



The Long Reach of Green Stormwater Management: Enhancing the Environment and Local Communities

WASHINGTON, DC

Photo: The Nature Conservancy

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URBAN LAND INSTITUTE, ULI WASHINGTON

Retention area on grounds of Knollwood Cemetery

Installing green infrastructure (GI) to manage stormwater runoff can significantly improve the health of the environment and benefit local communities. But when it comes to maximizing the many positive environmental impacts of GI, sometimes it's not so much a matter of what projects to implement as it is about where to place them.

Encouraging the construction of GI in strategic locations throughout the District is key to helping the District reach its ambitious water quality goals. It is for this reason that the District of Columbia [Department of Energy and Environment \(DOEE\)](#) [Stormwater](#)

About the Alternative Stormwater Compliance Program Uptake Initiative

Through this initiative, the District Department of Energy and Environment (DOEE), in partnership with the Urban Land Institute, seek to gain insight into current perceptions of, and experiences with the SRC and SISR programs in order to promote awareness and understanding of the programs, increase market uptake, and inspire more sustainable stormwater management throughout the District.



Photo: The Nature Conservancy
Grounds of Mt. Olivet Cemetery

Retention Credit (SRC) Trading program incentivizes the construction and ongoing maintenance of new GI in places where it otherwise might not get built. In doing so, the SRC program plays a vital role in mitigating the negative effects of stormwater runoff.

Large development sites in the District, must manage their stormwater runoff. However many of these sites are located in the “core” of the city which is served by a Combined Sewer System (CSS) which combines wastewater and stormwater in one pipe that is conveyed to a wastewater treatment plant. This is in contrast to much of the city outside of the downtown “core” which is served by a Municipal Separate Storm

Sewer System (MS4) in which sewage travels in one pipe to a treatment plant while stormwater travels in a separate pipe to the nearest stream or river. Thus, GI that is installed in the MS4 part of the District has a greater impact on water quality than GI installed in the CSS.

The SRC program bridges this disconnect between where large development is occurring and where GI can have the greatest impact by offering the developers the flexibility to meet their stormwater management obligations off-site. This can be done is by **purchasing** SRCs which, instead of being tied to a building site, can be generated nearly anywhere there's open space, from a rooftop to a parking lot.

By taking advantage of this flexibility, projects can maximize benefits to local watersheds—from creeks, streams, and wetlands, to the Anacostia and Potomac rivers and the Chesapeake Bay.

“If we disperse green infrastructure all throughout the District, it can act like a sponge, absorbing and filtering more water,” says Aileen Craig, Stormwater Program Manager at The Nature Conservancy (TNC) Maryland/DC Chapter. This effect contributes to cleaner, healthier aquatic ecosystems. Projects like plant-centered filtration and bioretention can reduce the velocity of stormwater flow, which can overwhelm local waterways. They also help prevent eroding sediment and pollutants like phosphorus and nitrogen from entering streams and rivers.

STORMWATER MANAGEMENT WHERE IT MATTERS MOST

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TNC was an early adopter of the SRC program – the first of its kind in the nation. TNC completes this work under **District Stormwater, LLC**. (DS), a wholly-owned subsidiary of TNC. DS is what's known as an SRC aggregator, partnering with landowners to install GI on their sites that can then be **sold** to developers and landowners who have opted to use off-site stormwater

retention to meet regulatory requirements. In its role as an aggregator, DS has developed projects that keep more than eight million gallons of stormwater out of District storm drains each year. And that's just from two sites out of over 250 in the District with total retention capacity of approximately 2,840,000 gallons and rising with more being developed all the time.

Knollwood, a Life Plan Community, located in NW DC near Rock Creek Park far from downtown, is one such site. By working with DS through the SRC program, Knollwood has installed a large bioretention facility and planted 50 trees, naturally treating 3 million gallons of stormwater annually. Along with stormwater management, GI projects around the city also help the environment by restoring native plants and creating critical habitat for wildlife and important pollinating species like birds and bees.

ADDED COMMUNITY BENEFITS

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Green infrastructure also creates more spaces for people to interact with nature. “One of the goals for a lot of our SRC projects is to increase community access to green space,” Craig says. The Knollwood program includes installation of educational signage to help community members and visitors understand how green stormwater management was applied in this project and why it is important to local watersheds.

The SRC program works in tandem with the **Stormwater Management Facility Self-Inspection and Self-Reporting** (SISR) program, which enables facilities to self-monitor and self-report the ongoing maintenance of their GI practices. Craig says that having SISR as a mechanism to track and share compliance information helps her make sure facilities are functioning properly and prevents facilities maintenance from falling through the cracks.

Craig notes that SISR is much more convenient than DOEE-facilitated site inspections; she can collect information on her phone, often using it in the field

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BEFORE



AFTER



Photo: The Nature Conservancy

Before and after photos featuring new green infrastructure installed at Mt. Olivet Cemetery

to capture photos and notes on the go. This takes a substantial burden off of the property owners and DOEE alike and ensures that the GI they have invested in continues to operate efficiently. The SISR program reporting framework also helps SRC aggregators and property owners who generate their own SRCs share information with each other, so that they can discuss lessons learned from projects, improve their practices, and educate other landowners throughout the District about the merits of program participation.

Craig says that part of TNCs mission is to have more people invest in SRC-generating projects because of their benefits to both people and the environment. "A lot of local landowners are interested in being stewards of the land, but may not know where to start," she says.

Involvement in the SRC and SISR programs early in the development process creates a sense of ownership among stakeholders in environmental conservation within the development project team – one that must be maintained throughout the project's lifespan. Aggregators like DS help to streamline the process by connecting buyers to sellers and providing technical support.

The joint efforts of development teams, owners, managers, and credit aggregators enhance and preserve local waterways alongside the ecosystems they support. Their efforts also allow District residents and visitors to enjoy quiet respite among the captivating vistas and features unique to the nation's capital.

This case study was completed in collaboration with [The Nature Conservancy](#).