

The Price of Greening Stormwater

Philadelphia officials hope the city's redesigned stormwater fees will lead to imaginative private financing that will help rehabilitate watersheds.

BY: [Tom Arrandale](#) | April 20, 2012

Any municipal utility expects customers to howl whenever water and sewer rates go up. But Philadelphia businesses have been grumbling for two years about their rates. That's because some monthly bills have climbed thousands of dollars to take into account all the property covered by rooftops, parking lots and other impermeable pavement. Those hardened surfaces shed rain as fast as it falls to the ground, and Philadelphia's redesigned stormwater fees target the properties that contribute most of the pollutant-laced water that flows straight to the city's 79,000 storm drains.

The Philadelphia Water Department, however, is willing to cut commercial customers a lucrative break. In fact, the city will forgive the entire bill if owners build artificial wetlands, plant trees, install rain barrels, cultivate rooftop gardens, lay down permeable pavement or add other water-absorbing features that restore the landscape's natural capacity to absorb summertime cloudbursts and soak up winter snowmelt.

Philadelphia is committed to refurbishing 9,500 acres of paved lands as part of a \$2 billion plan for complying with federal orders to fix combined drainage and sewage systems that wash raw sewage and contaminant-laced runoff into the Delaware and Schuylkill rivers. For four decades, the city funded its stormwater sewers with monthly fees based on how much municipal drinking water a home or business consumed. But in 2010, the water agency deployed GIS imaging to determine how much of a parcel had been paved over by impervious structures. Two years from now, Philadelphia will finish phasing in fees that require landowners whose properties shed the most stormwater to pick up an even bigger share of the tab.

Homeowners pay a flat \$13.48 a month, but commercial stormwater bills have changed dramatically -- both upward and downward -- depending on how much of the parcel has been built on or paved over. The leafy University of Pennsylvania campus now saves \$11,000 in monthly charges. Conversely, the airport's bill jumped \$126,000 a month, just as it did for shopping malls, wholesale distributors, recycling yards and other commercial operations surrounded by acres of asphalt or concrete. For the first time, the city is collecting stormwater fees from 40,000 parking lots and other paved parcels that don't connect to city water.

Communities will never be able to afford the tens of millions of dollars it takes to build conventional "gray infrastructure" to contain and treat stormwater overflows. As a result, many cities have installed green alternatives around parks and public buildings. About 400 cities, towns and utility districts now base stormwater fees on the percentage of impervious area, and some offer partial discounts for installing green infrastructure. But Philadelphia has upped the ante in a way no other city has: It grants a full 100 percent credit against monthly bills to commercial customers to offset the cost of investing in structures capable of retaining one inch of rain onsite.

This summer, the water department will distribute \$5 million in grants as seed money for businesses and community organizations to install green projects that will generate stormwater fee credits "that help people get their bills down," says Erin Williams, a city stormwater engineer. Applicants have asked for amounts that range from \$40,000 for a charter school rain garden to \$2.5 million to retain rainfall at a new mall near Philadelphia's sports stadiums. Once the market is established, Alisa Valderrama, senior project finance attorney with the Natural Resources Defense Council, thinks investors will be willing to raise as much \$376 million in private financing in Philadelphia alone for converting barren lands into water-storing assets.

One promising model for private investors is the energy conservation firms that install insulation and efficient heating and cooling systems in universities and hospitals. Those ventures pay the upfront costs, and in return they earn profits from the savings on clients' utility bills. "There are a lot of people who'd like to do a version of that for stormwater," says Christopher Crockett, Philadelphia's deputy water commissioner for planning. With Philadelphia's incentives, "there's nothing preventing a company from coming in to do that," he adds. "And there probably are a dozen different ideas out there."

Next year, Washington, D.C., plans to give one other emerging market device a try. The city's regulations will require major construction projects to incorporate enough water-holding structures to retain 1.2 inches of rain on the property. Landowners who prove they'll do better than that will earn credits they can sell at a profit to other developers. To comply on a confined downtown lot, an office or apartment builder might need to install a green roof or recycling system to use stormwater for flushing toilets. Alternatively, the owner might save 30 percent by buying extra credits that a parking lot or wholesale warehouse accumulates by planting trees and implementing other low-cost measures. In rundown neighborhoods, that kind of deal could spiff up vacant lots, create green jobs and help relieve contaminated upstream hot spots in Potomac River tributaries. Spreading infrastructure around the city could cumulatively catch more rain from gentle showers, so "you can retain more volume with trading than by simply doing it onsite," says Brian VanWye, the stormwater specialist who is developing the credit framework.

Philadelphia's Crockett suggests that the City of Brotherly Love could create credit trading formats for its college campuses "to try it out in a couple of places and then make adjustments." To make private stormwater ventures work, Crockett says, "we'll need to create certainty about the rates, certainty about the rules and certainty about the rewards, then let the market do what the market does best."

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