

# Update Paynes Prairie Sheetflow Restoration Project Gainesville, Florida

*David Richardson, P.E.  
Assistant General Manager  
Water/Wastewater Systems  
Gainesville Regional Utilities*

*January 20, 2011*





# Topics

1. Project Overview
2. Project Status
3. EPA Numerical Nutrient Criteria
4. Summary & Recommendations





# FDEP TMDL Process

- TMDL – “Total Maximum Daily Load”
  - Specifies reductions in nutrients from all sources in order to restore water quality
  - Nutrient reduction goals set based on scientific evaluation of each water body
  - Goal is to restore water body so there is no “Imbalance of flora or fauna”., i.e. no excess algae or plant growth





# Alachua Sink Total Maximum Daily Load (TMDL)

- Alachua Sink TMDL - 2006
  - Completed by FDEP & approved by EPA in 2006
    - Basin Management Action Plan (BMAP) process started in 2004
  - Requires reductions in Total Nitrogen from All Sources

	<u>% Reduction</u>
• Main Street WRF	55%
• Stormwater	45%
• Other Sources	45%
  - Paynes Prairie Sheetflow Restoration project will meet the TMDL requirements for GRU (Main Street WRF) and the City's Stormwater Utility
  - Project is a major environmental restoration project that addresses several problems in addition to TMDL



# Historical Impacts to System

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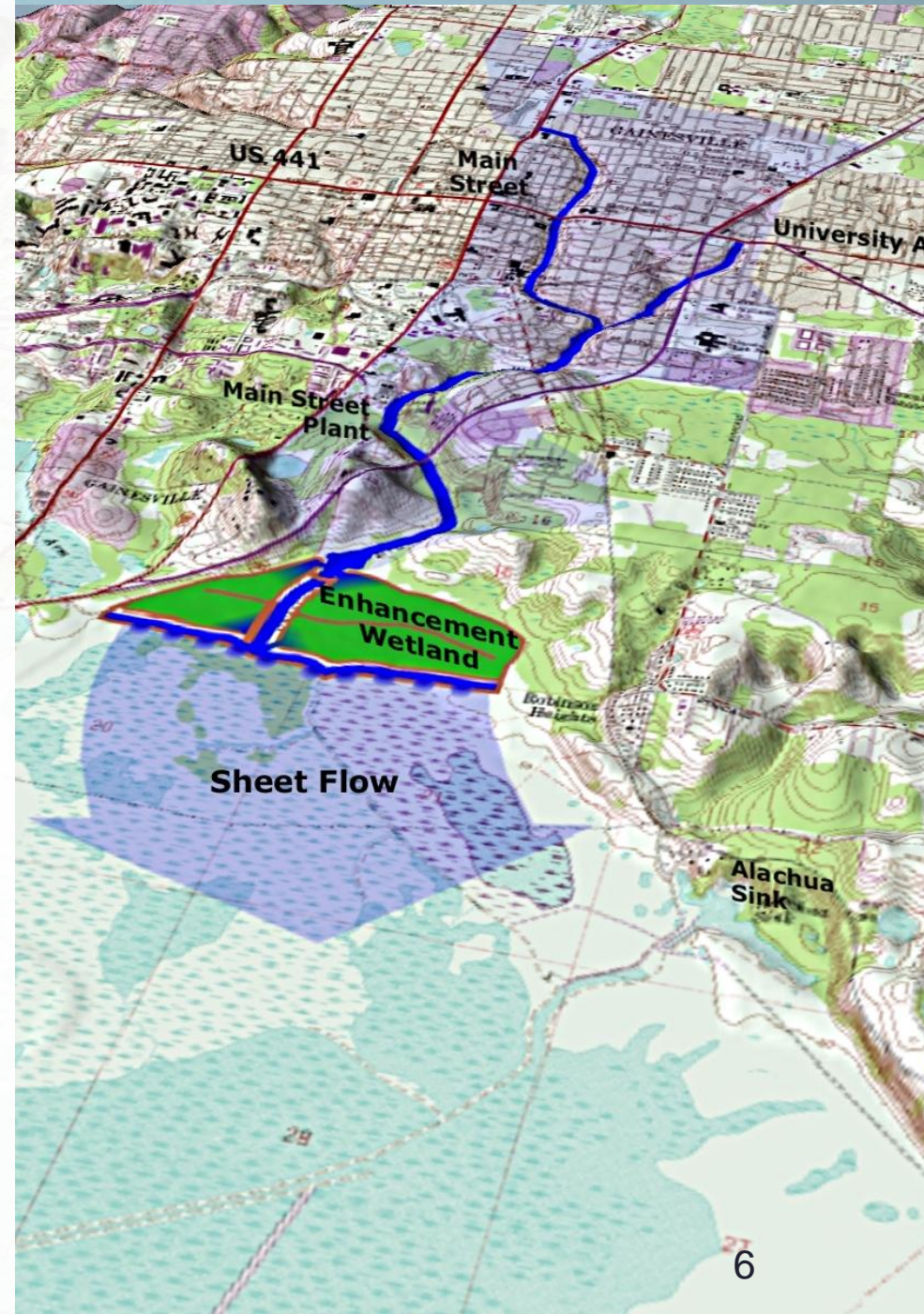


