Green Infrastructure & Stormwater Management CASE STUDY

Johnson County Community College SE Quadrant Stormwater Treatment Project

Location: Overland Park, KS
Client: Johnson County Community College
Design Firm(s): Bowman Bowman Novick and Burns and McDonell
Landscape architect/Project contact: Scott Bingham, ASLA
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ASLA Chapter: Prairie Gateway

Photo: Scott Bingham

Project Specifications

Project Description: This project implements a wide range of structural and non-structural best management practices withiin an existing 11-acre parking lot. Given its locaiton within a community college campus, it has the unique opportunity to educate both students and the general public about natural means of stormwater treatment.

Project Type:
Institutional/education
A retrofit of an existing property

Design features: Bioretention facility, bioswale, and also incorported (3) bioretention cells, (2) manufactured infiltration units, (1) vegetated submerged bed, (2) extended dry detention basins, and pervious concrete sidewalks.

This project was designed to meet the following specific requirements or mandates:
Developer/client preference

Impervious area managed: greater than 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 1 acre to 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? No.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $500,000-$1,000,000 (Public funding: Federal - American Recovery and Reinvestment Act distributed by the Kansas Department of Health and Environment)

Related Information: $540,000 Construction Contract $100,000 Other

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: Since this was a retrofit of an existing parking lot, no additional hardscaping was anticipated for the project.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. Since this was a retrofit of an existing parking lot, no additional hardscaping was anticipated for the project.

Number of jobs created: 0

Job hours devoted to project:

Planning and Design: 580
Construction: 2,000 hours (estimated)
Annual Maintenance: 400 hours (estimated)

Performance Measures

Stormwater reduction performance analysis:

The stormwater treatment system was designed to address the water quality storage voume of 1.2 inches of runoff. Students and faculty test will the water quality regularly to measure the effectiveness of each component of the system, but it is estimated that these will capture 90 percent of sediments and 60 to 80 percent of chemicals such as petroleum hydrocarbons, various metals, and snow melt salts from parking lots in lieu of flowing downstream into Indian

Creek. Due to the high clay contents of the soils in this area, very little is anticiptaed to percolate down to the ground water. However, the water will be detained between a 24-48 hour period.

Community & economic benefits that have resulted from the project: Due to the recent construction of the site, many of these factors have yet to be determined. However, the college provides guided tours of the site to educate the surrounding public. The greatest benefit is the improved water quality downstream.

Project Recognition

APWA Project of the Year Award from local chapter; Mid-America Region Council Sustainable Solutions Award

Additional Information

Links to images:

https://picasaweb.google.com/lh/sredir?uname=scottabingham&target=ALBUM&id=5589908556052146897&authkey=Gv1sRgCJ39ncrVlKao6gE&feat=email