



Green Infrastructure & Stormwater Management CASE STUDY

McConnell Springs Wetlands Demonstration Project

Location: Lexington, KY

Client: Lexington Fayette Urban County Government

Design Firm(s): CARMAN

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ASLA Chapter: Kentucky



Graphic: CARMAN

Project Specifications

Project Description: The purpose of the McConnell Springs Stormwater Quality Wetland Pond project is to reduce non-point source (NPS) pollution in McConnell Springs and the creeks that receive its flow, and to provide demonstration to the public of the benefits of natural environments that provide water quality and quantity control.

The project site was an existing area of vacant bottomland containing 0.8 acres of jurisdictional wetland degraded by non-point source pollution and large debris draining off of heavily industrial, commercial, and residential areas which surround the site. The site is located within the McConnell Springs Park, owned and maintained by Lexington-Fayette Urban County Government (LFUCG). McConnell Springs is also an urban nature preserve and a nationally registered historic site. The entire area has significant karst features, and ultimately drains to Wolf Run, which is a tributary to Town Branch and South Elkhorn Creek. All of these receiving systems have been identified as First Priority impaired streams by the Kentucky Department for Environmental Protection and have Total Maximum Daily Loads (TMDLs) in development. LFUCG identified the degraded wetland as an excellent opportunity to retrofit an existing County-owned surface water feature to provide a water quality benefit in the Wolf Run watershed. In addition, the site offers an excellent platform for partnership, public involvement, and education. The Park has an Education Center and trail system on-site which sees over 20,000 visitors a year. The Friends of McConnell Springs and The Friends of Wolf Run non-profit organizations are highly involved with protection of the site and the watershed.

Project Type:

Institutional/education

A retrofit of an existing property

Design features: Bioretention facility, bioswale, cistern, and mechanical stormwater filtration device as a demonstration technique for urban water quality management.

This project was designed to meet the following specific requirements or mandates:

State statute, local ordinance, to meet funding criteria

Impervious area managed: greater than 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: greater than 5 acres

The regulatory environment and regulator was supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? This is a demonstration project that reveals the advantages in a variety of methods.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: State - Kentucky Division of Water 319 Water Quality Grant)

Was a green vs. grey cost analysis performed? No.

Cost impact of conserving green/open space to the overall costs of the site

design/development project: This project is a demonstration project that reveals various urban stormwater management techniques for urban development. The project also serves as a natural ecosystem that mitigates poor water quality from adjacent watersheds to protect a natural open space.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs.

Number of jobs created: 20 +/-

Job hours devoted to project: Not available

Planning and Design: Not available

Construction: Not available

Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:

The series of basins, including the wet basin serve to control stormwater for the 2, 10, 25, and 100-year events from an approximate 50-acre watershed in an upstream industrial area. Downstream flooding of a sensitive area of natural springs and sinkholes have been mitigated with the stormwater controls. The natural springs are in an area that is the founding settlement area for the City of Lexington.

Community & economic benefits that have resulted from the project: The project is used for demonstrating various urban stormwater control techniques in addition to protecting a sensitive environmental area. The demonstration area is utilized by school children as an interpretive educational outdoor classroom that reveals the benefits of urban stormwater management and protection of sensitive ecosystems.

Project Recognition

Lexington Environmental Commission Design Award - 2010; Kentucky Tennessee Water Environment Association Project of the Year - 2010

Additional Information

Links to images: www.carmansite.com Go to projects/environmental/McConnell Springs.