- **1800s to present:** Urbanization of Gainesville
  - Stormwater runoff
  - Trash
  - WW Effluent
  - Septic Tanks
- **1930s:** Sweetwater Branch channeled directly to Alachua Sink
  - 1,300 acres of wetlands impacted.
  - Direct flow path from Gainesville to Alachua Sink
- **1930s:** Portion of Prairie Creek flow diverted away from Paynes Prairie



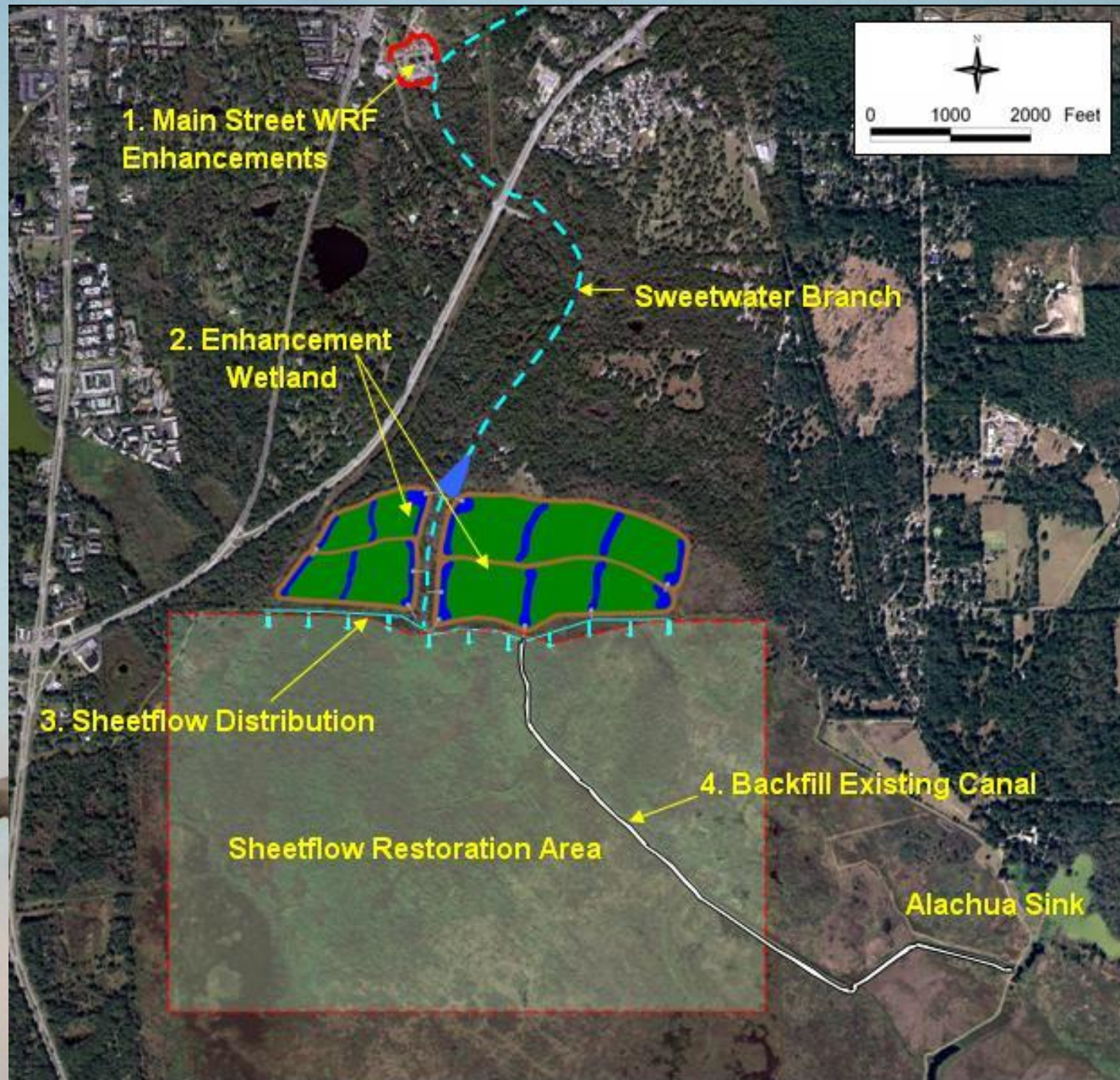
# Project Benefits

1. Improve Water Quality in Alachua Sink
  - Meet TMDL
2. Restore 1,300 ac natural wetlands
  - Rehydrate
  - Remove Trash & Sediment
3. Protect Floridan Aquifer
4. Help Restore flow balance to Paynes Prairie
5. Wildlife habitat & public park
  - Additional conservation land added to park





