

# Stormwater Program Water Quality Project Descriptions

## **Newnans Lake Initiative - Phase II through VI (\$993,394)**

Issue: Newnans Lake is impaired for total phosphorus and nitrogen. The recent amendment to the Orange Creek BMAP allocated specific load reductions to the County. FDEP has set a requirement to have projects identified to meet the TMDL by 2028. Project construction/implementation must also be underway by this date.

Project Description: Phase 2 of the Initiative will involve the construction of permeable reactive weirs on Little Hatchet Creek to remove phosphorus leaching into the stream from exposed portions of the Hawthorne group formations as the result of erosion and development in the watershed. Phase 2 was funded in fiscal year 2019 through an inter-fund load from the Stormwater Assessment that will be re-paid from grant funds. Construction of this phase will take place in the first quarter of fiscal year 2020.

Phase 3 of the Initiative is planned as a constructed treatment wetland to treat the water in the lake. This is intended to address the recycling of nutrients that have accumulated in the lake sediments. A feasibility and wetland sizing study will begin in fiscal year 2020 followed by engineering design. Construction will take place in subsequent years.

Phase 4 is planned as another reactive weir at a location to be determined on Hatchet Creek.

## **Sweetwater Trailhead LID Parking Area Project (\$409,524)**

Issue: The Sweetwater Trailhead uses a 44 foot wide dead end section of 16<sup>th</sup> Street as an informal parking area. In addition runoff from the road and the intersection with Waldo Road has eroded the outfall to Sweetwater Branch causing failure of the existing storm sewer.

Project Description: This project will redesign the dead end portion of 16<sup>th</sup> Street into a parking area using LID practices including pervious pavement, bioretention and biofiltration. The existing outfall to Sweetwater Branch will be reconstructed and stabilized to address an existing erosion problem. A biofiltration area will be constructed on the GRU power line easement that runs between the preserve and Waldo Road that will be monitored by UF to determine nitrogen removal effectiveness. Gainesville has plans for a trail connecting Depot Park and Sweetwater Wetlands that will also run along the power lines. This will provide an opportunity to create a nexus linking Sweetwater Preserve with the two city parks and provide education opportunities. The project is funded with 2019 assessment funds and will begin construction in the first quarter of fiscal year 2020.

## **Soil Nitrogen Leaching Investigation and LID Design for Nutrient Removal (\$64,817)**

Issue: The nitrogen load infiltrating directly to groundwater from residential landscape turf is not well quantified for Alachua County conditions. LID best management practices, such as bioretention, can include structural design elements or engineered soils to improve nitrogen removal from stormwater. Alachua County site performance data is lacking particularly for karst areas.

Project Description: These are joint projects between Alachua County EPD and the University of Florida Soil and Water Science and Agricultural and Biologic Engineering

The leaching study will to assess the leaching of nitrogen from residential turf. The project involves core sampling of residential turf on a variety of soil and management practices. Lysimeters will be installed on a smaller subset of turf sites for year-long seasonal sampling. This portion of the project began in the spring of 2019 with the installation of lysimeters and collection of the first samples.

The LID design study will assess the nitrogen removal performance of a modified biofiltration design first developed in North Carolina and an open source engineered soil mix. The Sweetwater Trailhead LID Parking Area project will be used as the test site. This project began in the summer of 2019 with UF providing input on the design and will perform water quality monitoring after construction of the Sweetwater site.

## **Mill Creek Sink Water Quality Project (\$568,990)**

Issue: Mill Creek is a stream to sink watershed that discharges to Hornsby Springs. Recent dye trace study indicated water moves rapidly from the Mill Creek Sink to Hornsby Springs. Currently, stormwater runoff from I-75, April Blvd., and surrounding land discharges directly into Mill Creek without treatment.

Project Description: This project will provide water quality treatment through a wetland treatment system on lands that being acquired by the County. The design will be consistent with restoration and management plans for the site after acquisition and provide a passive recreation opportunity. The project will compliment a City of Alachua project that addresses stormwater runoff from commercial sites along US 441. A feasibility and wetland size study was begun in fiscal year 2019. Engineering design will be completed in fiscal year 2020.

