

## MANAGING STORMWATER RUNOFF A GREEN INFRASTRUCTURE APPROACH

By Lynn Richards (*Adapted from the Planning Commissioners Journal*)

Increasingly, communities are looking for ways to maximize the opportunities and benefits associated with growth while minimizing and managing its negative environmental impacts, especially of stormwater runoff. In many places, however, stormwater management is still primarily addressed at the site development level using “end-of-pipe” practices, such as detention ponds, or conveyance systems, such as sewer systems or culverts. These practices, however, fail to address cumulative water quality impacts from the excessive amounts of impervious cover associated with land development.

### WHERE WE CHOOSE TO GROW

Decisions about where and how our towns, cities, and regions grow are the first, and perhaps most important, development decisions related to water quality. Using land more efficiently reduces and better manages stormwater runoff by reducing total impervious area. The single most effective strategy for efficient land use is redeveloping already degraded sites such as abandoned shopping centers or underutilized parking lots rather than paving greenfield sites. By redeveloping an underused site that is already paved, the net increase in runoff from development would likely be zero – or it might even decrease, depending on the on-site infiltration practices used. Indeed, if improved on-site infiltration practices are incorporated into redevelopment projects, runoff levels can even decrease. By directing and concentrating new development in areas specifically targeted for growth, communities can reduce development pressure on undeveloped parcels and protect sensitive natural lands and recharge areas important for maintaining water quality. In addition, if denser development is allowed, less land may need to be converted overall, resulting in less impervious cover than would otherwise be created. In conjunction with the storm water benefits just described, a green infrastructure approach supports an interconnected network of open spaces and natural areas (such as forested areas, greenways, floodplains, and wetlands). This will improve water quality by increasing infiltration and groundwater recharge, while also providing neighborhoods with access to open space for recreational purposes.

### IN OUR NEIGHBORHOODS

Neighborhood-level green infrastructure approaches can include a range of planning and design strategies that seek to integrate the natural and the built environment. These include:

- Incorporating natural landscape features and functions into a neighborhood’s street and road network, buildings, and other developed areas;
- Narrowing streets and roads;
- Reducing parking requirements or establishing parking minimums;
- Connecting open space and recreation areas; and
- Co-locating a range of land uses (such as retail, residential, civic, and schools) to minimize impervious cover.

These approaches can dramatically reduce pollution, decrease stormwater runoff volume and temperature, and protect aquatic habitat. At the same time, they can result in more interesting places to walk, ride, drive, or visit.

### Upcoming Events

#### SmartCode Workshop

April 16-18, 2009—Decatur, GA

For more information see [www.SmartCodeWorkshop.com](http://www.SmartCodeWorkshop.com)

#### CDBG Stimulus Program Workshop

April 17, 2009—Macon, GA

For more information call 404.679.4940

#### ACCG Annual Conference

April 25-29, 2009—Savannah, GA

For more information visit [www.accg.org](http://www.accg.org)

#### GMA Debt Collection Seminars

April 28, 29 & 30, 2009—Various locations

For more information visit [www.gmanet.com](http://www.gmanet.com)

#### Community Planning Academy: ArcGIS Desktop I

May 14-15, 2009—Atlanta, GA

For more information visit

[www.atlantaregional.com/communityplanningacademy](http://www.atlantaregional.com/communityplanningacademy)



### Bioswales

Bioswales are linear, vegetated depressions where runoff is slowed and managed through infiltration and uptake by native plants, including grasses, shrubs, and trees. Bioswales typically use amended soils and bio-retention media underground so that these landscape features function beyond simple conveyance by infiltrating, retaining, and treating stormwater runoff. Swales can be used to reduce the impervious surfaces in parking lots or along the edge of streets, sidewalks, and residential or commercial lots.

*Photo: completed bioswale in Oak Terrace Preserve (North Charleston, SC)*