Project Overview

Jordan Lake
TMDL for Total Nitrogen and Total Phosphorus

City of Greensboro Area =
122 sq-mi
Purpose of Jordan Rules is to restore and maintain nutrient-related water quality standards in Jordan Lake and protect its classified uses and maintain or enhance protections currently implemented by local governments in existing water supply watersheds.

Primary Components Include:

- Agriculture
- New Development
- Riparian Buffers
- Existing Development
- Wastewater Dischargers
Jordan Rules – Stormwater Management for Existing Development

■ **Stage 1**
  - Implemented August 2009
  - Public education program
  - Program to map MS4 outfalls, waters of US, & sanitary sewer
  - Program to identify and remove illegal discharges
  - **Program to identify opportunities for retrofitting existing development**
    - Program to ensure maintenance of BMPs

■ **Stage 2 (Haw River Subwatershed)**
  - May be implemented March 1, 2017 *(if Jordan Lake still not meeting nutrient standards)*
  - 8% reduction in nitrogen
  - 5% reduction in phosphorus
Site Selection

- Identify publicly owned candidate properties
  - Be in Haw River watershed
- Should add value to existing site
  - Willing participant Department(s)
- Be publicly visible
- Demonstrate type(s) of BMP’s for retrofitting
- Result in improved Water Quality
Retrofit Overview
Project Challenges

- Combined with other Departments objectives
  - Parking lot expansion caused design delays and added costs.

- Erosion and future maintenance issues
  - Risked project failure if not addressed up front.

- Bidding, Timing, and MWBE issues
  - Busy park with lots of activities
  - Parking lot expansion ultimately unfunded by P&R
  - Caused delays and added cost
Retrofit Overview
Tree Well Construction
Retrofit Overview

- Permeable Pavement
- Bioretention Cell
- Tree Boxes
Retrofit Overview
Pervious Parking Installation
Construction & Maintenance Challenges

- Busy park full of sports activities and lots of curious onlookers!
- Pavement conditions and repaving issues!
- Landscaping issues!
- Constant requests for Change Orders!
- Finalizing project – as builts, certifications, etc.
- Ongoing maintenance with City staff.
Is it worth it?

Estimated Reductions based on JL Acct Tool (lb/ac/yr):
  Biocell = 6.63 N & .71 P
  Pervious Parking = 3.93 N & .40 P
  Tree Wells = No credit available yet.

Significant volume reductions were achieved!

Cost of whole project = $961,000

Bottom Line = Retrofitting is expensive!!!

Education and Demonstration value = Priceless!
Jaycee Park Stormwater Improvement Project

Stormwater is rainwater plus anything the rain carries along with it. As the runoff travels across paved and other hard surfaces it collects a combination of harmful pollutants such as automotive oils, nutrients, sediment, trash, heavy metals and chemicals. In most cases the unfiltered water flows directly from streets and gutters into waterways inhabited by fish, frogs, and other aquatic animals and plants. The City of Greensboro Stormwater Management Division and the Parks and Recreation Department worked together on this project to enhance water quality. The Jaycee Park Stormwater Improvement Project illustrates three different methods of capturing and treating stormwater runoff from the adjacent parking lot before it is discharged to the nearby creeks and ponds at Country Park.

Pervious Parking

Pervious parking is designed to allow stormwater runoff to soak through a very coarse concrete surface and into a gravel layer underneath that surface. The temporary containment area improves water quality by capturing the volume of water and filtering out pollutants.

Bioretention Cell (Rain Garden)

A bioretention cell is a shallow bowl-like depression that contains deep-rooted native plants and/or grasses that capture and treat parking lot runoff. As the runoff passes through the various layers of specialized soil media, pollutants are filtered by the soil and plants. Bioretention cells reduce the intensity of the rapidly flowing water, replenish groundwater levels, and remove harmful pollutants before they reach nearby streams and lakes.

Tree Boxes

Tree box filters are in-ground containers used to control runoff and improve water quality. The devices are usually located in traffic islands or along a street edge. Runoff is filtered through a special type of soil and vegetation media and then slowly released into the storm drainage system. Tree boxes provide the added value of aesthetics while making efficient use of available land for water quality improvements.

Stormwater Treatment Methods

To learn more about the Stormwater Management Program, please visit www.greensboro-nc.gov/stormwater.
To learn more about the various parks and recreation programs, please visit www.greensboro-nc.gov/parks.