

FROM GRAY TO GREEN

Stormwater Trading in Washington D.C.
by Evan Branosky, District Department of the Environment



A single storm in the District of Columbia can generate over 500 million gallons of stormwater runoff, carrying pollution and causing erosion as it rushes into local rivers and streams. This problem begins simply, with rain falling in a city where 43 percent of the land is covered by impervious surfaces. Curbing runoff requires regulation for construction projects and funding for green infrastructure. However, most impervious surfaces are not subject to retrofit requirements and lack financing to support voluntary retrofits.

BOX 1: IN-LIEU FEE OFFERS ANOTHER COMPLIANCE OPTION

Instead of buying and using SRCs, sites may pay in-lieu fee to achieve off-site retention obligations. The in-lieu fee rate is \$3.57 per gallon per year of required off-site retention. DDOE deposits in-lieu fee payments into a special purpose revenue fund and uses the revenue to install green infrastructure projects that retain stormwater runoff.

To address these challenges, the District Department of the Environment (DDOE) adopted local stormwater regulations with an innovative trading program that catalyzes green infrastructure retrofits and maximizes cost-effective clean water benefits. Published in 2013, the regulations require major land-disturbing projects^[1] and major substantial improvement projects^[2] to retain the volume from the respective 1.2- or 0.8-inch storm. The 1.2-inch storm is the 90th percentile storm in the District (i.e., an event that is greater than or equal to 90 percent of all 24-hour storms on an annual basis), while the 0.8-inch

storm is the 80th percentile event. Once these regulated projects retain 50 percent of their Stormwater Retention Volume onsite, they may meet the remaining volume by purchasing privately-traded Stormwater Retention Credits (SRCs) from other sites or paying an in-lieu fee to DDOE (see BOX 1). Each SRC achieves one gallon of retention for one year. Sites generate SRCs by installing voluntary green infrastructure or by exceeding their regulatory requirements. Because off-site retention is an ongoing obligation that must be met on an annual basis, sales of SRCs can provide a reliable revenue stream to finance green infrastructure and may turn a profit over time.

PROGRAM BENEFITS

DDOE's program is designed to provide flexibility for regulated sites while maximizing the benefit to District waterbodies. Two hypothetical scenarios illustrate the potential for cost savings and flexibility from SRC trading. In Scenario A, a single site that is 5,000 ft² and 100 percent impervious controls the entire 1.2-inch storm volume onsite through relatively high-cost green infrastructure (\$3.25 per gallon or \$11,547). In Scenario B, there are two sites that are both 5,000 ft² and 100 percent impervious. Site 1 retains 0.75 inches onsite (at \$3.25 per gallon) and achieves the remaining 0.45 inches using SRCs generated at Site 2, which is located in an area where it is less costly to install green infrastructure (\$0.65 per gallon). The combined retention cost for Sites 1 and 2 is \$8,084. Compared to Scenario A, Scenario B results in a 30 percent cost savings to provide the same amount of runoff retention.

^[1] Major land disturbing projects are development projects that disturb 5,000 ft² or more of land area.

^[2] Major substantial improvement projects are development projects where the cost of improvement equals at least 50 percent of the assessed value of the structure prior to improvement and the combined footprint of the improved structure(s) and land disturbance is \geq 5,000 ft².

On an annual basis, Scenario B may also provide increased benefits to District waterbodies because two smaller practices can receive runoff from more area than one larger practice. Based on 2009 annual rainfall data, many of the storms that occur in the District are smaller than the 1.2-inch retention requirement. Consequently, Scenario B's two green infrastructure practices fill to their capacity more frequently than the single practice in Scenario A, resulting in a comparative 53-percent increase in annual stormwater retention for Scenario B.

Beyond the financial and environmental benefits of increasing retention, SRC trading should also help to drive installation of green infrastructure to areas outside of the downtown core where there is more open space and land values are relatively low. This driver can help to catalyze "greening" of areas that are in most need of social and economic benefits. Additionally, increasing green infrastructure outside of the downtown core provides enhanced protection to sensitive non-tidal streams and accrues benefits to the downstream tidal waters of the Anacostia and Potomac Rivers (Figure 1).

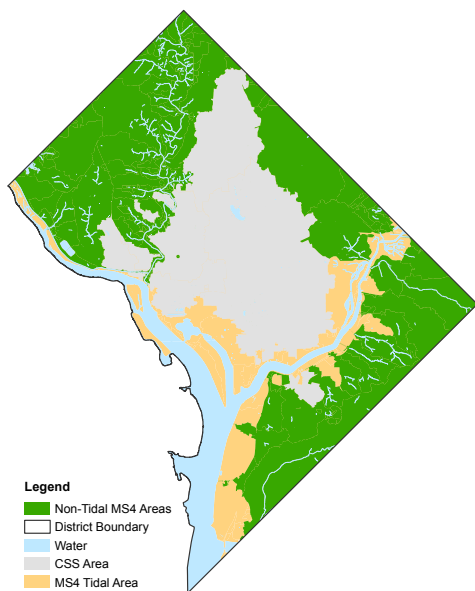


Figure 1: Green infrastructure in areas draining to small streams benefits those streams and downstream tidal rivers. Source: DDOE

CREDIT CERTIFICATION AND MAINTENANCE REQUIREMENTS

DDOE is the sole SRC-certifying authority. To be eligible, projects must exceed existing retention requirements, be designed in accordance with an approved stormwater management plan, complete a final construction inspection

and ongoing maintenance inspections, and document the ability to maintain the green infrastructure over the certification period. DDOE certifies up to three years' worth of SRCs at one time and will re-certify every three years as long as eligibility requirements are met.

A unique feature of the SRC trading program is that one SRC equals one gallon of runoff retention for one year. Likewise, the in-lieu fee corresponds to one gallon of runoff retention for one year. The one-year lifespan of an SRC and the three-year certification cycle provide incentives for continued maintenance and provide flexibility for SRC generators who decide to leave the market and use their land in other ways.

COMBINED INCENTIVES MAXIMIZE RETURNS FOR PARTICIPATING SITES

The SRC trading program complements DDOE's other financial incentive programs to provide maximum financial support to sites that install voluntary green infrastructure. For example, through the RiverSmart Rewards program, sites that retain the volume from the 1.2-inch storm can receive a 55 percent discount on their water bill, while smaller amounts of retention receive less of a discount. The volume retained for RiverSmart Rewards may also be eligible to generate SRCs, so sites that participate in both programs can "stack" the financial benefits.

INITIAL ACTIVITY

DDOE certified the first SRCs in April 2014 and approved the first trade in September 2014. As regulated projects finish their construction phases and more people learn about SRC trading opportunities, DDOE expects trading activity to increase. As of April 2015, several projects are in the process of applying for SRC certification and two have used SRCs or in-lieu fee to meet their retention requirements. Potential traders and the general public can view the SRC trading registry in real time at ddoe.dc.gov/src.

RESOURCES

- DDOE SRC Trading Program: ddoe.dc.gov/src
- DDOE River Smart Homes: <http://green.dc.gov/riversmarthomes>