Legislative ID# 120929

FY2013 TMDL GRANT APPLICATION

Paynes Prairie Sheetflow Restoration – Phase 3
Part 1 of 2

Prepared for:
Florida Department of Environmental Protection
Water Section

Prepared by:
City of Gainesville
Public Works Department
Stormwater Management Utility
Gainesville, Florida
February, 2013

TMDL WATER QUALITY RESTORATION GRANT PROPOSAL APPLICATION

PROJECT NAME: Paynes Prairie Sheetflow Restoration – Phase 3

PROJECT FUNDING:			
	TMDL Grant	**$** 500,000.00	36 **%**
	Matching Funds	**$** 864,207.00	64 **%**
	Total Project Cost	**$** 1,364,207.00	100 **%**

LEAD ORGANIZATION: City of Gainesville
End of Fiscal Year: September 30
FEID Number: 59-6000325

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COOPERATING ORGANIZATIONS AND CONTACT PERSON (THOSE PROVIDING FUNDING OR IN-KIND SERVICES):

St. Johns River Water Management District, Casey Fitzgerald
Gainesville Regional Utilities, Alice Rankeillor
Florida Department of Transportation, Alan Obaigbena

PROJECT ABSTRACT:

- Receiving Water Body: Alachua Sink
- Status of Impaired Water Body: BMAP Adopted
- Number of Acres Treated: 2,130

The proposed Sweetwater Branch/Paynes Prairie Sheetflow Restoration Project (PPSRP) is a nutrient reduction project whose best management practices (BMP) include a 1) water reclamation plant upgrade, 2) Sweetwater Branch channel improvements to stabilize the channel, capture sediment and trash, 3) create a 125 acre treatment wetland that reduces TN to 3 mg/l or less for achieving TMDL requirements, 4) construct a mile and a quarter long sheetflow distribution channel to rehydrate 1300 acres of stressed prairie habitat, and 5) back fill almost two miles of existing canal to eliminate short circuiting. Note: 1) above is excluded from the funding request.

This combination of BMP's provides an innovative treatment train using physical and biological processes that improves the quality of the water by; greatly reducing the sediment and trash entering the prairie, reducing the TN & TP to near background levels, cutting off the direct connection of Sweetwater Branch to Alachua Sink and virtually restoring original sheetflow drainage patterns to this portion of the prairie. These environmental processes and outcomes are interpreted and emphasized in extensive signage developed for the public education element (See Appendix 5) of the project. It is noted that P is not a pollutant of concern, however it is included for information to

demonstrate that the discharge to the native prairie habitat will not adversely be impacted by the discharge.

TMDL – This project is to remove excess total nitrogen (TN) identified in the Nutrient TMDL for Alachua Sink, WBID 2720A in Table 49, on page 69 for Wastewater (41,090 lb/yr) and NPDES Stormwater (45% of current stormwater outfalls or 12,284 lb/yr).

PROJECT LOCATION AND WATERSHED CHARACTERISTICS:

Water Body Name: Sweetwater Branch/Orange Creek Basin/Ocklawaha
Hydrologic Unit Code(HUC): 030801021105
Project Latitude: 82° 19′ 31″ W
Project Longitude: 29° 36′ 55″ N
Project Location Map: See Appendix 3

Land Uses within the Watershed (acres and percentages of total):

Land Use	Acres	%
Urban (Residential/Commercial/Industrial)	1669.2	78.37
Agricultural	33.8	1.59
Forested	187.9	8.82
Wetlands	239.1	11.23
Land Use Totals (Acreage and %)	2130	100

TMDL STATUS OF WATER BODY AND PROJECT:

Name of Impaired Water: Alachua Sink - WBID 2702A
Status of Impaired Water: 1998 303(d) listed water body
Status of BMAP: Orange Creek BMAP - Final adopted May 2008

POLLUTION REDUCTION STRATEGY:

This project assembles a treatment train using physical and biological processes to reduce the amounts of undesirable pollutants flowing to Paynes Prairie. It comprised of the following components (See appendix 4) which are estimated to achieve pollutant load reductions as follow:

- Sediment Basin and Forebay: These elements are estimated to capture 95% (10.2 million lbs./annually) of the sediment transported. The Basin captures the coarse material, the Forebay the finer sediments and colloidal material. Peak flow analysis determines that 95% of the daily flow of Sweetwater Branch is less than the design flow for the wetland system (25 cubic feet/second), the balance, storm event flows, are bypassed to the prairie.
- The in-stream floating Trash Trap is estimated to capture 75% of the floating trash volume (4,500 cubic feet) annually.
- The Wetland Treatment System uses biological processes reduce the TN and TP by 67% (124,785 lbs.) and 35% (2,948 lbs.), respectively, annually.

This project is cited in a Watershed Management Plan: ***Orange Creek Basin Surface Water Improvement And Management Plan, Review Draft April 5, 2011*** The Paynes Prairie Sheetflow Restoration Project is referenced on pages 37 and 58 of the document.

PROJECT OBJECTIVE(S):

The proposed project will improve water quality emanating from Sweetwater Branch and restore original hydrology patterns. At a minimum this project is expected to achieve the following objectives;

1. Capture sediments and other pollutants in Sweetwater Branch flows, then naturally assimilate other nutrients to protect the Paynes Prairie, Alachua Sink, and the Floridan Aquifer,
2. Improve water quality in Alachua Sink and cost effectively attain regulatory TMDL requirements for the City of Gainesville and the Florida Department of Transportation,
3. Create a city park, the "Sweetwater Branch Wetland Park" which will include about 150 ac of high-quality wetland wildlife habitat and a public use area for bird-watching, nature study and opportunity to educate the public (See Appendices 5, 8 & 9) on sources of and effective means of mitigating excess nutrients,
4. Restore sheetflow hydrologic distribution patterns to Paynes Prairie, and
5. Restore (re-hydrate) over 1,300 ac of formerly-impacted wetlands in Paynes Prairie.

PROJECT DESCRIPTION (PLEASE LIST ALL TASKS AND DELIVERABLES):

TASK 1: Land Acquisition

DELIVERABLES: Completed prior to date of this application.
SCHEDULE: Complete

TASK 2: Design, Permitting and Bidding

DELIVERABLES: Produce final design and acquire necessary permits. Once permits and designs are in place they will be put on the web for online open bidding by construction companies**.**
SCHEDULE: Complete

TASK 3: Construction of BMPs

DELIVERABLES: Described below**.**
SCHEDULE: Described below.

TASK 3A: Construction of Wetland Cell # 1 (See Appendix 4)

DELIVERABLES: Construction pictures taken weekly throughout the construction of this task, Engineer's Certification of completion for this task, quality control verification for the work and the Grantee's Statement of Acceptance for the described work under this task**.**
SCHEDULE: Begin May 2013, Complete June 2014

TASK 3B: Remainder of Construction; Sediment Basin, Trash Trap, Forebay, Wetland Cell # 2 and 3, Distribution Channel and Canal infill.

DELIVERABLES: Construction pictures every two weeks throughout the construction of this task, Engineer's Certification of completion for this task, quality control verification for the work and the Grantee's Statement of Acceptance for the described work under this task**.**
SCHEDULE: Begin August 2012, Complete June 2014

TASK 4: BMP Effectiveness Monitoring

DELIVERABLES: Submission of a draft QAPP, Final Department approved QAPP and submission of monitoring results**.**
SCHEDULE: Begin June, 2014 - End Sept. 2015

TASK 5: Final Report

DELIVERABLES: A draft final report and an approved final report that meets all requirements indentified in the Final Report Template. The Grantee shall provide one paper copy anad one electronic copy of the approved final report to the Department**.**
SCHEDULE: Begin June, 2015 - End April 2016

ESTIMATED POLLUTANT LOAD REDUCTION:

BMP's Installed		TSS*** kg/yr	TP kg/yr	TN kg/yr	Sediment ** kg/yr	Other cf/yr	Other kg/yr
Sedimentation Basin, Forebay & Trash Trap						Trash Trap^	
Pollutant Loads	Pre-Project				2,054,036	6,000	
	Post-Project				102,701	1,500	
	Load Reduction	2,685,590			1,951,335	4,500	
	% Reduction	95			95	75	
Treatment Wetland		**TSS kg/yr**	**TP kg/yr**	**TN kg/yr**	**BOD kg/yr**	**Other kg/yr**	**Other kg/yr**
Pollutant Loads	Pre-Project		3,873	85,162			
	Post-Project		2,533	28,632			
	Load Reduction		1,340	56530			
	% Reduction		35	66			
Totals		**TSS kg/yr**	**TP kg/yr**	**TN kg/yr**	**Sediment ** kg/yr**	**Other cf/yr Trash Trap**	**Other kg/yr**
Pollutant Loads	Pre-Project		3,873	85,162	2,054,036	6,000	
	Post-Project		2,533	28,632	102,701	1,500	
	Load Reduction	2,685,590	1,340	56530	1,951,335	4,500	
	% Reduction	95	35	66	95	75	

Notes: **The Sediment Basin captures the coarse sediment; see Sediment above. ***The Forebay captures the finer sediments and colloidal material; see TSS above. The Sediment Basin is cleaned annually, the Forebay every 10 years: annualized data is presented. ^ Source: Preliminary Engineering Report, Jones Edmunds & Associates, January 2010

PROJECT MILESTONES:

Task	Activity	Start	Complete
1	Land Acquisition	Complete prior to date of Application	Complete prior to date of Application
2	Design, Permitting and Bidding		Complete prior to date of Application
3A	BMP Construction	May 2013	June 2014
3B	Remainder of BMP Construction	August 2012	June 2014
4	BMP Effectiveness Monitoring*	June 2014	Sept 2015
5	Draft and Final Reports:	June 2015	April 2016

*See Appendix 6 for draft Monitoring Plan

PROJECT BUDGET:

Project Funding Activity	Grant Amount	Matching Contribution	Match Source *
Land Acquisition			
Design, Permitting and Bidding			
BMP Construction (3A)	$ 500,000.00	$864,207.00	Local (Grantee)
Remainder of BMP Construction (3B)			
BMP Effectiveness Monitoring			
Public Education			
Draft and Final Reports:			
Total:	$ 500,000.00	$864,207.00	
Total Project Cost:		$ 1,364,207.00	
Percentage Match:	36%	64%	

***If a stormwater utility or other dedicated recurring fee is contributing, put that information in the following table.**
DEDICATED STORMWATER FUNDING INFORMATION:

Match Source Name	Description	ERU/Fee
City of Gainesville	Stormwater Management Utility Fee (SMU)	$8.15/month
City of Gainesville	Wastewater Fees	$34.90/month

OTHER FUNDING (Not Match):

Agency	Activity	Amount
State of Florida	Land Purchase	$500,000.00
St. Johns River Water Management District (SJR)	Design	$850,000.00
Florida Department of Transportation	Design	$666,000.00
SJR	Land Purchase	$500,000.00
FDEP - 319 FY10 , Phase I	Construction	$750,000.00
FDEP - TMDL FY11, Phase 1	Construction	$389,000.00
FDEP -FY12 319(h), Phase 2	Construction	$467,270.00
FDEP - TMDL FY12, Phase 2	Construction	$400,000.00
	Total:	$4,522,270.00

REFERENCES CITED:

Jones Edmunds, Inc., January 2010 Preliminary Engineering Report for the Sweetwater Branch/Paynes Prairie Sheetflow Restoration Project. Prepared for City of Gainesville Dept. of Public Works and Gainesville Regional Utilities. P.O. Box 490, Mail Station # 58, Gainesville, FL 32602-0490.

Jones Edmunds, Inc., June 2011 Sweetwater Branch/Paynes Prairie Sheetflow Restoration 60% Plans Submittal. Prepared for City of Gainesville Dept. of Public Works and Gainesville Regional Utilities. P.O. Box 490, Mail Station # 58, Gainesville, FL 32602-0490.

Wetland Solutions Inc., December 2006. Effect of Main Street Water Reclamation Facility Pretreatment Alternatives on the Sizing of Sweetwater Branch Off-line Wetland. Prepared for City of Gainesville and Florida Department of Environmental Protection. 2809 NW 161st Court, Gainesville, FL 32609

Sweetwater Branch/Paynes Prairie Sheetflow Restoration Team (Knight, Keller, Hutton, Rankeillor, Pearson, et al), March 2006. A Conceptual Plan for Sweetwater Branch/Paynes Prairie Sheet Flow Restoration. Public Works Department, P.O. Box 490, Mail Station # 58, Gainesville, FL 32602-0490

Gao, Gilbert, and Magley, January 2006. Nutrient TMDL for Alachua Sink, WBID 2720A. Florida Department of Environmental Protection, Division of Water Resource Management, Bureau of Watershed Management, Northeast District, Ocklawaha Basin, 2600 Blair Stone Road, Mail Station 3555, Tallahassee, FL 32399-2400

Jones, Edmunds & Associates, June 2004. Sweetwater Branch Watershed Management Plan. Prepared for: City of Gainesville Public Works Department, P.O. Box 490, Station 58, Gainesville, Florida 32602-0490. 730 NE Waldo Road, Building A, Gainesville, Florida 32641.

Orange Creek Basin Working Group, May 27, 2008. 2007 Orange Creek Basin Management Action Plan for Newnans Lake, Orange Lake, Lake Wauberg, Hogtown Creek, Sweetwater Branch, Tumblin Creek, and Alachua Sink. In Cooperation with the Florida Department of Environmental Protection, Division of Water Resource Management, Bureau of Watershed Management, 2600 Blair Stone Road, Mail Station 355, Tallahassee, FL 32399-2400

Total Maximum Daily Load Program as authorized by 403.067(2) and (3), Florida Statutes (F.S.) and as further implemented by 62-303, Florida Administrative Code.

Individual Environmental Resource Permit Application # 4-001-125967-1 at https://permitting.sjrwmd.com/epermitting/jsp/Search.jsp?option=permitNumberOption, St. Johns River Water Management District

NOTE: Appendices in a separate document Part 2 of 2.
Not included as part of the agenda item.