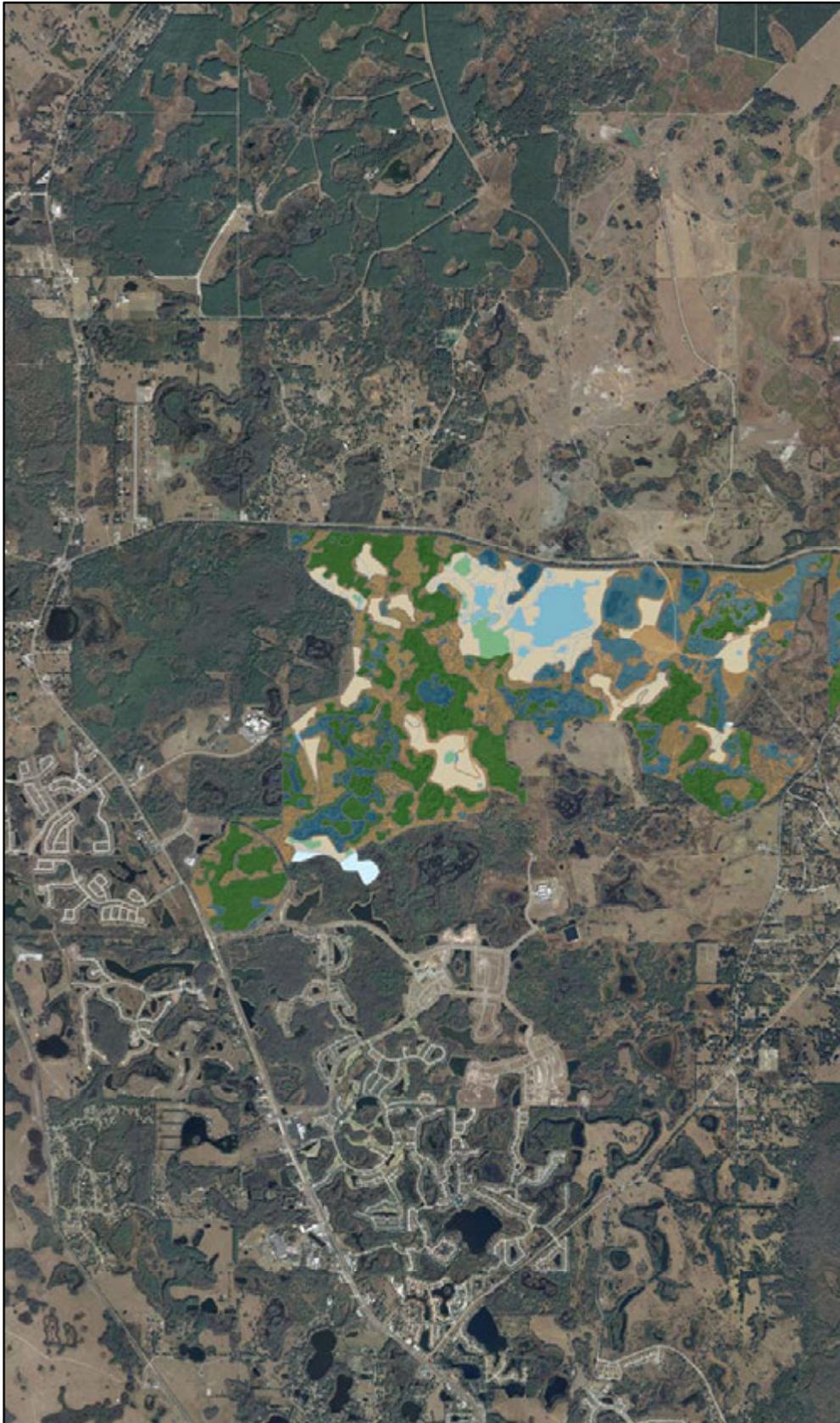
 Project Location



0 0.25 0.5 1 Miles

SW 77 - Conner Preserve

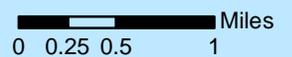
Figure B - Wetland Enhancement Areas



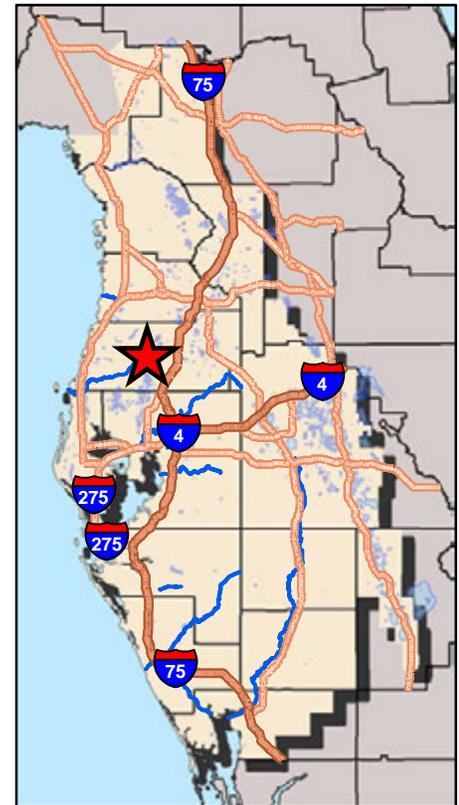
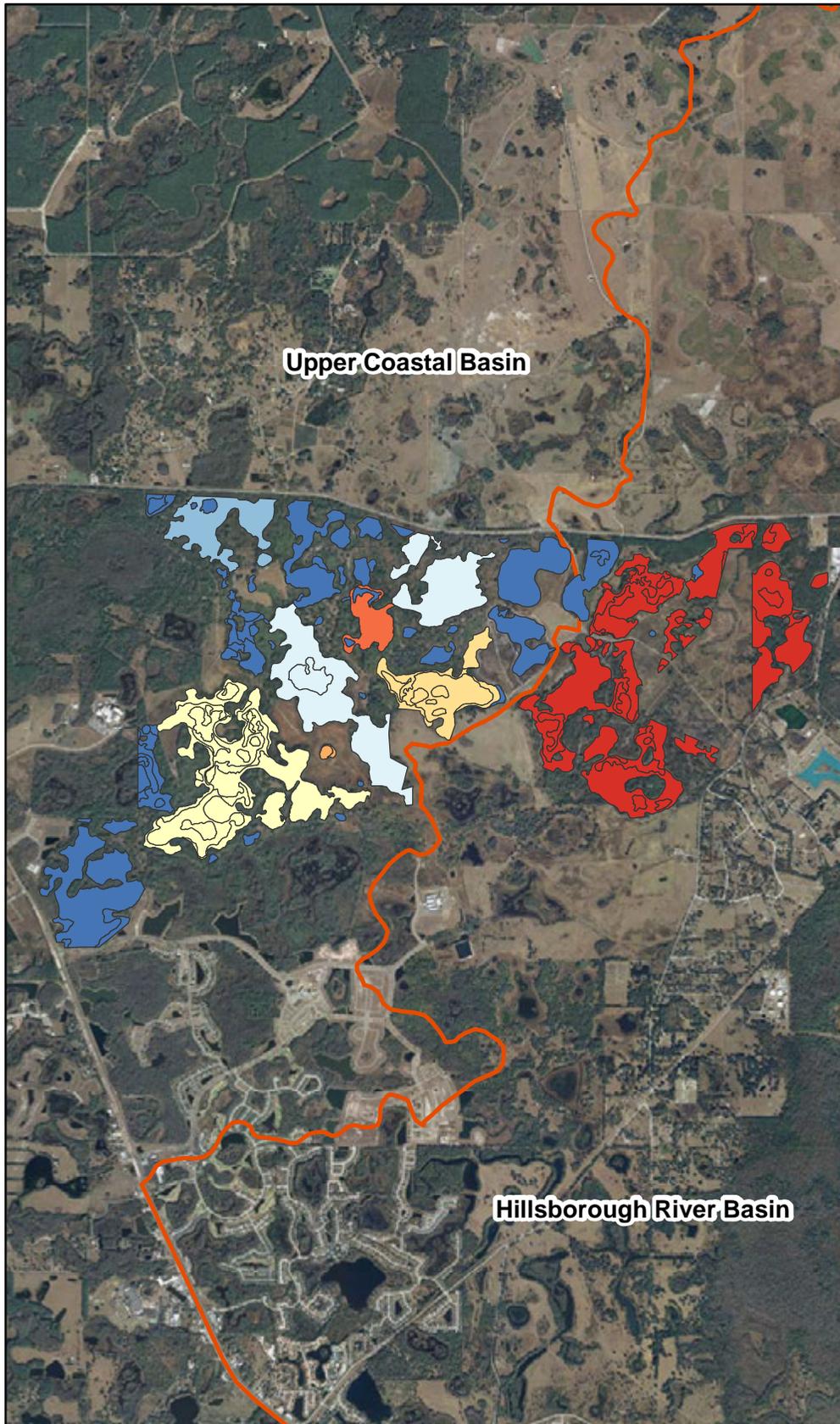
Legend

Natural Communities Aggregated

- Forested Wetlands
- Herbaceous Wetland
- Uplands
- Upland Restoration

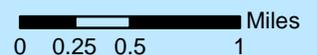
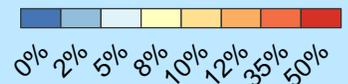


SW 77 - Conner Preserve Figure C - Pre-Construction (2004)



Legend

Percent Invasive





Conner Preserve showing recently burned flatwoods with good recruitment of understory grass.



Conner Preserve showing maidencane in the foreground with forested uplands in the background.



Conner Preserve showing photo station stake within one of the site's forested wetlands.



Conner Preserve showing photo station stake in background within one the forested wetlands.

SW-78 BAHIA BEACH MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland and upland creation, restoration and enhancement			
Landowner	Hillsborough County		Management Entity	Hillsborough County
County	Hillsborough		Watershed	Tampa Bay Drainage
Water bodies	Tampa Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4061511	Veteran's Expressway Memorial Hwy. to Gunn Hwy.	4.68	49007864.02	2009-03478 (IP-JPF)
4245501	US 41 (SR 45) FROM MANATEE/HILLS CO/L TO N OF 15TH AV	0.00		
4245501	US 41 (SR 45) FROM MANATEE/HILLS CO/L TO N OF 15TH AV	0.54		
4143481	36R RPZ	7.94	49008387.026	2004-12399
4143481	Taxiway V&W	0.07	49008387.037	2002-1521 (IP-MN)
4143481	Taxiway B rehab, Bridge and N. Terminal Stormwater	3.29	43008387.054	2002-1521 (IP-MN)
4143481	Taxiway N Overpass	5.88	49008387.043	2002-01521 (IP-CJW)
4143481	Runway 17-35	6.72	49008388.043	2002-01521 (IP-CJW)
4143481	Taxiway S West Extension	0.85	49008389.043	2002-01521 (IP-CJW)
4143481	Taxiway E Reconstruction	2.87	49008390.043	2002-01521 (IP-CJW)

4143481	East Devepment Area (Drew Park Improvements)	2.25	49008395.043	2002-01521 (IP- CJW)
4152349	SR 597 (Dale Mabry) Lakeview Dr. to Van Dyke Rd.	0.30		
4245613	SR 60 (CCAMPBLL CWY) FROM BAYSHORE BLVD TO E OF TAMPA BAY BRIDGE	0.34		
4245614	SR 60 (CCAMPBLL CWY) FROM E OF BRIDGE #138 TO PINELLAS/HILLS CO/L	0.10		
4255001	US 41(SR45) FROM N OF LINWOOD DR TO N OF COUNTY LINE RD	0.20		
4289241	SR 597 (Dale Mabry) Cheval Blvd. to County Line Rd.	0.07		
4289361	SR 60/E ADAMO DR FROM E OF N 22ND ST TO W OF 50TH ST	0.20		

PROJECT DESCRIPTION

A. Overall project goals: The Bahia Beach tract was acquired in 2001 by Hillsborough County through their Environmental Lands Acquisition and Protection Program (ELAPP), one of several contiguous habitat tracts owned and managed by the County west of Ruskin. The project is being co-sponsored and managed by the Hillsborough County Conservation Section, Hillsborough County Environmental Protection Commission (EPC) and SWFWMD to conduct a variety of habitat improvements including freshwater and oligohaline wetland creation within an existing upland fallow field, enhancement of forested wetland hammock habitat, and enhancement of salt-marsh/mangrove habitat.

As part of the acquisition agreement, the previous landowner removed the citrus trees from the upland area, historically pine flatwoods, which subsequently become vegetated with bahiagrass (*Paspalum notatum*), natalgrass (*Rhynchelytrum repens*), dog fennel (*Eupatorium capillifolium*) having moderate cover and with Brazilian pepper (*Schinus terebinthifolus*) having extensive coverage. This field is bordered to the west by two large parallel upland-cut drainage ditches dredged to convey contributing storm and surface water when the grove was present. The shear-slope ditches are tidally connected, allowing the generation of white and

black mangrove species in the lower elevations and B. pepper along the slopes and top-of-bank.

West of these ditches, is a forested wetland of coastal hydric hammock. The coastal hammock has dominant canopy coverage of cabbage palm, with scattered slash pine, red cedar (*Juniperus virginiana*), and oaks (*Quercus virginiana*, *Q. laurifolia*). Within the less dense canopy areas, the B. pepper provides minor to moderate canopy and sub-canopy cover within the hammock. Other sub-canopy species include cabbage palm, salt-bush (*Baccharis halimifolia*), wax myrtle (*Myrica cerifera*), and saw palmetto (*Serenova repens*). Ground cover varies depending on the shade coverage, but includes sawgrass (*Caladium jamaicense*), broomsedge (*Andropogon glomeratus*), swamp fern (*Blechnum serrulatum*), fleabane (*Pluchea odorata*), and various sedges. Where the canopy has slightly opened, there are also a few pockets of sawgrass, black needle rush (*Juncus roemerianus*), and cordgrass (*Spartina patens*) within the hammock.

The boundary between the fallow field and the coastal hydric hammock has two large parallel, shear-sided perimeter ditches with upper slopes and adjacent spoil ridges covered with dense Brazilian pepper. Within the lower sideslopes of these steep and deep ditches, there is coverage of mangrove species (*Aviennia germinans*, *Rhizophora mangle*, *Laguncularia racemosa*). These deep ditches connect with the mosquito ditches and swales dredged through the salt-marsh and mangroves, allowing saltwater intrusion to move further inland than historic conditions. Kept in place, the deep ditches and spoil ridges substantially hinder wildlife movement from the hammock to the created marsh habitats.

A temperate hardwood habitat is in the northeast corner of the tract. The minor canopy coverage is comprised of cabbage palm, slash pine, and laurel oak. Groundcover includes saw palmetto, sawgrass, and swamp fern. Exotic species coverage include B. pepper, lead tree (*Leucaena leucocephala*) and cogon grass (*Imperata cylindrica*).

A large mosaic of salt-marsh and mangrove habitat is located west of the coastal hardwood hammock. The mangrove habitat includes red, black and white mangrove species. The marsh habitat has saltwort (*Batis maritima*), glasswort (*Salicornia bigelovii*) and salt grass (*Distichlis spicata*). Shrub-size mangroves transition into the marsh component. This saltwater habitat has interconnecting mosquito ditches with adjacent spoil piles covered with Brazilian pepper. In part due to the altered hydrology from the ditching, the transition between the hammock and saltwater habitat has generated a dense stand of Brazilian pepper.

B. Brief description of construction activities and current habitat conditions: The Bahia Beach tract is one of a series of public land acquisitions along Tampa Bay west of Ruskin. The parcel was acquired in 2001 through the Hillsborough County ELAP program, with partial reimbursement by the FDEP and USFWS. Project coordination is being conducted through Hillsborough County Environmental Protection Commission, Hillsborough County Conservation Section, SWFWMD, and a design consultant to prepare a plan that includes wetland habitat creation and enhancement. FDOT mitigation credit and associated funds are utilized for design, construction, planting, and maintenance & monitoring activities.

In 2003, twelve (12) piezometers were installed in the fallow field to measure groundwater elevations and salinity; with a total of 41 sampling events between August, 2003 and June, 2008. The groundwater data was collected over the extended period to identify seasonal and annual fluctuations used to establish the hydroperiods and final grades within the wetland creation areas and the salinity data was used to determine plant species composition. Salinity levels in the piezometers along the western portion of the field range from 1-5 ppt (oligohaline), in part due to the twin parallel tidally-connected ditches along the perimeter of the coastal hydric hammock. The construction design was delayed and monitoring was extended to evaluate and incorporate habitat design revisions due to changes in the contributing ground and surface water as a result of the residential development that was constructed southwest of the project site.

As a result, the fallow field will be graded to create a dominance of freshwater marshes (34.3 acres) transitioning to oligohaline marsh habitat (9.9 acres) closer to the forested wetland hammock, and buffered from Mira Lago by creating mixed forested wetland habitat (6.6 acres) along the eastern perimeter of the created marsh habitat (Figures E & F). Treated stormwater that currently discharges from Mira Lago and flows via the ditches to Tampa Bay will receive additional treatment, attenuation and increase groundwater recharge by the construction of the created wetlands. The hammock (32 acres), salt-marsh (14 acres), mangrove habitat (35 acres), and temperate hardwood areas (9 acres) will be enhanced with the eradication of Brazilian pepper, however due to the potential of off-site drainage alterations, no construction to remove the associated mosquito ditches will be conducted in these areas. The combination of constructed and enhanced wetland habitats with different habitat features and functions will provide corridors for wildlife utilizing the ecosystems on this tract and the adjacent public lands.

Hydraulic and hydrologic modeling was cross-referenced with the contributing groundwater and surface water conditions. This information resulted in the design of oligohaline marsh creation that will also displace the twin ditches along the hammock perimeter, and freshwater marsh creation. The freshwater marsh has proposed grade elevations of -0.5 to 3.0 feet NAVD88; with ten separate freshwater marsh basins constructed at various elevations, thus providing a range of hydroperiods within the marsh. These areas will be primarily planted with softstem bulrush (*Schoenoplectus tabernaemontani*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), marshhay cordgrass (*Spartina patens*), and sand cordgrass (*Spartina bakeri*). The created oligohaline marsh habitat will be graded to elevations -0.5 to 2 feet NAVD88. Plantings will primarily include needle rush (*Juncus roemerianus*), sawgrass, and marshhay cordgrass.

The creation of mixed forested wetland is proposed along the southeastern project boundary; graded to elevations of 3.0 to 4.0 feet NAVD88. This forested wetland will provide a buffer from the Mira Lago development and the constructed marsh, as well as roosting and nesting opportunities for wading birds. This forested wetland will be planted with species representative of the coastal hydric hammock located on the western side of the marsh; including cabbage palm, laurel oak, slash pine, red cedar, swamp bay, red maple and sand cordgrass. For additional buffer, pine flatwood habitat will be created along the southern boundary of the site adjacent to Shell Point Road. The area will be graded to elevations of 4.0 to 5.0 feet NAVD88. The pine flatwoods will act as a buffer between the created wetlands and Shell Point Road, and will be planted with cabbage palm, slash pine, and saw palmetto.

Depending on the selected contractor's proposed schedule to haul excavated sand material from the site, the proposed flatwood area may be a temporary stockpile location. If the stockpile has to remain for a period after the excavation is completed, the mound will be leveled, seeded with grass, and used as an observation platform overlooking the constructed marsh. No mitigation credits will be debited for this area until the mound is removed, final grade is achieved and proposed planting is complete.

The primary maintenance activity will include herbicide treatment of exotic and nuisance vegetation. Treatments will be conducted as necessary, anticipated more intensive applications during the first 3-5 years after planting to allow for establishment of planted vegetation and less frequent maintenance as the habitat matures. Based on the conditions of the various habitats and status of species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of habitat conditions. After a minimum five years and the desired habitat conditions and mitigation success has been achieved, perpetual maintenance will be conducted as part of normal land management activities by the Hillsborough County Conservation Section and/or licensed maintenance contractor.

A minimum five years of semi-annual monitoring will be conducted by a consultant selected as part of the construction contract. Monitoring will include a comprehensive qualitative assessment of habitats, including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife activity, and recommended & proposed actions necessary to ensure and further enhance habitat conditions. Annual monitoring reports will be prepared to document habitat conditions evaluated during the previous year, with the first monitoring report including qualitative and photo documentation of pre-construction conditions, construction activities, and habitat conditions within the project area. The monitoring reports will document the habitat conditions, any problems and solutions, and anticipated maintenance & management activities for the following year. After success criteria is achieved, sufficient monitoring will be periodically conducted each year to evaluate the habitat conditions and presence of exotic and nuisance species to coordinate maintenance events.

Success criteria require a minimum 90% survivorship of planted material for a minimum one year post-installation. Any plant mortality will be replaced with appropriate species to be agreed upon between Hillsborough County and the SWFWMD. Plant coverage for the created wetlands is required to include a minimum 80% coverage of planted and recruited desirable species. Exotic and nuisance vegetation eradication will be conducted to as little coverage as possible for all the various habitat areas, with no more than 5% present to achieve success criteria.

C. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Through 2011, the majority of the anticipated wetland impacts proposed for mitigation at the Bahia Beach project include wetlands associated with long-range future expansion activities at Tampa International Airport (TIA). Due to the close proximity to Tampa Bay and high quantity of ditched wetlands, the majority of the proposed wetland impact areas at TIA are low quality systems. There will be future roadway proposals and associated wetland

impacts that will be evaluated for potential mitigation at Bahia Beach. The combination of various wetland creation and enhancement activities at Bahia Beach will provide appropriate mitigation options to compensate for impacts associated with a combination of forested and non-forested freshwater and saltwater wetland impacts. With Bahia Beach construction scheduled for 2012-2013, these habitat improvements will provide valuable ecological benefits years in advance of the future anticipated wetland impacts proposed for mitigation at the site.

D. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: FDOT performed an evaluation of available mitigation bank options concurrent with the development of the inventory of FDOT road improvement projects for inclusion in the 2013 FDOT Mitigation Plan. This evaluation identified 4 projects where impacts can be offset with the purchase of mitigation credit from the Tampa Bay Mitigation Bank. These projects, indicated in the Impact Information section above, are excluded from the FDOT Mitigation Program with the FDOT purchasing credits directly from the mitigation bank. The FDOT projects that remain in the program are either permitted or appropriate credit is unavailable at the Tampa Bay Mitigation Bank.

E. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The Bahia Beach project is a SWIM-sponsored project adjacent to a SWIM water body (Tampa Bay), to be constructed on property owned and managed by the Hillsborough County Parks, Recreation & Conservation Dept.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD - selected private contractor

Entity responsible for monitoring and maintenance: Minimum 5 years post-construction maintenance & monitoring under contract through SWFWMD, perpetual management conducted by Hillsborough County Conservation and/or designated contractor with financial support through the FDOT mitigation program.

Proposed timeframe for implementation: Commence: Design and Permitting 2003-2010, Construction 2012-2013, minimum 5 years maintenance & semi-annual monitoring; perpetual maintenance and land management activities with annual monitoring to ensure successful habitat conditions are maintained and managed.

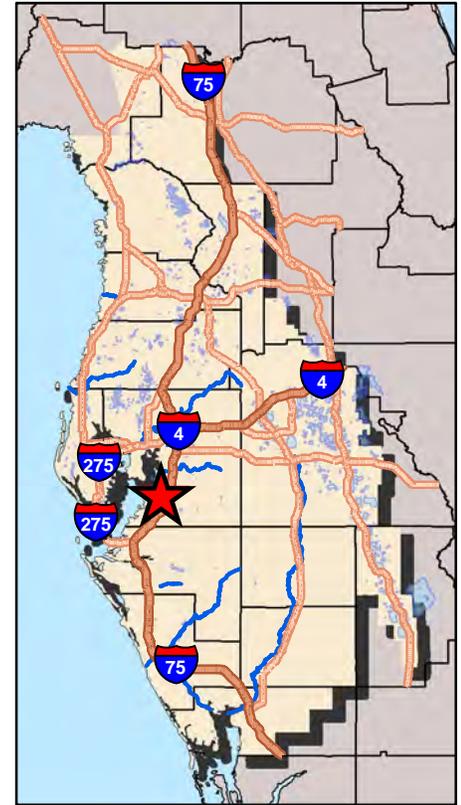
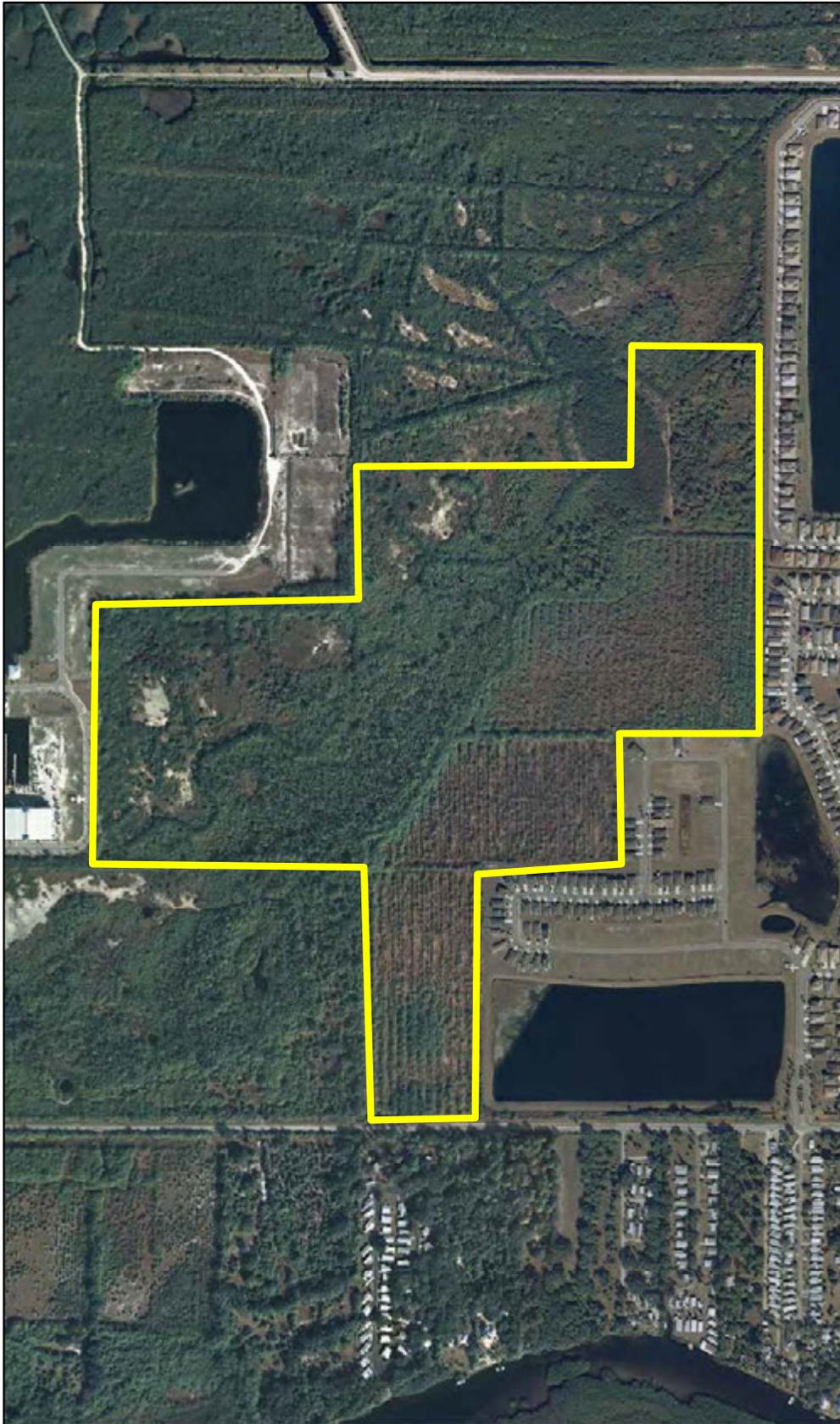
Project cost, estimated: \$2,100,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Existing and Proposed Habitat Improvements
3. Photographs (2012)

SW 78 - Bahia Beach

Figure A - Project Location



Legend

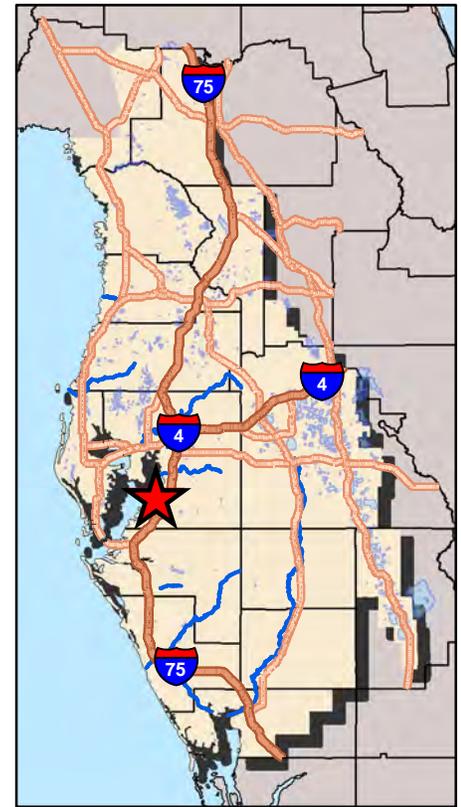
 Project Location



0 0.05 0.1 0.2 Miles

SW 78 - Bahia Beach

Figure B - Existing & Proposed Habitat Improvements



Legend

 Project Location



0 0.05 0.1 0.2 Miles



Bahia Beach showing dense coverage of Brazilian pepper.



Bahia Beach showing dense coverage of Congongrass.



Bahia Beach showing littoral shelf herbaceous plantings along created wetland.



Bahia Beach showing littoral shelf tree plantings along created wetland.

SW-79 FOX CREEK REGIONAL OFF-SITE MITIGATION AREA (ROMA)¹ MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Regional Offsite Mitigation Area			
Landowner	Sarasota County		Management Entity	Sarasota County
County	Sarasota		Watershed	South Coastal Drainage
Water bodies	Fox Creek, Salt Creek, Curry Creek, Cow Pen Slough		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4063143	I-75 N. River Rd. (CR 577) to SR 681 ²	14.55	43034226.000	200802298 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: Sarasota County acquired the 140-acre Fox Creek parcel in 2004 with the goal of preserving, enhancing, and creating a variety of diverse native habitats on the tract. In addition, these activities have been proposed to provide mitigation to compensation for unavoidable wetland and upland habitat impacts associated with public infrastructure projects; including County and FDOT roadway improvements in the South Coastal Drainage basin. The mitigation project objectives include a combination of freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, upland scrub creation & enhancement, mesic hammock restoration & enhancement, and pine flatwood habitat enhancement and preservation.

B. Brief description of pre-construction habitat conditions: Located along the coastal areas of western Manatee, Sarasota, and Charlotte County; the south Coastal Drainage basin has one of highest concentrations of urban land uses in southwest Florida. In an effort to

¹ ERP# 43027077 ACOE # SAJ-2004-5757-MEP

² Tidal creek wetland impacts are offset at Curry Creek ROMA (SW 88).

acquire and protect some of the remaining undeveloped and native habitat areas in the basin portion located within Sarasota County, the County contracted for an extensive evaluation of undeveloped parcels within the basin. In order to justify the substantial acquisition costs associated with purchasing any remaining undeveloped tracts in the basin, the County evaluated the possibility of utilizing the tracts to fulfill upland and wetland mitigation requirements. As a result, a total of 10 tracts were evaluated and ranked for their potential habitat value (protected species, wildlife corridor, water quality improvements, flood attenuation) relative to costs associated with acquisition and construction. Other factors that were considered included proximity to known future roadway projects, existing hydrology, landscape disturbance & potential for enhancement, hydric soils data, and existing habitat buffers. As a result of this evaluation, the highest ranked site was Fox Creek. This tract was actively pursued and acquired in 2004 to serve as an off-site regional mitigation area (ROMA) to compensate for wetland impacts associated with County and other public infrastructure projects.

The parcel includes the lower reaches of Fox Creek along the western border of the property. The site has improved pasture, semi-improved pasture transitioning into pine flatwoods, mesic hammocks and a 15-acre borrow pit that was dredged by FDOT for fill material associated with constructing the adjacent I-75; the same segment of I-75 proposed for widening with associated wetland impacts proposed for mitigation at Fox Creek.

Adjacent to Fox Creek, there is a mature mesic hammock buffer consisting of live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), and sand live oak (*Quercus geminata*). The banks of Fox Creek are incised, which has precluded the establishment of riparian vegetation, though some leatherfern (*Acrostichum danaeifolium*) does exist near the toe-of-slope. The upland adjacent to the northern portion of the creek is an improved pasture covered with bahiagrass (*Paspalum notatum*). Though few native groundcover species exist, native trees and shrubs are beginning to regenerate with the removal of cattle. Species include scattered seedlings of saw palmetto (*Serenova repens*) and sand live oak. The soils in the area are well drained and densely occupied by both active and inactive gopher tortoise (*Gopherus polyphemus*) burrows. Within the northern portion of the improved pasture, there are several large live oaks and a few pignut hickory (*Carya glabra*), which are providing habitat and food to a population of Sherman's fox squirrels (*Sciurus niger shermani*).

The interior of the tract has variable coverage of a pine flatwood community intermixed with semi-improved pasture conditions. The flatwood portion that still has moderate density of longleaf pine (*Pinus palustris*), saw palmetto, scattered wiregrass (*Aristida stricta*), and pawpaw (*Asimina reticulata*) is predominantly in the west-central portion of the tract, and will be preserved and enhanced within the project's plan. Beyond this core area, there are remnant pockets of scattered pine, palmetto and variable cover of semi-improved pasture with sedges and bahia. The design was prepared to protect and enhance many of these remnant flatwood stands as upland habitat peninsulas extended into proposed graded areas that will be converted to wetland creation areas. This will enhance the preserved flatwoods while concentrating minimal vegetative loss to scattered pines and palmetto. As a result, the mosaic of created wetland and enhanced upland habitat will be a substantial benefit to wildlife

and there is very limited freshwater wetland habitat (marsh and forested systems) within the Lower Coastal basin. These wetland systems are important for various periods of the life cycle of many wildlife species, and the design plan for Fox Creek proposes substantial wetland creation while recognizing the benefits of protecting and enhancing the ecological value of the adjacent upland habitat. Within the preserved flatwood community, a bald eagle nest (SA009) exists that was last reported as active in 2002. Currently, the nest is occupied by great horned owls that have been observed in the nest during site inspections. A second bald eagle nest (no assigned number) exists in the flatwoods located just south of the Fox Creek parcel.

There are a few mesic oak hammocks on the property, along the top-of-bank for Fox Creek, within the southwestern corner along Fox Creek, and along the southeastern border of the property. Live oak provides the dominant canopy cover, however Brazilian pepper (*Schinus terebinthifolius*) and carrotwood (*Cupaniopsis anacardioides*) encroached the hammock, particularly in the southeastern community.

