Stormwater Management at EPA Headquarters

Low Impact Development (LID) practices help retain as much stormwater as possible on the land.

EPA is demonstrating several LID techniques at its Washington, DC Headquarters.

The Problem with Stormwater Runoff

In developed areas, roofs, pavement, and other impervious surfaces prevent stormwater from soaking into the ground. Instead, it runs over the land surface and directly into small tributaries and larger streams. Unable to handle the increased water volume and flow, these waterbodies often experience eroded banks, incised channels, loss of habitat and aquatic life, and increased flooding and property damage. In addition, stormwater carries a broad mix of toxic chemicals, bacteria, sediments, fertilizers, oil and grease to nearby waterbodies.

Retaining as much stormwater as possible on the land—rather than letting it run into storm drains—can help keep harmful flows and pollutants out of our streams and rivers. Low impact development (LID) is one crucial tool used to deal with the stormwater runoff problem.

Stormwater runoff from roads, parking lots, and other impervious surfaces flows into storm drains, which lead to nearby waterbodies.

Reducing Runoff with Low Impact Development

LID is development that results in low impacts on natural resources. This is done by using planning and designs that preserve green space and manage stormwater to minimize increases in flow and pollutants. LID techniques include conservation of forests and sensitive waters, water reuse, and stormwater controls that detain and retain runoff.

A bioretention cell, also called a rain garden, is one of the LID practices being demonstrated at EPA Headquarters.

Practices at EPA Headquarters

EPA promotes the use of LID techniques in several of its water pollution prevention programs. While LID techniques reduce the amount of pollution entering the nation's waterways, they are still not widely used. To encourage more government agencies and developers to use LID, EPA is demonstrating several LID techniques at the Agency's Headquarters in Washington, DC. The demonstration project illustrates what LID practices can accomplish and shows their visual appeal.

The project involves LID and other stormwater management practices at three sites: Ariel Rios South Courtyard, Constitution Avenue, and West Building Parking Garage.

Stormwater Management Practices at EPA Headquarters

Practice	Environmental Benefits	Location		
		Ariel Rios South Courtyard	Constitution Avenue	West Building
Bioretention cells	Allow stormwater to filter into the ground rather than wash off the surface and into storm drains and combined sewers	■	■	
Porous concrete		■		
Alternative pavers		■		
Cisterns	Collect and store stormwater for later use in landscape irrigation	■		■
Sustainable planting	Take up stormwater, provide wildlife habitat	■	■	
Recycled materials	Reduce solid waste and reliance on raw materials	■		

Recycled granite curb used as a bench at the Ariel Rios South Courtyard; permeable pavers used next to bench and permeable concrete used on pathway.

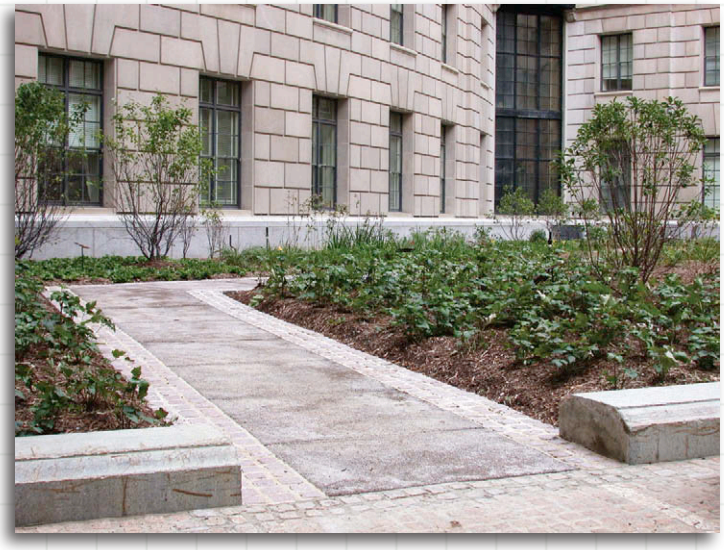
Sustainable plantings at the Ariel Rios South Courtyard. Information about the vegetation is provided in a guide available at www.epa.gov/greeningepa/stormwater/ars_plantplan.htm. Numbered signs made from recycled farm implements direct visitors to the guide.

