



# Green Infrastructure & Stormwater Management CASE STUDY

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## Sand River Headwaters Green Infrastructure Project

**Location:** Aiken, SC

**Client:** City of Aiken, South Carolina

**Design Firm(s):** Woolpert, Inc & Clemson Center  
for Watershed Excellence

**Landscape architect/Project contact:** Stephen  
Lord, ASLA or Frank Newham

**Email:** [stephen.lord@woolpert.com](mailto:stephen.lord@woolpert.com) or  
[frank.newham@woolpert.com](mailto:frank.newham@woolpert.com)

**ASLA Chapter:** South Carolina



### Project Specifications

**Project Description:** This was a ARRA-funded project to reduce downstream impacts on the Sand River due to stormwater run off from downtown Aiken. Existing parkways were retrofitted with pervious pavements, bioretention cells, swales, cisterns and other best management practices (BMPs) to reduce stormwater run-off and improve water quality. The completed BMPs were landscaped using native vegetation to reduce irrigation needs and produce a low-maintenance, sustainable streetscape.

#### Project Type:

Transportation corridor/streetscape

A retrofit of an existing property

**Design features:** Bioretention facility, bioswale, cistern, downspout removal, porous pavers, and curb cuts.

#### 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:** 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?** Overall impacts on downtown street trees and utilities had to be addressed. Community concerns about safety and use of the parkways were addressed. Pervious pavement designs had to be approved by SCDOT for use in their rights of way.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$1,000,000-\$5,000,000 (Public funding: Federal, local. This was an ARRA funded project.)

**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:**

The project was constructed within existing landscaped medians of the parkways. Care was taken to minimize damage to existing trees and other improvements. The City did not have to purchase any easements or property to construct the project.



**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Significantly reduced costs (10% or greater savings).

**Number of jobs created:** 30

**Job hours devoted to project:**

Planning and Design: 1,600

Construction: 2,350

Annual Maintenance: Unknown - should be minimal due to the sustainable design approach

## Performance Measures

**Stormwater reduction performance analysis:**

The designed BMPs were sized to capture the first inch of runoff from the contributing areas.

The infiltration rates of the in-situ soil allow close to 100% infiltration of the initial runoff.

**Community & economic benefits that have resulted from the project:** The project has been well received by the community. Enhancements in water quality and reductions in run-off are being monitored by Clemson University as an on-going research project on the benefits of low-impact design. Current funding should allow the collection of several years of data to compare to pre existing conditions. From initial observations, the BMPs are functioning as designed and should provide long term improvements in water quality and reductions in run off leaving the downtown area.

### **Additional Information**

**Links to images:**

[http://www.clemson.edu/restoration/focus\\_areas/restoration\\_ecology/projects/watershed\\_center/aiken\\_green/](http://www.clemson.edu/restoration/focus_areas/restoration_ecology/projects/watershed_center/aiken_green/)

**Pictures:**

[http://www.clemson.edu/restoration/focus\\_areas/restoration\\_ecology/projects/watershed\\_center/aiken\\_green/parkways.html](http://www.clemson.edu/restoration/focus_areas/restoration_ecology/projects/watershed_center/aiken_green/parkways.html)