

**Project:** Lake Lawne Stormwater Reuse Facility  
Construction completed January 2019

**Population:** Orange County - 1.1M people

**Personnel:** Mitchell Katz, PhD  
Technical Program Director  
Orange County Environmental Protection Division

**Project Budget:** Total cost \$2,010,000

Orange County general fund: \$189,060

Legislative appropriation: \$250,000

FDEP TMDL grant: \$899,607

SJRWMD cost share: \$671,333

**Location:** Barnett Park, Orange County, Orlando, FL

Attachment 1. Site Vicinity Map, Lake Lawne (WBID 3004C)  
Stormwater Irrigation Facility at Barnett Park, Orange County, FL



**Project description:**

In 2008, the Florida Department of Environmental Protection adopted a Total Maximum Daily Load for nutrient pollutant loading to Lake Lawne (WBID 3004C). Lake Lawne is part of the headwaters for the Little Wekiva River and part of the Wekiva River watershed. A site vicinity map of Lake Lawne is presented in Attachment 1. The Lake Lawne Stormwater Irrigation Facility at Barnett Park is intended to reduce nutrient pollutant loading to Lake Lawne by converting a portion of the Lake Marylin Outfall Canal into a stormwater impoundment area. The impounded stormwater can then be used for irrigation within Barnett Park. Stormwater from the surrounding +/-300 acres of residential, commercial, and industrial properties drains through stormwater conveyances which then outfall to drainage canals. The untreated stormwater previously discharged directly from the canals into Lake Lawne. The intent of this best management practice (BMP) project is to collect stormwater from the surrounding +/-300-acre sub-basin, impound it in the converted canal, and use the impounded stormwater to irrigate greenspace adjacent to the BMP. The project was initially bid in 2013, but the county did not have the funds to move to construction. The project was re-bid in 2016 and moved forward with construction. The project was awarded three sources of external funding: a legislative appropriation, an FDEP TMDL grant, and a St. Johns River Water Management District Cost share.

It is the intent of Orange County to meet its obligation to reduce nutrient pollutant loads entering Lake Lawne and achieve the prescribed TMDL for the lake. In keeping with this intent, Orange County has installed and continues to maintain over 100 curb inlet baskets within a +/-300 acre area discharging to Lake Lawne. These baskets are used to intercept leaf litter and sediment which would otherwise be conveyed to Lake Lawne. Moreover, Orange County has completed reconfiguration of the former C-7 drainage canal by converting it into a wet stormwater retention pond (28.567835 Deg-N, -81.444006 Deg-W). The conversion reduces nutrient loads entering Lake Lawne from the residential neighborhoods northwest of the lake. The construction and performance monitoring of the newly constructed Lake Lawne Stormwater Reuse Facility is in keeping with prior projects meant to improve the water quality of impaired water bodies within unincorporated Orange County.

Based on the engineering design analysis conducted in 2011, it is estimated that annual reductions of TP and TN loads to Lake Lawne will be 106 lbs/yr, and 650 lbs/yr, respectively. This results in an average reduction of 84% in TP and TN nutrient loads entering Lake Lawne through the C-6 canal.

The secondary benefits of this project include reducing the dependence on freshwater supplies for irrigation and to enhance natural systems.

Currently, Barnett Park uses potable water to irrigate areas within the park. This dependence on potable water for irrigation may be lessened by providing park personnel with an alternative source of water for irrigation. In addition, the project enhances the natural area within park by planting cord grass, pickerelweed, arrowhead, and juncus along the littoral margins of the BMP and by planting live oak and bald cypress within areas adjacent to the BMP.

Site location before construction:



Lake Lawne Regional Stormwater Facility  
at Barnett Park

11.06.17



After Construction:



Educational kiosk placed along the walkway of the pond:

# LAKE LAWNE WATERSHED

Orange County Parks and Recreation Division


### LAKE LAWNE WATERSHED




- You are standing at the headwaters of the Wekiwa River. Water flows from Lake Lawne north toward Lake Orlando and then beyond to Wekiwa Springs State Park.
- The watershed illustrated below collects stormwater from over 300 acres of residential, commercial, and recreational land uses. Much of this water travels through canals before entering Lake Lawne.



### PLANTS IN THE WATERSHED



- Barnett Park is home to many different kinds of trees and plants. The Lake Lawne watershed is home to oak, pine, and cypress trees.
- Barnett Park is also home to aquatic plants like pickerelweed, duck potato, and cordgrass that provide habitat for fish and help keep the water clean by removing pollutants.

	
PICKERELWEED	DUCK POTATO
	
BULLRUSH	CORDBLASS
	
LIVE OAK	CYPRESS STAND

### WILDLIFE IN THE WATERSHED




- You may also see many different types of birds along the shoreline. Wading birds like ibis and wood storks are always on the hunt for a meal.
- Many other species of wildlife also make their home in the Lake Lawne watershed. Ducks, snakes, turtles, and fish are part of the watershed ecosystem.

	
GREAT BLUE HERON	ANHINGA
	
WHITE IBIS	BLUEGILL
	
LEOPARD FROG	GOPHER TORTOISE


# IMPROVING WATER QUALITY

Orange County Environmental Protection Division


### SOURCES OF STORMWATER POLLUTION




- When rain falls it flows across the land and becomes stormwater. Some of the rain sinks into the ground. Some of the rain enters stormwater pipes that drain to canals and lakes.
- Fertilizers, pet waste, grass clippings, and septic systems are sources of nitrogen and phosphorus nutrient pollutants. Once released, the nutrient pollutants can be transported to Lake Lawne.




### THE EFFECTS OF STORMWATER POLLUTION



- Algae are always present in water bodies throughout Florida. When the concentration of nutrient pollutants is too high, algae then grow at a rapid rate. The result is an algae bloom.
- Thick algae growth can block the sunlight from reaching the living plants at the bottom of the lake. Algae blooms also cause a decrease in water quality.



### YOU CAN HELP KEEP THE WATER CLEAN



- The Lake Lawne Regional Stormwater Facility works to improve the water quality in Lake Lawne by using stormwater for irrigation.
- This keeps the nutrient-rich water from reaching Lake Lawne, conserves our freshwater supply, and reduces our dependence on chemical fertilizers.
- Everyone can take a part in the fight to keep out water clean. You can help by taking the following actions:
  - Be sure to pick up after the family dog when out for a walk.
  - Always bag leaf litter and grass clippings.
  - Follow the Orange County Fertilizer Ordinance.
- For more information scan the QR code:

