

Financing Green Infrastructure: A Best Practices Guide for the Clean Water State Revolving Fund



2015

Introduction

Since 1988, EPA's Clean Water State Revolving Fund (CWSRF) has established itself as an important source of affordable funding for infrastructure projects that improve and maintain the quality of our nation's waters. Each of the 51 programs operating independently across the United States and Puerto Rico demonstrate the power of federal and state partnerships to leverage financial resources in the interest of building sustainable infrastructure and protecting public health and water quality. There is no single prescription for accomplishing these goals; infrastructure solutions must be tailored to meet the environmental and economic needs of individual communities. States have significant flexibility within the CWSRF to establish their own funding priorities, assist communities of all sizes, and address a wide range of water quality concerns.

Nationwide, there is increasing awareness and acceptance of the need to address pollution generated by stormwater runoff. EPA developed its Green Infrastructure Policy for the CWSRF in an effort to meet this challenge. Released in December of 2015, the intent of the policy is to increase CWSRF financing of green infrastructure projects and broadly encourage cost efficient investments in sustainable infrastructure. Amongst the variety of eligible projects that CWSRF programs finance, green infrastructure represents a cost-effective solution to stormwater management.

The CWSRF's Green Project Reserve (GPR) requirement also encourages investment in green infrastructure. Established under the American Recovery and Reinvestment Act (ARRA) and carried forward with subsequent appropriations, the GPR directs states to provide a variable percentage of their capitalization grants to a range of sustainable water infrastructure projects, including green infrastructure. CWSRF programs have been very successful at implementing the GPR, providing an impressive \$3.8 billion in assistance to GPR projects since EPA began tracking loan level data in 2010. As part of the GPR, CWSRFs have provided \$800 million to over 600 green

WHY GREEN INFRASTRUCTURE?

During rain events, stormwater can convey contaminants that severely degrade receiving waters. In cities with combined sewer systems, stormwater flows can also result in the direct discharge of untreated sewage. Green infrastructure incorporates both the natural environment and engineered systems to protect, restore, or mimic the natural water cycle. A variety of green infrastructure practices can be used to capture, treat, infiltrate, and evapotranspire stormwater runoff. These measures reduced localized flooding and provide numerous environmental benefits. Green infrastructure solutions can be applied on different scales. On the local level, green infrastructure practices include rain gardens, permeable pavements, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting systems. At the largest scale, green infrastructure preserves and restores natural landscapes such as forests, floodplains and wetlands. Operating at any scale, green infrastructure practices can provide clean water, conserve ecosystem values and functions, and provide a wide array of benefits to people and wildlife.

infrastructure projects. This represents just 21 percent of all GPR assistance provided to date. Activities that incentivize and encourage green infrastructure can potentially increase this percentage over time.

Although green infrastructure is nested within the relatively small proportion of GPR projects, states can choose from an impressive array of green infrastructure projects that are now eligible for funding under the CWSRF. The Water Resources Reform and Development Act (WRRDA) of 2014 specifically amended the CWSRF program eligibilities with respect to stormwater, authorizing each CWSRF program to provide financial assistance “for measures to manage, reduce, treat, or recapture stormwater or subsurface drainage water.” This language encompasses virtually any green infrastructure project that mitigates stormwater runoff and opens a wide range of green infrastructure projects to CWSRF eligibility for both public and private borrowers.

Embracing green infrastructure eligibilities, as many CWSRF programs already have, can provide communities with significant environmental, economic, and social benefits. The difficulty lies in translating eligibilities to actual infrastructure. Communities are sometimes reluctant to pursue green infrastructure solutions due to a lack of familiarity, inability to secure a repayment source, or other logistical barriers. But interested CWSRF programs need look no further than their peers. The breadth of knowledge, experience, and the diversity of approaches to achieving environmental benefits has always been the CWSRF program’s greatest asset.

This best practices guide illustrates a variety of incentives states use to encourage consideration and implementation of green infrastructure and foster sustainability within their programs. Some of the incentives and examples featured in the guide are not specific to green infrastructure, but could easily be adapted to focus on green infrastructure implementation. Likewise, many of the practices that are specific to green infrastructure can also be applied to other sustainable projects such as water and energy efficiency.

