

12 WEFTEC 2019  
Stormwater Pavilion

13 Industry Trends  
Biomimicry

16 Flood Protection  
Combined approach

29 Stormwater Pumps  
Chronic flooding

Volume 7 / Issue 3  
Autumn 2019

**wef** Stormwater  
Institute

worldwater  
**stormwater**  
MANAGEMENT

*The Official Publication of the WEF Stormwater Institute*



**Integrated watersheds**  
net major benefits

**weftec**  
**STORMWATER**  
CONGRESS



# Local governments tap private sector with incentive programs

The collaborative project Stormwater Currency is developing innovative government incentives to encourage the private sector to install green infrastructure (GI). **Jeffrey Odefey** of American Rivers' Clean Water Supply Program, and **Janet Clements** and **Jim Henderson** of Corona Environmental Consulting explain some of the incentives designed to make GI more affordable.

Stormwater professionals are well aware of the environmental, human, and economic costs associated with urban runoff. Many wrestle daily with the challenges of managing stormwater to reduce these costs and avoid unwanted future impacts. The increasing severity of precipitation events and strain on public budgets caused by unmet stormwater management needs make stormwater measures more difficult.

Finding additional public resources – such as land, money, and additional staff hours – can also be a limiting factor for municipal stormwater programs. Thus, meaningful reductions in the “hardening” of urban hardscapes and the resulting stormwater will require deeper inclusion of private property and private sector resources, particularly for more widespread installation of GI projects. GI projects on private property and installed by landowners and private business can be much more cost effective than public programs.

American Rivers, Corona Environmental Consulting, and Water Environment Federation (WEF) are collaborating on a project called “Stormwater Currency” to support municipal and state governments in efforts to develop incentives that can be locally adopted to engage underused private sector capacity in the United States (US).

## GI incentives for private sector

Local and state-led efforts introduced a range of incentives to bring private property GI to market. Stormwater fees, with accompanying discounts or

offsets for onsite GI that reduces runoff, are relatively widespread. To be effective, though, these fees need to be high enough to impose appreciable costs on landowners, with offsets that justify the price of installing GI. In most cases, stormwater fee discounts do not provide sufficient incentive to install GI, but work well when paired with other incentive programs. For example, the impervious area charge associated with Philadelphia Water's Green City, Clean Water program shows how a fee can succeed when it is but one tool in a well-stocked toolbox of other incentives. Property tax rebates or discounts can have a similar effect by reducing economic costs associated with property ownership in exchange for installing GI that provides public benefits.

Grant programs that directly fund GI retrofits can complement fee and discount programs (or be a stand-alone tool) by directly paying landowners to install GI. Northeast Ohio Regional Sewer District's program has shown that grants can fund GI projects at extremely competitive rates. During a recent grant year, the district funded 11 projects, managing approximately 26.5 million liters (7 million gallons) at an average cost of less than US\$0.10 per liter (\$0.24 per gallon).

Less financially demanding, development incentives can encourage site developers to include GI in new projects. These incentives can include reduced permitting fees, expedited reviews, and relaxation on zoning restrictions. For instance, the City of Seattle's Green Factor program

## THE THREE CORE COMPONENTS OF A STORMWATER CREDIT TRADING MARKET ARE PURCHASE STRUCTURE, CREDIT TRACKING, AND LONG-TERM MAINTENANCE ASSURANCES.

provides incentives to install enhanced GI features in exchange for credits that reduce code requirements for total vegetated area.

Awards and certification programs can reward GI expertise while promoting a vibrant local community of practice. For the past four years, the Austin Green Awards program in Austin, Texas, celebrated the city's homegrown sustainable design and innovation leadership. Municipal programs like this one promote and reward projects that meet LEED, NetZero, Envision, or other sustainability standards and can encourage peer-driven GI on new development and redevelopment projects. GI certifications, such as WEF's National Green Infrastructure Certification Program, can also be instrumental in creating and sustaining a well-trained,

pre-qualified workforce capable of maintaining GI projects and reducing practical barriers to GI implementation.

Other incentives can be designed specifically to provide compliance flexibility for developers as they face more restrictive (or protective) stormwater regulations. Permits and ordinances that provide an offsite alternative for regulatory compliance can lay a foundation for a stormwater retention credit program. This incentive relies on a market-based approach that capitalizes on the variations in real estate costs and values across a metro area and the potential to maximize value within a project footprint.

## Stormwater credit trading

It may be more feasible or cost effective for a site developer to fund GI at a different location – achieving environmental gains while reducing compliance costs. Stormwater-retention credit-trading couples a regulatory driver (a strong onsite retention requirement) with a market structure that takes advantage of real estate economics to promote decentralized GI projects. Assertive onsite retention requirements are typically costlier for developers to meet and require developers to commit valuable portions of their sites to stormwater management best management practices. Often, the project footprint could be put to a more desirable, economically favorable use.