C. Brief description of construction activities and current habitat conditions: The Fox Creek parcel has been delineated into 16 mitigation areas with a variety of proposed habitat improvement activities based on the existing conditions and overall objectives of creating a mosaic of inter-related habitat conditions. Many of the improved and semi-improved pastures are being graded to create wetland habitat, with the northwestern pasture enhanced and restored into appropriate scrub habitat conditions. The dredged material from constructing wetlands is used to partially fill the 15-acre borrow pit to create appropriate littoral zone habitat transitioning to the open water component. The pine flatwood and mesic hammock habitats have variable coverage of exotic and nuisance species (e.g. Brazilian pepper, bahiagrass) that are being eradicated as well as supplemented with planted native species. The County perpetually manages the mosaic of habitats with appropriate activities (e.g. herbicide exotics/nuisance vegetation, prescribed burns, supplemental plantings, etc.).

A combination of mitigation types is proposed that includes freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, upland scrub creation & enhancement, mesic hammock enhancement, and upland enhancement and preservation. A total of 16 areas are proposed for mitigation credit; 15 of these areas are being requested for mitigation credit with the remaining upland enhancement area likely utilized to compensate for potential upland scrub impacts. The freshwater marsh creation areas will include interior obligate zones planted with spatterdock (*Nuphar luteum*) that transition to bulrush (*Scirpus californicus*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), spikerush (*Eleocharis cellulose*), maidencane (*Panicum hemitomon*), soft rush (*Juncus effusus*), and sawgrass (*Cladium jamaicense*). The soil material scalped to create wetlands will be deposited in the borrow pit to create littoral zones that are not currently present (*Photo 4*). The lack of littoral features has precluded the growth of herbaceous vegetation that has reduced the habitat value for many species of birds, reptiles, amphibians, and fish. An open water core will still be present to create habitat diversity for many wildlife species including fish, waterfowl, and raptors such as osprey and bald eagles.

Forested wetland components will be strategically placed within the created marshes and will include species common to the forested wetlands in the area including dahoon holly (*Ilex cassine*), red maple (*Acer rubrum*), pop ash (*Fraxinus carolinana*), loblolly bay (*Gordonia lasianthus*) and sweet bay (*Magnolia virginiana*). The enhancement of the mesic hammocks will have the exotics eradicated (B. pepper dominant) and supplemented with plantings of live oak, sand live oak, cabbage palm, and laurel oak (*Quercus laurifolia*). The upland restoration area will have bahiagrass eradication and replaced with native groundcover such as wiregrass, as well as native shrubs and trees.

One of the most unique aspects of the design includes the creation of an estuarine marsh system by constructing channel connections to the tidal waters of Shakett Creek. The northern boundary of Shakett Creek occurs at the southernmost control structure of the freshwater flow of Cow Pen Slough (Figures B and C). This control structure defines the saltwater/freshwater interface and is located just east of the project area. Currently, freshwater levels are maintained in Cow Pen Slough at elevation 11 ft. NGVD during the months of November through June; then dropped to 7 ft. NGVD through the summer to alleviate the potential of upstream flooding. During the dry season, freshwater flow will be diverted from Cow Pen Slough into created freshwater wetlands on Fox Creek. The freshwater overflows into the estuarine marsh constructed in the southeast corner of the property. This will result in a salinity gradient, diverse vegetative species, variable habitat conditions, and water quality treatment before the flow discharges into Shakett Creek. The created low salt-marsh will be planted with needle rush (*Juncus roemerianus*) and saltmarsh cordgrass (*Spartina alterniflora*). The high salt-marsh will be planted with a mixture of leatherfern, saltbush (*Baccharis halimifolia*), buttonwood (*Conocarpus erectus*), and Atlantic white cedar (*Chamaecyparis thyoides*).

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of FDOT roadway wetland impacts proposed for mitigation at Fox Creek includes widening improvements of I-75 from SR 681 to North River Road. As exhibited on the location map (Figure A), this long segment of I-75 is partially located adjacent to the Fox Creek property so this tract is essentially providing an on-site mitigation opportunity. The majority of the proposed I-75 wetland impacts include freshwater marsh habitat that is appropriately compensated with the creation of freshwater marsh and other habitat improvements at Fox Creek. Additional FDOT mitigation information is provided in Attachment C. The following information indicates the permitted wetland impact, habitat type (FLUCFCS), and mitigation habitats & credits proposed for mitigation at Fox Creek:

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There were no existing or proposed mitigation banks in the South Coastal Drainage basin.

D. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were not any current or proposed

SWIM projects in the South Coastal basin that could provide appropriate mitigation for the proposed wetland impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: Sarasota County has contracted for construction activities

Entity responsible for monitoring and maintenance: Sarasota County or designee

Proposed timeframe for implementation: Commence: Acquisition, Design & Permitting, 2004, Phase I Construction & Planting, 2005-2007, other phases constructed in the future

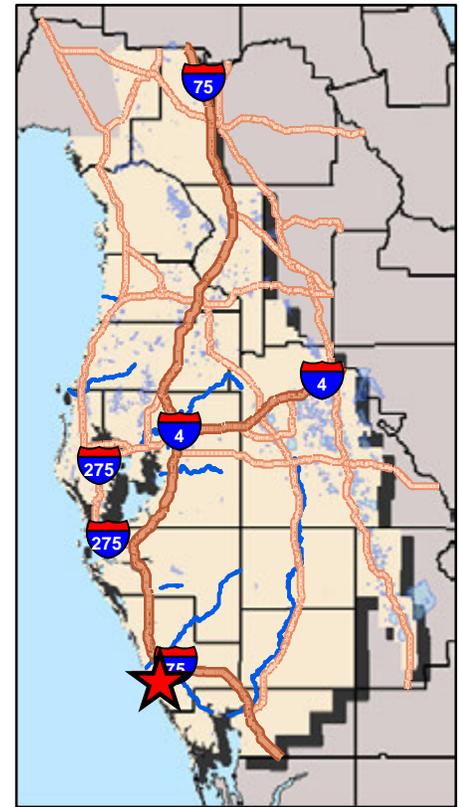
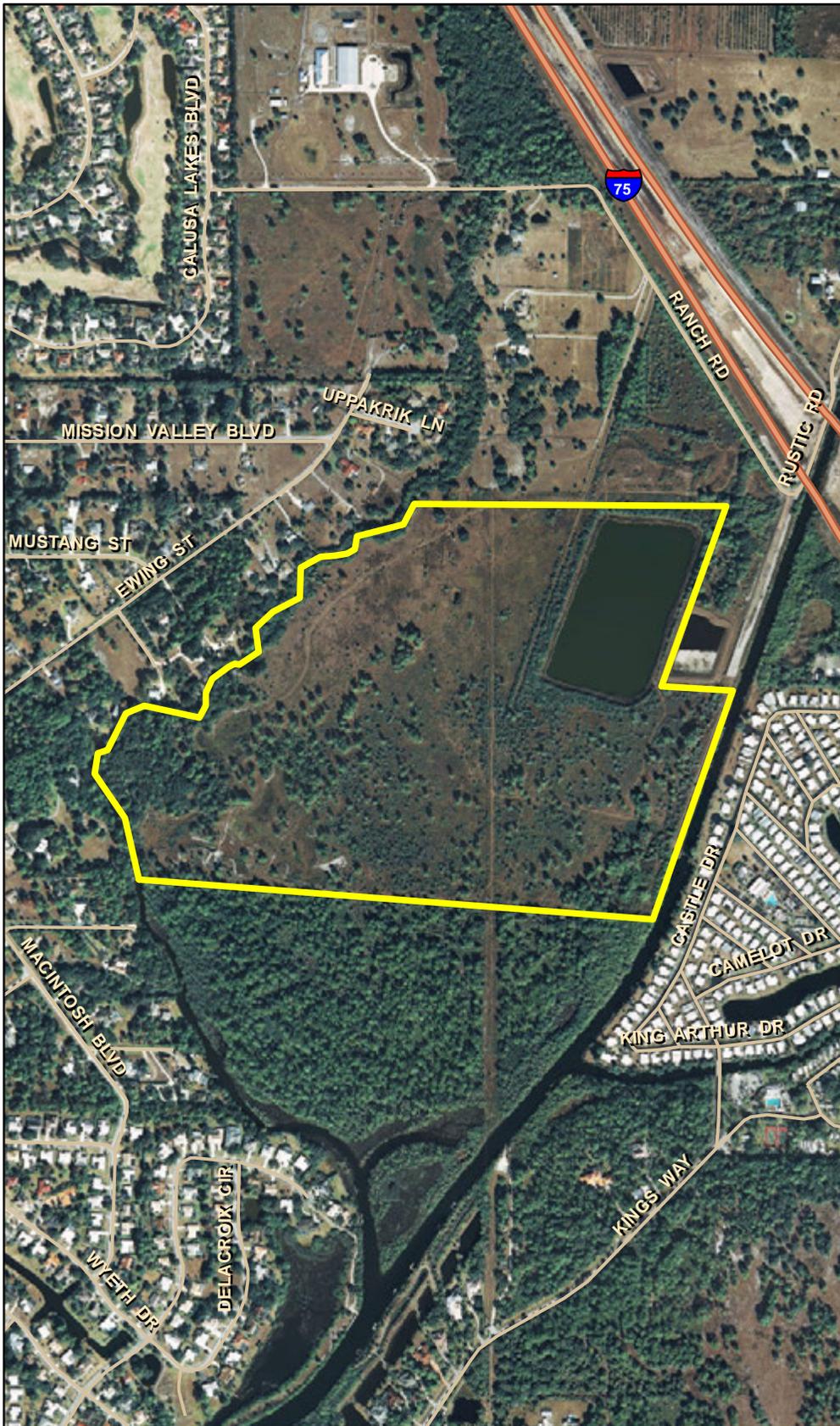
Complete: Mitigation Maintenance & Monitoring (M&M) - minimum 5 years, followed by perpetual management activities.

Project Cost, credit purchase: \$1,702,241 (total)

ATTACHMENTS

1. Figure A-Location

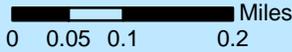
SW 79 - Fox Creek Regional Off-site Mitigation Area (ROMA) Figure A - Location



Legend

 Project Location



 Miles
0 0.05 0.1 0.2

SW-80 HIDDEN HARBOUR MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Wetland enhancement			
Landowner	Manatee County		Management Entity	Manatee County
County	Manatee		Watershed	Manatee River
Water bodies	Manatee River, Gamble Creek		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1960224	SR 64 (Seg. 3) Lakewood Ranch to Lorraine Rd.	4.00	43025776.000	200400734 (JFP)
4161201	SR 64 Carlton Arms Blvd. to I-75	0.76	44035561.000	2010-01414 (IP- JPF)
4226031	US 301 (Seg. B) Erie Road to CR 675	2.73	43012295.005	200801430 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: The Hidden Harbour tract was acquired by Manatee County in late, 2004 and portions of the property were adopted to the mitigation program in 2005. Within the southeastern portion of the property, there is the presence of a unique, inter-related mosaic of parallel, alluvial deposits that formed along the convergence of Gamble Creek and the Manatee River. The habitat on these deposits formed into forested wetland hammocks alternating with brackish marsh and inter-tidal creeks. These hammocks are in need of habitat enhancement by eradication of Brazilian pepper. Additional habitat improvements planned for mitigation credit include freshwater marsh enhancement¹. The combination of wetland enhancement will be buffered by upland habitat restoration and

¹ This activity may be deleted if it is determined that the ecological gain created is not needed to offset the impacts for the FDOT projects in the current inventory of FDOT roadway improvement projects.

potentially some marsh creation (performed by Manatee County outside the FDOT Mitigation Program) to provide more habitat diversity and buffer from proposed school and recreational facilities currently planned for the central portion of the tract. The goal of conducting these habitat improvements will provide wetland and riverine buffers that will benefit water quality functions, floodwater attenuation, and wildlife habitat corridors adjacent to the Manatee River and Gamble Creek.

B. Brief description of pre-construction habitat conditions: The Hidden Harbour parcel covers 229 acres with the majority of the tract previously used for row crop production. Prior to the County acquisition in 2004, the property was proposed and designed for a residential community referred to as Hidden Harbour. Due to the substantial residential development under construction and planned for the vicinity between Ellenton and Parrish, the County acquired this property to adequately plan for necessary school, recreational, and regional park facilities. The County is planning to construct the school and associated athletic fields in the western and central fallow upland portions of the tract, and the regional park within the eastern portion. In collaboration with the SWFWMD, Manatee County agreed to allow habitat improvement on the property to provide appropriate mitigation credits for wetland impacts associated with proposed roadway facilities that will directly benefit the vicinity (e.g. SR 64, US Hwy. 301).

Prior to enhancement, the existing habitat conditions in the 4 enhancement areas as follows. Forested Wetland Enhancement Area One (FWE 1) is 5 acres in size and is characterized as a forested wetland more specifically a mesic oak hammock with an east-west channelized creek connecting to Gamble Creek at the northeast corner of the property. The dominant tree cover includes live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and cabbage palm (*Sabal palmetto*), with additional coverage provided by water oak (*Quercus nigra*), Brazilian pepper (*Schinus terebinthifolius*), and scattered red maple (*Acer rubrum*). Understory coverage varies with pockets of saw palmetto (*Serenoa repens*), scattered wax myrtle (*Myrica cerifera*) and saplings of the above referenced tree species. The hydrology of the majority of this system is primarily groundwater saturation near the surface grade elevation with inundation during flood events. In order to achieve positive hydraulic surface and storm water connections from the upland row crop areas to the ditched creek channel, deep lateral drainage ditches were historically dredged through this wetland to connect with the creek. The ditches diverted and channelized contributing watershed conditions, altering appropriate seepage hydrology for this wetland system. As a result, most of this wetland system within the County property has only minimal opportunities to maintain adequate wetland hydrology. The upland row crop areas within property north of Hidden Harbour were recently converted to a residential community.

Forested Wetland Enhancement Areas 2 & 3, total 43 acres, are characterized as coastal hydric hammock wetlands have lower grade elevations, more B. pepper cover, and are more influence by the hydrology of Gamble Creek and the Manatee River as compared to FWE 1. Dominant tree cover is provided by laurel oak, live oak, and cabbage palm. The B. pepper is more prevalent along the upper transition between the hammock and adjacent marsh habitat within FWE 3. Other common canopy and shrub species include red cedar (*Juniperus*

silicicola), slash pine (*Pinus elliottii*), myrsine (*Myrsine floridana*), saw palmetto, greenbriar (*Smilax rotundifolia*), grapevine (*Vitis* spp.) and swamp fern (*Blechnum serrulatum*). Along the lower transition between the hammocks and adjacent marsh, there is a narrow zone of scattered white mangrove (*Laguncularia racemosa*) and few red mangrove (*Rhizophora mangle*). The marsh is dominated by black needlerush (*Juncus roemerianus*) and leather fern (*Acrostichum aureum*), with some minor bands of cattails (*Typha* sp.) along the water's edge. The cattails are generally located within limited narrow zones with minimal potential to recruit and generate into the adjacent marsh habitat.

The potential Marsh Enhancement area is 1.8 acres in size and aerials indicate that the marsh was historically impacted by clearing of the adjacent upland area and the installation of a free-flowing surficial well that will be appropriately grouted and capped. The dominant marsh vegetation includes chalky bluestem (*Andropogon glomeratus*), dog fennel (*Eupatorium capillifolium*), with additional coverage provided by maidencane (*Panicum hemitomon*), low panicums, and scattered primrose willow (*Ludwigia repens*). This wetland has seepage hydrology contributing downstream to the adjacent hammock and brackish marsh.

In spite of the agricultural use within the majority of the tract, wildlife activity is active within the remaining native habitats. The hammocks provide safe cover for roosting, nesting, foraging, denning and wildlife corridor connections. Wildlife observations and signs include deer, raccoon, rabbit, bobcat, opossum, and several bird species. The hammocks also provide access to the river for reptiles, including the american alligator, and amphibians.

C. Brief description of construction activities and current habitat conditions: The hammocks provide moderate habitat condition with the primary limitation associated with the presence of Brazilian pepper. The B. pepper particularly provides moderate coverage along the transition interface of the marsh and hammock habitat that hinders wildlife movement for foraging, and minimizes the coverage of desirable vegetation. The habitat improvements for mitigation credit include extensive herbicide eradication of the B. pepper within the hammocks (FWE 1-3). There is adequate coverage of adjacent desirable species that will naturally recruit to displace and minimize the regeneration of the B. pepper. However after the initial eradication, annual herbicide treatments will be conducted of recruited and generated B. pepper.

There are a few north-south ditches dredged within and along the perimeter of the Forested Enhancement Area 1 (FWE 1) wetland bordering the north property boundary. To provide mitigation credit for the adjacent development, the ditch & spoil segment within this same wetland system on the adjacent property has been graded and planted with trees. In order to continue enhancing the hydrology of this wetland, the ditch segments dredged through and adjacent to this wetland will also be backfilled with the adjacent spoil material. In areas where the ditch grade has silted and covered with desirable vegetation, excess spoil material will be removed from the wetland to match the natural grade elevations. Depending on the slope gradient, proposed tree and shrub plantings (min. 10 ft. spacings) will primarily include laurel oak, water oak, red maple and wax myrtle. In order to minimize the potential of erosion, silt screens will be intermittently installed perpendicular to flow, and depending on the season of

earthwork; winter rye (fall, winter) or brown-top millet (spring, summer) will be seeded to provide quick temporary cover. As evident by the adjacent restoration activities in the same wetland, ground cover planting is not anticipated to be necessary. However, a contingency plan of supplemental herbs will be planted if there is insufficient natural recruitment of desirable ground cover. Along with the hydrologic improvements, the B. pepper will be eradicated from this system. This work will be performed if it is determined to be needed to offset wetland impacts of FDOT road improvement projects in the current inventory of projects.

The enhancement of the marsh system includes herbicide eradication of the fennel and willow; with a dense planting of wax myrtle along the perimeter to provide buffer cover. An existing wet access road crossing is located near the southern extent where the marsh connects to the adjacent forested wetland hammock. This road will be vacated and hydrophytic vegetation will be allowed to regenerate in this area. This work will be conducting should it be needed to offset wetland impacts of FDOT road improvement projects in the current inventory of projects.

A title search was conducted by the County as part of the acquisition process to determine the limits of the sovereign state lands (SSL) versus private ownership. The hammock areas are above mean high tide elevations and not SSL. The 50-60 acres of marsh habitat and 20-30 acres of tidal creek and bay area buffered by the hammocks are sovereign lands. These sovereign wetland areas will receive secondary ecological benefits by the proposed enhancement activities but are not quantified for mitigation credit under the proposed plan. Enhancement of these hammocks will be conducted by herbicide application of the B. pepper, which in some areas are particularly large trees (refer to photos). Due to the environmental damage that cutting and removing the snags would cause, the B. pepper will be allowed to decay in place and no construction activities are proposed within the system. This will allow the natural recruitment and generation of appropriate hydrophytic vegetation, while opening areas for easier wildlife access to forage and nest. An intensive initial effort to eradicate the B. pepper will be conducted, followed by annual maintenance for a minimum of five years. As with all the habitat creation and enhancement areas for the property, the quantity and schedule of maintenance events will be evaluated to ensure continued success with emphasis on eradication with as minimal coverage of exotics as possible.

After the extensive initial herbicide eradication of exotic and nuisance species (primarily Brazilian pepper), additional treatments will be conducted for a minimum of five years within the enhancement areas determined to be needed to offset impacts of FDOT road improvement projects in the current inventory. Afterward, Manatee County will continue herbicide treatments as part of normal land management practices.

Monitoring will commence upon the initial herbicide treatment and continue for a minimum of five years. This monitoring will include qualitative assessments of the wildlife use, vegetative cover and diversity, hydrologic conditions, and any problem areas. The results of the monitoring events will be compiled into annual monitoring reports, which will be conducted for a minimum of five years and until success criteria is met.

Success criteria require the eradication of B. pepper to the degree possible, with the no more than 5% coverage within the hammocks and no more than 5% coverage of undesirable plants within the marsh enhancement area (if this work is determined to be needed). Enhancement for the north forested wetland (FWE 1) will also include demonstration of restored habitat conditions within the ditch segments (should this work be performed); with at least 40% coverage of planted and naturally recruited trees and shrubs, 70% coverage of ground cover vegetation, and demonstration of appropriate grade stabilization.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Anticipated wetland impacts associated with three nearby roadway projects are proposed for mitigation at Hidden Harbour. Additional habitat improvements may be proposed and conducted by Manatee County to provide mitigation for wetland impacts associated with Upper Manatee River Road. As the plans adjacent school and/or recreational facilities are finalized for the central portion of tract, the mitigation boundaries, habitat types and associated acreage are updated in the annual FDOT mitigation plans.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection for two of the FDOT road improvement projects, no mitigation banks were proposed in the Manatee River basin. Subsequently the Braden River Mitigation Bank received ERP approval but hasn't received ACOE approval as of the date this FDOT Mitigation plan.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This project is not specifically sponsored through the SWIM program. However the Manatee River is a designated SWIM water body and the proposed habitat improvements will provide ecological enhancement for the river and Tampa Bay.

PROJECT IMPLEMENTATION

Entity responsible for construction: Manatee County Parks and/or contractors working for the County.

Entity responsible for monitoring and maintenance: Maintenance activities will be conducted through Manatee County, monitoring activities will be conducted by private environmental consultants under contract for the SWFWMD.

Proposed timeframe for implementation: Fall 2011 - Initial herbicide treatments (Forested Wetland & Marsh Enhancement Areas); 2012-2013 – Backfill FWE #1 ditches and plant²; 2012-2017 – Annual herbicide treatments and monitoring; Post-2017 – Annual herbicide treatments

² This activity may be deleted if it is determined that the ecological gain created is not needed to offset the impacts for the FDOT projects in the current inventory of FDOT roadway improvement projects.

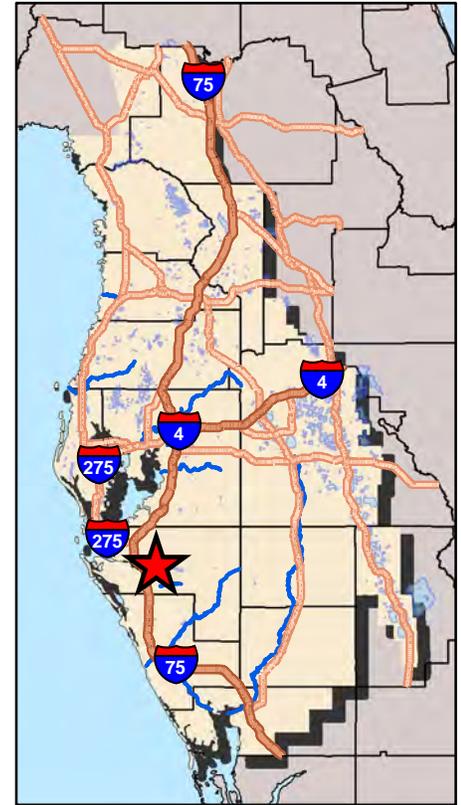
Project Cost, estimate: \$180,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Conceptual Mitigation Plan
3. Photographs (2005)

SW 80 - Hidden Harbour

Figure A - Location



Legend

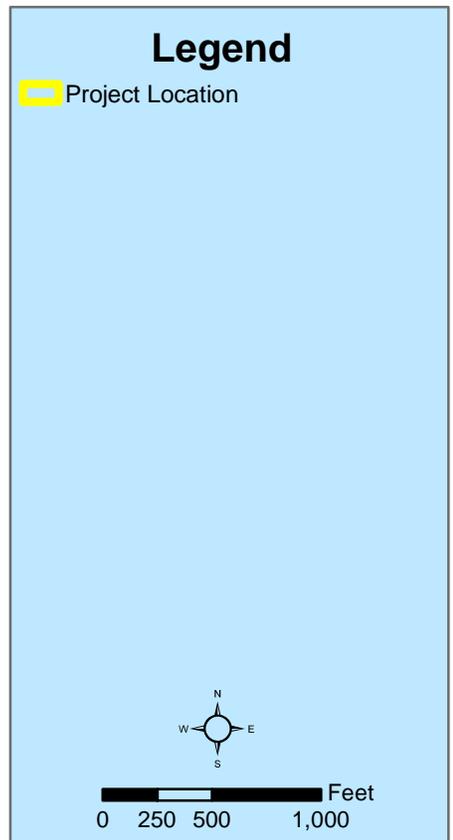
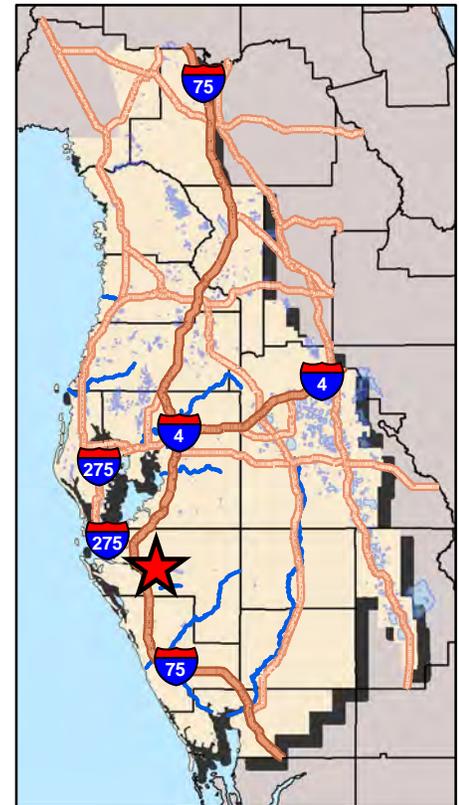
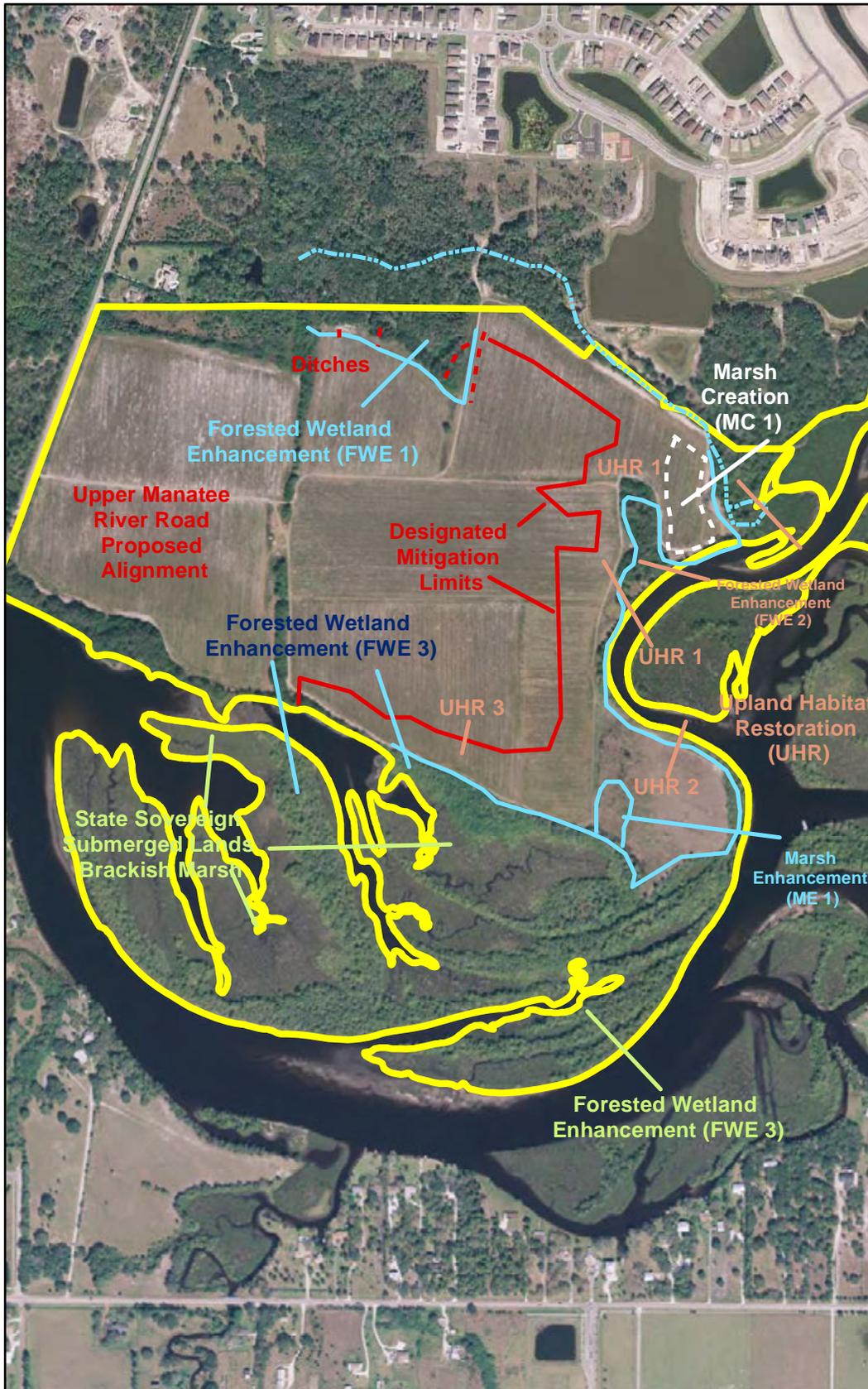
 Project Location



0 0.25 0.5 1 Miles

SW 80 - Hidden Harbour

Figure B - Conceptual Mitigation Plan





This mesic oak hammock has dominant cover of laurel oak, live oak, water oak and cabbage. Understory is minimal except pockets of understory.



One of the large north-south ditches that collects surface water from the uplands and directly discharges to the channelized creek north of the property.



Brazilian pepper is prominent within many areas of the mesic hammock, particularly along the transition interface with the adjacent marsh habitat.



The mesic hammocks provide refuge for nesting, foraging and denning by a variety of wildlife that utilize the range of habitats within the vicinity of Hidden Harbor.



One of the tidally-connected, dead-end finger creeks that bisect the hammocks, providing more inter-related mosaic of habitats for wildlife use.



Manatee River – view from along the north shoreline of the river along the southwest boundary of Hidden Harbor, looking southeast toward two tidal creek channels.

SW-81 BALM BOYETTE – STALLION HAMMOCK RESTORATION MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Hillsborough County		Management Entity	Hillsborough County
County	Hillsborough		Watershed	Alafia River
Water bodies	Pringle Branch		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4154892	US 301, Balm Road to Gibsonton Drive ¹	0.30	43031128.000	200604230 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: The Balm Boyette Scrub Preserve is a 4,933-acre tract acquired by Hillsborough County Parks, Recreation and Conservation Department through their Environmental Lands Acquisition Program (ELAPP). The majority of the tract has high quality wetland and upland habitat communities. The eastern third of the tract was mined for phosphate ore in the 1960's, and has partially reclaimed landscape features comprised of wide linear open water pits, steep upland sideslopes, and rolling upland terrain. Prior to mining, there were three wetland tributaries that formed the headwaters of a forested wetland referred to as Stallion Hammock with an interior meandering creek named Pringle Branch. This creek is a tributary of Fishhawk Creek and the Alafia River. The majority of two tributaries were mined, resulting in two isolated lobes of forested wetlands that historically connected to Stallion Hammock. The main objective of the designated mitigation area includes improving the contributing hydrology from the open water pit areas through the forested & shrub wetland component that naturally recruited within proximity of the historic

¹ An additional 11.5 acres of wetland impact are located in the Tampa Bay Drainage and are offset at the Ekker Tract (SW 82).

eastern tributary. This improvement will correlate with the restoration and creation of 15-25 acres of wetland habitat from the open water pit and spoil complex within the vicinity of the historic western tributary and adjacent to Stallion Hammock. The combination of restoring and enhancing wetland habitat for both tributaries will improve the wildlife habitat conditions and corridor connections in the eastern portion of the tract and particularly within the vicinity of Stallion Hammock.

B. Brief description of pre-construction habitat conditions: At 4,933 acres, the Balm Boyette Scrub Preserve represents one of the largest contiguous tracts of public lands in Hillsborough County. There is a great diversity of wildlife, vegetation and habitat communities on the property, and the tract contains some of the largest undeveloped xeric habitat remaining in the County. The County has an extensive land management plan that provides details of the various habitat and management activities. The phosphate mining area within the eastern third of the property represents the largest area of displaced habitat on the tract, and it has been the desire and goal of Hillsborough County to restore and enhance some wetland habitat, and associated hydrologic flow patterns to improve the remaining Stallion Hammock. These same goals have been proposed in the SWFWMD's SWIM habitat restoration plan since the mid-1990's. The following information summarizes the existing habitat conditions associated with the area.

The forested-shrub wetland enhancement area is 11 acres. Review of the 1968 aerial photography taken during the mining operations show mine pits, spoil ribbons, and a drainage ditch replacing the eastern tributary. Reclamation resulted in a wetland slough contoured from a pit that connects to Stallion Hammock. However, the contributing basin flow through the wetland was short-circuited with the construction of a large north-south ditch that connects to mine pits located north and south of the wetland. As a result, this wetland tributary slough has minimal hydroperiod, resulting in substantial coverage of opportunistic transitional species such as elderberry (*Sambucus canadensis*), wax myrtle (*Myrica cerifera*), salt-bush (*Baccharis halimifolia*) and blackberry (*Rubus* spp.).

C. Brief description of construction activities and current habitat conditions: Evaluation of existing and appropriate surface water hydrology within the contributing watershed of Stallion Hammock will determine grade and culvert elevation connections to achieve appropriate and adequate hydrology and hydroperiods for the forested and shrub wetland enhancement area. Site evaluation, including data from three shallow monitoring well with a continuous recorder, bathymetric study, earthwork estimates, and concept plans were conducted from 2005-2009. Necessary surface water modeling and construction plan preparation were completed in 2011. Hydrologic flow patterns and an increase in the wetland hydroperiod will be achieved by constructing a block at the ditch outfall of the wetland, and diverting the contributing water flow from the northern pit to another revised culvert outfall located several hundred feet upstream.

There are conveyance ditches that hydrologically connect the mine pits associated with the historic eastern tributary area. These ditches have sheer slopes that have continuously eroded and undermined, resulting in several feet of drop from the top of bank. Existing ditch

cross sections and flow estimates (volume, velocity, etc.) have been evaluated and incorporated with the surface water modeling effort to determine appropriate elevations for not only contributing appropriate volumes to the restored and existing Stallion Hammock, but the conveyance dimensions necessary to resemble natural habitat for easier wildlife access. In order to create and maintain a more appropriate conveyance and minimize the potential of erosion and undermining, the lowest swale elevations may require some structural support such as geoweb, rip-rap rubble, etc. A few of these conveyance crossings also require vehicular access for land management activities. These crossings will probably incorporate shallow wet crossings during the rainy season, with geoweb material or large rubble rock that allows lateral seepage as well as periodic overflow. The geoweb and rock is typically capped with limerock base material for vehicle access. This material will be kept to a minimum where necessary to achieve stability, and constructed with gradual slopes to resemble most natural wetland corridor features. Due to the steep slopes and high top-of-bank elevations of these ditches, it will be necessary to grade back the side-slopes 50 feet or more to create a more natural conveyance of 10:1 slopes or greater. In order to quickly stabilize these slopes, it will be necessary to seed with brown-top millet, winter rye, and/or bahia. However, these slopes will also be planted with trees (slash pine, laurel oak, red maple) on 10 ft. centers and wax myrtle on separate 20 ft. centers to quickly establish ground and canopy cover. These conveyance improvements are necessary components to restore and enhance hydrologic connectivity while providing wildlife access and habitat corridors. However, the hydrologic and habitat improvements associated with the crossings will not be quantified in the mitigation credits.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): This Mitigation Project was initiated to offset the wetland impacts of four FDOT road improvement projects requiring mitigation in the Alafia River basin. However, with the 2012 Mitigation Plan, three FDOT road improvement projects were removed from the FDOT Mitigation Program leaving only one road improvement project with 0.3 acres of wetland impact requiring mitigation in the Alafia River basin. It is not cost effective to carry this Mitigation Project through construction with FDOT funds for such a small wetland impact. An alternative mitigation option is being explored. Environmental Resource Permitting (ERP) rules allow the donation of money to be considered as mitigation when that money is used in a District or DEP endorsed environmental restoration project (see ERP Basis of Review 3.3.1.8). The construction plans developed with the use of FDOT funds have been transferred to the FDEP and the Hillsborough County so that construction of this project along with larger restoration objectives may begin.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the time of mitigation selection there were four FDOT roadway projects with wetland impacts requiring mitigation in the Alafia River basin and as of 2010, there are no existing or proposed mitigation banks in the Alafia basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This Balm Boyette project has been proposed for restoration and

enhancement by Hillsborough County and the SWIM program for several years but could not proceed due to insufficient funding sources.