## **Lochloosa Lake Initiative Phase I and II (\$1,165,000)**

Issue: Lochloosa Lake is impaired for nitrogen and phosphorus. The lake has been incorporated into the Orange Creek BMAP. The recently adopted amendment to the BMAP made specific load reduction allocations to the County. FDEP has set a

requirement to have projects identified to meet the TMDL by 2028. Project construction/implementation must also be underway by this date.

Project Description: The first phase of the project will involve watershed assessment of external nutrient loads to the. The primary focus areas are Lochloosa Creek and West Hawthorn Branch. The assessment will also evaluate phosphorus dissolution and transport in the lake, validation of FDEP's loading model, and an inventory of septic systems in the watershed. Projects to reduce nutrient loads will be identified by the assessment. One of these projects will be designed and constructed in fiscal years 2022 and 2023 as part of phase 1 of the Initiative. Phase 2 will involve design and construction of a second project.

### **Library and Collection Center LID Retrofits (\$536,000)**

Issue: Rural Collection Center and Library District sites can be retrofitted to incorporate more LID techniques. Several collection center sites have significant drainage issues that need to be addressed.

Project Description: These projects are intended to retrofit County facilities to incorporate LID. Several Library sites have already incorporated LID techniques and these projects will build upon those efforts. The Rural Collection Centers have varying degrees of drainage issues which can be resolved using LID. Conceptual design are being developed by Wood. The initial sites retrofitted in fiscal year 2020 will be the Fairbanks and North Central Collection Centers in conjunction with drainage improvements funded by Solid Waste.

### **Main Street Detention Pond Outflow Filter (\$100,000)**

Issue: The wet detention pond at the corner of NE 35<sup>th</sup> Ave and NE 4<sup>th</sup> St. receives runoff from Main Street and discharges to Springstead Creek a tributary of Hogtown Creek. The treatment performance of wet detention ponds can be improved using upflow filters.

Project Description: Outflow from the pond was sampled by Wood during the summer of 2018. The sampling results will be used to design an upflow filter enhance water quality discharged from the pond. Design and filter installation is planned for fiscal year 2020.

### **NE 22nd Lane Erosion Control (\$190,000)**

Issue: NE 22<sup>nd</sup> Lane is a limerock road that has had significant erosion problems after large rain events and required multiple repairs. Eroding limerock and sediment is deposited in a wetland known as Morans Prairie.

Project Description: The project will involve drainage improvements and stabilization of the road shoulders to prevent future erosion. Erosion has resulted in deep gullies along the sides of the road which are a hazard to the residents. The eroded limerock and sand

that has accumulated in Morans prairie and will be assessed for removal as part of the project. Engineering design is planned for fiscal year 2020.

### **Haile Blvd. and Parker Rd. Water Quality Project (\$210,000)**

Issue: The Chesnut Hill section of Haile Plantation discharges untreated stormwater into the right-of-way of Haile Blvd. (SW 46<sup>th</sup> Blvd.). The swale discharged to a retention pond in the Haile Equestrian Center. A low area on Parker Road (SW 122nd St.) accumulates untreated runoff from residences along Parker Road and NW 1<sup>st</sup> LN where it infiltrates.

Project Description: Wood sampled the runoff discharged from Chesnut Hill and on Parker Road during the summer of 2018. The runoff is infiltrated in both the swale and a small retention area across SW 46<sup>th</sup> Blvd. in a horse pasture. Along Parker Road, runoff is infiltrated in swales and a depression on the east side of the road under a power line easement. The project will focus on nitrogen removal and likely involve the use of engineered soils. Engineering design is planned for fiscal year 2020.

### **Lochloosa Slough Erosion Control (\$118,000)**

Issue: Sediment from erosion on SE 225<sup>th</sup> DR. discharged to Lochloosa Slough.

Project Description: The project will identify the major areas of erosion on SE 225<sup>th</sup> Dr. and will involve drainage improvements and stabilization of the road shoulders to prevent future erosion.

### **Old Bellamy Road Erosion Control (\$150,000)**

Issue: Sediment from erosion on Old Bellamy discharged to the Santa Fe River.

Project Description: The project will identify the major areas of erosion on Old Bellamy Road and will involve drainage improvements and stabilization of the road shoulders to prevent future erosion.