Municipalities can provide flexibility by allowing developers to meet their full regulatory requirements at a different location. Under optimal conditions, offsite GI will be less expensive to install and can



provide enhanced stormwater and amenity benefits to neighborhoods outside those experiencing a real estate boom. The mechanism for affecting this offsite compliance is a credit exchange marketplace, in which developers or private property owners voluntarily install GI in order to generate credits to sell to developers seeking an offsite alternative. Municipal design and administration of this marketplace is important to establish clear trading rules, processes, and market functionality.

The District of Columbia's Department of Energy and Environment (DOEE) deserves credit for pioneering this approach, which borrows (but significantly differs) from other environmental benefit credit markets. Based on the department's experience and iterative development of a program for the district, other municipalities and community partners have begun to analyze and adapt the model to new locations. Through these efforts, the Stormwater Currency team gained a deeper understanding about how to design programs that respond to a range of economic, demographic, and jurisdictional situations. Ongoing

efforts to design programs for Grand Rapids, Michigan, and Cook County, Illinois, are two examples of the increasing interest in this incentive approach.

It is now recognized that a set of fundamental conditions must be in place before a local government can embark on consideration of a stormwater trading approach. A strong onsite retention standard provides a regulatory driver and economic trigger for developers to seek an offsite alternative. This standard needs to be high enough that it significantly reduces runoff, which in turn comes with commensurate cost challenges. Economic conditions within the trading area must feature a vibrant real estate development and redevelopment sector and a diversity of real estate values that allow GI installations to be more cost-effectively located at an offsite location. While a credit-trading approach leverages private capital to install GI, the local stormwater program must have adequate financial resources to administer the program and to provide additional locally relevant incentives that will contribute to its success. Finally, this market-based approach is relatively nontradition-

al and requires creative, innovative, risk-tolerant leadership to development and implement.

To date, the stormwater-retention, credit-trading programs considered have functioned around exchange of retention capacity. In the US, the currency in this market place, or the value of a single credit, is expressed in gallons or cubic feet of stormwater retained by installed GI. This straightforward approach avoids some pitfalls associated with converting GI performance to nutrient or other pollutant-removal rates. This price-per-gallon or price-per-cubic-foot system also needs to factor into the calculation of a local payment-in-lieu (PIL) fee. PILs are commonplace compliance alternatives. In a credit-trading program, they should be calculated to reflect the true cost of a public agency designing, installing, and maintaining GI practices. Since this cost will almost always be higher than it would be for the private sector to install an equivalent volume, the PIL cost functions as the ceiling on a retention credit market. Ideally, the cost of a retention credit will always be less than the PIL, driving developers to favor credit purchases.

The three core components of a stormwater credit trading market are purchase structure, credit tracking, and long-term maintenance assurances. Different trading programs have explored a range of payment structures. DOEE's program revolves around an annual credit and payment structure, in which developers purchase credits based on gallons retained per year. A property subject to DC's stormwater regulations must demonstrate each year that it has purchased sufficient credits to cover its compliance obligation. When Chattanooga, Tennessee, developed a program, it favored a one-time payment model, in which a single transaction purchased credits for perpetual compliance. One point in favor of DC's approach – and a drawback to a one-time purchase – is its ability to convey a regular revenue stream for the credit provider to maintain the GI that produces the credit. Without regular payments to cover operation and maintenance costs, there is less certainty that offsite alternatives provide the desired environmental benefit. Stormwater Currency proposed a design for Grand Rapids based on a hybrid approach, in which the market sets the cost of a retention credit based on the capital cost

of installing sufficient GI, and the purchaser is also required to enter into a maintenance contract with the credit provider to assure permanent maintenance.

The municipal agency's role is to foster connections between willing credit buyers and sellers and to track the creation and purchase of credits. This can be created by building on the data management resources that would otherwise be used to track project review, approval, and stormwater regulatory compliance. An accessible online registry of available credits, credit providers, purchasers, and prices will facilitate self-directed participation in a transparent market.

The agency will also need to regularly inspect both onsite and offsite GI projects to ensure that regulatory compliance obligations are met. To bring things full circle, the agency's other task is to create incentives that bring credits onto the market. Allowing credits for some previously completed projects, developing grant and subsidy programs for new GI retrofits, enabling private business to bundle or aggregate GI retrofits, and offering a low-end purchase guarantee program can all work to deliver a sustained supply of credits.

### Encouraging signs

As stormwater permits and regional stormwater plans increasingly focus on reducing water quality impacts from urban stormwater, incentivizing solutions from the private sector will become a significant priority. In order to access this source of funding and retention capacity, local and state governments will need to develop and enhance programs that incentivize privately constructed and maintained GI.

Within the stormwater community, the growing conversation about retention credit trading and other incentives is encouraging. The next few years will likely bring rapid innovation in this area, as programs in Grand Rapids and Cook County come online and spur further iterations.

### Author's Note

*American Rivers' Clean Water Supply Program Director Jeffrey Odefey and Senior Economists Janet Clements and Jim Henderson with Corona Environmental Consulting collaborated in writing this feature. American Rivers is based in Washington, DC, US, and Corona is headquartered in Rockland, Massachusetts, US.*