PROJECT IMPLEMENTATION

Entity responsible for construction: Hillsborough County and SWFWMD will collaborate toward contractor selection

Entity responsible for monitoring and maintenance: Consultant on contract with Hills. Co. and/or SWFWMD

Proposed timeframe for implementation:

Commence: Planning – 2005-2009, Design - 2009-2011

Project cost: \$400,000 (total)²

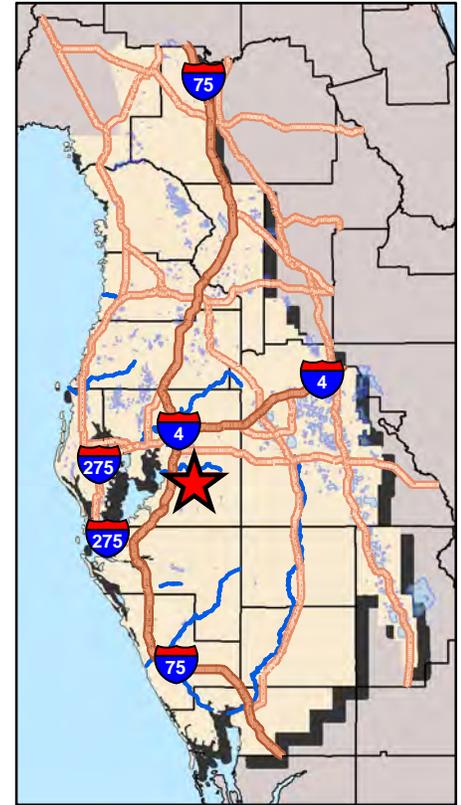
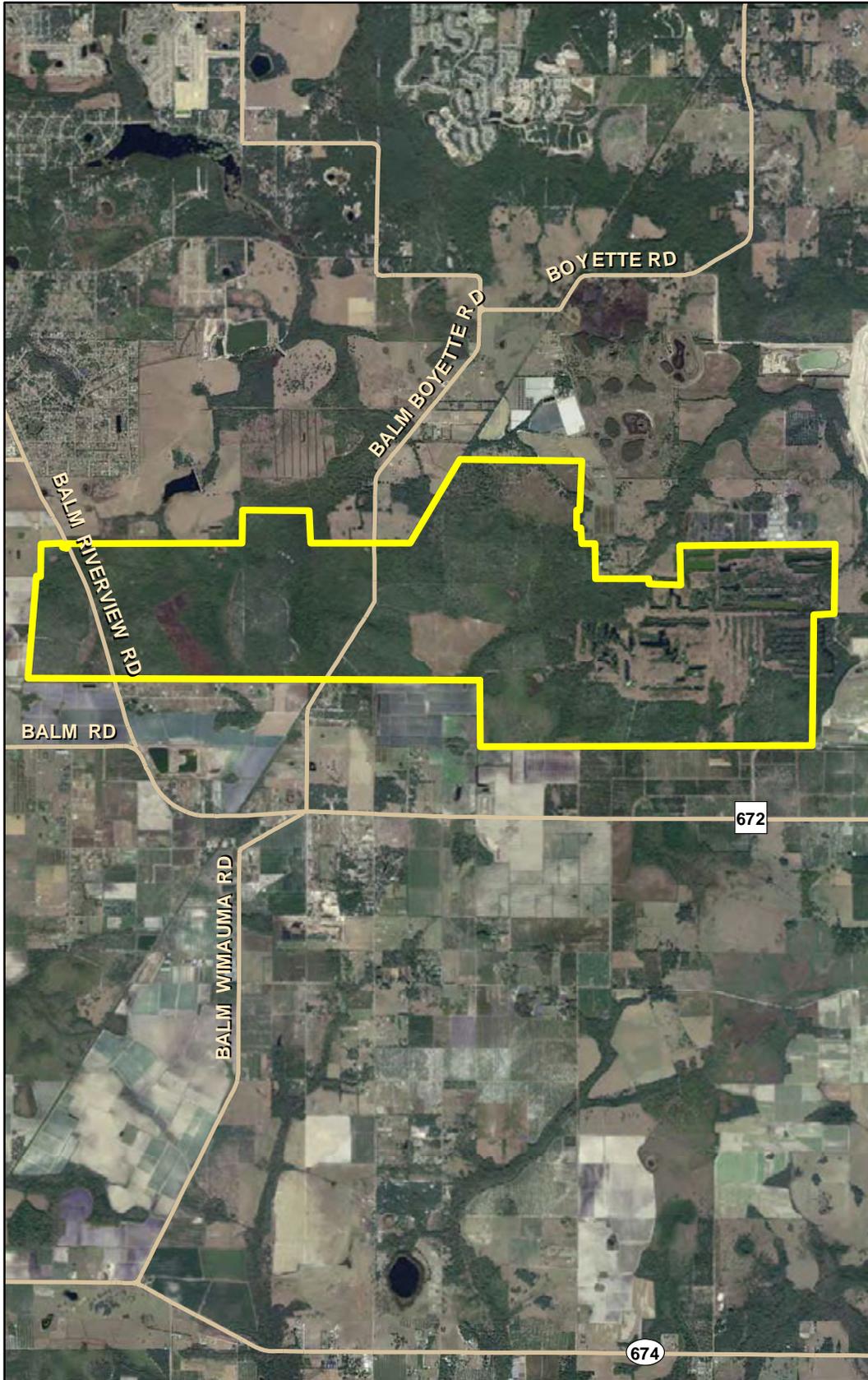
ATTACHMENTS

1. Figure A-Location

² Total costs to be modified to exclude construction costs.

SW 81 - Balm Boyette-Stallion Hammock Restoration

Figure A - Location



Legend

 Project Location



0 0.375 0.75 1.5 Miles

SW-82 EKKER TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland creation, restoration and enhancement; upland restoration and enhancement			
Landowner	Southwest Florida Water Management District	Management Entity	Hillsborough County	
County	Hillsborough	Watershed	Tampa Bay Drainage	
Water bodies	Bullfrog Creek, Smith Creek	Water body Designations	SWIM water body	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4113371	US 92 Eureka Springs to Thonotasassa Rd. ¹	0.20	43031172.000	200600602 (JPF)
4154892	US 301, Balm Road to Gibsonton Drive ²	11.50	43031128.000	200604230 (IP-JPF)
4154893	US 301, Sun City Center to Balm Road ³	3.20	43034464.000	200803613
N/A	Lee Roy Selmon Crosstown Extension - Temporary Haul Road	0.21	44021031.006	NPR

PROJECT DESCRIPTION

A. Overall project goals: The 85 acre Ekker Tract was acquired by the SWFWMD to conduct habitat improvements that will benefit Bullfrog Creek and Tampa Bay. The northern

¹ This US 92 segment proposes additional wetland impacts (1.65 acres) in the Hillsborough basin with the associated mitigation designated for Colt Creek State Park (SW 84).

² Additional wetland impact (0.3 acre) associated with this project is located within the Alafia River basin, with mitigation designated at Balm Boyette (SW 81).

³ Additional wetland impacts being mitigated by FDOT with on-site wetland creation on ELAPP property and forested wetland impacts at Boyd Hill Nature Park (SW 71); additional wetland impacts within the Little Manatee River basin being mitigated at the Little Manatee River – Lower Tract (SW 83).

portion of the property is dominated by mesic oak hammock and planted pine plantation. An objective is to enhance the upland habitat by primarily removing nuisance and exotic vegetation, appropriate pine thinning to restore pine flatwood habitat, conduct supplemental planting, and implementation of a land management plan. The southern portion of the property had a substantially altered landscape comprised of 158 excavated tropical fish ponds covering 23 acres. The aquaculture operation was discontinued prior to public acquisition, and the vegetative conditions included substantial domination of exotic and nuisance species; dominated by cattails in the ponds and Brazilian pepper surrounding the ponds. The goal included exotics eradication and appropriate grading of the ponds to create 19 acres of forested wetland and marsh habitat.

B. Brief description of pre-construction habitat conditions: Due to the high concentration of developed lands within the Tampa Bay Drainage Basin, it is necessary for the SWFWMD and Hillsborough County to primarily pursue acquisition of parcels impacted by past agricultural activities. Habitat creation, restoration and enhancement on these parcels provide valuable ecological improvements within this highly urbanized basin and receiving waters of Tampa Bay. The SWFWMD purchased the 70 acre Ekker parcel in 2001, and the adjoining 15 acres along the northwestern property boundary in 2003. The property is managed through the Hillsborough County Parks, Recreation and Conservation Department as part of their Environmental Lands Acquisition and Protection Program (ELAPP). The Ekker Tract is within a few miles of Tampa Bay.

The historical aerials indicate the majority of the Ekker property was cleared of native flatwood vegetation between 1938 and 1957, and converted to improved pasture. By 1957, the majority of the tropical fish ponds were excavated, with the remaining 26 ponds installed by 1980. Hundreds of other fish ponds were excavated on surrounding property in Gibsonton, many of which have been and will continue to be converted to residential communities. With the loss of substantial freshwater wetland habitat in the Tampa Bay basin, the County and SWIM decided the best ecological alternative for the southwestern portion area of the property was to convert the fish ponds to create ecologically beneficial wetland habitat.

What made the decision even more ecologically valuable are the available upland habitat enhancement opportunities on the tract. The combination of improvements to wetland and upland habitat have resulted in diverse and inter-related ecological communities that result in habitat improvements for wildlife activities. This is particularly important for the Gibsonton area where there is very minimal undeveloped property in the vicinity; particularly any native habitat adjacent to Bullfrog Creek. In January, 2001, members of the National Audubon Society conducted an avifaunal study of the site and noted 14 bird species. In addition, fauna species observed on the property include opossum (*Didelphys marsupialis*), red fox (*Vulpes vulpes*), river otter (*Lutra canadensis*), raccoon (*Procyon lotor*), armadillo (*Dasypus novemcinctus*), and gopher tortoise (*Gopherus polyphemus*). Due to the developed land use of the surrounding property that will only increase in the future, this results in more importance on the ecological capacity of the Ekker tract to not only sustain the existing and future generations of wildlife populations, but also improve habitat conditions to accommodate displaced wildlife. The direct connection of the tract to Bullfrog Creek is also valuable since

wildlife utilize this creek corridor to travel upstream and downstream to the natural habitat along Tampa Bay

The mesic oak hammock habitats (total 33 acres) are predominantly within the northwestern portion of the property and a linear corridor buffer adjacent to Bullfrog Creek (Figure B, photos). The pine plantation (approx. 24 acres) is within the north-central and southeastern portion of the tract. The pine plantation was comprised of small slash pines less than 6-inch DBH and 20-30 ft. high. The majority of the pines were planted on dense 5-10 ft. centers so with the canopy closure and substantial pine straw thatch, there was minimal ground cover in the plantation. The oak hammock habitat and pine plantation had minor coverage of exotic and nuisance species, predominantly scattered Brazilian pepper. The tropical fish ponds were located within the southwestern portion, with the various ponds ranging in size from 600 to 5000 square feet (less than 0.1-acre each). The pond bottom grades ranged 3-5 feet below top-of-bank with dominant coverage of exotic vegetation such as cattails and torpedo grass, and surrounded with Bermuda grass and Brazilian pepper. There is a small retention pond northeast of the fish ponds with an outfall into an intermittent creek (Smith Creek) that seeps and meanders north to Bullfrog Creek. Additional details on the pre-construction habitat conditions are described in the following.

The historical aerials indicate the oak hammock habitats approximate the same general limits present during the 1930's but currently have more canopy closure. There has been an increase of some oak habitat along the western portion of the tract with the removal of historic pine flatwood habitat. The hammocks have dominant canopy cover provided by live oak (*Quercus virginiana*), laurel oak, water oak (*Quercus nigra*) with scattered cabbage palm (*Sabal palmetto*) and pine (*Pinus elliotii*, *Pinus palustris*). The understory varies in species and coverage. The oak hammock within the northwest portion of the tract is dominated with live oak and tend to have moderate to dense understory coverage of saw palmetto (*Serenoa repens*), cabbage palm, grapevine; with pockets of various fern species under dense canopy (*Nephrolepis exalta*, *Pteridium aquilinum*, *Osmunda cinnamomoea*, *Thelypteris* spp.). Other common species include dog fennel, beggar's-tick (*Bidens alba*), grapevine (*Vitis* spp.), various sedges (*Andropogon* spp.), carpetgrass (*Axonopus* spp.), flat-top goldenrod (*Euthamia minor*), blackberry (*Rubus* spp.) and low panicums (*Dicanthelium* spp.). The live oaks extend along the upper steep banks of Bullfrog Creek where there is also coverage of dense palmetto transitioning down to scattered mangrove (*Laguncularia racemosa*) and leatherfern (*Acrostichum* spp.) along the waterline of this tidally connected creek. Brazilian pepper is scattered within the oaks and pine plantation of the property, particularly along the upper banks of Bullfrog Creek. The more recent natural recruitment and generation of oak hammock habitat within the southwest portion of the property has more coverage of the opportunistic and younger laurel oak than the old generation of live oaks present for several decades in the northwest portion. In some small areas of the laurel oaks, the canopy density has resulted in substantial shade that has limited ground coverage.

Prior to construction, the tropical fish pond area on the property had vegetatively transitioned to an almost exclusive coverage of exotic and nuisance species (refer to photos). The most common pond vegetation includes cattails (*Typha* spp.), torpedo grass (*Panicum repens*), spikerush (*Eleocharis* spp.), duckweed (*Lemna* spp.) with occasional primrose willow

(*Ludwigia peruviana*) and Carolina willow (*Salix caroliniana*). Brazilian pepper (*Schinus terebinthifolus*) was common along the sideslopes and top-of-bank. Ground coverage around the ponds included bahiagrass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), dog fennel (*Eupatorium capillifolium*), and broomsedge (*Andropogon virginicus*). The ponds were buffered along Symmes Road and Ekker Road by a dense monoculture perimeter of Brazilian pepper and roadside drainage ditches covered with cattails and other exotics. In general, there was minimal habitat value associated with the aquaculture area that would have substantially deteriorated with generation of more exotic vegetation if not converted to appropriate habitat.

C. Brief description of construction activities and current habitat conditions: The wetland creation design for the pond area included marsh habitat (12.4 acres), forested wetlands (2.3 acres), obligate/open water (4.4 acres), ephemeral ponds (0.6 acre) and buffered by a perimeter of an elevated upland habitat established on the rounded fill material (5.1 acres). The design incorporated cross-sectional surveys and groundwater elevations monitored from piezometers installed on the property. Wetland plantings were conducted during the summer, 2010 to quickly establish coverage and minimize turbidity. Plantings included a diverse assemblage of bare root and potted herb species installed on 3 ft. centers within appropriate elevation zones; with such species as arrowhead (*Sagittaria lancifolia*), bulrush (*Scirpus validus*), fireflag (*Thalia geniculata*), pickerelweed (*Pontederia cordata*), sand cordgrass (*Spartina bakeri*), soft rush (*Juncus effusus*), spatterdock (*Nuphar luteum*), and spikerush (*Eleocharis interstincta*). Diverse tree species include 1-gallon nursery stock planted on staggered 20 ft. centers; primarily bald cypress (*Taxodium distichum*), black gum (*Nyssa sylvatica biflora*), laurel oak (*Quercus laurifolia*), popash (*Fraxinus caroliniana*), red maple (*Acer rubrum*), and sweet bay (*Magnolia virginiana*). Some shrub plantings included wax myrtle (*Myrica cerifera*) and buttonbush (*Cephalanthus occidentalis*).

The mounded upland buffer restoration around the wetland creation area is an important habitat component of the plan. Dense wood mulch was established to minimize recruitment and generation of undesirable vegetative species. The ground cover vegetation plantings included a dominance of love grass (*Ergrostris* spp.), muhly grass (*Muhlenbergia capillaries*), and sand cordgrass (*Spartina bakeri*), as well as the establishment, growth and coverage of shrubs and trees. The most common tree plantings will include 1-gallon stock (10 ft. spacings) of laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), red maple (*Acer rubrum*), and slash pine (*Pinus elliotii*). In order to establish the vegetative buffer with a shorter duration while the trees become established and reach maturity, 1-gallon wax myrtle (*Myrica cerifera*) will be densely planted on 10 ft. spacings.

Enhancement of the oak habitat was initiated in 2010 with the eradication of scattered Brazilian pepper and incorporating a prescribed fire program to provide more open canopy and sub-canopy for the natural regeneration of understory vegetative. The pine plantation received a major thinning of pines in 2010 to widen the tree spacings to 30-40 feet; followed by prescribed fire that substantially reduced the pine thatch. The combination of the pine removal and fire allowed the natural regeneration and recruitment of desirable herbs and sedges in the flatwoods. The enhanced and restored upland habitats have attracted and

improved habitat conditions for wildlife use. There are several gopher tortoises residing on the property. One of the more unique opportunities included using excess fill material to construct a few long, low, and linear mounds in the flatwoods to provide the potential establishment of gopher tortoise burrows.

The dredged retention pond (0.4 acres) has the associated spoil material around the pond perimeter and essentially no available littoral shelf. There are some oaks on the spoil mounds but also B. pepper. A portion of the pond was backfilled to create a planted littoral zone. The wetland creation area that replaced the fish ponds hydrologically connect to the regraded pond to provide some additional water quality treatment and attenuation before outfalling into Smith Creek and Bullfrog Creek.

The Ekker homestead and driveway entrance are located on the tract and the associated 0.5-acre of coverage is excluded from the mitigation project area. The house will be used by the Hillsborough County Conservation Section to provide an on-site residence for land management and security purposes.

Herbicide maintenance activities are conducted on a quarterly basis to eradicate and control exotic and nuisance species from the tract and will continue post-construction to allow for establishment of appropriate plant species, and less frequent herbicide applications as the habitats mature. Based on the conditions of the various habitats and status of selected species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of each habitat area and associated success criteria. Herbicide applications will be conducted through a licensed herbicide applicator on contract through the SWFWMD. After a minimum of five years and the desired habitat conditions and mitigation success has been achieved, perpetual management will be conducted through the Hillsborough County Parks, Recreation & Conservation Department and/or designee to maintain the same success criteria. The Conservation Section may choose to utilize their herbicide crew or contract with a private licensed applicator. Based on the progress of the habitat conditions, perpetual herbicide treatment is anticipated to occur on no less than a semi-annual basis to eradicate exotics and nuisance species.

Monitoring will be conducted on a semi-annual basis for a minimum of five years and until meeting success criteria. Monitoring will include a comprehensive qualitative assessment of each habitat component within the wetland creation area including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife use & opportunities, and recommended actions necessary to ensure and further enhance habitat success. Qualitative monitoring will also be conducted for the restored and enhanced upland habitats. Annual monitoring reports will be prepared, and the report will include qualitative and photo documentation of post-construction habitat conditions and wildlife utilization for the entire site as well as established monitoring stations.

Success criteria include a minimum of 90% survivorship of planted material for a minimum of one year after installation. This includes plantings within the wetland creation and upland buffer restoration. Any plant mortality will be replaced with appropriate species to be agreed

upon with Hillsborough County and the SWFWMD. Plant coverage requirements for the created wetland creation will include a minimum 85% of desirable species, and 10% coverage in the obligate/open water area. Vegetative coverage requirements of planted and recruited desirable species include 60% for the enhanced uplands. Tree canopy coverage requirements for the constructed forested wetlands and restored uplands will be a minimum of 20%, exotic and nuisance vegetation eradication will be conducted within the entire tract; with maximum coverage limit of 5% to achieve and maintain success criteria.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Almost all of the roadway wetland impacts designated for mitigation at Ekker are in the vicinity of this mitigation project and many of the wetland impacts are associated with crossings over Bullfrog Creek and Little Bullfrog Creek. Since these two creek crossings are upstream of the Ekker Tract that is also located adjacent to Bullfrog Creek, the loss of these wetland habitats along the creek will be appropriately mitigated with habitat improvements conducted at the Ekker Tract.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, the only existing or proposed mitigation bank in the basin is the Tampa Bay Mitigation Bank (TBMB); the bank area was under construction and did not have available credits released for purchase.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The habitat improvements associated with this Ekker Tract project is a SWIM-sponsored project.

PROJECT IMPLEMENTATION

Entity responsible for construction: The project was constructed in 2010 by a private contractor working through the SWIM Section.

Entity responsible for monitoring and maintenance: Private consultant on contract through the SWFWMD

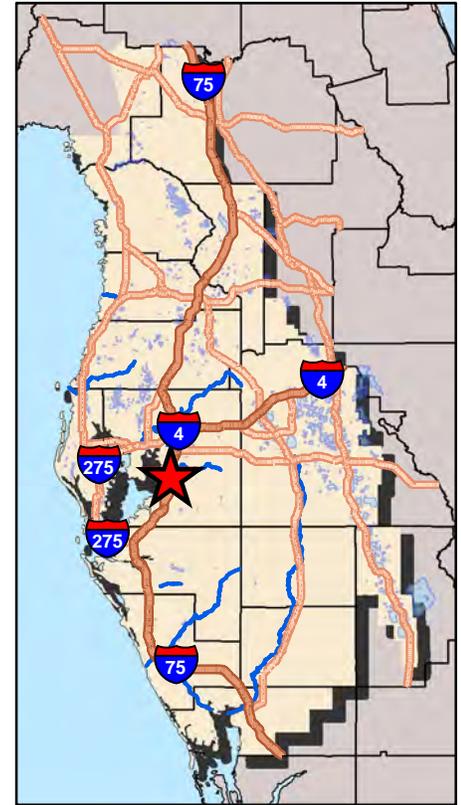
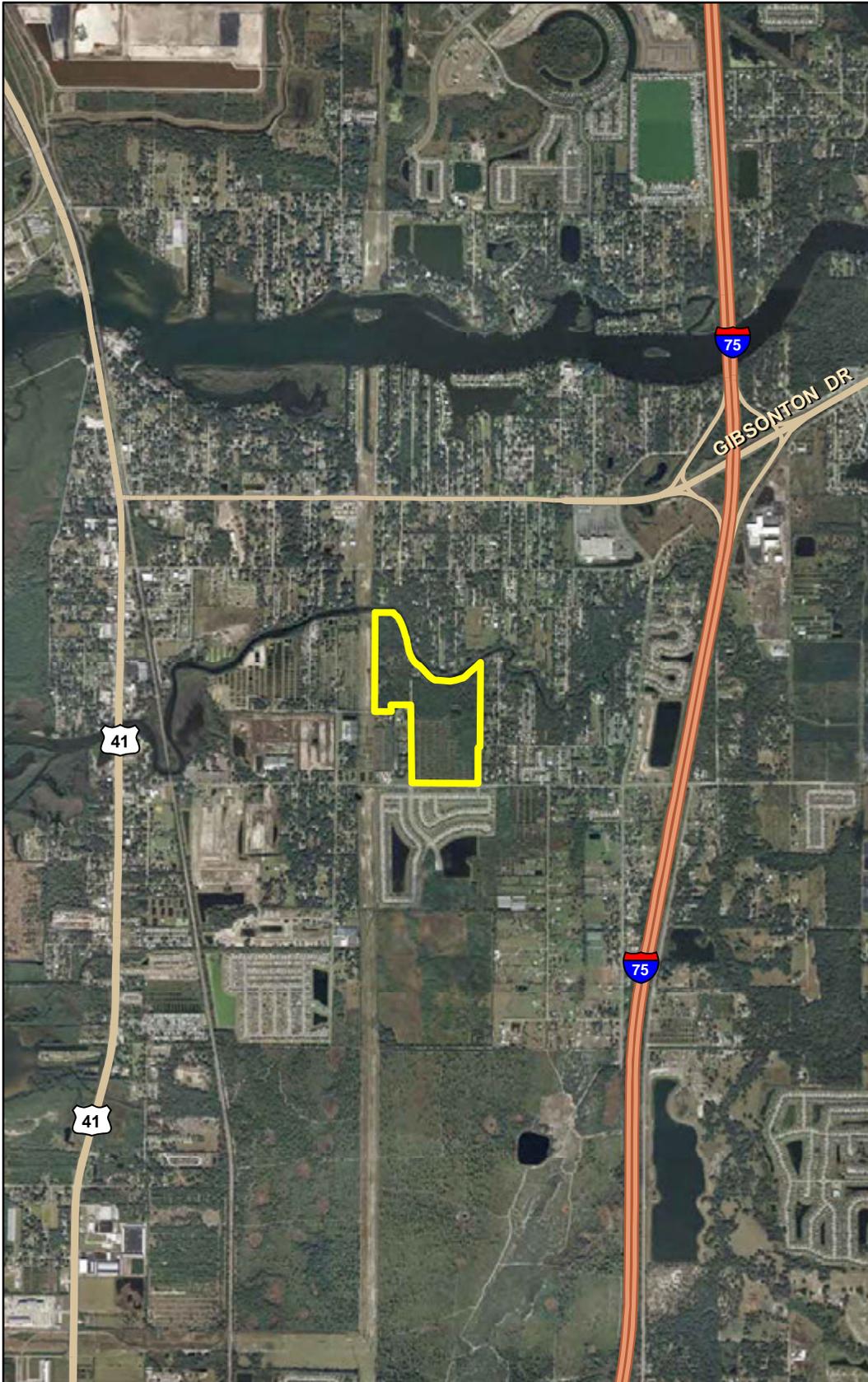
Timeframe for implementation: Commence: Site Evaluation, Hydrologic Modeling, Restoration Design & Permitting – 2005-2009; Construction& Planting – 2010; Complete: Quarterly Maintenance & Semi-Annual Monitoring – 2010 – 2015; followed by perpetual maintenance and management.

Project cost: \$827,475 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Pre-construction (2008)
3. Figure C-During-construction (2010)
4. Figure D-Conceptual Habitat Improvement Plan
4. Photographs (2012)

SW 82 - Ekker Tract Figure A - Location



Legend

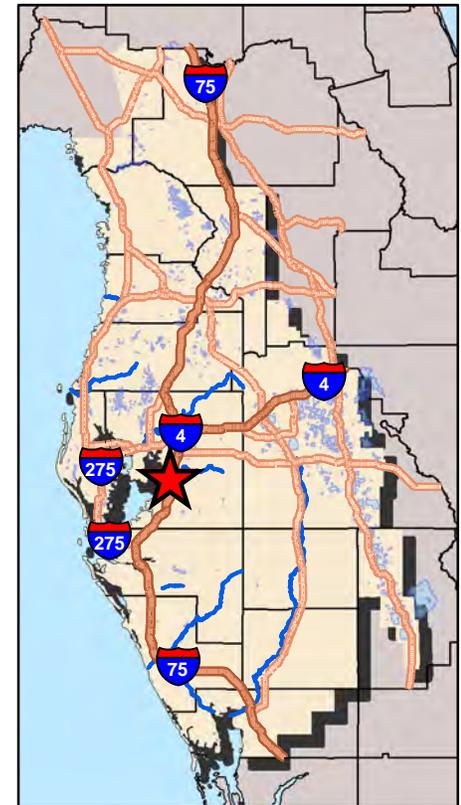
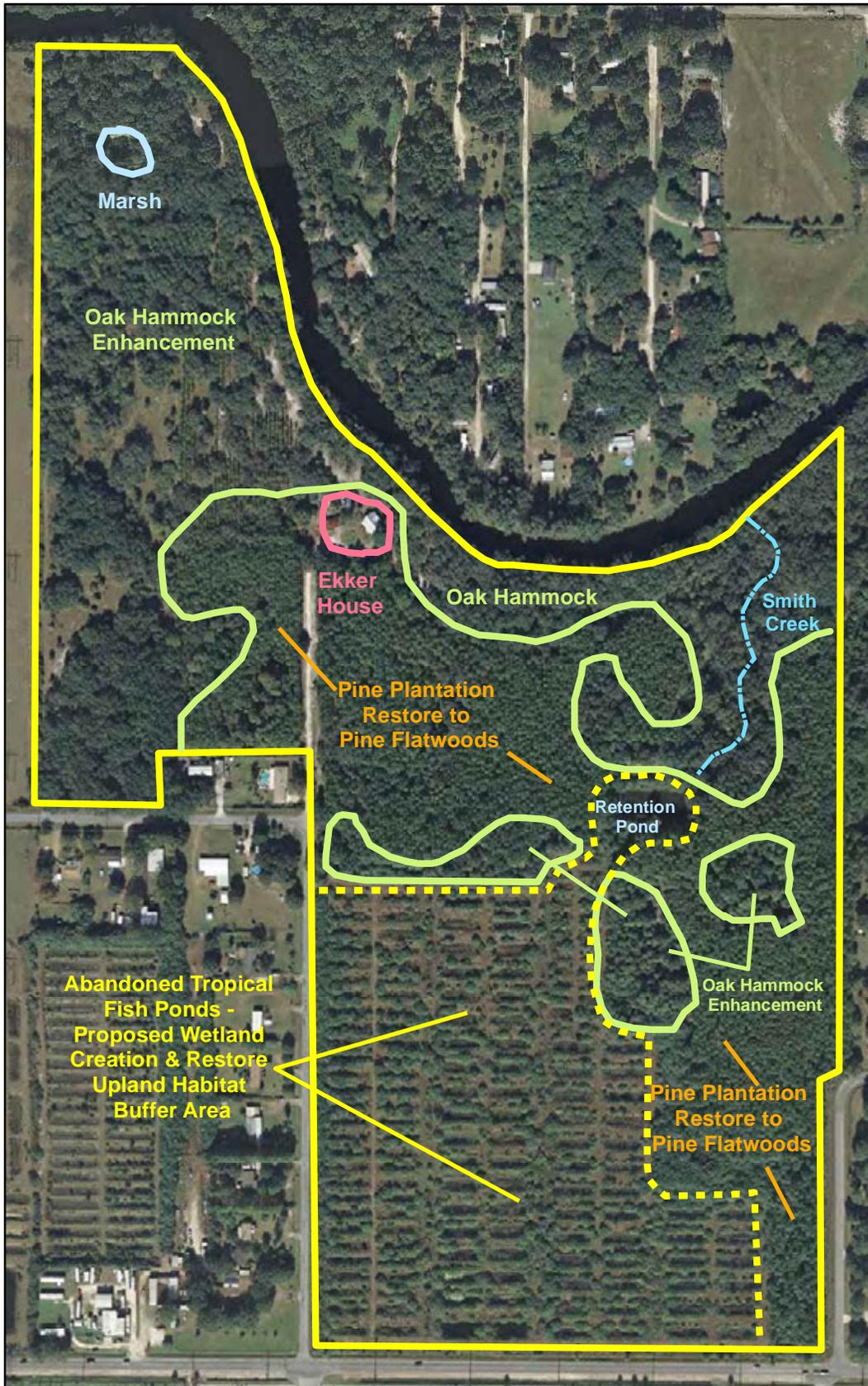
 Project Location



0 1,000 2,000 4,000 Feet

SW 82 - Ekker Tract

Figure B - Pre-Construction Habitat Conditions (2008)



Legend

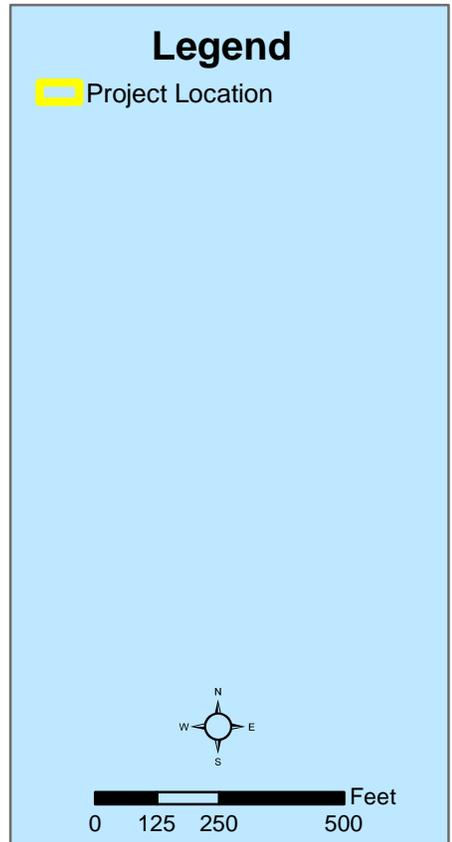
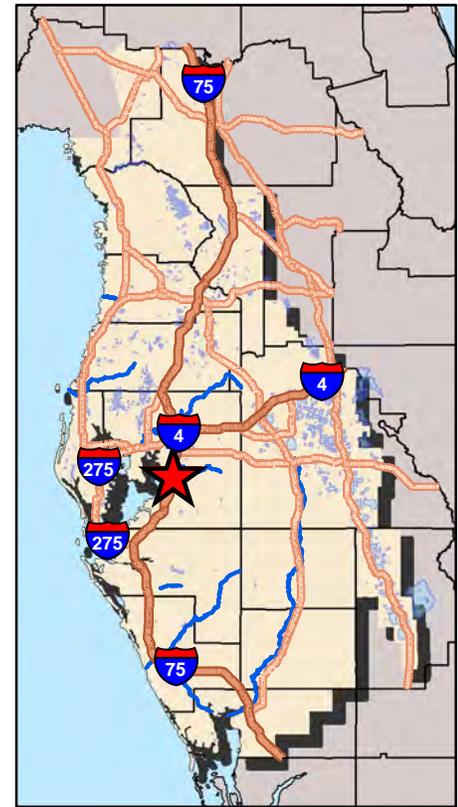
 Project Location



