

US EPA ARCHIVE DOCUMENT

DC's *RiverSmart Homes* Program – Addressing NPS Pollution at the Residential Level

Residential development (single family houses, townhouses and apartments) is the single largest land use in the District of Columbia and these lands are one of the primary sources of pollution to its waterways - contributing pollutants through combined sewer overflow events and urban stormwater runoff.

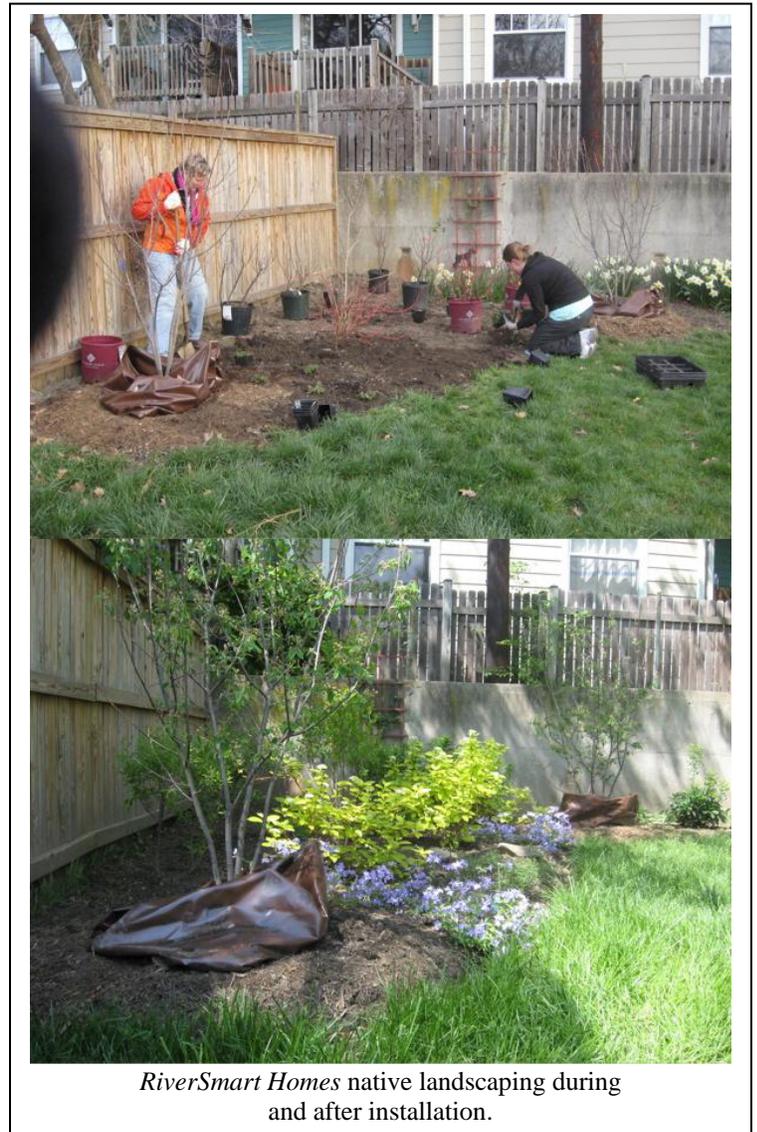
One of the greatest needs and challenges for the District of Columbia is to reduce water pollution by affecting behavioral change at the individual household level. The District has recognized that without convincing homeowners to adopt non-point source pollution prevention techniques on their properties the city will have a difficult time achieving its water pollution reduction goals.

RiverSmart Homes, the program the District is highlighting this year, has the potential to improve all of the city's watersheds and further pollution awareness and environmental stewardship in District of Columbia homeowners. As a result of this program, the District Department of the Environment (DDOE), in part through 319 grant funds, has installed 9 *RiverSmart Homes* demonstration sites – one in each Ward of the city and an additional demonstration site in the Pope Branch watershed where it is piloting the program on a large scale.

