

EPA Says Grassy Swales, Barrels, Wetlands Allow Less-Expensive Capture of Stormwater

A new Environmental Protection Agency report released Jan. 8 finds the use of grassy swales, rain barrels, and small urban wetlands to capture polluted stormwater runoff to be cheaper than building pavements, gutters, and stormwater drains.

The report, Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, provides examples of 17 communities nationwide where using low-impact development strategies to capture stormwater runoff have led to environmental benefits. The capital savings in all these communities, except one, ranged from 15 percent to 80 percent.

The report provides information to cities, counties, states, private-sector developers, and others on the costs and benefits of using low-impact development strategies and practices to help protect and restore water quality from stormwater runoff.

Benjamin Grumbles, EPA's assistant administrator for water, told BNA that the report is part of the agency's strategy to promote green infrastructure, which is due out this spring.

"Low impact development can deliver big benefits for the environment and the economy and this report has the numbers to prove it," Grumbles said in a statement. "It pays to save watersheds, reuse stormwater, and grow sustainably with green infrastructure."

For instance, the report said the city of Bellingham, Wash., saved \$62,000 by retrofitting two parking lots--one at City Hall and the other at Bloedel Donovan Park--with rain gardens in lieu of installing underground vaults to manage stormwater.

Likewise, Auburn Hills, a residential neighborhood in Wisconsin, saved 32 percent in capital costs by preserving 40 percent of its open space, which included wetlands, grassy swales, and natural plantings.

In some instances, however, EPA said such development can be costlier than conventional means for capturing stormwater runoff because of more expensive plant material, site preparation, underdrains, and connections to municipal sewer systems. As an example, the report cites Kensington Estates, a proposed 24-acre residential community in Washington state, where it cost 96 percent more to build wetlands and install permeable concrete for parking lots instead of building conventional gutters, drains, sidewalks, and roads.

Less Cost, More Benefits

Gary Belan, director of American Rivers' healthy waters campaign, told BNA the report's findings are consistent with general observations that low-impact development is less costly and more environmentally beneficial than conventional grading and paving.

"It comes as no surprise that low-impact development is less expensive than conventional development," Belan said, adding that it is positive to see it written out in a report.

EPA has identified stormwater runoff to be a major source of pollution in the nation's lakes, streams, ponds, and rivers. In urban environments, EPA said, the impacts of stormwater pollution increase with land development. Soil compaction, tree and vegetation removal, and construction of roads and pavements have altered natural hydrological cycles.

According to EPA, the goal behind low-impact development is to mimic the way water moved through an area before it was developed by using design techniques that infiltrate and reuse runoff close to its source. In the report, EPA cites some common practices, such as rain gardens, grassy swales, cisterns, rain barrels, permeable pavements, and green roofs or roofs covered with vegetation to capture stormwater before it hits the streets.

In April 2007, EPA, the National Association of Clean Water Agencies, the Association of State and Interstate Water Pollution Control Administrators, Low Impact Development, and the Natural Resources Defense Council signed a statement of intent to formalize the use of such low-cost strategies .

Grumbles said a strategy showing how green infrastructure and low-impact development should be implemented will be released early this year.

EPA's report, Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, is available at <http://www.epa.gov/owow/nps/lid/costs07/>.