0 125 250 500 Feet

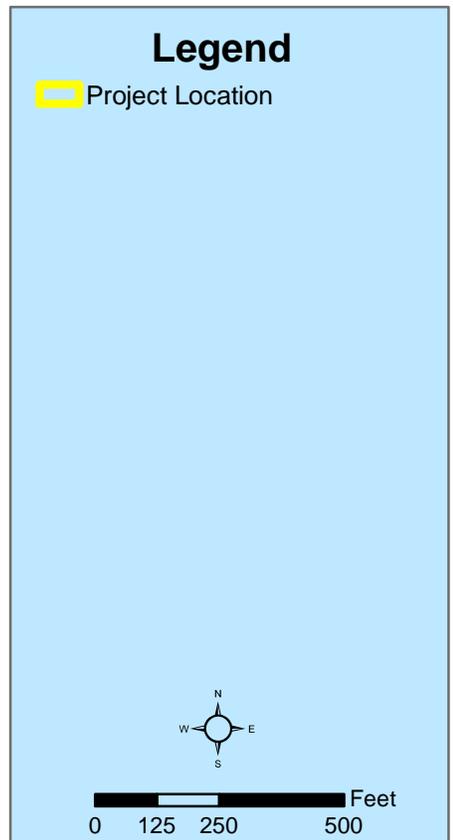
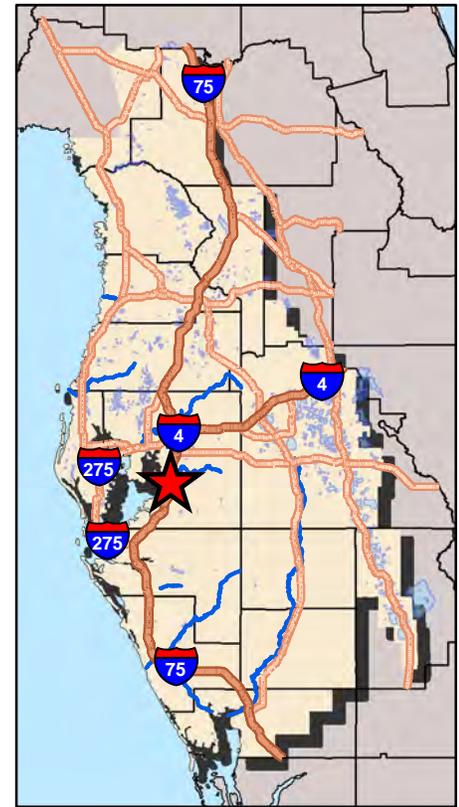
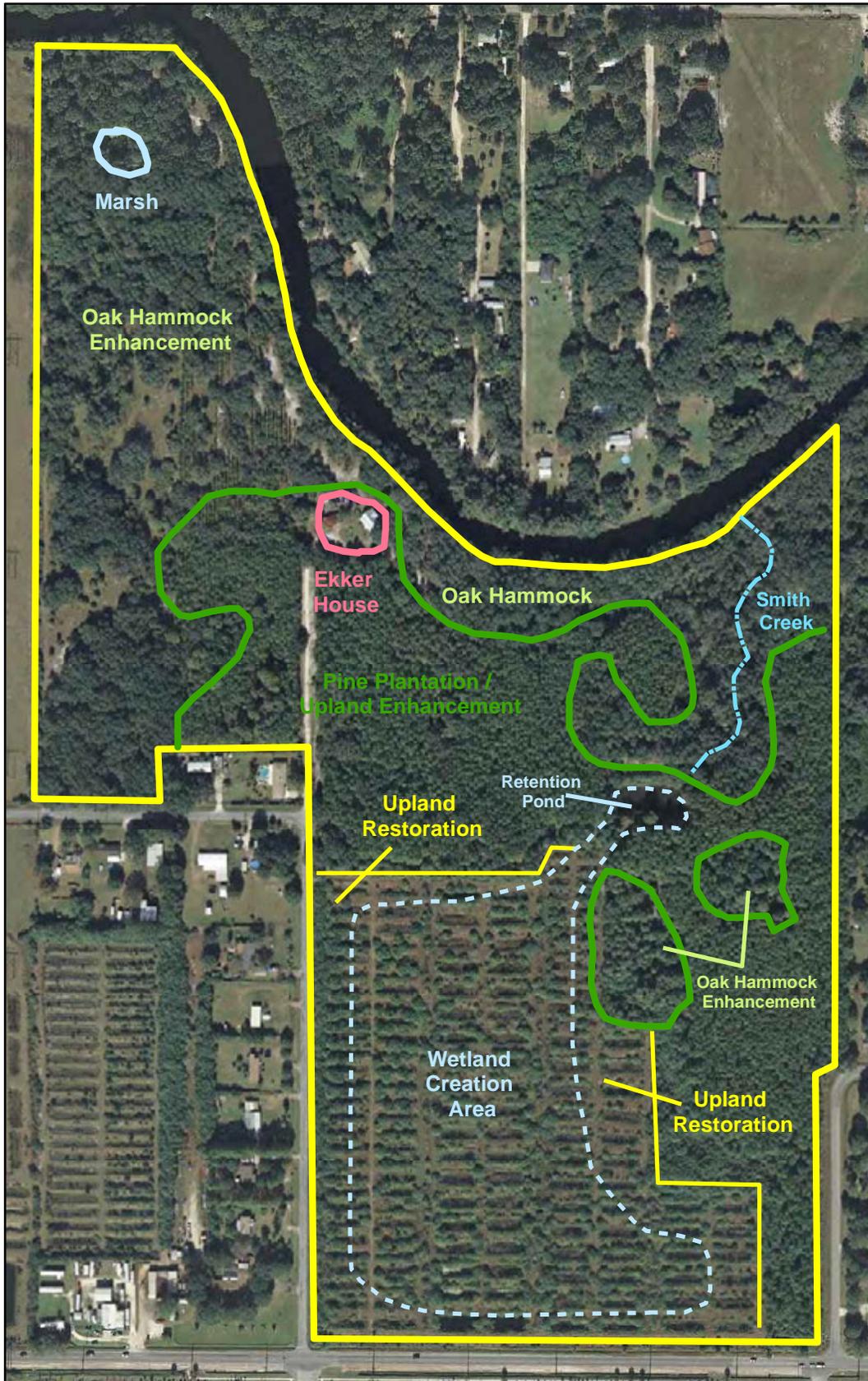
SW 82 - Ekker Tract

Figure C - During Construction Habitat Conditions (2010)



SW 82 - Ekker Tract

Figure D - Conceptual Habitat Improvement Plan





Ekker Tract: Photo shows post restoration construction of the fish ponds with newly planted littoral shelf.



Ekker Tract: Photo shows post restoration (pine reduction) in upland area.



Ekker Tract: Photo shows recontoured littoral zone of one of the fish ponds and depicts newly planted and recruited native plants.



Ekker Tract: Photo shows recontoured littoral zone of one of the fish ponds and depicts newly planted and recruited native plants.

SW-83 LITTLE MANATEE RIVER - LOWER TRACT MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Wetland and upland enhancement			
Landowner	Southwest Florida Water Management District; Hillsborough County	Management Entity	Hillsborough County	
County		Watershed	Little Manatee River	
Water bodies	Little Manatee River	Water body Designations	Outstanding Florida Water	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4154893	US 301, Sun City Center to Balm Road ¹	0.90	43034464.000	200803613

PROJECT DESCRIPTION

A. Overall project goals: The Little Manatee River – Lower Tract (LMR) was acquired by the Hillsborough County Parks, Recreation and Conservation Department and the SWFWMD, and is managed by Hillsborough Parks – Conservation Services Section. The 1,902 acre tract is bisected by Interstate-75 and the Little Manatee River meanders through the parcel. The majority of the LMR tract has high quality native habitat conditions. However, there is a 142 acre portion of previously cleared upland and wetland habitat that generated exotic species, predominantly Brazilian pepper and cogon grass. The goal is to eradicate exotics and conduct appropriate species planting to enhance approximately 137 acres of uplands and 5 acres of wetlands.

B. Brief description of pre-construction habitat conditions: Except for the designated project area, the majority of the LMR tract has high quality and diverse upland and wetland ecosystems. The upland habitats include a dominance of pine

¹ This US 301 segment proposes additional wetland impacts in the Tampa Bay Drainage Basin; mitigation is designated within the Ekker Tract (SW 82) and on-site wetland creation by FDOT.

flatwoods, with areas of sand pine scrub predominantly located along the riverbank, mixed hardwoods, and coastal hammocks located on slight ridges between meandering tributaries of the river. Wetland systems are dominated by estuarine marsh habitats bordering the river and associated tributaries, as well as scattered freshwater marshes in the flatwoods. The designated 142-acre project area was historically dominated by pine flatwood habitat prior to conversion to improved pasture in the 1980's. After cattle operations were discontinued and the LMR tract was publicly acquired, generation of native and exotic vegetation occurred in the pasture. Dominant ground cover currently consists of bahiagrass and broomsedge, with scattered pockets of cogongrass throughout. A generated shrub component includes scattered Brazilian pepper, wax myrtle, cabbage palms and longleaf pine. There are three wetlands within the designated project area. Wetland #1 (0.4 acre) is an isolated marsh with a dominance of cattails, smartweed, and maidencane. Wetland #2 (1.2 acres) has similar herb species with a transitional perimeter of wax myrtle and Brazilian pepper. The northern portion of Wetland #3 (3.2 acres) is a marsh system with similar dominant species as the other two wetlands. During extreme wet conditions, this marsh has a hydrologic connection south to the river through a shrub component of B. pepper and wax myrtle. The project area is bordered on the west by Interstate-75, north by an FDOT rest area, and the northeast by row crop areas. South and southeast of the project area is a borrow pit, high quality pine flatwoods, and sand pine scrub along the riverbank.

C. Brief description of construction activities and current habitat conditions: In 2004, there was a partial herbicide eradication of some Brazilian pepper within the western and northern portion of the project area and the dead pepper was pushed into separate piles. The activities conducted in 2007 included treatment, cutting and burning the previously untreated and re-generated B. pepper. The cogon grass in the uplands and cattails within the marshes are also being treated with herbicide. In both cases, there is adequate and appropriate native herb species that have generated to displace these exotics. However, supplemental activities will include planting longleaf pine (1-gallon size material) at sufficient distance from existing pines and cabbage palms to restore the flatwoods canopy component. Routine herbicide maintenance is conducted to control regeneration of the B. pepper, cogon grass, and cattails. As the pines reach maturity and broomsedge recruits into the cogon covered areas, a prescribed burn management schedule will be implemented for the project area. This will further enhance the habitat conditions, attracting and providing more opportunities for wildlife to access and utilize the entire LMR tract. This is particularly important since it will expand upon the native habitat corridor along the river, and restore the portion of the LMR tract that is currently not covered with appropriate habitat.

Maintenance activities are anticipated for a minimum three years and until success criteria is met. These activities include herbicide treatments as necessary of Brazilian pepper, cogon grass, cattails and any other generated exotic and nuisance species. Herbicide treatments are expected on a minimum semi-annual schedule and are conducted under the supervision of a licensed herbicide applicator working under the

management of the Hillsborough County Conservation Section. It is envisioned that the same long-term land management activities of the remaining LMR tract will be adopted in the project area, particularly implementation of a prescribed burn program on 3-5 year rotation cycles, and any supplemental pine planting necessary to provide appropriate coverage.

Monitoring is annually conducted by the SWFWMD; includes qualitative assessment and photo documentation of vegetative conditions, wildlife activities, wetland hydrology and hydroperiods, and any miscellaneous activities such as land management and herbicide maintenance. Success criteria vary and are dependent on the habitat areas. Herb cover for the wetlands will include 80% cover of desirable species and less than 5% cover of exotic and nuisance species. For the enhanced uplands, success criteria includes achieving less than 5% coverage of exotic and nuisance species, greater than 90% survivorship of planted material, and site conditions must be maintained to allow implementation of a prescribed fire program.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): There are very few state roadways located within the small Little Manatee River basin, and the US 301 segment is the first project since the inception of the FDOT mitigation program in 1996 that has any proposed wetland impacts in the basin. The anticipated minor marsh impacts (0.9-acre) are low quality and appropriately mitigated at the LMR tract years in advance of the anticipated roadway construction (late, 2014).

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the mitigation selection during 2006, there were no existing or proposed mitigation banks in the Little Manatee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: This mitigation project was within SWIM's Five-Year Habitat Restoration Plan.

PROJECT IMPLEMENTATION

Entity responsible for construction: Independent maintenance contractor working for the Hillsborough Co. Parks Dept.

Entity responsible for monitoring and maintenance: Private maintenance contractors working for Hillsborough Conservation, periodic monitoring conducted by SWFWMD.

Timeframe for implementation: Summer – Winter, 2007-Initial Herbicide Eradication & B. Pepper Burning; Winter, 2007 – Winter, 2010-Additional herbicide treatments; Summer, 2010-Supplemental pine plantings

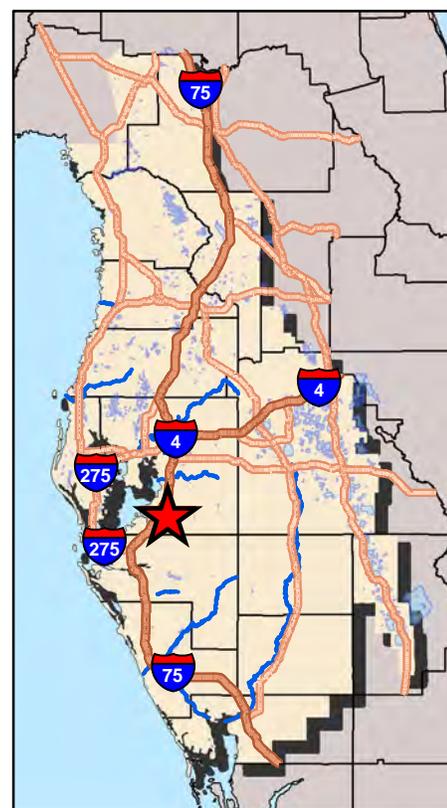
Project cost: \$86,300 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Habitat Enhancement Plan
3. Photographs (2003, 2004)

SW 83 - Little Manatee River - Lower Tract

Figure A - Location



Legend

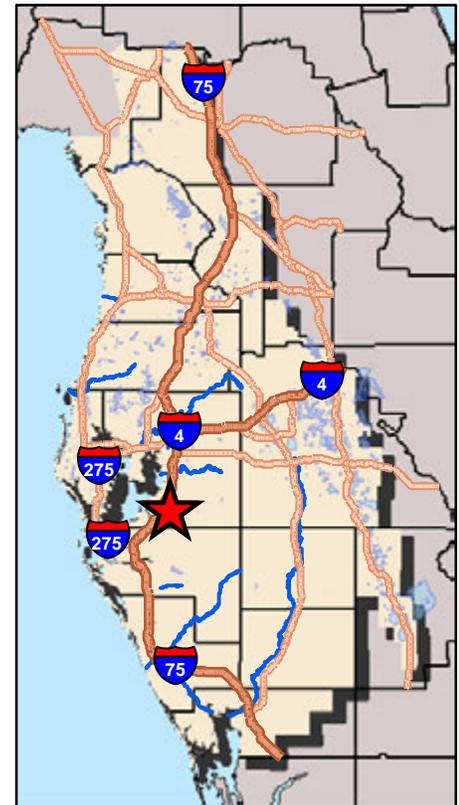
 Project Location



0 0.25 0.5 1 Miles

SW 83 - Little Manatee River - Lower Tract

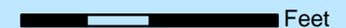
Figure B - Habitat Enhancement Plan



Legend

 Project Location



 Feet
0 205 410 820



North Tract (2003) – pre-construction view looking south over Ulmerton Road (foreground). The dark green forested areas adjacent to Franklin Templeton building (lower right) are predominantly dense stands of Melaleuca and Brazilian pepper. Remaining portion to I-275 (middle) is mangrove habitat.



North Tract (2004) - same view just after completion of earthwork to construct tidal channels, lagoons, and salt-marsh habitat. White spots within the mangroves are locations where B. pepper was eradicated and the mosquito ditch spoil mounds were displaced by using the hydro-blast method.



South Tract (2003) – pre-construction view looking north over 9th Street (right) and I-275 (middle). The dark green forested areas adjacent to apartment buildings (lower left) are dense stands of Melaleuca and Brazilian pepper.



South Tract (2004) - same view after completion of earthwork to construct inter-tidal channels, lagoons, salt-marsh habitat, and enhance remnant flatwood habitat (far left).

SW-84 COLT CREEK STATE PARK MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland preservation, restoration, enhancement			
Landowner	Southwest Florida Water Management District; Board of Trustees of the Internal Improvement Trust Fund	Management Entity	Florida Department of Environmental Protection	
County	Polk	Watershed	Hillsborough River, Withlacoochee River	
Water bodies	Withlacoochee River, Gator Creek, Colt Creek	Water body Designations		

IMPACT INFORMATION-Withlacoochee River

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2426262	I-75 Hernando Co. Line to SR 470	Combined with 246263		
2426263	I-75 Hernando Co. Line to Turnpike	10.82	43033330.001	
4110112	I-75 (SR 93) FROM PASCO/HERNANDO CO/L TO US98/N SR50/CORTEZ BVD (Design-Build)	7.96		
4110122	I-75 SR 50 to Hernando/Sumter CL	0.01	44033330.002	SAJ-2011-3376 (NW-GGL)
4110142	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L ¹ (design-build)	3.17		

¹ This project has wetland impacts in the Hillsborough, Upper Coastal, and Withlacoochee basins. Mitigation for impacts in the Withlacoochee basin will be provided at Colt Creek. Impacts in the Upper Coastal are mitigated at the Upper Coastal Mitigation Bank and Conner Preserve while impacts in the Hillsborough basin are mitigated at Conner Preserve.

4245241	SR 50 Bridge Removal over Van Fleet Trail	0.50		
4271651	US 301/98 (SR 35/700) Pioneer Museum Rd. to Mosstown Rd.	0.20		

IMPACT INFORMATION-Hillsborough River

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2555851	SR 39 (Alexander St) I-4 to Knights Griffin Rd.	14.20	43034467.007	200904064 (IP-JPF)
2578622	Park Road I-4 (SR 400) to Sam Allen Rd.	0.81	44029780.001	200701606 (IP-JPF)
4079441	I-75 Northbound Rest Area	1.20	43033020.007	200904372 (IP-JPF)
4079442	I-75 Southbound Rest Area	1.00	43034467.007	200904064 (IP-JPF)
4084592	I-75 Fowler Avenue to CR 581	23.79	43021639.006	200704495 (IP-GGL)
4084593	I-75 - CR 581 (BB Downs) to SR 56 (Mainline)	16.10	43033020.004	200803059 (IP-JPF)
4084594	I-75 SR 56 to S of CR 54	11.90	43033030.008	201000468 (IP-JPF)
4089321	SR 39 @ Hillsborough River	1.70	43033500.001	200800211 (NW-JPF)
4113371	US 92 - Eureka Springs to Thonotasassa Rd. ²	1.65	43031172.000	200600602 (JPF)
4165611	SR 54 I-75 to US 301	UNK		
4218311	I-75 - CR 581 (BB Downs) to SR 56 ("Waddah Ramps")	30.70	430330200.002	200801707 (IP-JPF)
4218314	I-75 S of CR 54 to N of CR 56	17.34	43033020.002	200704508
4271591	US 92 (SR 580/600) Benjamin Rd. to Westshore Blvd.	0.20		

² This project has additional wetland impacts in the Tampa Bay Drainage Basin. The designated mitigation for these impacts includes habitat creation and enhancement at the Ekker Tract (SW 81).

PROJECT DESCRIPTION

A. Overall project goals: This mitigation project is located within the region referred to as the Green Swamp (Area of Critical State Concern). The Green Swamp is considered a unique and critical natural resource asset with statewide significance. The water-related resource values of the Green Swamp have made this region one of the highest priority areas for protection through public acquisition by the State and the SWFWMD. The Green Swamp contains the headwaters of three major rivers: the Hillsborough, Withlacoochee and Ocklawaha and public ownership and conservation easements of large tracts of land serve to protect the important upstream reaches of the Hillsborough and Withlacoochee Rivers and the volume of freshwater which they contribute to Tampa Bay, Withlacoochee Bay, Tsala Apopka Lake and many other downstream natural systems and habitats.

This mitigation project will be conducted on two parcels, the Colt Creek State Park and the Fussell Tract. The Colt Creek State Park, a high priority land acquisition for over 30 years, was jointly acquired from the Overstreet family by the SWFWMD, FDEP, and Polk County in June, 2006. The Fussell Tract, adjacent to the Colt Creek State Park, was purchased by the Southwest Florida Water Management District using the Water Management Lands Trust Fund. Together these tracts present wetland habitat preservation, restoration and enhancement opportunities that may be used as mitigation in the Hillsborough River and Withlacoochee River watersheds. This project compliments two other FDOT mitigation projects in the vicinity. SW 59-Hampton Tract is located immediately to the east of this mitigation project and SW 64-Withlacoochee State Forest-Baird Tract is located north of this mitigation project.

B. Brief description of pre-construction habitat conditions: Even though the parcels that comprise this mitigation project provide important ecological value for the region, there have been activities conducted over the years that substantially alter the natural character of these properties. In particular, an extensive network of large and small ditches has altered the hydraulic and hydrologic features and conveyances within the properties, as well adjacent public and private lands. Many upland habitat communities and some wetland areas are sufficiently drained to be converted to improved pasture. In the remaining native upland habitats regular prescribed burn cycles are eliminated. As a result, pines (*Pinus elliottii*) and hardwoods such as live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), and red maple (*Acer rubrum*) have recruited and generated in what was formally pine flatwoods. Ditching has drained and short-circuited drainage patterns of the wetlands such that minimal water depth and duration have allowed facultative vegetative species to recruit into wetlands that were historically vegetated by obligate species and replace canopy once dominated by bald cypress (*Taxodium distichum*).

Additionally, on the property that is now the Colt Creek State Park, a 750 lot residential development was proposed by the previous owners, the Overstreet family. However, after extensive negotiations with resource agencies, the family agreed to sell the tract fee simple into public ownership. The \$54.5 million acquisition was funded by the SWFWMD (\$24.3 million),

FDEP (\$24.3 million), and Polk County (\$5 million) and the property is jointly owned by the SWFWMD and the Board of Trustees of the Internal Improvement Trust Fund. The purchase of portion of the tract within the Hillsborough River basin was funded (\$7.5 million) by the FDOT mitigation program.

C. Brief description of construction activities and current habitat conditions:

Wetland Preservation

Because the FDOT program funded the acquisition in the Hillsborough Basin, preservation is designated for the associated upland and wetland habitats. This purchase was expected to provide the FDOT with mitigation credit from both wetland and upland preservation. However, soon after this purchase, the Army Corps of Engineers no longer recognized upland preservation as a separate form of mitigation. The upland preservation achieved with this purchase is considered in the evaluations completed for wetland restoration and enhancement described below.

Also since this purchase, the Florida Department of Environmental Protection (FDEP) guidance has changed regarding the application of the Florida Uniform Mitigation Assessment Method (62-345, Florida Administrative Code) to wetland preservation. In a guidance memo dated June 15, 2011, the FDEP directs that when preservation is combined with enhancement or restoration, the preservation element is no longer evaluated separately. This leaves one wetland preservation area, which is a cypress dome that has not been directly altered by ditching and draining. This wetland is dominated by cypress with dense coverage of maple and laurel oak along the perimeter. The preservation mitigation value is associated with ensuring that impacts associated with residential developments do not occur. Preservation and proper management of adjacent upland habitat buffers this wetland.

Wetland Restoration and Enhancement

There are two former wetland areas that were converted to pasture. One area will be restored as a freshwater marsh and the other restored as a floodplain forest and swamp. Wetland hydrology in these areas is re-established either through re-grading or the construction of water control structures. Both of these areas will be replanted. Herb species planted in the freshwater marsh restoration area will include soft rush (*Juncus effusus*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), spikerush (*Eleocharis interstincta*), sand cordgrass (*Spartina bakeri*). Trees and shrubs planted in the forested restoration area include laurel oak (*Quercus laurifolia*), bald cypress (*Taxodium distichum*), red maple (*Acer rubrum*), tupelo (*Nyssa sylvatica* var. *biflora*), and popash (*Fraxinus caroliniana*), wax myrtle (*Myrica cerifera*) and buttonbush (*Cephalanthus occidentalis*).

Wetland Enhancement

With strategically located culverts, berm modifications and ditch blocks to wetland hydrology will be restored and wetland enhancement will result by reversing the effects of the decades of altered wetland hydrologic functions. Principally, mortality of inappropriate vegetative species and regeneration of desirable hydrophytic species will result with the loss of laurel oaks and pines within the wetland cores and live oaks in the outer facultative zones. The mortality of pines and oaks will be more rapid since they cannot sustain long periods of inundation, thus

providing conditions for the generation of cypress saplings and appropriate understory species that have had limited opportunities for recruitment, generation and growth due to extensive shading and insufficient hydrology. However, other hardwood species that can endure longer hydroperiods will still be present and provide diversity and cover (i.e. red maple). In addition to the increase in appropriate vegetative species within the canopy, sub-canopy, and ground cover, the restored hydroperiods will provide more nesting, denning and foraging opportunities for wildlife species that utilize wetlands for portions of their life cycles. Dead trees will be allowed to decay in place, providing snags and niches for wildlife use.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The largest percentage of the anticipated wetland impacts in the Hillsborough basin include approximately 30 acres of forested wetland habitats associated with widening Interstate-75 in northern Hillsborough and Pasco Counties. The majority of the proposed mitigation activities will consist of wetland preservation, restoration and enhancement in the Hillsborough River. The wetland habitat improvements will be buffered by upland habitat enhancement, restoration and appropriate management to provide an interdependent mosaic of habitats critical to support wetland-dependent wildlife species. Since both tracts are predominantly bordered by over 260,000 acres of public lands that also have native habitats being enhanced, restored and appropriately managed, there is even more ecological value associated with this selected mitigation project.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the time of mitigation selection of the listed roadway projects, there were no established or proposed mitigation banks within the Hillsborough or Withlacoochee River Basins.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: During the mitigation selection period, there were no new SWIM-associated projects proposed in the Hillsborough or Withlacoochee basins.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractors selected by the SWFWMD

Entity responsible for monitoring and maintenance: Private contractor selected by the SWFWMD will conduct monitoring and maintenance. Land management activities will be coordinated between the SWFWMD and FDEP.

Proposed timeframe for implementation:

Phase I-Wetland Preservation

Land Acquisition-June, 2006

Phase II -Wetland Creation and Restoration

Construction & Planting-2010-2013

Maintenance & Monitoring-2012-2018
Phase III - Wetland Enhancement
Design & Permitting, 2013
Construction, Colt Creek-2013-2014
Construction, Fussell Tract-2014-2015
Maintenance & Monitoring-2013-2018

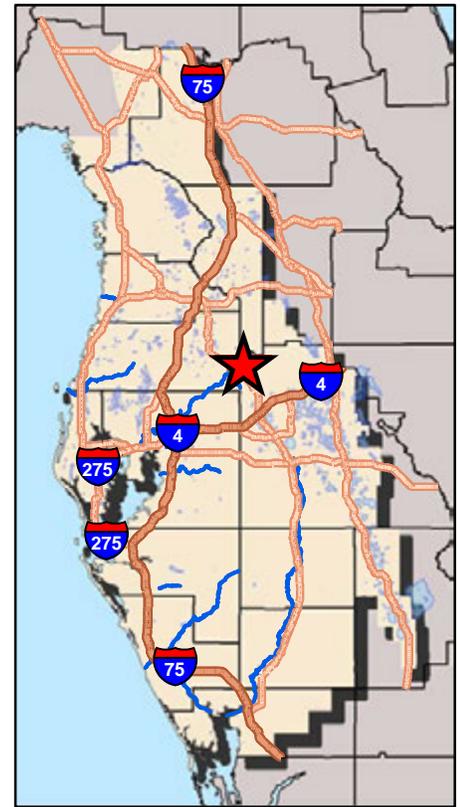
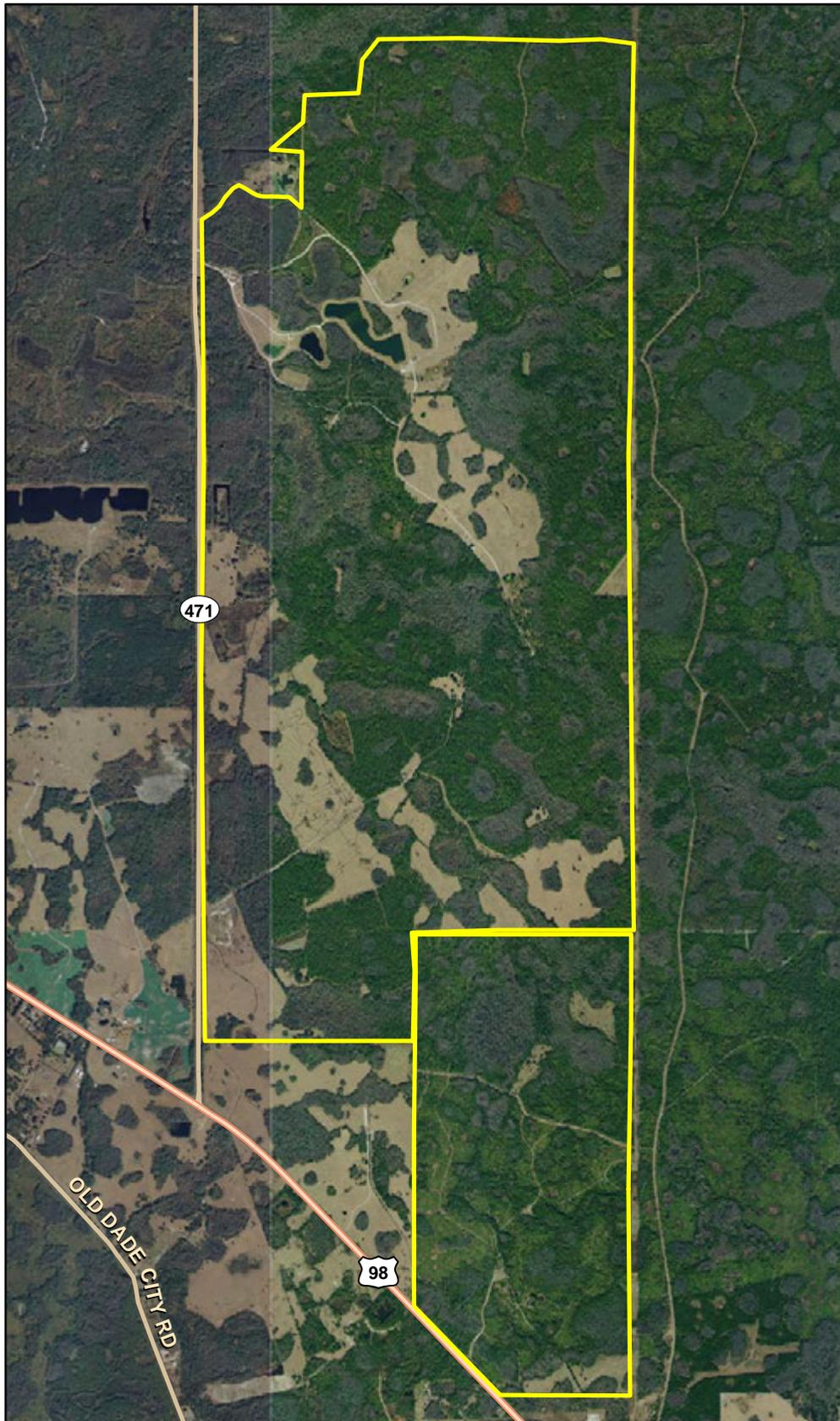
Project cost, estimated: \$9.9 million (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Wetland Preservation Areas
3. Figure C-Marsh Restoration Area
4. Figure D-Floodplain Forest-Swamp Enhancement-Restoration Area
5. Figure E-Wetland Enhancement Areas (1 of 2)
6. Figure F-Wetland Enhancement Areas (2 of 2)
7. Photographs (2012)

SW-84 Colt Creek State Park

Figure A - Location



Legend

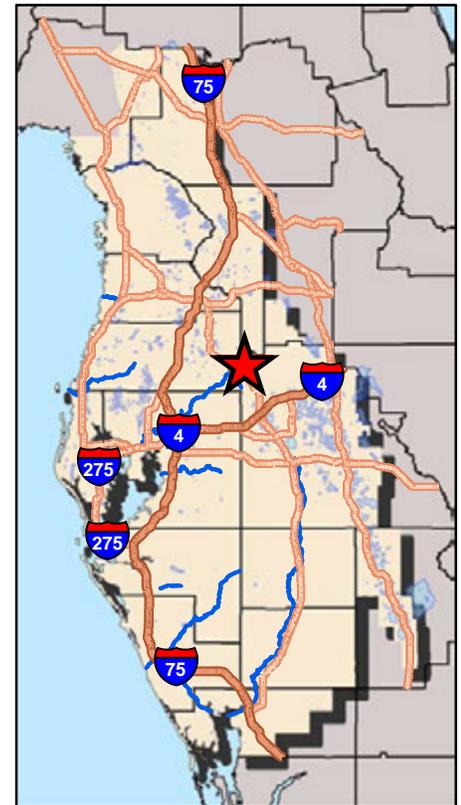
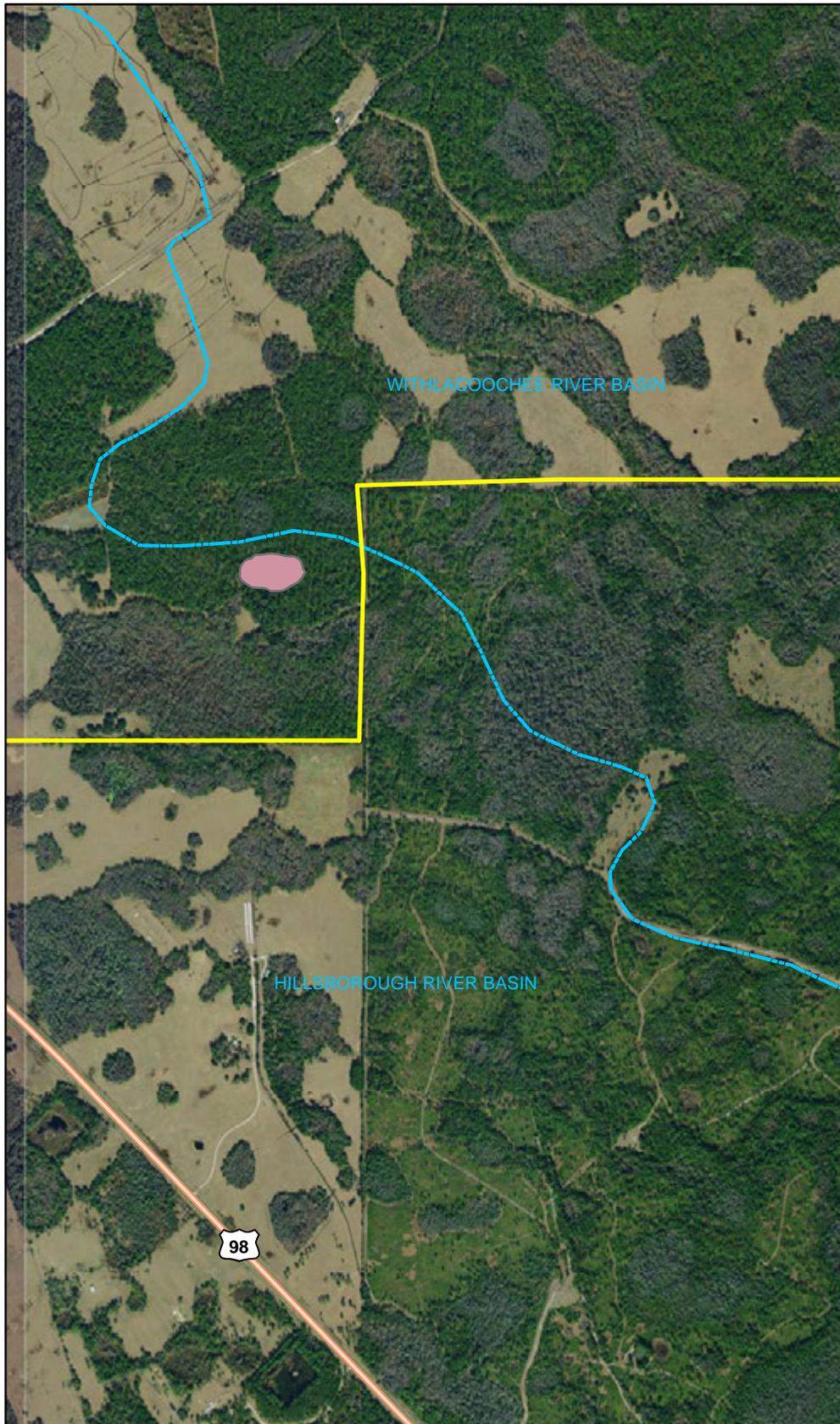
 Project Location