Problem

In the past, the District has encouraged residential best management practices through grants to local non-profits and directly through its work. These programs have met with mixed success. Some problems the District has seen in instituting homeowner-targeted programs include:

- A lack of personal transportation so event locations must work around public transportation (35% of District households do not own cars (US Census Bureau))¹



RiverSmart Homes native landscaping during and after installation.

¹ 45 percent of District residents drive on a regular basis. 21 percent take Metrorail for their normal form of transportation, 14 percent carpool, 9 percent use Metrobus, 5 percent walk and 1 percent ride their bike (US Census Bureau). The Metrorail is a system of above and underground stations throughout the District

- Those with personal transportation do not have large enough vehicles to transport give-a-way items (rain barrels and saplings)
- Homeowners have difficulties installing and/or maintaining Best Management Practices (BMPs) (downspouts poorly disconnected, trees die, rain barrels overflow)
- Homeowners face problems with city regulations (properly placing trees, having downspout disconnect inspected, properly installing rain gardens)

The District Department of the Environment, working with the EPA, chose to pilot *RiverSmart Homes* as a potential way of addressing non-point source pollution at the residential level in the Pope Branch watershed of the District of Columbia. Located in southeast Washington, DC, Pope Branch is a 1.6-mile first-order tributary of the Anacostia River. The entire stream lies within DC city boundaries. The primary land uses of the 250-acre watershed are parkland and residential lands. Pope Branch is listed on the 303-D List for bacteria, organics, and metals. Pope Branch was chosen as the large-scale pilot for the *RiverSmart Homes* program because of its relatively high homeownership levels, its moderate size, and because its diversity in race and income levels will allow the DDOE to develop and hone its outreach messages for various audiences.



Two types of permeable pavement installed at a demonstration home.

Project Highlights

Because of the need to address stormwater pollution at the residential level and because of the difficulties it historically faced in doing so, the DDOE developed a new residential program called *RiverSmart Homes*. The program, which started in the Fall of 2007, is an incentive-based program that encourages homeowners to install low-cost residential best management practices (BMPs) and institute green landscape management practices that help improve local water quality. The specific landscape enhancements offered through *RiverSmart Homes* include:

1. Disconnecting downspouts and installing rain barrels;
2. Disconnecting downspouts and installing rain gardens;
3. Planting large shade trees;
4. Removing impervious areas and replacing them with pervious surfaces; and
5. Instituting native landscaping and integrated pest management programs.

and into the outlying suburbs. A new form of transport for the area is car sharing, where residents can rent cars that are strategically placed throughout the city on an hourly or daily basis.



A rain garden treating rooftop runoff from this *RiverSmart Home*.

These incentives bring the BMP to the homeowner, install it for them, and in effect eliminate the difficulties faced in earlier homeowner stormwater pollution reduction campaigns. *RiverSmart Homes* hinges around “stormwater audits” of the properties of interested homeowners that are performed by DDOE personnel. These audits identify ways that homeowners can reduce stormwater pollution from their property and provide valuable time with homeowners to educate them about stormwater pollution.

Homeowners then choose which landscape enhancements they would

like to pursue, with the District covering a cost up to \$1,200 per household. If the homeowner chooses low-cost items such as downspout disconnect, rain barrel installation, and tree planting, the city installs the selected items for the homeowner at a low cost (\$30 for a rain barrel/\$50 for a shade tree). If the homeowner chooses to install a rain garden, change impervious surface to a pervious one, or native landscaping, the DDOE works through a grantee. DDOE then oversees the grantee’s installation work up to the \$1,200 threshold with costs to homeowners amounting to \$75 for native landscaping and \$100 for a rain garden. For the installation of pervious surfaces, the DDOE covers the additional cost above installation of a typical cement pad. If the homeowner decides to do more than is covered by DDOE, it is between the homeowner and the contractor to work out payment arrangements. Once the work is complete, DDOE personnel return and inspect the installation. If the work is done properly, the DDOE releases the cost of installation to the grantees that oversee the installation work.

The program does not end once the *RiverSmart Homes* landscape enhancements are installed on the homeowner’s property. The DDOE is developing methods for keeping in contact with *RiverSmart Homes* participants to help them properly care for their landscaping enhancements and to encourage them to install additional BMP practices on their property.

DDOE’s *RiverSmart Homes* program will reduce non-point source pollution through lot-level activities that encourage infiltration. By infiltrating



District of Columbia Mayor Adrian Fenty at the launch of the *RiverSmart Homes* program.

rainwater before it becomes stormwater through the installation of BMPs like rain gardens and permeable pavement the District will reduce pollutants flowing to our local streams including oils and grease, toxic chemicals, nutrients, sediments and fertilizers. Furthermore by planting trees and installing native plants the city will reduce the need to use fertilizers and pesticides by reducing lawn areas and encouraging the use of native plants that are adapted to local conditions.

Results

The DDOE started this program in 2007 using two parallel tracks. First, the DDOE funded the installation of 8 demonstration sites – one in each Ward of the city. The DDOE has used, and will continue to use, these sites located on the property of eight District residents for garden tours; giving interested homeowners physical examples of practices that are sometimes difficult for the non-expert to conceptualize.

Also in 2007, the DDOE began surveying residents of a large-scale pilot area, the Pope Branch watershed, to examine their feelings about and understanding of the BMP DDOE is offering through *RiverSmart Homes*. These surveys, along with feedback from smaller focus groups, was then used to develop a social marketing campaign to educate Pope Branch residents about stormwater pollution, to teach them what they can do to prevent it, and to recruit them to participate in the *RiverSmart Homes* program.



A 132-gallon rain barrel installed at a demonstration site.

In May 2008 the DDOE officially started its pilot of the *RiverSmart Homes* program in the Pope Branch watershed. In the six months since its launch, the DDOE has gone door to door to each of the approximately 1,000 homes in the watershed and presented at several civic and neighborhood meetings in an effort to let homeowners know about the program. To date the DDOE has performed over 60 stormwater audits for interested homeowners and has a waiting list of approximately 40 more homes to audit over the winter.

In October 2008 a *RiverSmart Homes* demonstration site was completed in the Pope Branch watershed and in November 2008 an open house was held for residents living in the pilot area. The first non-demonstration *RiverSmart Homes* sites will be installed in Pope Branch starting this winter and the DDOE anticipates that it will have at least 100 sites installed by the fall of

2009 (10 percent of homes in the watershed).

Based on the lessons learned from this pilot effort, the DDOE will roll out the program city-wide. It is anticipated that the program will be available city-wide in the late Spring

of 2009. Although the *RiverSmart Homes* program has not been advertised outside of the pilot area, word has spread about the program and the DDOE already has a list of around 500 interested homeowners throughout the city.



Proud *RiverSmart Homes* homeowners.

Partners & Funding

The Friends of Rock Creek's Environment, Casey Trees, DC Greenworks, The Alliance for the Chesapeake Bay, Natural Resource Designs, and Government of the District of Columbia have all contributed to the success of the *RiverSmart Homes* program. Furthermore this program could never have existed without the input from and aid of dozens of Pope Branch community members who filled out surveys and participated in focus group

meetings, along with the demonstration site homeowners throughout the city who have opened their homes to the DDOE to run tours showcasing *RiverSmart Homes* practices. Of the Section 319 funding that DDOE has received, \$142,500 was spent designing and installing *RiverSmart Homes* demonstration sites and \$56,000 will be spent in the coming months developing a system for continuing outreach to *RiverSmart Homes* homeowners, in addition to honing the *RiverSmart Homes* social marketing campaign. As the program launches on a city-wide basis, the pilot program will end and the District will greatly outspend the 319 funds outlaid in the pilot phase using money from its stormwater fee and general operating funds.

Contact:

Steve Saari
steve.saari@dc.gov
 District of Columbia
 Department of the Environment
 Watershed Protection Division
 202-535-2961

Catherine King
king.catherine@epa.gov
 USEPA, Region III
 Water Protection Division
 Office of State and Watershed Partnerships
 215-814-2657

John Wasiutynski
john.wasiutynski@dc.gov
 District of Columbia
 Department of the Environment
 Watershed Protection Division
 202-535-1844