Project Partners

This demonstration project is a collaborative effort involving various partners. EPA's Office of Water provided conceptual designs for the LID practices being demonstrated. The Facilities Management Division of EPA's Office of Administration and Resources Management oversaw their construction. The General Services Administration (GSA) designed and maintains the landscape, including trees and plants. Others parties joined as this project evolved, including the U.S. Commission of Fine Arts, the National Capital Planning Commission, the DC Water and Sewer Authority, and a variety of contractors.

Viewing the Demonstration Project

If you have questions or are interested in a tour of any portion of the demonstration project, please contact LIDHQ@epa.gov.



Porous concrete walkway and rain garden at Ariel Rios South Courtyard.

For More Information:

- EPA Office of Wetlands, Oceans and Watersheds—Demonstration Project: **www.epa.gov/owow/nps/lid/stormwater_hq**
- EPA Office of Water—Low Impact Development: **www.epa.gov/owow/nps/lid**
- EPA Facilities—Greening EPA: **www.epa.gov/greeningepa/stormwater/index.htm**
- EPA National Menu of Stormwater Best Management Practices: **www.epa.gov/npdes/menuofbmps**
- Low Impact Development Center: **www.lowimpactdevelopment.org**

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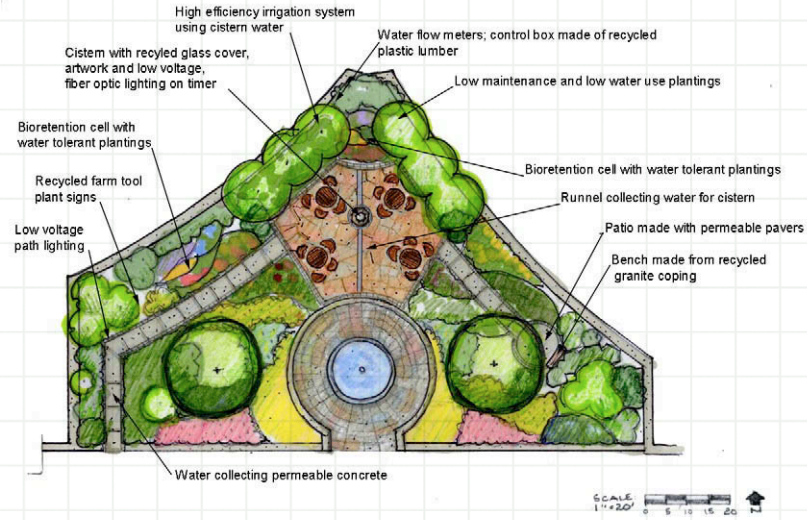
Ariel Rios South Courtyard Features:

- Two bioretention cells (also called rain gardens)
- 564 sq. ft. of permeable concrete and permeable pavers
- One 1128-gallon cistern for stormwater collection and landscape irrigation
- Site-appropriate and/or native vegetation
- Signage made from recycled farms tools
- Bench made from an historic granite curb
- Cistern artwork made from recycled glass

Porous pavement at Ariel Rios South Courtyard.



Drawing of Ariel Rios South Courtyard demonstration site highlighting various LID and other demonstration practices (Left).

View of Ariel Rios South Courtyard from east wing of EPA Headquarters.

Constitution Avenue Features:

- Four bioretention cells
- High efficiency irrigation using collected stormwater

West Building Parking Garage Features:

- Six 1000-gallon cisterns for rooftop stormwater collection
- Irrigation system delivers collected stormwater to Constitution Avenue bioretention cells

Bioretention cell in front of EPA Headquarters West Building on Constitution Avenue.