0 0.25 0.5 1 Miles

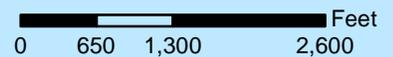
SW-84 Colt Creek State Park

Figure B - Wetland Preservation Area

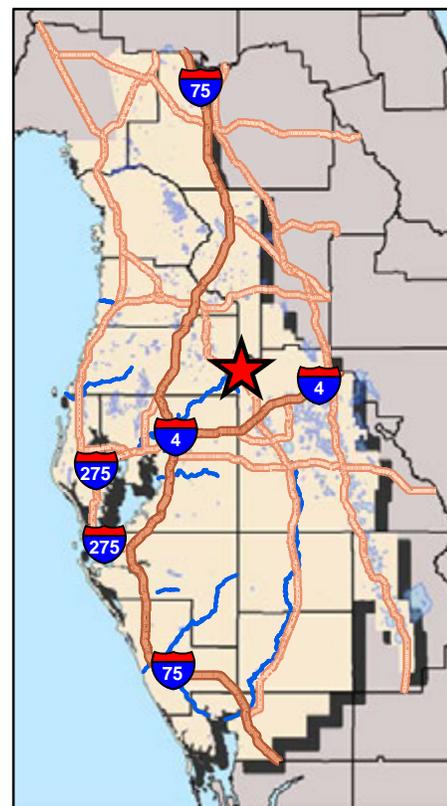


Legend

-  Dome Swamp Preserves
-  ERP Watershed Boundary
-  Colt Creek Boundary



SW-84 Colt Creek State Park Figure C - Marsh Restoration Area



Legend

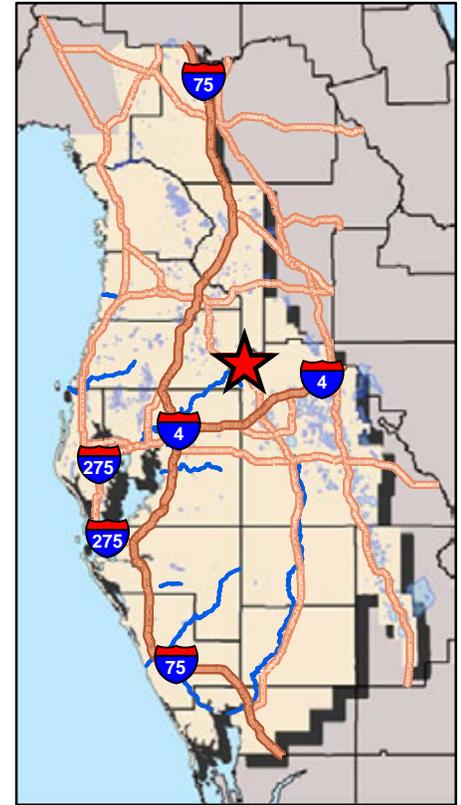
-  Project Location
-  Restoration



0 500 1,000 2,000 Feet

SW-84 Colt Creek State Park

Figure D - Floodplain Forest - Swamp Enhancement/Restoration Area



Legend

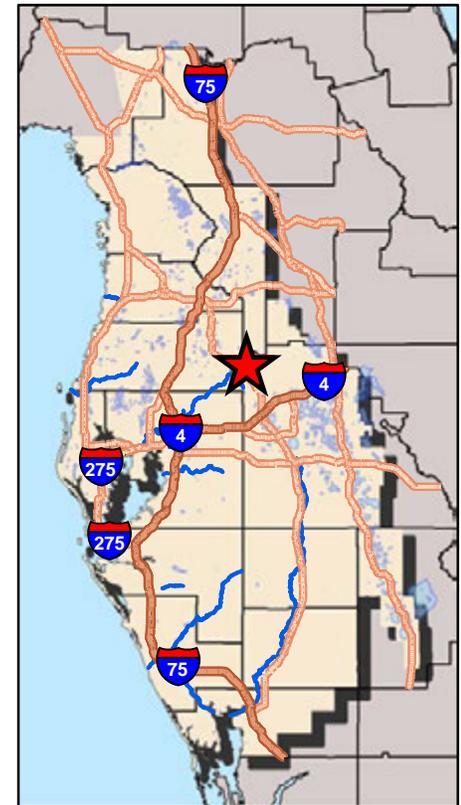
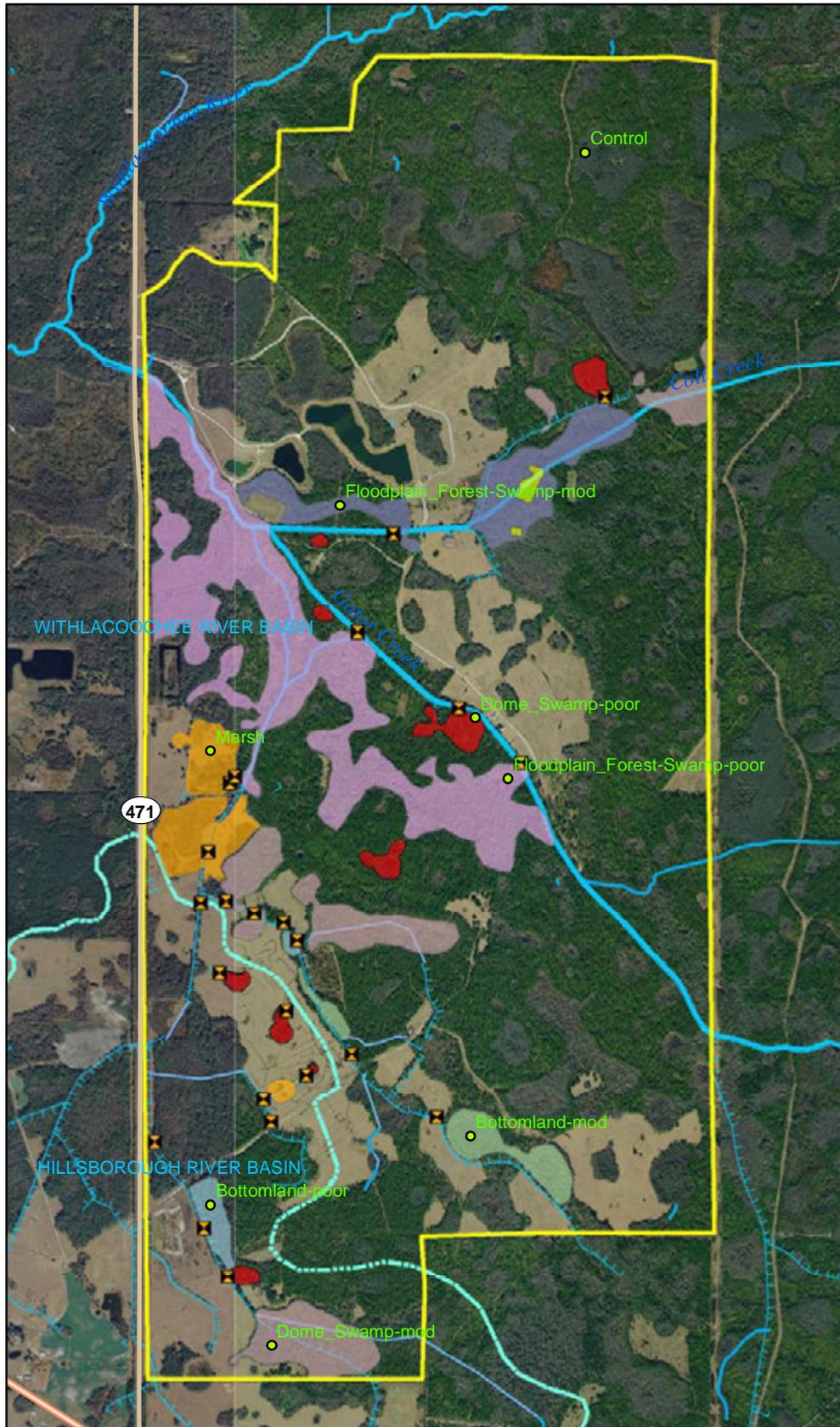
-  Project Location
-  Enhancement
-  Restoration



0 375 750 1,500 Feet

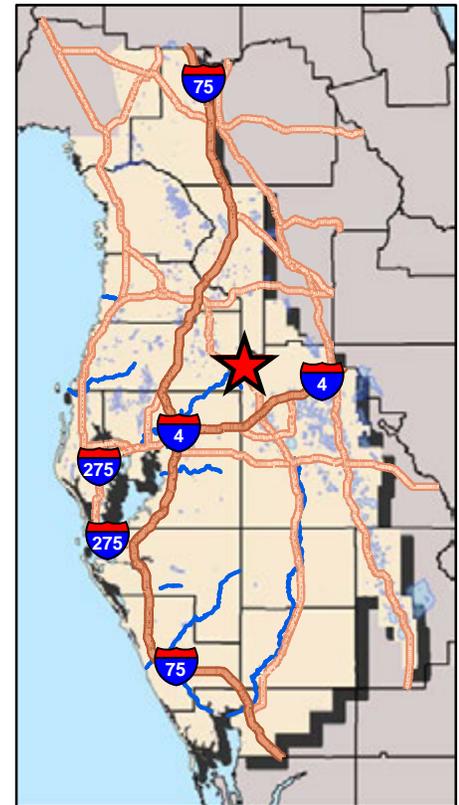
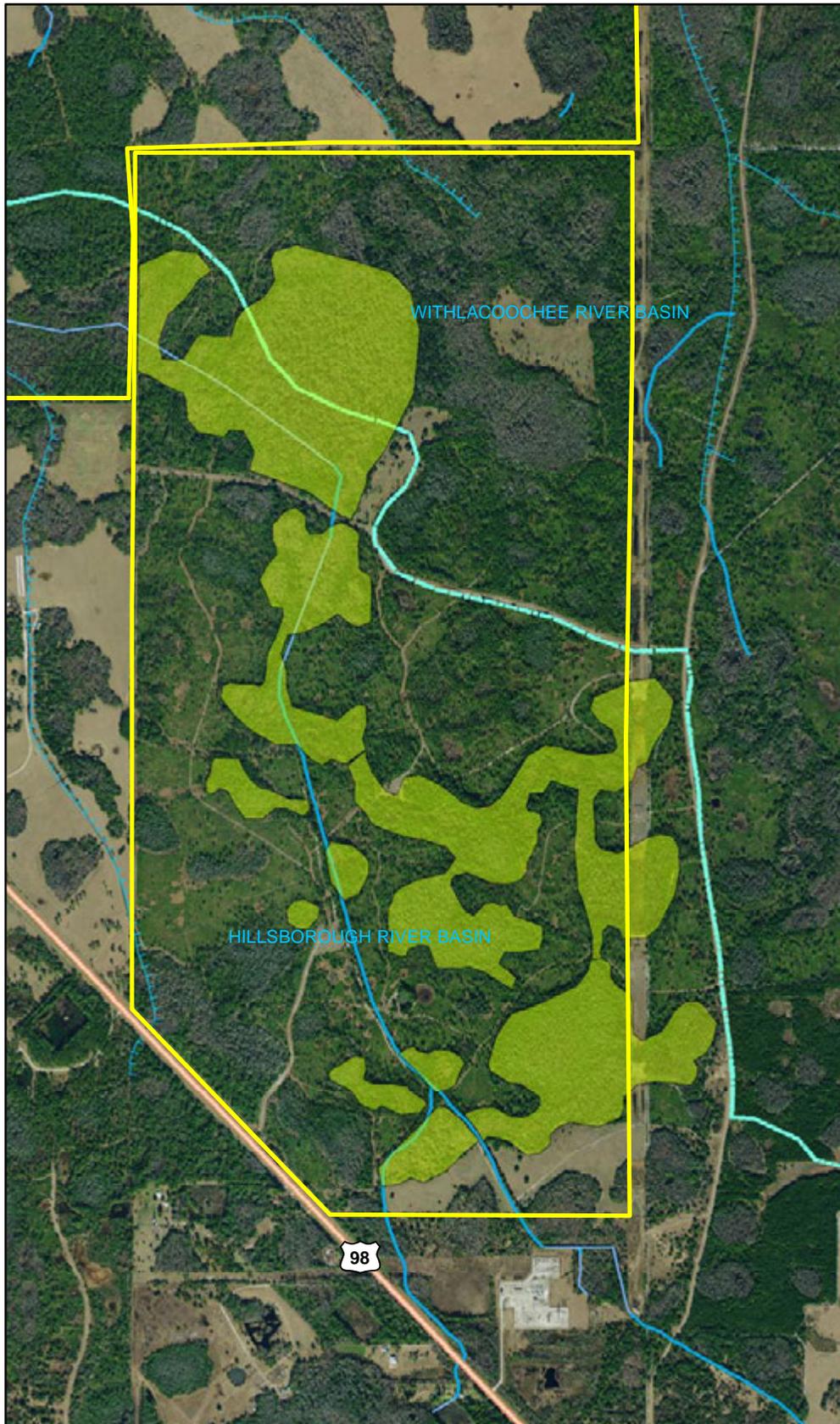
SW 84 Colt Creek State Park

Figure E - Wetland Enhancement Areas 1 of 2



SW 84 Colt Creek State Park

Figure F - Wetland Enhancement Areas 2 of 2



Legend

- Colt Creek Boundary
- Wetland Hardwood Forest
- ERP Watershed Boundary





Colt Creek State Park showing elevated tram road/berm with forested wetland in the background.



Colt Creek State Park showing central forested wetland with nuisance terrestrial plant encroachment.



Colt Creek State Park showing inundated mitigation area following installation of water control structure.



Colt Creek State Park showing inundated emergent wetland creation area prior to plant installation.

SW-85 PEACE RIVER MITIGATION BANK¹ MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	Yes
Mitigation Type	Mitigation Bank			
Landowner	Private		Management Entity	Private
County	Hardee		Watershed	Peace River
Water bodies	Peace River		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
4154901	US 17 Charlotte C.L. to SW Collins ²	2.23	43013044.006	200704765 (IP-JF)

PROJECT DESCRIPTION

A. Overall project goals: The Peace River Mitigation Bank (PRMB) is located within a regionally significant and critical habitat and wildlife corridor along the Peace River in Hardee County. The tract has been targeted for public land acquisition through the Florida Forever program. The primary goal includes the preservation and enhancement of ecologically significant forested wetland and forested upland habitat along the core of the targeted riverine corridor.

B. Brief description of pre-construction habitat conditions: The PRMB (total 487 acres) is bisected by the Peace River with almost 2 miles of river frontage along the eastern portion. The majority of the tract (369 acres) has high quality mixed forested wetlands (FLUCFCS #617). The varied topography within the expansive riverine forested wetlands creates a variety of micro-habitats including cypress bogs, bay swamps, and bottomland hardwood forests. The dominant canopy coverage is provided by bald cypress, pond cypress,

¹ ERP# 43029983, ACOE # SAJ 2006-4057

² This US 17 segment also has non-forested wetland impacts mitigated by purchasing marsh credits from the Boran Ranch Mitigation Bank (SW 53) located in DeSoto County.

sweetbay, swamp tupelo, red maple, sweetgum, cabbage palm, water oak, and Carolina willow. The understory is sparse but contains a variety of herbaceous and shrubby species, including netted chain fern, cinnamon fern, lizard's-tail, hatpin, yellow-eyed grass, saw palmetto, cabbage palm seedlings, wax myrtle and elderberry. The remaining portion of the tract (118 acres) is upland habitat characterized as coniferous-hardwood mix (FLUCFCS #434). The vegetative composition is dominated by a mix of slash pine, sweetgum, a variety of oak species, and cabbage palm. The majority of the upland areas have moderate to significant vine coverage, including grapevine, blackberry, poison ivy, Virginia creeper and greenbrier. Other species frequently present in the uplands include dogfennel, ragweed, wax myrtle, winged sumac, and saltbush.

C. Brief description of construction activities and current habitat conditions: The primary goal of the PRMB is the preservation and enhancement of the habitat conditions by conveying a conservation easement over the site, restricting site use and access, installing strategic fencing and signage, removing existing nuisance and exotic vegetation, reducing brush levels in uplands, and applying habitat land management techniques to the site through the implementation of a funded long-term management plan. The conservation easement will prevent future likely uses of the land that would have been ecologically detrimental, such as silviculture, cattle ranching, and/or residential development of the upland parcels. Even without these stresses on vegetative structure, species composition, and water quality, the site would further degrade without active management. Highly invasive species such as primrose willow, cogon grass, and Japanese climbing fern have been identified on site. The management plan recorded with the easement will prevent current exotic vegetative populations from expanding, and re-introduce a natural prescribed fire regime back into upland habitats to increase vegetative diversity and reduce shrub coverage. Monitoring and success criteria for habitat enhancement are specified in the WMD & ACOE permits issued for the PRMB.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The wetland impacts designated for mitigation at PRMB include forested wetlands within the Peace River watershed. The non-forested wetland impacts associated with the roadway project is mitigated through purchasing credits of non-forested wetland habitat at the Boran Ranch Mitigation Bank in DeSoto County. Both banks have habitat conditions that adequately and appropriately compensate for the proposed wetland impacts.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The PRMB is a mitigation bank in the Peace River basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time during mitigation selection, there were no SWIM projects planned in the Peace River basin that would appropriately compensate for the proposed wetland impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: Peace River Mitigation Bank

Entity responsible for monitoring and maintenance: EarthBalance, Corporation

Proposed timeframe for implementation: Commence: Design & Permitting: 2005-2006

Complete: No construction required, routine land management, maintenance & monitoring

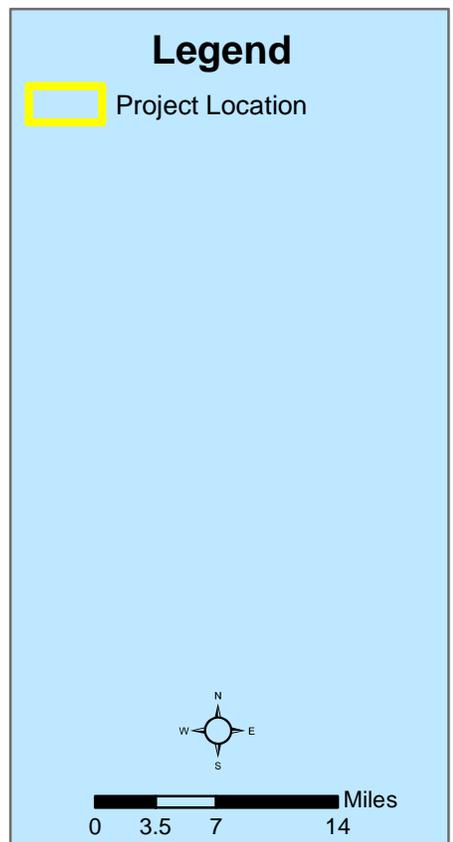
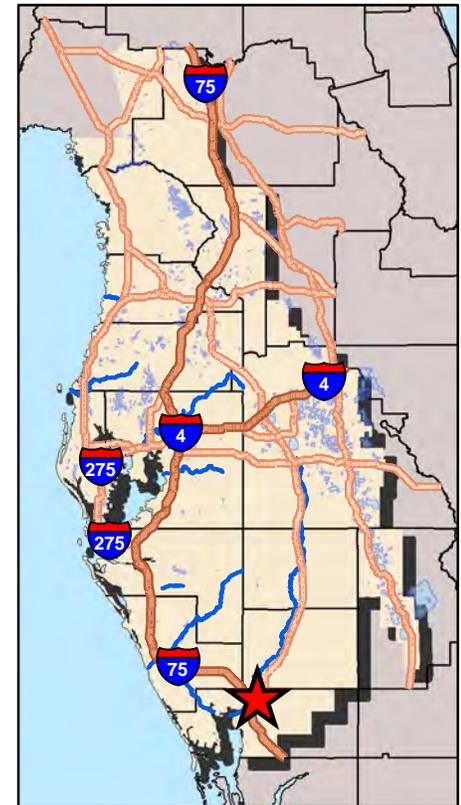
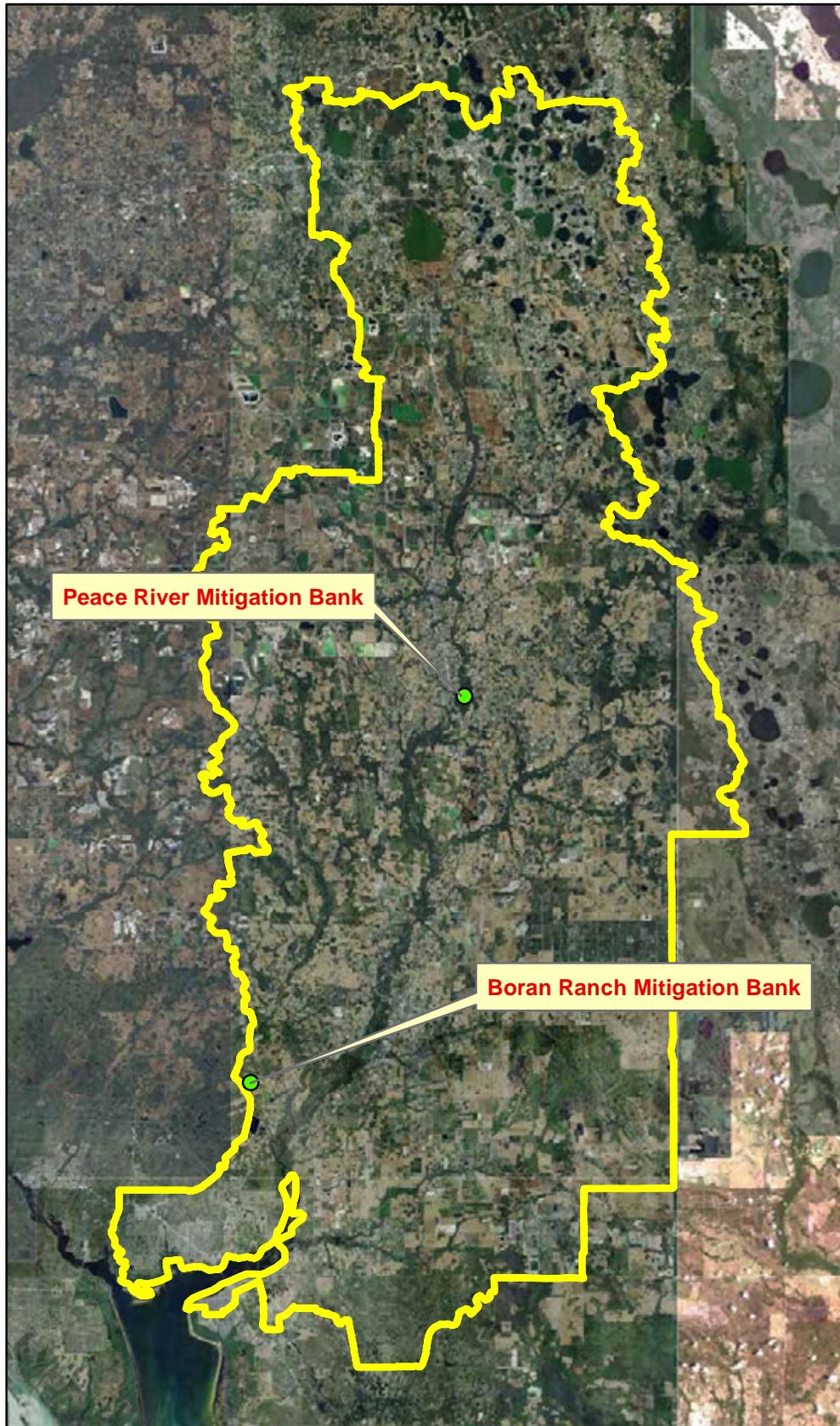
Project Cost, credit purchase: \$163,300 (total)

ATTACHMENTS

1. Figure A-Location

SW 85 - Peace River Mitigation Bank

Figure A - Location



SW-86 MOBBLY BAYOU WILDERNESS PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Wetland restoration and enhancement			
Landowner	Pinellas County; City of Oldsmar		Management Entity	Pinellas County
County	Pinellas		Watershed	Tampa Bay Drainage
Water bodies	Mobbly Bayou, Tampa Bay		Water body Designations	SWIM water body; Pinellas County Aquatic Preserve

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2569952	43RD ST N EXTENSION FROM CR 296 (118TH AVE N) TO 40TH STREET N	0.76	44025287.003	200602199 (IP-JPF)
2568811	US 19 (SR 55) Whitney Rd. to Seville Dr.	0.50		
2569961	SR 686 AT CR 611 (49TH ST)	0.30	43011339.007	201000652 (IP-JPF)
2569312	Gandy Blvd. (SR 694) 9th Street to 4th Street North	3.31		
2569981	SR 686 FROM W OF I-275 TO W OF 9TH ST N	2.80	43020690.009	200801606 (IP-JPF)
2584151	I-4 (SR 400) @ Selmon Expressway	6.40	44012347.014	201003007 (IP- GGL)
4091551	SR 688 (Ulmerton Rd.) Lake Seminole to Wild Acres	0.02		
2569953	SR 688/ULMERTON RD FM E OF 49TH	1.00	44002958.009	200802506 (IP-JPF)

	STREET TO W OF 38TH STREET NORTH			
4125313	I-275 @ I-275 NB Off- Ramp to SR 60 Airport Flyover	0.90		
2569971	SR 686 (ROOSEVELT) FROM 49TH ST BRIDGE TO N OF ULMERTON RD	0.30		
2571471	SR 688 (Ulmerton Rd.) 38th to I-275	0.70	43011339.006	200903493 (IP-JPF)
4168381	US 92 (SR 600 / Gandy) Pelican Sound to Gandy Bridge	1.50		
4125311	SR 60 (Memorial HWY) fom I-75 to Spruce	1.10	43008209.002	UNK
4136222	CR 296(FUTURE SR690) FROM US 19 (SR 55) TO E OF ROOSEVELT/CR 296	4.59	44000920.009	201000993 (NW- JPF)
4245611	SR 60 - Pinellas/Hillsborough C.L. to Rocky Point Drive	0.06		

PROJECT DESCRIPTION

A. Overall project goals: The Mobbly Bayou Wilderness Preserve is located along the northern portion of Tampa Bay, a designated Surface Water Improvement and Management (SWIM) priority water body. This Preserve is a 383 acre parcel within one of the few undeveloped tracts adjacent to Tampa Bay. The Preserve has diverse upland and wetland habitats critical for a wide variety of wildlife species. However, these habitats have been impacted by the construction of mosquito ditches, ponds and adjacent development. Uncontrolled establishment of exotic plants threaten natural habitats as well. The project goal is to restore and enhance mangrove swamp communities by filling mosquito control ditches and eradicating exotic plants in and around these areas.

B. Brief description of pre-construction habitat conditions: The Preserve's habitats include a dominance of mangrove forest and salt-marsh, with additional coverage provided by saltern, pine flatwoods, cabbage palm flatwoods, coastal hammock, and freshwater marsh. Much of the mangrove forest, salt marsh, and saltern habitat have been hydrologically altered by the construction of mosquito ditches. Mosquito control ditches limit appropriate and

adequate tidal range and fluctuation within the estuarine wetlands. In addition, because of diverted storm and surface water from adjacent developed areas, there is less frequency and consistency of contributing freshwater components critical for maintaining appropriate estuarine habitats. The combination of less estuarine habitat receiving and retaining tidal flow from the south and inconsistent contribution of freshwater from the north has resulted in fewer wetlands having appropriate hydrology, hydroperiods and salinity levels. This is particularly evident within the slightly higher elevations of salt-marsh habitat and adjacent upland habitats, which have substantial recruitment and establishment by Brazilian pepper.

C. Brief description of construction activities and current habitat conditions: The overall restoration objectives and plan for the Preserve evolved over many years with input from various entities including but not limited to Pinellas County, SWFWMD – SWIM, FDEP, FDEP Aquatic Preserve Program, U.S. Geological Survey and various members of the public. Consensus was reached on the major elements of ecosystem restoration and management that are in need of attention. This mitigation plan will focus on the elements that will restore or enhance mangrove swamp communities on lands for which the Pinellas County has management responsibility.

Mangrove restoration and enhancement will be achieved by removing spoil mounds created with past mosquito ditching activities to fill the mosquito ditches. Since there is limited construction access, spoil mounds will be removed using the “hydro-blast” method, which uses pumps and fire hoses to spray water at high-pressure to displace spoil material to below high tide elevation. The mosquito ditches are partially filled and tidal sheet-flow connectivity and appropriate water fluctuation is restored in the surround mangrove swamp. This method was successfully incorporated in 2004 at another project funded through the FDOT mitigation program (Gateway Tract, SW 45). This work will not only restore appropriate hydrology but will eliminate Brazilian pepper that is established on the spoil mounds allowing for the natural recruitment of plant species such as white and black mangrove, salt grass, black needlerush, smooth cordgrass and saltwort. Salt water will restrict the re-establishment of the Brazilian pepper.

In areas where the natural grade has not been altered and Brazilian pepper has become established, Brazilian pepper will be removed using herbicides applied by a licensed herbicide applicator. Maintenance will be conducted as needed until vegetation becomes reestablished which is expected to be quarterly for the first three years after construction activities, and at least semi-annually thereafter for a minimum of two additional years and until success criteria are met. Afterward, maintenance activities will be conducted as part of the perpetual management of the tract to maintain success.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The majority of the roadway projects proposed for mitigation at the Preserve have anticipated minor impacts to low quality wetlands and surface waters in the Tampa Bay drainage basin. The roadway projects typically have a decrease of proposed wetland impacts as they proceed through design phase, and several of these minor impacts are anticipated to have permits issued without requiring mitigation. The proposed roadway with by far the most

sizeable wetland encroachment is the 6.4 acres of mangrove impact associated with the construction of the Interstate connector of the Crosstown Expressway to Interstate-4. The Mobbly Bayou restoration project will target mangrove restoration and enhancement so that appropriate compensation for the unavoidable mangrove impacts is provided.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time, the FDOT projects were submitted for inclusion in the FDOT Mitigation Program, the Tampa Bay Mitigation Bank had insufficient credit to offset the identified wetland impacts. Consideration of the Tampa Bay Mitigation Bank as a mitigation option for the unpermitted FDOT projects will be given as described in the mitigation section of the Plan or in future updates of the Plan.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The proposed habitat improvements activities are associated with a SWIM-designated project.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private Contractor selected by Pinellas County through competitive bid process.

Entity responsible for monitoring and maintenance: Private Contractor selected by Pinellas County.

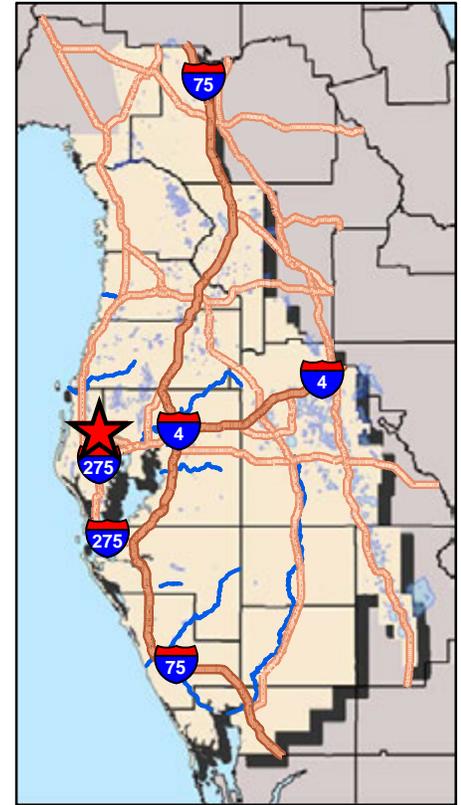
Proposed timeframe for implementation: Commence: Design & Permitting: 2005-2010; Redesign & Permitting: 2012-2013; Complete: Construction, 2013, followed by maintenance & monitoring

Project cost, estimate: \$2,140,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Wetland Enhancement Areas
3. Pictures (2012)

SW-89 Mobbly Bayou Wilderness Preserve Figure A Location



Legend

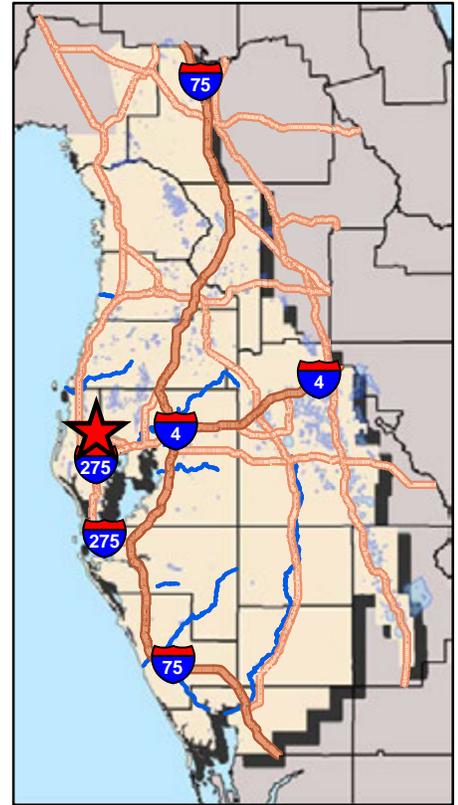
 Project Location



0 250 500 1,000 Feet

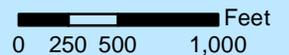
SW-89 Mobbly Bayou Wilderness Preserve

Figure B - Habitat Restoration Areas



Legend

-  Project Location
-  Mobbly Assessment Areas - Phase I
-  Mobbly Enhancement Areas - Phase II





Mobbly Bayou Preserve showing central wetland and pine flatwoods in the background.



Mobbly Bayou Preserve depicting mangrove colonization along spike-rush marsh. Mangroves in background show effects from freeze damage.