# Paynes Prairie Sheetflow Restoration





# Permit Requirements

- Project included in the Basin Management Action Plan (BMAP) for Orange Creek Basin
- Main Street WRF Operating Permit enforces the TMDL & includes implementation timeline to meet the TMDL
  - Spring/Summer 2012: Complete 100% Design Plans
  - September 2014: Beginning Construction of Project
  - April 2017: Complete Construction
  - April 2018 – April 2019: Facility Shall Comply with Final Mass Loading to Meet TMDL





# Project Progress

1. Expenditure so far - \$3,825,000
  - Grant Funding - \$3,655,000
2. Land Swap Complete
3. ACOE and SJRWMD Permits Under Review
4. Project Design near 60% Complete
5. Proposing to hire “Construction Manager at Risk” to assist in completion of design & construction
  - Similar model used for Eastside Operations Center
6. Begin Construction Fall 2011



# Numerical Nutrient Criteria (NNC)

- Adopted by EPA November 2010
  - 15 month “waiting period” for implementation
- Applies only to Florida
- Sets numerical standards for all freshwater bodies
  - Not Site specific
  - Lakes – Statewide Standards
  - Streams - based on “eco-regions”
- EPA will include provisions for “Site Specific Alternative Criteria” (SSAC)
  - EPA guidance on how to apply for & obtain SSAC not yet published



# General Statewide Concerns with NNC

- Not site specific
  - Florida water bodies vary significantly in natural nutrient levels & sensitivity to nutrients
  - Concerns about science used in setting NNC
- TMDL program may be undermined
  - TMDLs are site specific
  - Many TMDL related projects in progress but not yet complete
    - Water quality improvements are forthcoming
- NNC criteria in many cases not attainable with conventional technologies
- SSAC – process not clear, may be cumbersome or not possible to obtain in some cases



# Pending Litigation On NNC

- Florida State Attorney
- FL Dept of Agriculture
- Florida Stormwater Association
- Florida Water Environment Association Utility Council
- Florida Fertilizer Institute
- Others

- Earth Justice has also filed an additional suit



# NNC Risks/Concerns related to Project

## 1. Project may not meet NNC for Alachua Sink

- NNC more Stringent than TMDL
- **2013 TMDL will be Reviewed**
  - SSAC or revised TMDL may be required
- ***DEP and EPA have assured us that we will not be required to achieve TN and TP below background***
  - Project is designed to achieve background





# NNC Risks/Concerns

## Risks Associated with Alachua Sink NNC

- Under worst case scenario additional upgrades to Main Street WRF would be required
- Based on our discussions with FDEP and with EPA we feel that this is a relatively low risk
- May require additional studies & data collection





# NNC Risks/Concerns

## 2. Project will not meet NNC criteria in Sweetwater Branch

- 1.25 mile section of Sweetwater upstream of the enhancement wetland will not meet NNC criteria
- Currently no TMDL for TN or TP for Sweetwater Branch
  - Nutrients not affecting biology – no excessive algae or plant growth
  - Creek is biologically impaired due to high runoff flows, channeling & fecal coliforms
  - Decreasing nutrient levels would not improve creek biology, appearance, habitat, etc.
- *SSAC for Sweetwater Branch will likely be required for project to meet NNC*



# NNC Risks/Concerns

## SSAC for Sweetwater Branch

- Per FDEP regulations, will require “Reclassification” of Sweetwater Branch as a “Class III limited” water body in conjunction with SSAC
  - Class III limited designation recognizes that a stream is unlikely to be restored to natural condition due to channelization, incising and other man-made changes
- Will require demonstration that nutrients are not causing biological problems in Sweetwater Branch
- Will also demonstrate a net benefit of the project to the wetlands being restored in Paynes Prairie



# NNC Risks/Concerns

## Risks Associated with Sweetwater Branch NNC

- Additional studies & data collection will be required for SSAC application
- If SSAC cannot be obtained for Sweetwater Branch, GRU will have to construct a pump station and pipeline from MSWRF directly to the enhancement wetland (i.e. bypassing Sweetwater Branch)
  - \$8.4 million capital cost (+\$170,000/yr O&M cost)
- Flow in Sweetwater Branch downstream of MSWRF would be dramatically reduced during dry weather conditions
- Little or no benefit to Sweetwater Branch
  - *No improvement, and possible degradation of stream biology*



# Summary/Recommendations

1. Paynes Prairie Sheetflow Restoration Project is a “Poster Child” project for providing a holistic approach for meeting TMDLs and addressing several environmental problems.
2. Project continues to be supported by FDEP & all of our project partners
3. Significant Progress
  - Plans near 60% complete
  - \$3.8 M spent so far
  - Permit applications under review
4. Permit requirements which enforce the 2006 TMDL, require us to implement the project.





# Summary/Recommendations

## 5. Risk Associated with NNC

- We are working closely with FDEP & EPA
- Likely will require Site Specific Alternative Criteria (SSAC) for Sweetwater Branch

## Recommendation

Continue moving forward with the project. Continue working with FDEP & EPA on approaches for complying with NNC rules.