Mobbly Bayou Preserve showing tidal inundation of the mosquito ditch and recruitment of mangrove along ditch- Phase I of the restoration included treatment of Brazilian pepper



Mobbly Bayou Preserve depicting transition area between one of the many spoil mounds created by the excavation of the mosquito ditches (left) and the wetland/upland interface in the background

SW-87 ALLIGATOR LAKE MANAGEMENT AREA MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	Yes	No
Mitigation Type	Creation, restoration and enhancement			
Landowner	Pinellas County		Management Entity	Pinellas County
County	Pinellas		Watershed	Tampa Bay Drainage
Water bodies	Alligator Lake, Tampa Bay		Water body Designations	SWIM water body

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2569311	Gandy Blvd. (SR 694) US 19 to 4th St.	0.60		
4209331	Dale Mabry Ave. Van Dyke Rd. to Lutz Lake Fern Rd.	0.90		
4290001	US 41 (SR 45) FROM E OF 47TH ST TO E END BRIDGE #299/338	0.10		
4290081	SR 597 DALE MABRY FROM COUNTY LINE RD TO N OF BRINSON RD	0.23		
4290601	SR 686 (ROOSEVELT) FROM N OF 28TH ST N TO N OF GANDY BLVD	1.25		
4290732	SR 580(HILLSBOROUGH) FROM E OF AIR CARGO RD TO W OF N LEE PL	0.20		
4230881	SR 616 FROM E OF OBRIEN ST TO DALE MABRY HWY	0.20		

PROJECT DESCRIPTION

A. Overall project goals: The Alligator Lake Management Area is a 53-acre preserve owned and managed by Pinellas County located adjacent to the City of Safety Harbor in northeastern Pinellas County. The preserve includes two parcels bordering the 70-acre Alligator Lake, a man made freshwater lake. Alligator Lake outfalls into Tampa Bay, a state-designated Surface Water and Improvement and Management (SWIM) priority waterbody. The project goal includes the substantial enhancement, restoration and creation of appropriate wetland and upland habitats within a 34-acre portion of the preserve. This is a particularly valuable and important opportunity to provide ecological benefits for wildlife since the habitat value has been degraded by extensive coverage of exotic and nuisance species, and the majority of surrounding property is dominated by residential land use. The habitat improvements will provide more opportunities for wildlife use within the Preserve as well as Alligator Lake, and provide water quality treatment and attenuation of contributing basin runoff before discharging into Alligator Lake and Tampa Bay. These goals are consistent with the ecosystem restoration and management plan developed for this property by various entities including but not limited to Pinellas County, SWFWMD – SWIM, the design consultant and various members of the public.

B. Brief description of pre-construction habitat conditions: The project includes proposed improvements to habitats within the eastern half (22.7 acres) of the "North Parcel" and the entire "South Parcel" (8.7 acres) that border Alligator Lake. Habitats include upland shrub, live oak hammock, mixed wetland hardwoods, willow shrub wetlands, cabbage palm, exotic wetland forest, and marsh habitat. Within the upland shrub habitats (total 8.7 acres), the County conducted an initial eradication of some dense Brazilian pepper in 2004; resulting in the generation and establishment of predominantly invasive nuisance species such as ragweed, saltbush, and euthamia. The largest and least disturbed habitat in the project area includes live oak hammocks (total 9.3 acres) within the north parcel. The hammock borders mixed forested wetlands (total 3.9 acres) that have dominant cover provided by water oak with scattered swamp bay and slash pine. Of particular note within the north parcel is a low quality shrub marsh (2.2 acres) that generated vegetation within a borrow pit. Primrose willow and Carolina willow provide dense and dominant cover of the shrub system, with elderberry, buttonbush and wax myrtle along the perimeter. A portion of the channelized Alligator Creek is located through the North Parcel and connects to Alligator Lake. In general, the extensive exotic and nuisance vegetation at the preserve has degraded the ability and opportunity for the habitats to support and sustain many wildlife species. Detailed descriptions for some of the listed habitats follow below.

In areas characterized as FLUCCS #329 (Other Shrubs & Brush), prior to roller-chopping in 2004, the upland shrub areas (total 8.7 acres) were previously dominated by Brazilian pepper (*Schinus terebinthifolius*). The combination of dense pepper mulch and the removal of the canopy opened the area for extensive recruitment and establishment of invasive and nuisance species. Ragweed (*Ambrosia artemesifolia*) has become very dense and dominant. Other common species include herbs such yellow nutgrass (*Cyperus esculentus*), hairy indigo (*Indigofera hirsuta*), and guineagrass (*Panicum maximum*); and shrubs such as elderberry

(*Sambucus Canadensis*), salt-bush (*Baccharis halimifolia*), lantana (*Lantana camara*) and wax myrtle (*Myrica cerifera*). The shrub marsh (FLUCCS 618) on the north parcel is a borrow pit with complete coverage of primrose willow (*Ludwigia peruviana*) and some Carolina willow (*Salix caroliniana*). The habitat value is very low quality for these shrub areas.

Areas characterized as FLUCCS #617 (Mixed Wetland Hardwoods) occur in four separate areas of the project area and total 4 acres. Dominant canopy coverage is provided by water oak (*Quercus nigra*), laurel oak (*Quercus laurifolia*) and swamp bay (*Persea palustris*); with scattered slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), and live oak (*Quercus virginiana*). There is some variation of subcanopy and understory vegetation within the various wetland hardwood locations. Oak and bay saplings are common, along with wax myrtle, smaller cabbage palm and scattered buttonbush (*Cephalanthus occidentalis*). However, nuisance/exotic canopy-forming species such as Brazilian pepper, Carolina willow, and carrotwood (*Cupaniopsis anacardioides*) are frequently interspersed. The hardwood habitat in the southwest corner of the North Parcel has the highest quality of the four delineated areas, with a groundcover dominated by Virginia chain fern (*Woodwardia virginica*) and cinnamon fern (*Osmunda cinnamomea*). The remaining wetland hardwood areas have a mixture of coverage provided by swamp fern (*Blechnum serrulatum*) and various vine species.

Pine – Mesic Oak (FLUCCS #414) is located within one area of the North Parcel (total 1.3 acres of enhancement). Several large longleaf pine (*Pinus palustris*) provide canopy over a sub-canopy dominated by water oak and camphor (*Cinnamomum camhora*). Other sub-canopy species include cabbage palm, swamp bay and Chinaberry (*Melia azedarach*). The dominant groundcover species is saw palmetto (*Serenoa repens*) which provides approximately 30% coverage. Air potato (*Dioscorea bulbifera*) and grave vine (*Vitis munsoniana*) are abundant in all vegetative strata. Severe fire suppression of this community is evident by the remnant saw palmetto cover, and dense accumulations of needle litter surrounding the longleaf pine. The smaller-diameter water oaks and camphor trees have become well-established since fire exclusion.

The live oak hammocks (FLUCCS 427) account for the largest proportion of land area in the north parcel. Though composition and habitat quality vary considerably, all areas mapped as this habitat are dominated by live oak, occupy the highest elevations of the parcel, and exhibit varying amounts of fire suppression. Other canopy species include laurel oak, water oak, longleaf pine and southern magnolia (*Magnolia grandiflora*). Saw palmetto and live oak saplings co-dominate the subcanopy/shrub layer, with additional coverage provided by cabbage palm and American beautyberry (*Callicarpa americana*). There are exotic and nuisance species such camphor tree (*Cinnamomun camphora*) and various vine species have become a problem in the oak hammocks.

C. Brief description of construction activities and current habitat conditions: Pinellas County has a proposed habitat restoration plan that focuses on improving the existing upland and wetland habitats that provide some ecological value, while replacing the majority of the low quality upland ruderal, wetland shrub, and exotic hardwood habitat by creating an additional 6.5 acres of marsh and 2.4 acres of mixed forested wetlands. Since there are three

documented rookeries adjacent to the project area, establishing additional marsh habitat provides foraging opportunities for wading birds. By enhancing and creating forested wetland that will buffer the marshes, there will also be more roosting and nesting opportunities. For the low quality willow marsh in the North Parcel, floating tussock and underlying sediments will be dredged and removed, followed by planting of appropriate herb species. To provide additional rookery and resting opportunities for wading birds, clean fill obtained from constructing Wetland #3 will be used to create four small temperate hardwood islands in the constructed marsh. Additional temperate hardwoods will be created on both parcels to displace the remaining upland shrub and buffer the adjacent constructed wetlands. To provide additional habitat diversity, the cabbage palm habitat in the south parcel and pine-mesic oak habitat in the north parcel will be enhanced to provide 2.9 acres of appropriate pine flatwood habitat.

The creation of Marsh Areas #1 (1.1 acres), #2 (0.6 acre) and #3 (1.5 acres), displacing the majority of the ruderal shrub habitat will occur in areas classified as FLUCCS 329 (Other Shrubs and Brush). The marshes (FLUCCS #641) will have gradual slopes of 8:1 to 10:1, providing zonation for establishing diverse marsh habitat suitable for a variety of wading bird species. Steeper slopes (4:1) are proposed near the center of the marshes in order to provide small open-water components. This will provide both a refuge for fish and concentrated foraging opportunities for wading birds during the dry season. Marshes #1, #3, and #4 will be hydrologically connected to Alligator Lake. Marsh #2 has a smaller contributing watershed and will have a higher upland overflow elevation to the lake, providing the opportunity to establish a slightly more obligate marsh condition. Common herb species proposed for planting include spikerush (*Eleocharis interstincta*), soft rush (*Juncus effusus*), maidencane (*Panicum hemitomom*), pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria lancifolia*), giant bulrush (*Scirpus californicus*), sand cordgrass (*Spartina bakeri*), and fireflag (*Thalia geniculata*).

The remaining upland shrub areas will be restored as temperate hardwood habitat (FLUCCS #425 - 4.3 acres) and the creation of mixed wetland hardwoods (FLUCCS #617 - 1.3 acres). The temperate hardwood habitat will be primarily buffering the marsh and forested wetland creation areas on both parcels. Proposed hardwood habitat plantings include red-cedar (*Juniperus virginiana*), live oak (*Quercus virginiana*), beauty-berry (*Callicarpa americana*), seagrape (*Coccoloba uvifera*), Florida swamp privet (*Forestiera segregate*), firebush (*Hamelia patens*), yaupon (*Ilex vomitoria*), wax-myrtle (*Myrica cerifera*), chickasaw plum (*Prunus angustifolia*), tough buckthorn (*Sideroxylon tenax*), bluestems (*Andropogon* spp.), chaffhead (*Carphephorus* spp.), Florida tickseed (*Coreopsis floridana*), Elliott's lovegrass (*Eragrostis elliotii*), blanket flower (*Gaillardia pulchella*), beach sunflower (*Helianthus debilis*), blazing star (*Liatris* spp.), spotted bee-balm (*Monarda punctata*), hairawn muhly (*Muhlenbergia capillaries*), seaside goldenrod (*Solidago sempervirens*), climbing aster (*Symphyotrichum carolinianum*), and gamagrass (*Tripsacum dactyloides*).

The enhancement of the Mixed Wetland Hardwoods (FLUCCS 617) will be primarily associated with eradication of B. pepper and improving the conditions of the adjacent upland and wetland habitats. As previously noted, there will also be additional forested wetland

habitat created (total 1.3 acres of creation) within the North Parcel that will displace some of the existing upland ruderal shrub habitat. Common tree species proposed for planting in the mixed wetland hardwoods include red maple (*Acer rubrum*), pop ash (*Fraxinus caroliniana*), dahoon holly (*Ilex cassine*), sweetgum (*Liquidambar styraciflua*), sweet bay (*Magnolia virginiana*), swamp bay (*Persea palustris*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*) and bald cypress (*Taxodium distichum*). Understory vegetation will include the same herb species proposed for the marsh creation areas. This created forested wetland will form a buffer along the northern and eastern edge of Marsh #4, providing a habitat transition between the upland and marsh habitat.

Pine – Mesic Oak (FLUCCS #414) enhancement will be conducted by eradication of nuisance and exotic vegetation, followed by cool-season prescribed burn to minimize some of the pine needle and bark litter. Supplemental plantings will be provided by longleaf pine and saw palmetto.

The low quality habitat Willow and Elderberry habitat (FLUCCS 618) will be substantially improved by removing the vegetation and underlying muck sediments, regrading and planting with desirable vegetation. Marsh #4 habitat will be established with the same plant species referenced under the previously discussed marsh creation areas. Clean fill resulting from constructing Marsh #3 will be used to construct four hummocks of temperate hardwood habitat.

An existing ditched Alligator Creek meanders through the site and discharges directly into Alligator Lake. The ditch banks are extensively covered with dense B. pepper that will be eradicated. The water flow from the ditch will be diverted by a weir to equally discharge into Marshes #3 and #4 (Figure C). This will provide water quality treatment before both marshes discharge into Alligator Lake.

In the Live Oak hammock (FLUCCS 427) areas occasional thinning and possible burning will open up some of the canopy and understory to provide more opportunity to establish more ground cover vegetation. This will be valuable for the gopher tortoise (*Gopherus polyphemus*) located in the north parcel. Their foraging opportunities are primarily limited to the bahia grass lawn surrounding the on-site residence.

The eradication and control of nuisance/exotic vegetation within the project area will be conducted by a licensed herbicide applicator. Maintenance will be conducted as needed, scheduled for at least quarterly during the first five years after construction and until success criteria are met. Afterward, maintenance activities will be conducted as part of the perpetual management of the tract to maintain success.

Monitoring for FDOT mitigation credit will be conducted semi-annually for a minimum five years post-construction. The monitoring evaluations will include vegetative and habitat conditions, water level relative to flow regimes and inundation, wildlife use, and coverage of nuisance and exotic vegetation. Annual monitoring reports will be prepared to document conditions and various activities implemented during the previous year. The same designated

monitoring stations will be designated throughout the monitoring period for photo references. However habitat conditions will be annually documented for the entire site, not just at the monitoring stations.

Success criteria includes a minimum of 90% survivorship of planted material for a year after planting, and a total 85% coverage of naturally recruited and planted desirable species. Exotic and nuisance species will be limited to less than 5% coverage within both the enhanced, restored and created habitats.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): Since Alligator Lake habitat activities include a high percentage of wetland creation to be constructed in 2011, the project was selected to the FDOT program to primarily provide appropriate mitigation credits for long-range, low-quality FDOT wetland impacts that will occur in the Tampa Bay Drainage basin. This provides more time for the proposed habitat conditions to mature and provide high quality ecological benefits well in advance of mitigating for future wetland impacts. The FDOT projects with impacts originally proposed to be offset by this mitigation project were deleted from the FDOT mitigation program because permitting and construction dates now occur outside the planning horizon for FDOT uses for compiling the project inventory that is used to develop the FDOT Mitigation Plan.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time, the FDOT projects were submitted for inclusion in the FDOT Mitigation Program, the Tampa Bay Mitigation Bank had insufficient credit to offset the identified wetland impacts. Consideration of the Tampa Bay Mitigation Bank as a mitigation option will be given as the FDOT develops it's inventory of road improvement projects for future updates to this Plan.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The proposed habitat improvements associated with this project is a designated SWIM designated project.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private Contractor selected by Pinellas County through competitive bid process.

Entity responsible for monitoring and maintenance: Private contractor selected by Pinellas County and SWFWMD,

Proposed timeframe for implementation: Commence: Design & Permitting, 2005-2010
Complete: Construction, 2011, followed by minimum 5 years maintenance & monitoring, perpetual land management

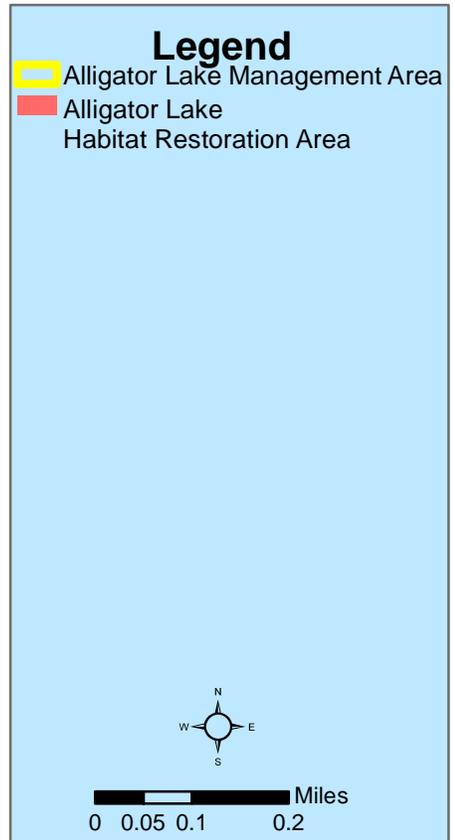
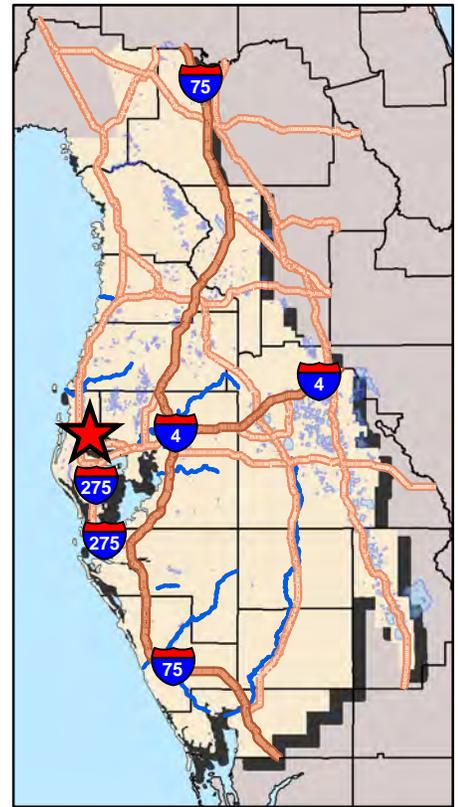
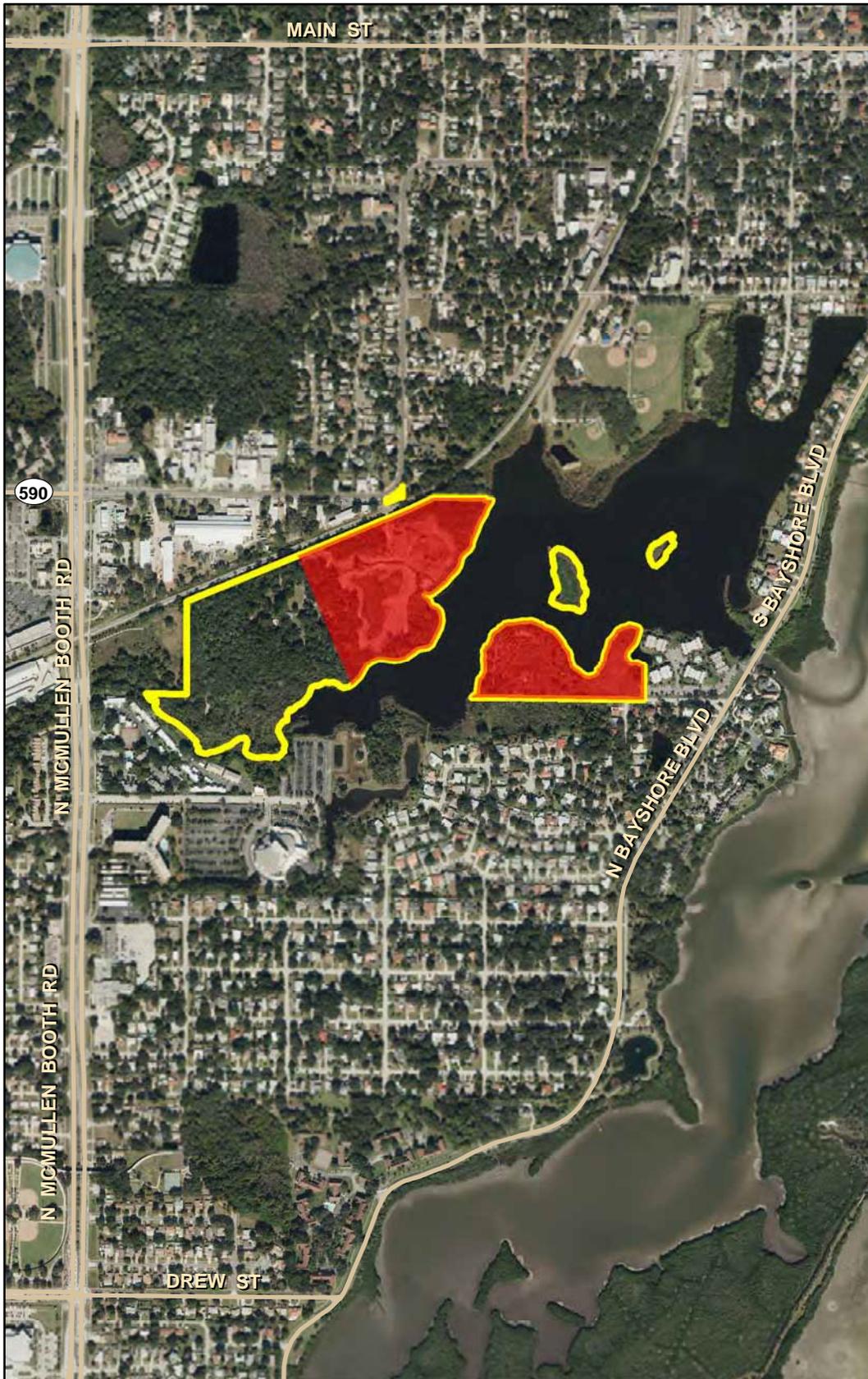
Project cost: \$1.8 million (total)

ATTACHMENTS

1. Figure A-Location
2. Photographs (2012)

SW 87 - Alligator Lake Management Area

Figure A - Location





Alligator Lake-South Tract: View west from Marsh #2 showing upland restoration area dominated by longleaf pine, oak, and native grasses.



Alligator Lake-South Tract: Marsh #2 facing northeast showing littoral plantings and upland buffer in the background.



Alligator Lake-South Tract: Marsh #1 facing west showing littoral shelf plantings and open water.



Alligator Lake-South Tract: Marsh #1 facing west showing littoral shelf plantings and open water areas.

SW-88 CURRY CREEK REGIONAL OFF-SITE MITIGATION AREA (ROMA)¹ MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	Yes	No
Mitigation Type	Regional Offsite Mitigation Area			
Landowner	Sarasota County		Management Entity	Sarasota County
County	Sarasota		Watershed	South Coastal Drainage
Water bodies	Curry Creek		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
1979421	SR 789 Ringling Causeway Blvd.	0.27	44018555.001	199500210 (IP-TF)
1980051	US 41 Bus. (SR 45) Venice Ave. to US 41 Bypass	0.32	4402099.002	199905145 (IP-PB)
4063143	I-75 N. River Rd. (CR 577) to SR 681 ²	0.77	43034226.000	200802298 (IP-JPF)

PROJECT DESCRIPTION

A. Overall project goals: The Curry Creek ROMA is located within an ecologically significant 95 acre tract known as the Curry Creek Preserve. Since the property was one of the largest remaining areas of native habitat in the basin, Sarasota County purchased the property to preserve and enhance for wildlife habitat. Within the Preserve, the County designated and permitted a 19 acre portion to provide a regional mitigation opportunity to compensate for proposed wetland impacts associated with public infrastructure projects. Due in large part to the impacts associated with canal dredging, the western half of the ROMA

¹ ERP# 44027089 ACOE # SAJ-2004-5565-MEP

² The freshwater wetland impacts for this I-75 segment are mitigated at Sarasota's Fox Creek ROMA (SW 79).

represented the most disturbed habitat on the Preserve. The primary goal of this portion of the ROMA includes the enhancement, restoration and creation of saltwater wetland habitat. Upland habitat enhancement is the primary objective for the eastern half of the ROMA.

B. Brief description of pre-construction habitat conditions: The Preserve is located along the north side of the City of Venice. The tract includes various habitats, including one of the largest areas (36 acres) of remaining intact longleaf pine habitats in western Sarasota County. Other dominant habitats within the Preserve include xeric oak (16 acres), stream swamp (12 acres), streams and waterways (9 acres), saltwater marsh (6 acres), and minor acreages of other habitats such as mangrove, mixed hardwood wetland, and cabbage palm. The actual Curry Creek was historically dredged into a canal to provide regional drainage improvements. This east-west canal follows along the southern boundary of the Preserve, with a hydrologic connection to Roberts Bay approximately one mile west of the Preserve. Three additional north-south canals within the Preserve connect to the Curry Creek canal. Two of the canals are within the limits of the ROMA. The western portion of the ROMA also has a mangrove pocket (Polygon 6 on Figure E) and leather fern marsh (Polygon 12); both habitats are preserved and enhanced as part of the ROMA plan. A couple small areas of upland habitat in the ROMA border the north side of the Curry Creek canal, with dominant vegetation provided by slash pine, saw palmetto and cabbage palm. The remaining area of the ROMA's western portion was primarily exotic vegetation such as Australian pine and Brazilian pepper. The eastern portion of the ROMA is dominated by pine flatwoods, with a meandering creek that outfalls into the Curry Creek canal.

C. Brief description of construction activities and current habitat conditions: The general plan of the western portion of the ROMA includes preserving and enhancing the native habitat, while grading the exotic vegetated area to create saltwater wetland habitat. The earthwork was finished in early 2006. The two north-south canals were modified to create a meandering creek that provides tidal connectivity to the Curry Creek canal. This creek provides appropriate hydrology for the preserved mangrove and leatherfern wetlands, as well as the created mangrove and salt marsh habitat. An extensive planting effort included a dominance of red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans*), buttonwood (*Conocarpus erectus*), needle rush (*Juncus roemerianus*), leather fern (*Acrostichum aureum*), cordgrass (*Spartina alterniflora*, *Spartina patens*, *Spartina bakeri*), needle rush (*Juncus roemerianus*), and bulrush (*Scirpus robustus*). The eastern half of the ROMA includes upland enhancement activities, primarily eradication of exotic and nuisance vegetation and implementation of appropriate prescribed burning program. The combination of habitat improvements within the ROMA as well as appropriate land management activities within the remaining Preserve provides a mosaic of inter-related upland and wetland habitats that benefit a wide diversity of wildlife species. Even though the created habitat is in the early stages of establishment, extensive quantity and diversity of wildlife documented at the ROMA includes over 20 bird species, bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), otter (*Lontra canadensis*), alligator (*Alligator mississippiensis*), black racer (*Coluber constrictor priapus*), cottonmouth (*Agkistrodon piscivorus*), mullet (*Mugil cephalus*), and blue crab (*Callinectes sapidus*).

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The current mitigation credits available at Curry Creek include tidal creek, salt-marsh, and mangrove. The minor saltwater wetland impacts can be adequately and appropriately compensated by the creation and enhancement of these habitats at the Curry Creek ROMA.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: At the time of mitigation selection, there were no existing or proposed mitigation banks in the Lower Coastal watershed basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: At the time of mitigation selection, there were no SWIM-sponsored projects proposed in the Lower Coastal basin that could provide appropriate mitigation for the proposed wetland impacts.

PROJECT IMPLEMENTATION

Entity responsible for construction: Construction completed in 2006.

Entity responsible for monitoring and maintenance: Sarasota County or designee

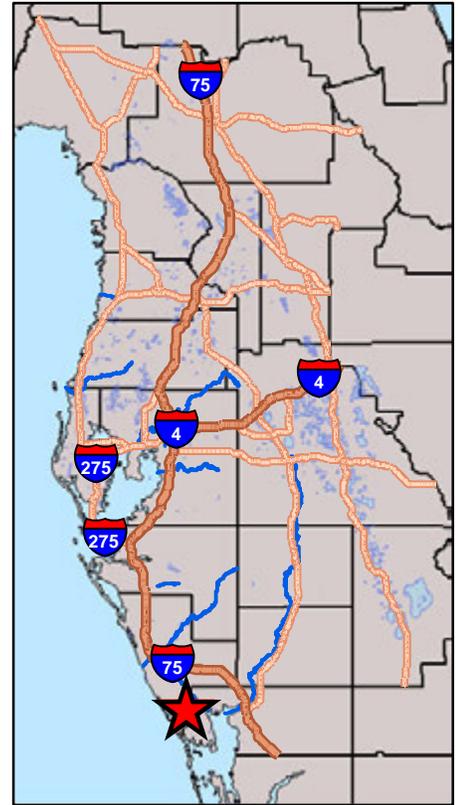
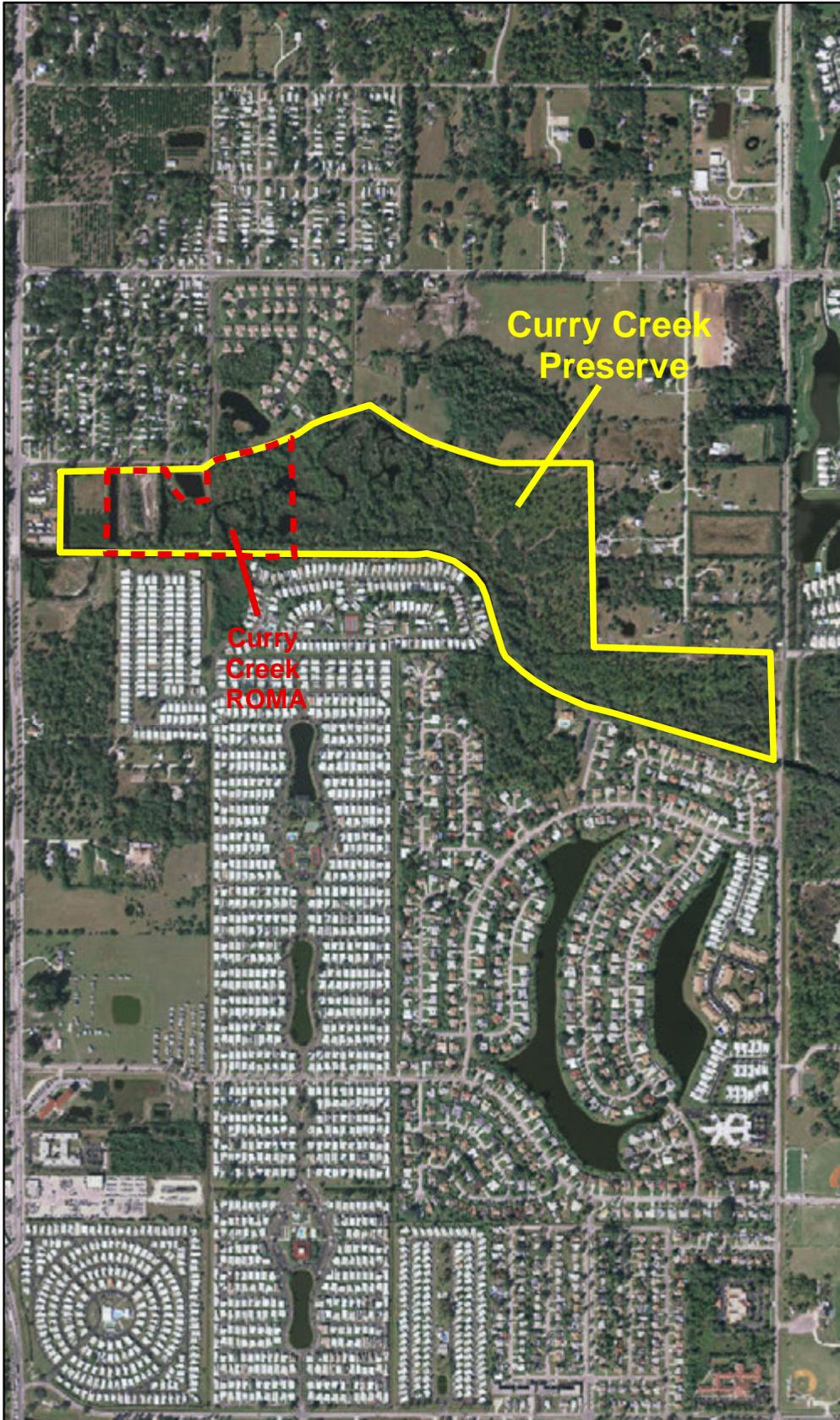
Proposed timeframe for implementation: Commence: Construction & Planting, 2006 Complete: Mitigation Maintenance & Monitoring (2006-2011, minimum 5 years), followed by perpetual maintenance & land management activities.

Project Cost, credit purchase: \$256,688 (total)

ATTACHMENTS

1. Figure A-Location

SW 88 - Curry Creek Regional Off-Site Mitigation Area (ROMA) Figure A - Location



Legend

 Project Location



0 375 750 1,500 Feet

SW-90 BROOKER CREEK BUFFER PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	Yes	No	No	No
Mitigation Type	Wetland enhancement and preservation			
Landowner	Hillsborough County		Management Entity	Hillsborough County
County	Hillsborough County		Watershed	Tampa Bay Drainage
Water bodies	Brooker Creek		Water body Designations	

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2558935	SR 574 (MLK) @ I-75	0.20	44033776.000	NPR
4055252	SR 60 (ADAMO DR) FROM E OF US 301 TO W OF FALKENBURG RD	0.01		
4143481 ¹	North Terminal Phase 1	2.48	49008387.043	2002-01521 (IP-CJW)
4143481	North Terminal Airside 2	5.29	49008391.043	2002-01521 (IP-CJW)
4143481	North Terminal Airside 3	4.29	49008392.043	2002-01521 (IP-CJW)
4143481	North Terminal Airside 4	3.66	49008393.043	2002-01521 (IP-CJW)
4143481	Taxiway A Extension	1.44	49008394.043	2002-01521 (IP-CJW)
4143481	South Development Area	8.98	49008396.043	2002-01521 (IP-CJW)

¹ FM 4143481 is used to designate all Tampa International Airport projects.

PROJECT DESCRIPTION

A. Overall project goals: The Brooker Creek Buffer Preserve (Preserve) is a 489 acre tract located in northwest Hillsborough County, along the boundary with Pinellas County. The Preserve was acquired through Hillsborough County's Environmental Lands Acquisition and Protection Program (ELAPP) to preserve, restore, connect and "buffer" the on-site habitat resources with the adjacent 7,500 acre Brooker Creek Preserve in Pinellas County. Approximately half of the Preserve is comprised of wetland habitat, with much of this habitat altered by a combination of large upland-cut rim ditches constructed around the perimeter of the wetlands, and the construction of an elevated driveway berm across one of the wetlands. Proposed construction activities include minor earthwork grading of spoil material deposited adjacent to the ditches to construct strategically placed ditch blocks and the replacement of a crushed culvert under the driveway to restore drainage patterns and hydrologic connections for the on-site wetlands. These activities will aid in restoring appropriate hydrologic functions to enhance the wetlands. The graded upland spoil material and the ditch blocks will be stabilized with appropriate seeding of grass. The proposed project was adopted to the mitigation program in 2008 and expanded in 2009 as a result of a prior agreement to adopt an additional area to the Preserve. FDOT mitigation funds (\$1.2 million) reimbursed the County's 2009 acquisition of an additional 66.5 acres of upland and wetland habitat adjacent to both the Buffer Preserve and Brooker Creek Preserve. This resulted in providing additional mitigation credits due to the substantial ecological benefits this acquisition provided to preserve, protect and enhance the Brooker Creek wetland floodplain and adjacent uplands to provide a continuous habitat corridor between the two Preserves.

B. Brief description of pre-construction habitat conditions: In addition to the wetland habitat, the majority of the remaining portion of the Preserve is comprised of upland fallow fields and ruderal pasture. The soil characteristics and topography indicate the upland fields adjacent to the wetlands were historically flatwood habitat, transitioning into higher grade elevations historically comprised of sandhill and scrub ecosystems. A remnant scrub oak community is present within the eastern portion of the tract. The majority of historic upland habitats were converted to citrus grove, with all but one small grove area removed prior to acquisition by the County. These fallow fields are dominated by bahia grass, however ruderal and nuisance herb species are common (e.g. dog fennel, ragweed, goldenrod, lantana).

The majority of wetlands include mixed forested habitat; dominated by bald cypress, red maple, black gum, and bay species. Common sub-canopy vegetation includes the same hardwood species, buttonbush and wax myrtle, with groundcover dominated by Virginia chain fern and swamp fern. Marsh habitat is not as prevalent in the Preserve; the majority located within the interior of the large wetland in the southeast portion of the Preserve. Maidencane and sedges are dominant within the marsh habitat. The rim ditches were constructed along the upland perimeters adjacent to the wetlands. The ditches are typically 20 feet wide at the top-of-bank, depth ranging 4-6 feet, with most of the sideslopes steeper than a 1:1 gradient. The sideslopes and bottom grade of the ditches typically have minimal vegetative coverage in areas of dense shade from trees along the upland top-of-banks. Ditch segments with minimal canopy shade typically have moderate to dense coverage of peppervine along the banks.

The large ditch dimensions reduce the quantity and rate of ground and surface water contributing from the uplands to the wetlands; retaining and diverting flow around the wetland perimeter that historically seeped into the wetlands. The large eastern wetland was bisected by construction of an elevated access roadway to a residence. The one culvert connection under the driveway has collapsed, so the southern portion of the wetland has had altered hydroperiods not only from the rim ditches during low rainfall conditions, but impounded surface water during flood events. This has resulted in more unstable and variable fluctuations in the depth and duration of surface water, and a sequence of vegetative generation during drier periods and tree mortality during the major rainfall periods.

To provide mitigation credit for wetland impacts associated with a transmission line relocation project, Tampa Electric (TECO) filled a portion of one ditch at the Preserve in 1997. Overall, the site's wetlands represent moderate quality however the ditching and driveway berm have resulted in altered and variable hydraulic and hydrologic conditions, with subsequent changes in the vegetative components and habitat conditions of the wetlands. The ditch dimensions also hinder wildlife use, access and mobility between the upland and wetland habitats.

The additional 66.5- acre acquisition includes preservation and enhancement of an inter-related mosaic of 30.1 acres of upland habitat buffering 36.4 acres of wetland habitat. The associated uplands were cleared and converted to improved pasture through the 1970's; followed by planted slash pine that are currently large and provide moderate canopy coverage (photo). Scattered oaks, maples, wax myrtle, and various herbs have naturally recruited; which has greatly increased the overall habitat value and ecosystem benefits for the uplands and the interior Brooker Creek wetland floodplain. The wetlands in the acquired area also have similar vegetative characteristics of the Brooker Creek wetland floodplain east and west of the acquisition area. The combination of wetland and upland habitat on this additional tract provides good cover and foraging opportunities for wildlife use; with particular value as a habitat corridor access back and forth to the adjacent Brooker Creek Preserve.

C. Brief description of construction activities and current habitat conditions: The proposed activities primarily include constructing 100-ft. wide ditch blocks (21) at appropriate locations by grading the adjacent upland spoil material, and replacing the crushed culvert. This will provide the opportunity to conduct hydrologic restoration, resulting in enhancing 129 acres of existing forested wetland habitat and 36 acres of non-forested wetland habitat. Specific hydrologic and topographic data of the wetlands have been incorporated into a surface water model conducted for the Brooker Creek watershed. There are many trees along the upland top-of-slope bordering the ditches; primarily live oak, laurel oak, slash pine and red maple. Ditch blocks will be constructed at 21 strategic locations to restore drainage flow patterns back through the wetland cores. Quick temporary vegetative cover of the blocks will be provided by seeding with winter rye or brown-top millet. Compared to total backfill of the ditches, the ditch block method allows some surface water to be retained in ditch segments for wildlife drinking and foraging during dry season conditions when water levels are typically below grade elevations. The minimum top-of-block widths of 20 ft. provide crossings for wildlife utilizing the wetland and upland areas, and encourage more use and easier access for wildlife that utilize the habitats associated with the public lands in the vicinity.

Along with activities proposed for FDOT mitigation credit, Hillsborough County's land management plan for the Preserve proposes restoration of the upland fallow fields into sandhill and pine flatwood habitat. The acquisition of the additional 66.5-acre tract filled a critical and valuable gap of public lands along the Brooker Creek floodplain from Tarpon Springs Road to the adjacent for Brooker Creek Preserve. As Hillsborough County conducted on a similar designated FDOT mitigation project that included land acquisition for preservation mitigation credits (SW 61 – Cypress Creek Preserve, Jennings Tract), the additional area has also been protected by conveying a conservation easement to the District in September, 2009. When the conservation easement was recorded, the District's FDOT mitigation program reimbursed the \$1,235,000 acquisition costs with the agreed-upon requirement that the reimbursed funds were allocated toward additional acquisitions of other Hills. County ELAPP parcels. The combination of the additional tract and wetland enhancement activities for mitigation credit, and future restoration activities planned within the ruderal fields of the tract will result in a variety of inter-dependent ecosystems that will benefit wildlife that utilize the Buffer Preserve as well as the adjacent Brooker Creek Preserve. The total acreage designated for FDOT mitigation includes: Upland Buffer Preservation (Acquisition) and Enhancement - 30.1 acres; Forested Wetlands Preservation (Acquisition) and Enhancement - 36.4 acres; Forested Wetland Enhancement – 97.9 acres; Non-Forested Wetland Enhancement – 35.8 acres TOTAL – 200.2 acres

Monitoring will include periodic review of the ditch blocks and observe hydrologic & vegetative shifts of the associated wetlands; for a minimum of three years. Success criteria will include demonstrating the blocks are properly functioning as designed with no erosion problems, vegetative cover of the blocks, and desired hydrologic improvements are being achieved within the associated wetlands. Long term management activities will be conducted as necessary to ensure and maintain proper ditch block functions without problems of erosion, scouring, undermining, etc.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The mitigation activities at the Preserve are primarily proposed to provide compensation for proposed wetland impacts associated with the long-term expansion at Tampa International Airport (TIA). The proposed TIA wetland impacts areas are low-quality habitats located within 10 miles from the proposed mitigation activities. Since the acquisition was conducted for preservation credits in 2009 and ditch block construction activities scheduled for 2014, the habitat acquisition and improvements will occur many years in advance of when the majority of proposed TIA wetland impacts. Freshwater wetland impacts associated with other future roadway projects in the Tampa Bay watershed will be evaluated for possible mitigation at the Preserve.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the mitigation selection for the proposed wetland impacts in 2008, the Tampa Bay Mitigation Bank (TBMB) was the only existing or proposed mitigation bank within the Tampa Bay Drainage Basin; however freshwater mitigation credits at the TBMB were not approved for sale.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The Brooker Creek Buffer Preserve is a SWIM / County co-sponsored project since Brooker Creek flows into Lake Tarpon and Tampa Bay; both designated SWIM water bodies.

PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Dept. or contractor selected by the SWFWMD.

Entity responsible for monitoring and maintenance: Monitoring and maintenance activities will be conducted as part of general site review by Hills. Co. & WMD staff to ensure that the ditch blocks are properly operating as designed and there are no erosion or sedimentation problems.

Proposed timeframe for implementation: Land Acquisition, 2009; Design 2011; Permitting: 2013, Construction, Maintenance and Monitoring: 2014; followed by perpetual management

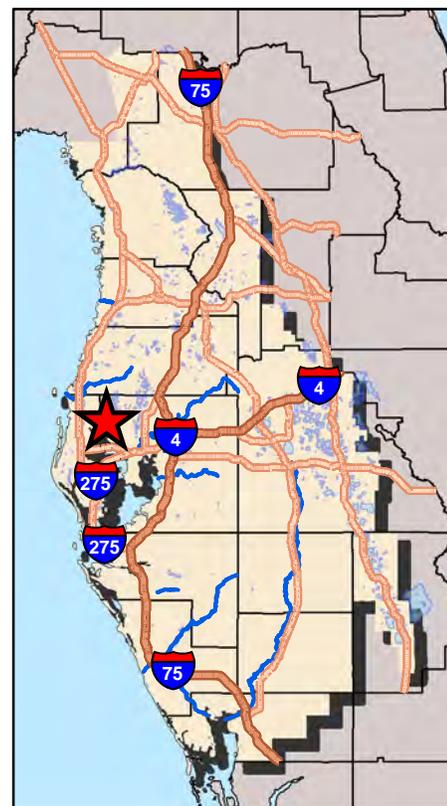
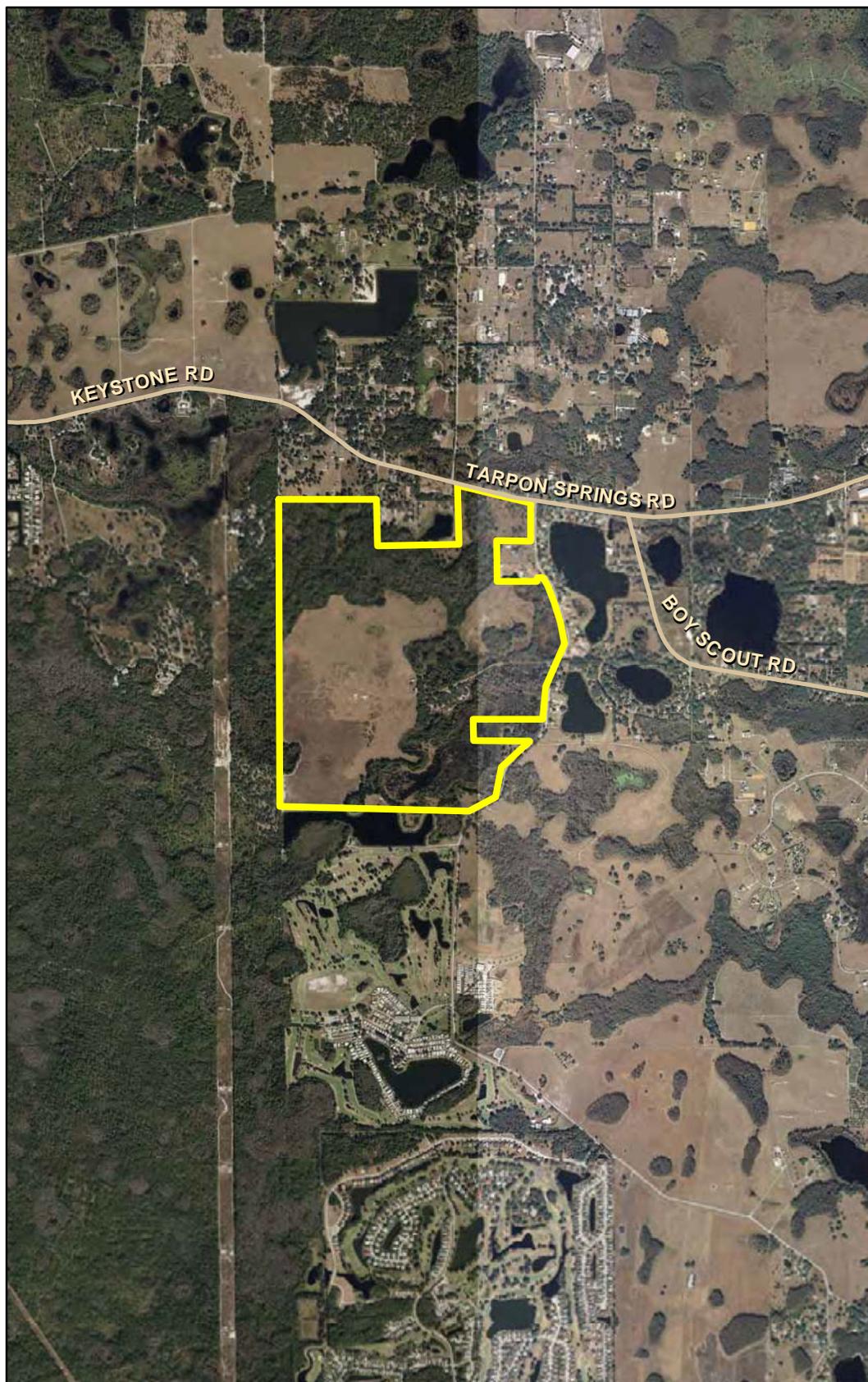
Project cost, estimate: \$1,477,500 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Existing Habitat Conditions
3. Figure C-Proposed Habitat Improvements
4. Figure D-Additional Acquisition Area
5. Photographs (2007)

SW 90 - Brooker Creek Buffer Preserve

Figure A - Location



Legend

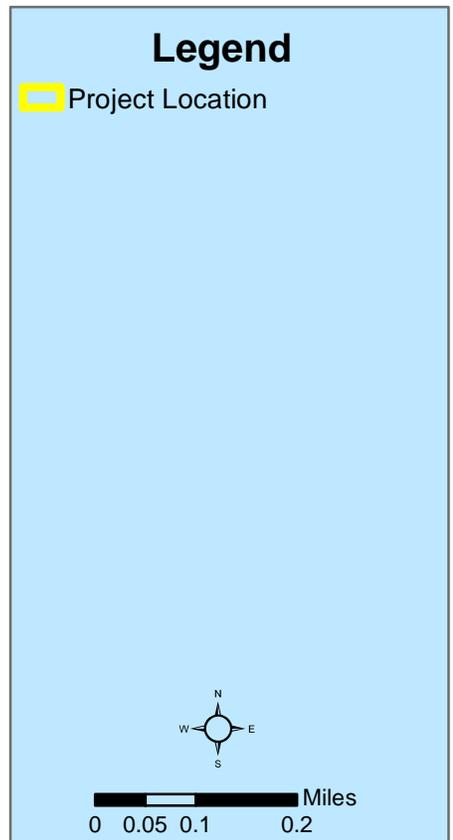
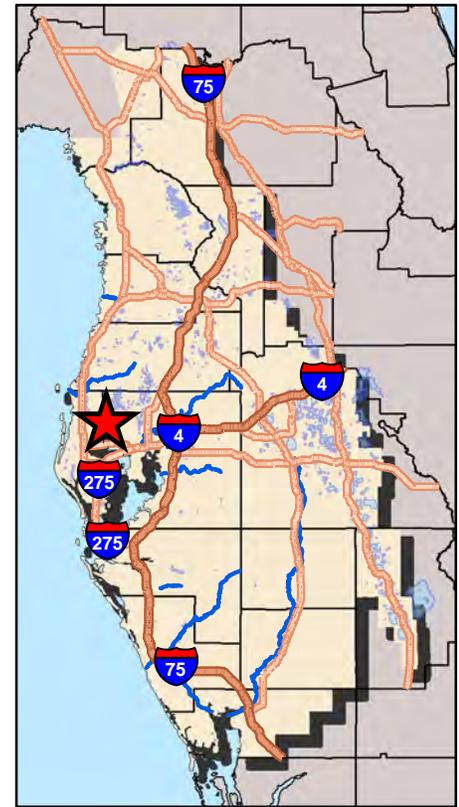
 Project Location



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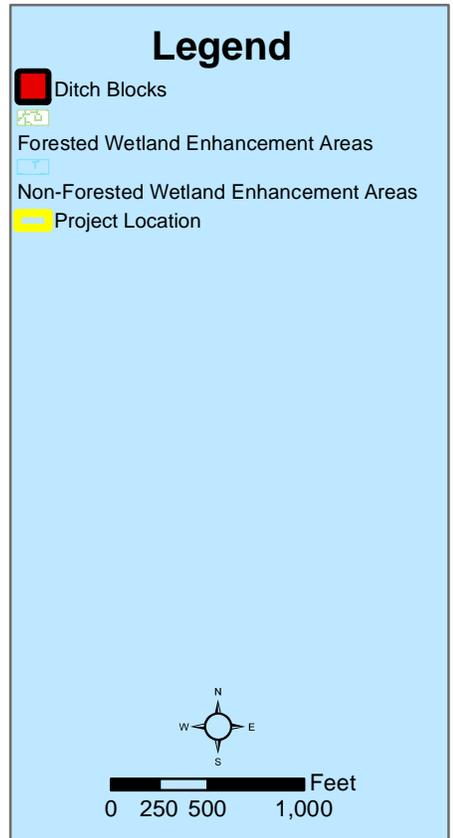
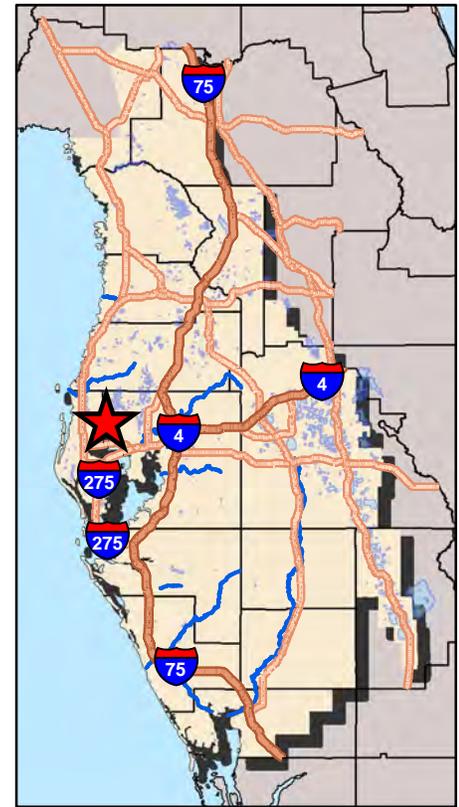
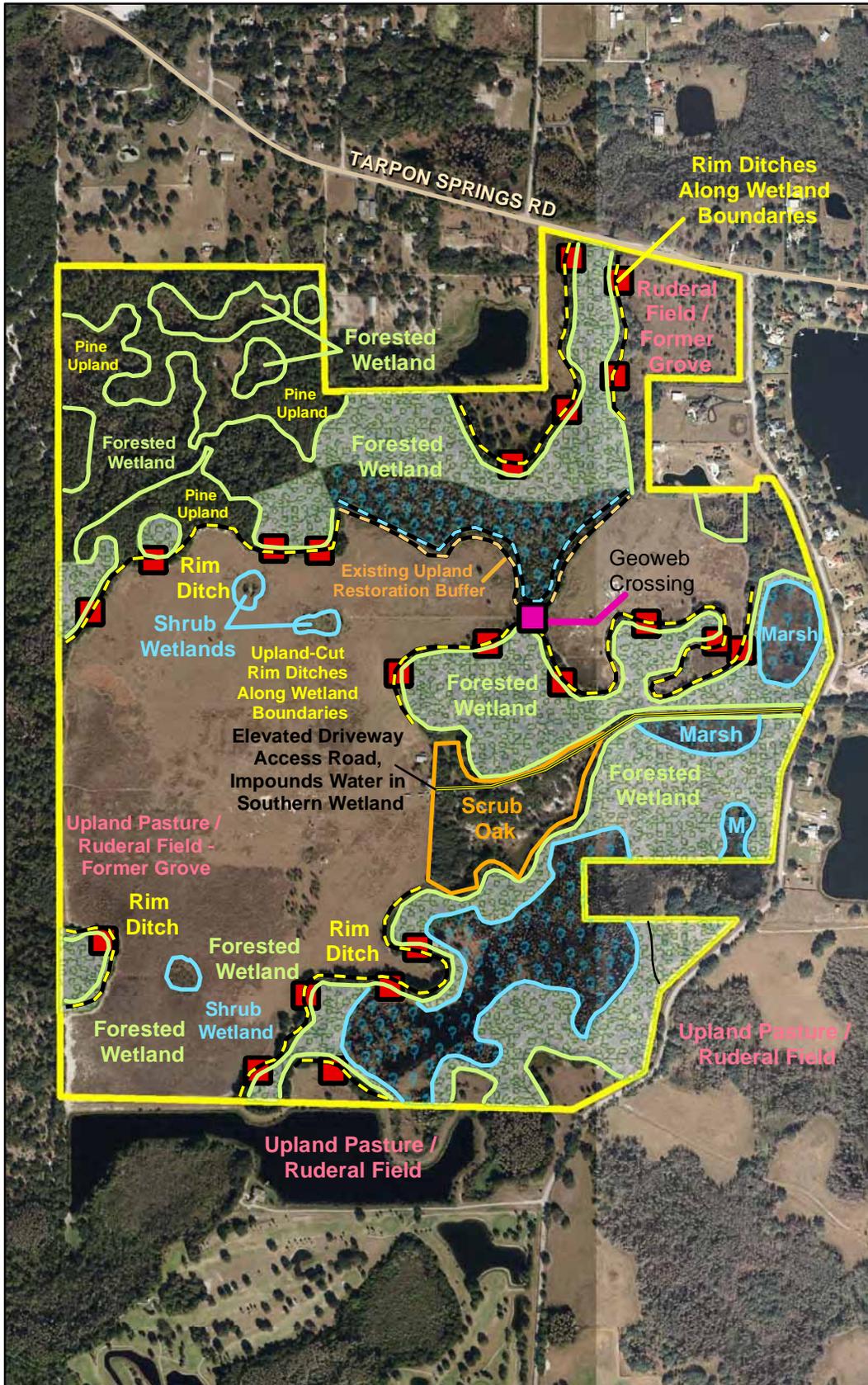
SW 90 - Brooker Creek Buffer Preserve

Figure B - Existing Habitat Conditions



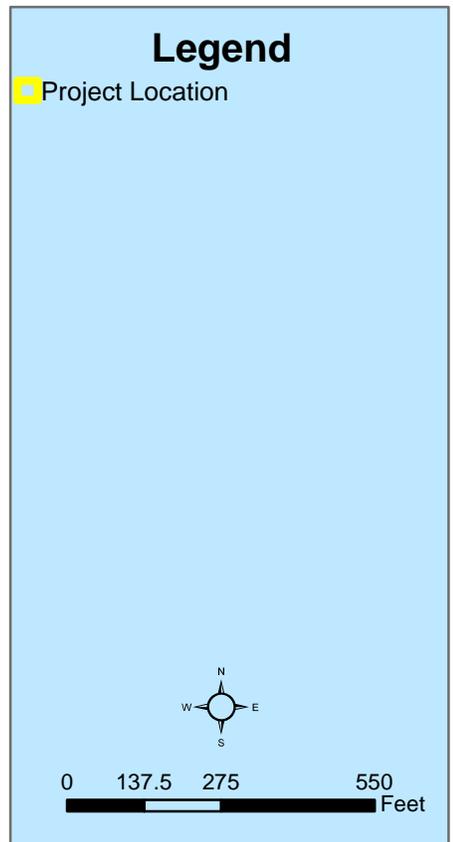
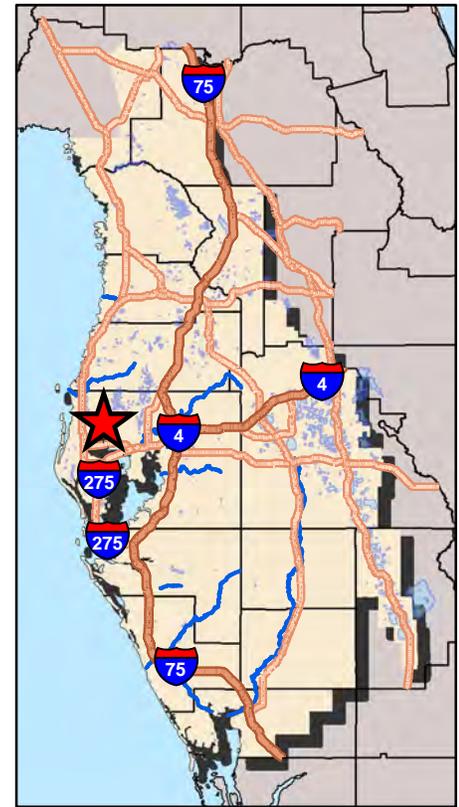
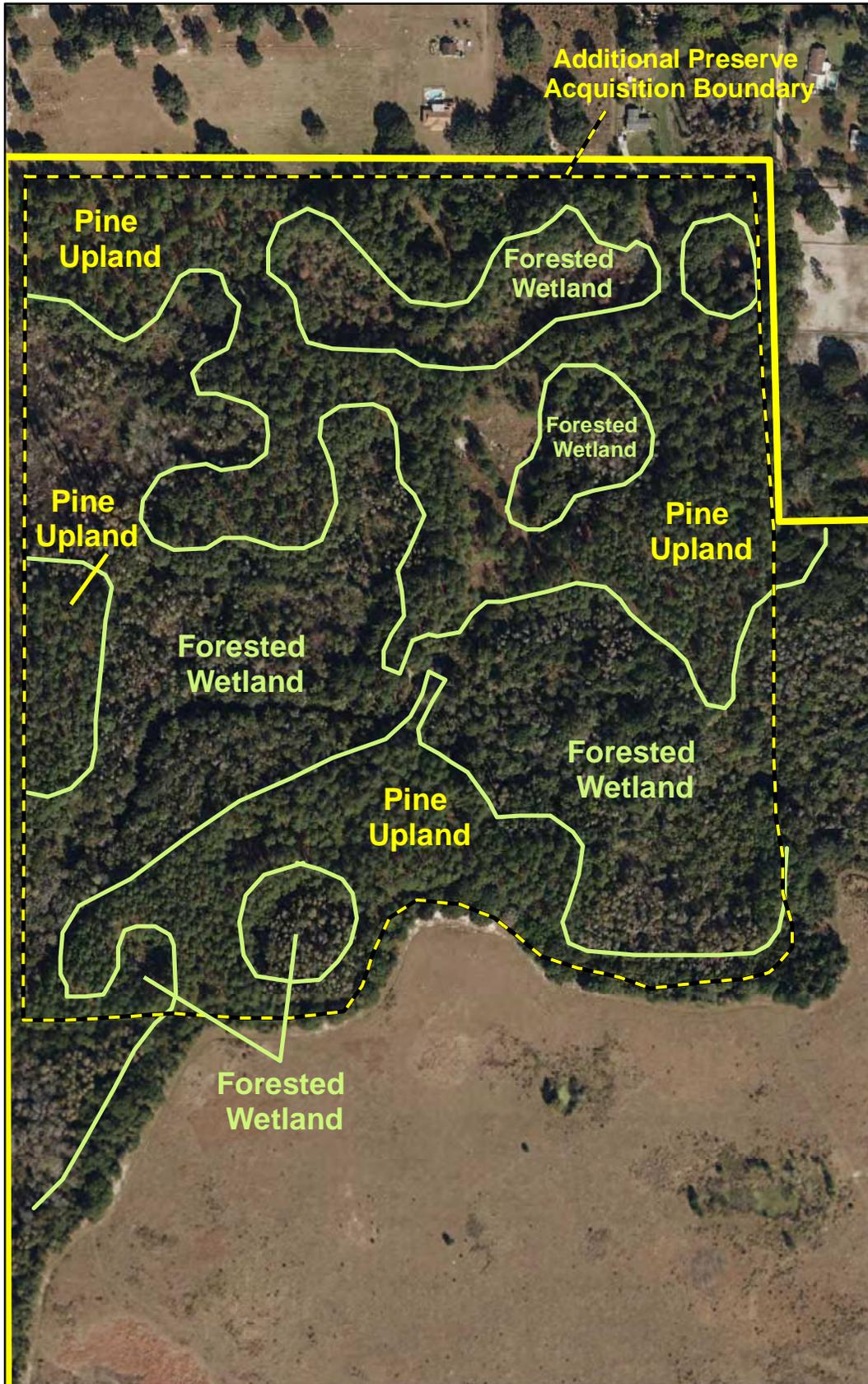
SW 90 - Brooker Creek Buffer Preserve

Figure C - Proposed Habitat Conditions



SW 90 - Brooker Creek Buffer Preserve

Figure D - Additional Acquisition Area





The majority of the upland acreage at the Buffer Preserve includes fallow fields dominated by bahia and scattered dog fennel. Hillsborough County Conservation plans to restore these upland areas into pine flatwood and sandhill habitat.



The forested wetland floodplain bordering Brooker Creek is dominated by cypress, tupelo, bays and maple over ferns. The rim ditch along the west perimeter diverts and transports a large percentage of the base flow away from the creek.



The majority of the upland-cut rim ditches are 4-6 feet deep and 15-20 feet wide between top-of-banks.



Vine coverage is more common along the banks of the rim ditches without canopy cover, resulting in more difficult and restrictive conditions for wildlife access between the upland and wetland habitat.



The interior of the forested wetland bordering the north side of the elevated driveway; the historic contributing water from south of the driveway has been block by the driveway berm.



The marsh interior of the wetland south of the driveway. Without positive outfall of drainage, this wetland's unstable hydroperiod from surface water impoundment has resulted in tree and herb generation during droughts.



The additional 66 acres acquired along the northwest corner of the Buffer Preserve provide a wonderful habitat buffer and wildlife corridor.



Half of the additional acreage is comprised of forested wetlands with moderate to dense canopy of cypress, maple, tupelo and bays.

SW-92 HALPATA TASTANAKI PRESERVE MITIGATION PLAN

BACKGROUND INFORMATION

Project Type	SWIM?	Aquatic Control?	Exotic Control?	Mitigation Bank?
	No	No	No	No
Mitigation Type	Wetland enhancement			
Landowner	Southwest Florida Water Management District		Management Entity	Southwest Florida Water Management District
County	Marion		Watershed	Withlacoochee River
Water bodies	Withlacoochee River		Water body Designations	Outstanding Florida Water

IMPACT INFORMATION

FM number	Project Description	Total Impact Acres	State Permit	Federal Permit
2571651	US 41 from SR 44 to SR 200	0.70		
4230961	SR 33 at CR 474	1.00		
4295821	I-75/ SW 95th St. Interchange	unk		
2571882	SR 200 US 41 to Marion Co. Line	2.80		

PROJECT DESCRIPTION

A. Overall project goals: The Halpata Tastanaki Preserve (Halpata) is an 8,090 acre tract located adjacent to the Withlacoochee River, along the boundary between Marion and Citrus Counties. The tract is owned and managed by the SWFWMD (District), and adjacent to and within the vicinity of thousand of acres of other public lands comprised of native habitat. Halpata has a variety of upland and wetland ecosystems, including mixed forested wetland floodplain habitat extending from the banks of the Withlacoochee River. To provide vehicular access, an elevated berm was historically constructed through the floodplain wetland. The berm dimensions and culverts have altered the historic surface water drainage patterns and contributing flow to the adjacent wetland habitat upstream and downstream of the berm. An access road is still necessary for the public and District land management staff, and the berm

is primarily used by wildlife as a corridor connection. However, portions of the berm and the majority of the culverts could be removed and replaced with wet road crossing facilities. Removal of some fill material will retain necessary and important access through the wetland, however still result in the desired goal of restoring surface water hydrology to enhance the ecological value and benefits of the adjacent wetland habitat.

B. Brief description of pre-construction habitat conditions: The delineated project area within Halpata is dominated by mixed forested wetland habitat. Portions of the Withlacoochee River have substantial surface water fluctuation ranging several feet between base flow and flood elevations, and this directly correlates to the adjacent upland and wetland habitat characteristics and functions. There are variable grade elevations, resulting in a variety of hydroperiod and associated vegetative species in the wetland habitat. The lower elevations have more obligate species; an overstory dominated by bald cypress with scattered tupelo, red maple and pop ash. The subcanopy includes the same tree species along with scattered buttonbush, however the dense canopy shade and high flood elevations (ranging 4-6 ft. above grade) associated with this portion of the wetland have substantially limited the coverage of understory and ground vegetation.

The wetland grade elevations are predominantly higher and more variable adjacent and east of the access road; resulting in more facultative hardwoods and less cypress. Red maple, sweet gum, water hickory, water oak, laurel oak and cabbage palm are common. With shorter frequency, depth and duration of surface water inundation of this habitat, there is more ground cover vegetation including dwarf palmetto (*Sabal minor*), and various low panicums and sedges where the canopy shade is not as prevalent. The highest grade elevations are within a hardwood hammock located in the southeast portion of the wetland. This transitional habitat has dominant overstory coverage provided by laurel oak, water oak, scattered large live oak, loblolly pine, cabbage palm, and dwarf palmetto provides minor to moderate ground coverage.

There is minimal coverage of non-forested wetland habitat within the project area, primarily limited to five borrow pits (each covering less than 0.5 acre) dredged to provide the necessary fill material for the original berm construction. These ponds have predominant coverage of spatterdock, duckweed, and floating pennywort, and they provide a valuable dry season water source for wildlife in the vicinity.

The depth of berm fill material for the roadway portion crossing the hardwood hammock averages 1-2 feet above natural grade, compared to the lower elevation obligate zone where the berm material ranges 2-4 feet above grade. Six of the 10 culverts were installed within a 500 ft. long segment of the road that crosses the obligate zone. The berm diverts and concentrates the contributing upstream flow from the east to the lower elevation obligate zone. Then four culverts located within a 50 ft. length of the berm concentrate the outfall into a meandering creek that discharges into the Withlacoochee River. Historically the contributing basin flow from east of the berm would include more ground water seepage and wider sheet flow characteristics to the wetland floodplain west of the berm, versus the concentrated creek channel. This same but reverse groundwater and sheet flow condition existed when the river would overflow the banks and contribute flow to the wetlands east of the berm. Now that the

flood waters are blocked by the berm and concentrated through the four main culverts, it limits important and valuable flood waters from reaching and attenuating in the wetland area east of berm.

C. Brief description of construction activities and current habitat conditions: Prior to nominating Halpata to the FDOT mitigation program in 2007, an extensive hydraulic and hydrologic analysis was necessary to determine if a restoration project could be constructed to benefit the wetland floodplain and confirm no potential of any off-site drainage alterations. This analysis was conducted in 2006-2007 to evaluate the degree of wetland hydrologic impacts caused by the berm and culverts, and alternatives to restore flow conditions to benefit the wetland habitat while still maintaining a modified access road. The results of the modeling effort found that wetlands could hydrologically benefit from removing at least portions of the berm and the majority of culverts. The final design includes removing 2,600 cubic yards of berm material at three separate locations to match adjacent natural grade for a total distance of 1,000 feet. After berm removal, an additional 4-6 inches of material will be excavated below grade, followed by installation of Geoweb fabric and 6-8 inches limerock base material. The Geoweb and rock will provide a stable access road while allowing water to sheet flow over the road; thus restoring hydrologic connectivity to slightly higher wetland elevations during normal seasonal high water levels as well as flood events. This includes an isolated cypress dome within the northwest portion of the project area that doesn't receive the historic flood waters due to the berm.

A segment of berm material will be retained through the obligate zone however the associated six culverts will be replaced with three wedge-shaped breaches lined with geotextile fabric and filled with rip-rap rubble to match the original berm height. Replacing the culverts with rubble rip-rap will slow the rate of surface water discharging from the east side of the berm to the creek channel. This will result in extending the hydroperiod for the wetland east of the berm, thus enhancing the habitat and provide more water for wildlife use. The remaining 4 culverts will have sumps and riprap placed at each end to reduce water velocity and minimize scouring. Seeding of winter rye or brown-top millet will be placed on exposed soil after grading, followed by any necessary supplemental herb plantings such as maidencane. 103 acres of wetland habitat are anticipated to receive enhancement by the proposed construction activities. An additional 110-150 acres of the same wetland will also receive secondary enhancement by the project. However the degree of enhancement for the hardwood hammock and the obligate zone closer to the river are considered minor and not included in the total mitigation acreage.

After two years of semi-annual monitoring, 2-3 annual evaluations will be conducted concurrently with review and associated maintenance of the access road. This monitoring activity and associated success criteria will be conducted to ensure that the wet crossing and rubble rip-rap allows desired flow conditions. The WMD maintains a water level monitoring station where SR 200 crosses the Withlacoochee River, so it will be known in advance of when flood waters breach over the river and banks and the wet crossings. Success includes ensuring the structures are functioning as proposed and any maintenance activities conducted as quickly as possible.

D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): This mitigation project was constructed in advance of anticipated permit and construction dates for the above listed FDOT road improvement projects so that mitigation so that mitigation would be available when it was needed. Two of the FDOT road improvement projects (one now deleted from the FDOT Mitigation Program) are very near the property boundaries of Halpata.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: During the 2007 nomination and selection of mitigation options for wetland impacts, there were no existing or proposed private mitigation banks in the Withlacoochee River watershed.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The Withlacoochee River is classified an Outstanding Florida Waters and not a SWIM-designated water body. The only SWIM-sponsored project in the Withlacoochee River watershed involves sediment removal from Lake Panasoffkee; a project that has previously received mitigation funding to compensate for FDOT wetland impacts associated with expanding the I-75 bridge over Lake Panasoffkee.

PROJECT IMPLEMENTATION

Entity responsible for construction: Private contractor working for the SWFWMD

Entity responsible for monitoring and maintenance: Monitoring activities will be conducted as part of general site review by the SWFWMD Land Resource staff, maintenance will be initially conducted by the private contractor responsible for construction, then the SWFWMD Operations Dept. will be responsible for any necessary post-construction maintenance activities.

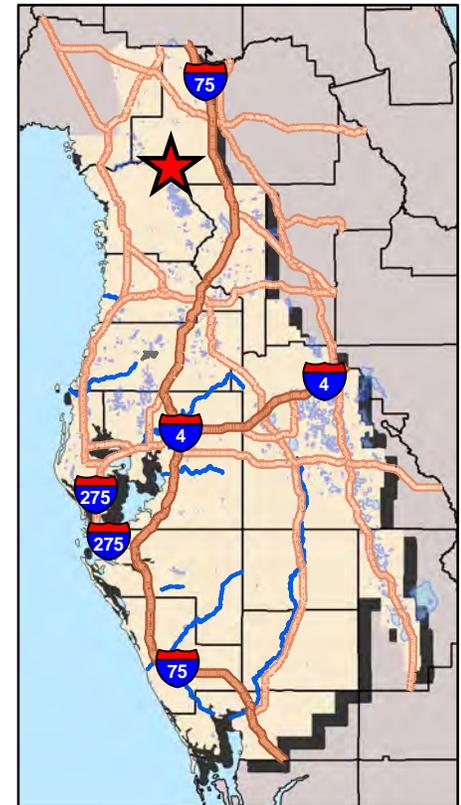
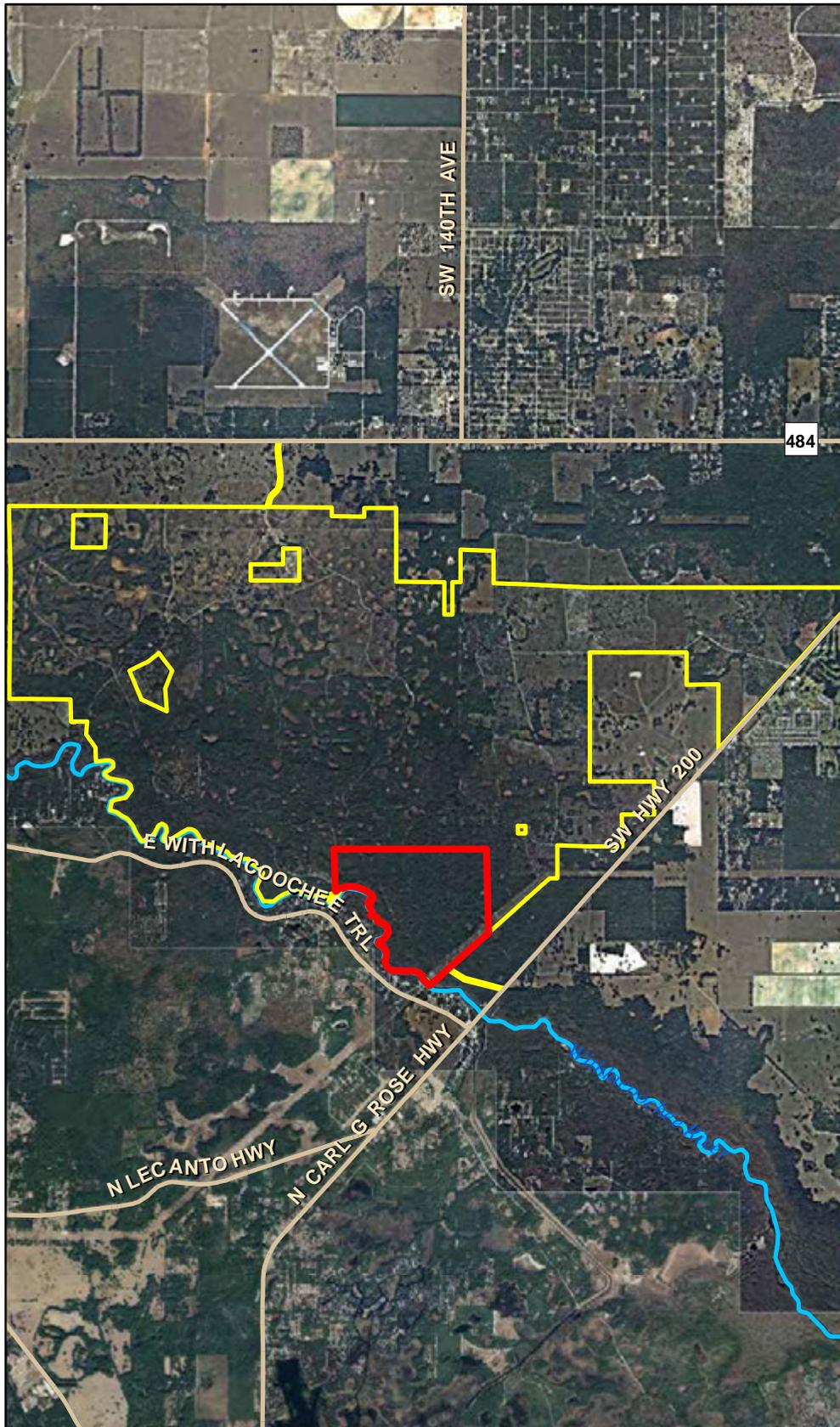
Timeframe for implementation: Commence: Design & Permitting: 2006-2008 Complete: Construction scheduled for completion in 2009, followed by periodic review to ensure structures are properly functioning, and maintenance on any problem areas such as erosion control and rock stabilization.

Project cost: \$376,000 (total)

ATTACHMENTS

1. Figure A-Location
2. Figure B-Existing Conditions
3. Figure C-Proposed Structures & Wetland Enhancement Areas
4. Photographs

Figure A - SW 92 - Halpata Tastanaki Preserve Project Area



Legend

- Project Area
- Property Boundary
- Withlacoochee River



0 0.5 1 2 Miles

Figure B - SW 92 - Halpata Tastanaki Preserve Existing Conditions

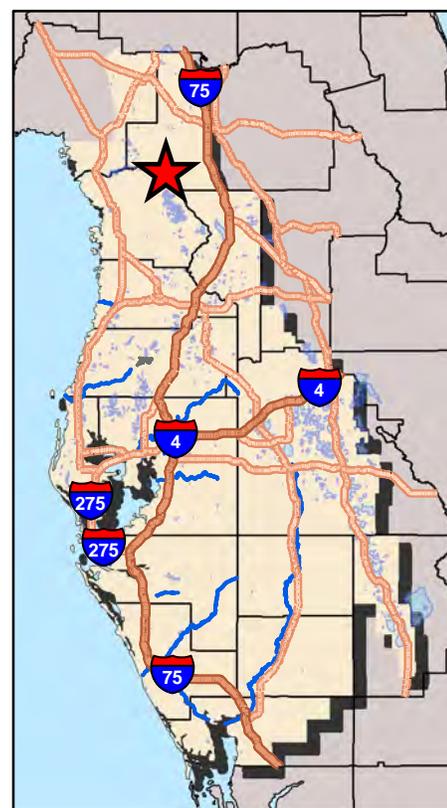
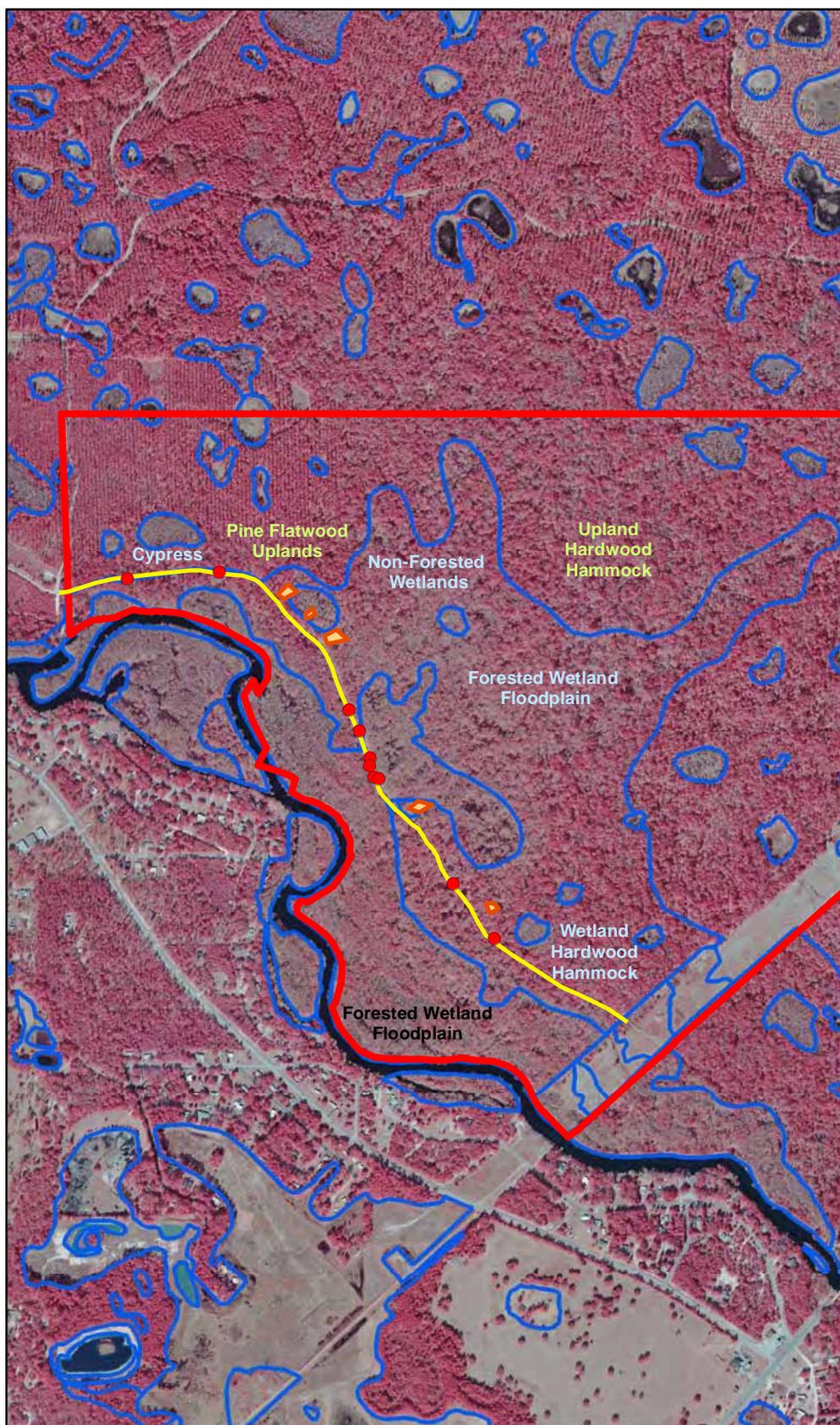
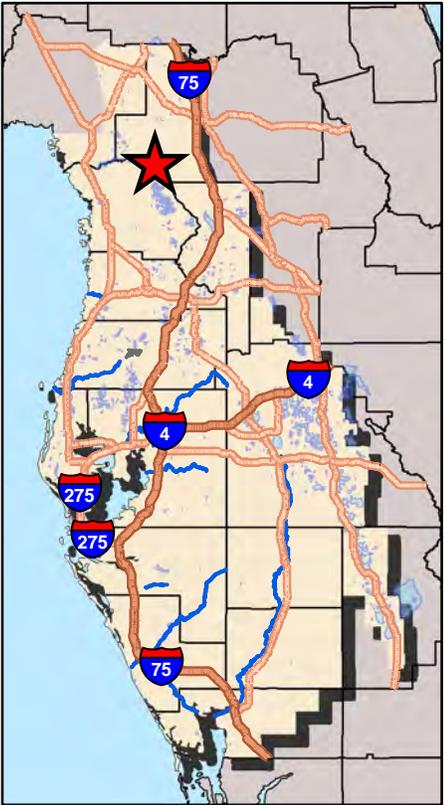
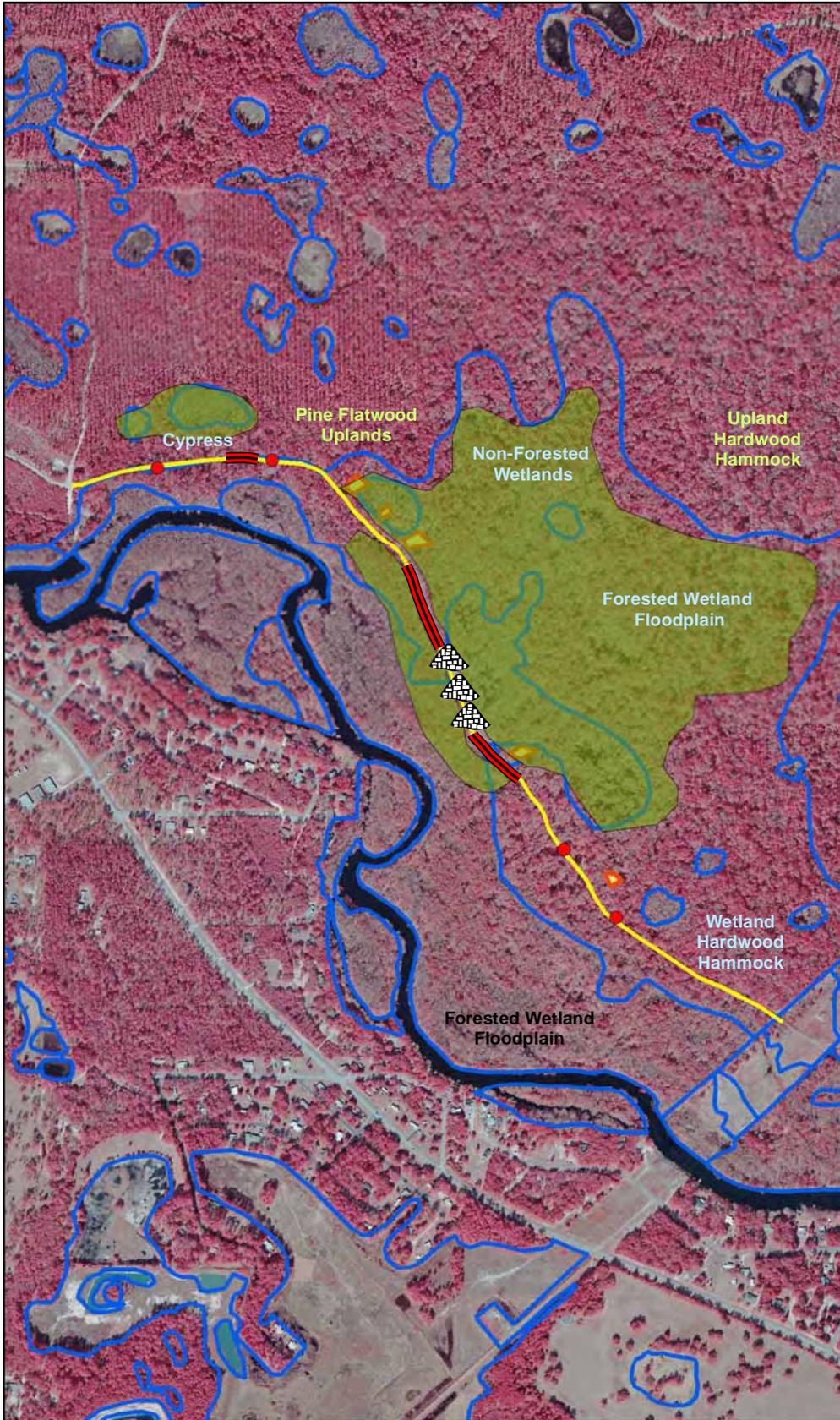


Figure C - SW 92 - Halpata Tastanaki Preserve Proposed Structures & Wetland Enhancement Areas

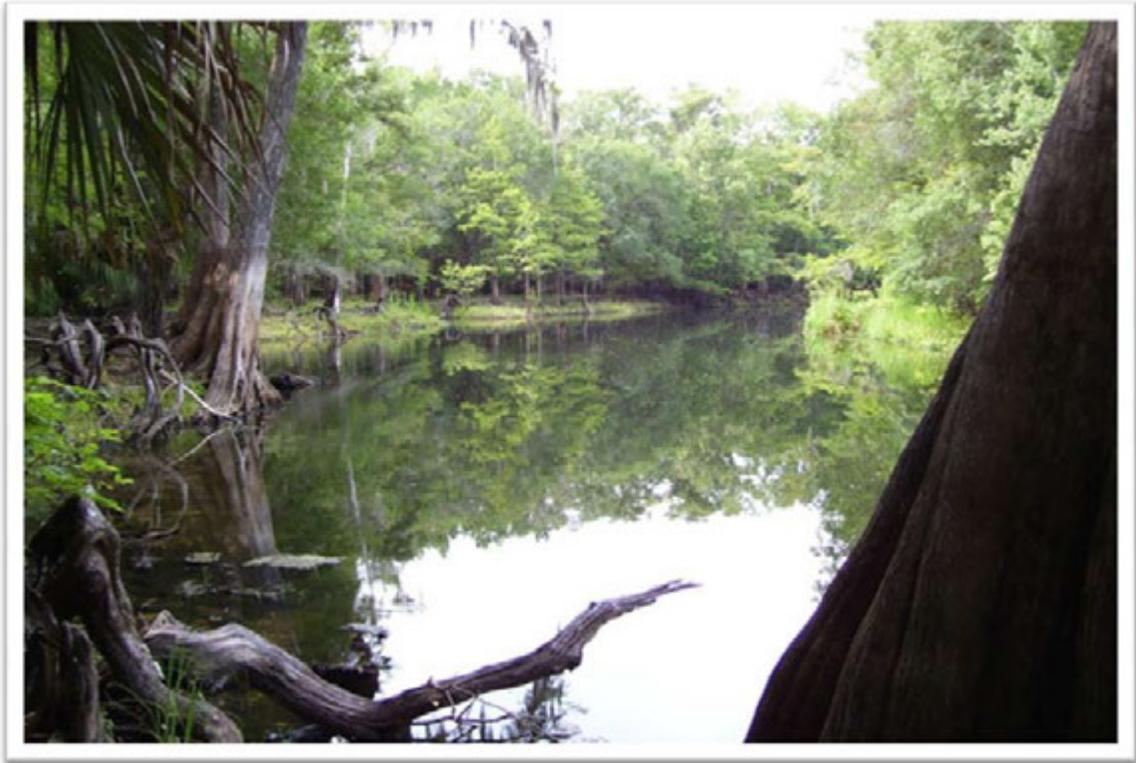


Legend

- Culverts Replaced with RipRap
- Approximate Culvert Locations
- Wet Road Crossing
- Primary Wetland Enhancement Areas
- Access Road Berm
- Borrow Pits

2010 Land Use Land Cover

- Wetlands



The Withlacoochee River meanders along the southern boundary of the Halpata Tasthanaki Preserve.



The obligate areas of the wetland floodplain have dominant coverage provided by bald cypress and hardwood species such as tupelo, pop ash, water hickory and red maple. The dark stains of the lower 6 ft. on the trees represent a flood water elevation from the river.



The wetland floodplain grade elevation rises and habitat conditions transition to include less cypress and more facultative species such as laurel oak, red maple, sweet gum, and American elm; as well as more ground coverage of low panicums and sedges where the canopy is more open than the obligate zone.



The highest grade elevations are within the southeast portion of the wetland; a hardwood hammock with water oak, cabbage palm, laurel oak, live oak, American elm, and ground coverage of dwarf palmetto and sedges. Flood water elevation indicators are evident within two feet of the surface grade.



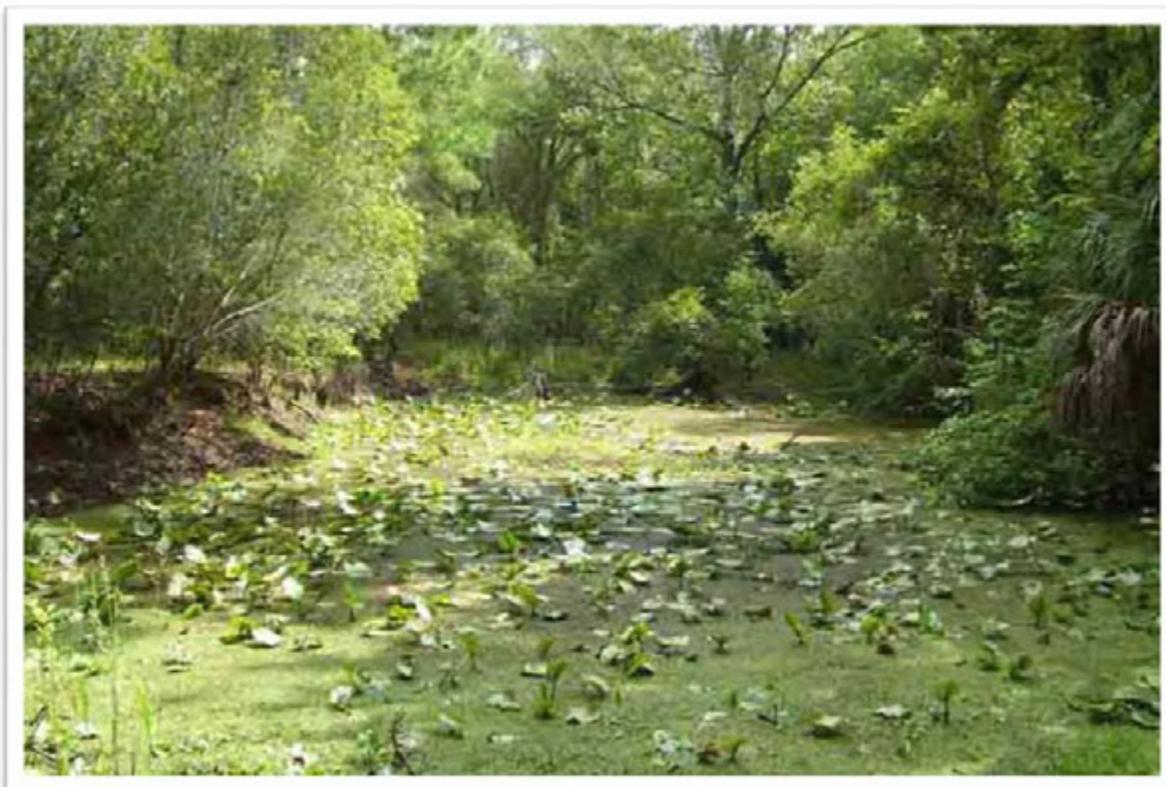
Downstream end of two culverts that discharge water into a creek channel. The culverts will be removed and replaced with rip-rap rubble that will allow gradual seepage into the channel; extending the hydroperiod and attenuation of surface water in the wetland portion on the upstream side of the berm.



Four of the culverts will remain, however sumps and rip-rap will be placed at the culvert ends to aid in maintaining flow and minimize scouring and undermining of the culverts.



Portions of the access road berm will be removed and replaced with Geoweb material and small limerock to maintain a wet road crossing for vehicle access. The cleared path will also continue to provide a beneficial wildlife corridor connector through the forested wetland.



Small borrow ponds exist adjacent to the road; with dominant coverage of spatterdock and duckweed. The ponds provide a valuable water source for wildlife, particularly during the dry season. The proposed berm modifications will allow contributing flood waters to reach, recharge and flush the ponds more often than the current conditions.

Appendix A: The 2012 Florida Statutes

(from

http://archive.flsenate.gov/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0300-0399/0373/Sections/0373.4137.html as of 12-21-12)

[Title XXVIII](#)

NATURAL RESOURCES; CONSERVATION,
RECLAMATION, AND USE

[Chapter 373](#)

WATER
RESOURCES

[View Entire
Chapter](#)

373.4137 Mitigation requirements for specified transportation projects.—

(1) The Legislature finds that environmental mitigation for the impact of transportation projects proposed by the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 can be more effectively achieved by regional, long-range mitigation planning rather than on a project-by-project basis. It is the intent of the Legislature that mitigation to offset the adverse effects of these transportation projects be funded by the Department of Transportation and be carried out by the use of mitigation banks and any other mitigation options that satisfy state and federal requirements.

(2) Environmental impact inventories for transportation projects proposed by the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 shall be developed as follows:

(a) By July 1 of each year, the Department of Transportation, or a transportation authority established pursuant to chapter 348 or chapter 349 which chooses to participate in the program, shall submit to the water management districts a list of its projects in the adopted work program and an environmental impact inventory of habitats addressed in the rules adopted pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344, which may be impacted by its plan of construction for transportation projects in the next 3 years of the tentative work program. The Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 may also include in its environmental impact inventory the habitat impacts of any future transportation project. The Department of Transportation and each transportation authority established pursuant to chapter 348 or chapter 349 may fund any mitigation activities for future projects using current year funds.

(b) The environmental impact inventory shall include a description of these habitat impacts, including their location, acreage, and type; state water quality classification of impacted wetlands and other surface waters; any other state or regional designations for these habitats; and a list of threatened species, endangered species, and species of special concern affected by the proposed project.

(3)(a) To fund development and implementation of the mitigation plan for the projected impacts identified in the environmental impact inventory described in subsection (2), the Department of Transportation shall identify funds quarterly in an escrow account within the State

Transportation Trust Fund for the environmental mitigation phase of projects budgeted by the Department of Transportation for the current fiscal year. The escrow account shall be maintained by the Department of Transportation for the benefit of the water management districts. Any interest earnings from the escrow account shall remain with the Department of Transportation.

(b) Each transportation authority established pursuant to chapter 348 or chapter 349 that chooses to participate in this program shall create an escrow account within its financial structure and deposit funds in the account to pay for the environmental mitigation phase of projects budgeted for the current fiscal year. The escrow account shall be maintained by the authority for the benefit of the water management districts. Any interest earnings from the escrow account shall remain with the authority.

(c) Except for current mitigation projects in the monitoring and maintenance phase and except as allowed by paragraph (d), the water management districts may request a transfer of funds from an escrow account no sooner than 30 days before the date the funds are needed to pay for activities associated with development or implementation of the approved mitigation plan described in subsection (4) for the current fiscal year, including, but not limited to, design, engineering, production, and staff support. Actual conceptual plan preparation costs incurred before plan approval may be submitted to the Department of Transportation or the appropriate transportation authority each year with the plan. The conceptual plan preparation costs of each water management district will be paid from mitigation funds associated with the environmental impact inventory for the current year. The amount transferred to the escrow accounts each year by the Department of Transportation and participating transportation authorities established pursuant to chapter 348 or chapter 349 shall correspond to a cost per acre of \$75,000 multiplied by the projected acres of impact identified in the environmental impact inventory described in subsection (2). However, the \$75,000 cost per acre does not constitute an admission against interest by the state or its subdivisions and is not admissible as evidence of full compensation for any property acquired by eminent domain or through inverse condemnation. Each July 1, the cost per acre shall be adjusted by the percentage change in the average of the Consumer Price Index issued by the United States Department of Labor for the most recent 12-month period ending September 30, compared to the base year average, which is the average for the 12-month period ending September 30, 1996. Each quarter, the projected acreage of impact shall be reconciled with the acreage of impact of projects as permitted, including permit modifications, pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344. The subject year's transfer of funds shall be adjusted accordingly to reflect the acreage of impacts as permitted. The Department of Transportation and participating transportation authorities established pursuant to chapter 348 or chapter 349 are authorized to transfer such funds from the escrow accounts to the water management districts to carry out the mitigation programs. Environmental mitigation funds that

are identified for or maintained in an escrow account for the benefit of a water management district may be released if the associated transportation project is excluded in whole or part from the mitigation plan. For a mitigation project that is in the maintenance and monitoring phase, the water management district may request and receive a one-time payment based on the project's expected future maintenance and monitoring costs. Upon disbursement of the final maintenance and monitoring payment, the escrow account for the project established by the Department of Transportation or the participating transportation authority may be closed. Any interest earned on these disbursed funds shall remain with the water management district and must be used as authorized under this section.

(d) Beginning in the 2005-2006 fiscal year, each water management district shall be paid a lump-sum amount of \$75,000 per acre, adjusted as provided under paragraph (c), for federally funded transportation projects that are included on the environmental impact inventory and that have an approved mitigation plan. Beginning in the 2009-2010 fiscal year, each water management district shall be paid a lump-sum amount of \$75,000 per acre, adjusted as provided under paragraph (c), for federally funded and nonfederally funded transportation projects that have an approved mitigation plan. All mitigation costs, including, but not limited to, the costs of preparing conceptual plans and the costs of design, construction, staff support, future maintenance, and monitoring the mitigated acres shall be funded through these lump-sum amounts.

(4) Before March 1 of each year, each water management district, in consultation with the Department of Environmental Protection, the United States Army Corps of Engineers, the Department of Transportation, participating transportation authorities established pursuant to chapter 348 or chapter 349, and other appropriate federal, state, and local governments, and other interested parties, including entities operating mitigation banks, shall develop a plan for the primary purpose of complying with the mitigation requirements adopted pursuant to this part and 33 U.S.C. s. 1344. In developing such plans, the districts shall use sound ecosystem management practices to address significant water resource needs and shall focus on activities of the Department of Environmental Protection and the water management districts, such as surface water improvement and management (SWIM) projects and lands identified for potential acquisition for preservation, restoration, or enhancement, and the control of invasive and exotic plants in wetlands and other surface waters, to the extent that the activities comply with the mitigation requirements adopted under this part and 33 U.S.C. s. 1344. In determining the activities to be included in the plans, the districts shall consider the purchase of credits from public or private mitigation banks permitted under s. [373.4136](#) and associated federal authorization and shall include the purchase as a part of the mitigation plan when the purchase would offset the impact of the transportation project, provide equal benefits to the water resources than other mitigation options being considered, and provide the most cost-effective mitigation option. The mitigation

plan shall be submitted to the water management district governing board, or its designee, for review and approval. At least 14 days before approval, the water management district shall provide a copy of the draft mitigation plan to any person who has requested a copy. The plan may not be implemented until it is submitted to and approved, in part or in its entirety, by the Department of Environmental Protection.

(a) For each transportation project with a funding request for the next fiscal year, the mitigation plan must include a brief explanation of why a mitigation bank was or was not chosen as a mitigation option, including an estimation of identifiable costs of the mitigation bank and nonbank options and other factors such as time saved, liability for success of the mitigation, and long-term maintenance.

(b) Specific projects may be excluded from the mitigation plan, in whole or in part, and are not subject to this section upon the election of the Department of Transportation, a transportation authority if applicable, or the appropriate water management district.

(c) When determining which projects to include in or exclude from the mitigation plan, the Department of Transportation shall investigate using credits from a permitted mitigation bank before those projects are submitted for inclusion in the plan. The investigation shall consider the cost-effectiveness of mitigation bank credits, including, but not limited to, factors such as time saved, transfer of liability for success of the mitigation, and long-term maintenance.

(5) The water management district shall ensure that mitigation requirements pursuant to 33 U.S.C. s. 1344 are met for the impacts identified in the environmental impact inventory described in subsection (2), by implementation of the approved plan described in subsection (4) to the extent funding is provided by the Department of Transportation, or a transportation authority established pursuant to chapter 348 or chapter 349, if applicable. During the federal permitting process, the water management district may deviate from the approved mitigation plan in order to comply with federal permitting requirements.

(6) The mitigation plans shall be updated annually to reflect the most current Department of Transportation work program and project list of a transportation authority established pursuant to chapter 348 or chapter 349, if applicable, and may be amended throughout the year to anticipate schedule changes or additional projects which may arise. Each update and amendment of the mitigation plan shall be submitted to the governing board of the water management district or its designee for approval. However, such approval shall not be applicable to a deviation as described in subsection (5).

(7) Upon approval by the governing board of the water management district or its designee, the mitigation plan shall be deemed to satisfy the mitigation requirements under this part for impacts specifically identified in the environmental impact inventory described in subsection (2) and any other mitigation requirements imposed by local, regional, and state agencies for these same

impacts. The approval of the governing board of the water management district or its designee shall authorize the activities proposed in the mitigation plan, and no other state, regional, or local permit or approval shall be necessary.

(8) This section shall not be construed to eliminate the need for the Department of Transportation or a transportation authority established pursuant to chapter 348 or chapter 349 to comply with the requirement to implement practicable design modifications, including realignment of transportation projects, to reduce or eliminate the impacts of its transportation projects on wetlands and other surface waters as required by rules adopted pursuant to this part, or to diminish the authority under this part to regulate other impacts, including water quantity or water quality impacts, or impacts regulated under this part that are not identified in the environmental impact inventory described in subsection (2).

(9) The process for environmental mitigation for the impact of transportation projects under this section shall be available to an expressway, bridge, or transportation authority established under chapter 348 or chapter 349. Use of this process may be initiated by an authority depositing the requisite funds into an escrow account set up by the authority and filing an environmental impact inventory with the appropriate water management district. An authority that initiates the environmental mitigation process established by this section shall comply with subsection (6) by timely providing the appropriate water management district with the requisite work program information. A water management district may draw down funds from the escrow account as provided in this section.

History.—s. 1, ch. 96-238; s. 36, ch. 99-385; s. 1, ch. 2000-261; s. 93, ch. 2002-20; s. 39, ch. 2004-269; s. 30, ch. 2005-71; s. 12, ch. 2005-281; s. 1, ch. 2009-11; s. 3, ch. 2012-174.

Appendix B: ERP Watersheds in the Southwest FL Water Management District