State programs have used the practices in this guide with great success. EPA is pleased to highlight these efforts in the hope that other interested programs can follow their example.

Outreach

As the water sector moves toward more sustainable approaches to managing resources and addressing infrastructure challenges it is important for communities to be aware of the full range of treatment technologies available to manage wastewater and stormwater runoff. State CWSRF programs can play a large role in fostering this awareness by encouraging stakeholders to consider the full range of project alternatives available, including green infrastructure. States should market their programs to the widest possible audience and seek to develop partnerships with entities interested in funding green infrastructure.

Marketing

For years, State CWSRF programs have been providing interested communities with funding to incorporate green infrastructure into their wastewater systems. Many communities may still be unaware of the CWSRF funding opportunities available to them. States can address this by implementing a variety of marketing practices. The table below includes examples of successful marketing strategies that states have implemented.

State	Marketing Approach
Iowa	Held a workshop for potential borrowers which led to: <ul style="list-style-type: none">• development of new brochures and a reformulated Intended Use Plan (IUP) and Annual Report to serve as comprehensive documents aimed at the wider public.• hiring an environmental review coordinator who works to reduce applicant workload by taking over the federal crosscutter process.
Oklahoma	Created a Wastewater Infrastructure Planning Guide for communities to develop strategies on how to best meet their wastewater infrastructure goals.
South Carolina	Hired a full-time outreach expert that plans workshops and conducts one-on-one technical meetings with stakeholders.
Ohio	Hosts webinars for communities to ask questions about the program.
New York	Visits communities to meet local leaders and identify potential project sites.

Technical Assistance

Communities may be receptive to the idea of green infrastructure, yet still be reluctant to commit to a green infrastructure project if they are unfamiliar with planning or maintenance requirements. To mitigate these concerns, state programs can offer technical assistance to help communities conduct a thorough alternatives analysis to identify the appropriate technology, develop the project scope, or help create an operations and maintenance plan. Since some green infrastructure projects don't have a dedicated source of revenue, technical assistance can also be used to help communities identify potential repayment sources such as stormwater fees and on-bill

STATE SPOTLIGHT: OKLAHOMA

In 2014, the Oklahoma Water Resources Board (OWRB) finalized its Public Wastewater System Planning Guide. This easy-to-use document walks users through the process of inventorying existing infrastructure assets and determining upgrade, repair and replacement needs. The baseline assessment could help communities identify opportunities to implement green infrastructure and identify future funding opportunities. The guide can be found at <http://www.owrb.ok.gov/guides/index.php>

financing. State employees can visit communities themselves or work with outside entities when offering technical assistance. They can also use administrative funds and loan fees¹ to help pay for these efforts.

EPA recently conducted a series of technical assistance projects focused on green infrastructure implementation. These projects are intended to address significant technical, regulatory, and institutional barriers to green infrastructure, and to build community capacity by sharing lessons learned. To highlight these efforts, the Green Infrastructure Team within EPA's Office of Wastewater Management is developing a guide to highlight best practices for assisting communities with green infrastructure implementation. This guide is under development and will be released in 2016. To learn more about this technical assistance program and green infrastructure at EPA go to http://water.epa.gov/infrastructure/greeninfrastructure/gi_support.cfm#2014TechnicalAssistance.

Partnerships

Partnering with other organizations is an important strategy for states to reach potential borrowers. Potential partners could include homeowners associations, conservation organizations, engineering firms, state agencies, and other entities with green infrastructure expertise. The advantage of such partnerships is these organizations already have close relationships with potential borrowers. CWSRF programs can utilize existing relationships between communities and state and local agencies which may help facilitate green infrastructure funding opportunities. Several states have used this approach to reach borrowers for non-point source projects by partnering with state agricultural offices that have an existing relationship with landowners.

Prioritization

Effectively communicating CWSRF priorities through the use of priority systems and other methods can help ensure borrowers are aware of specific funding opportunities and are submitting projects that meet state objectives. Priority systems are the primary tool that states use to rank and evaluate projects. The flexibility inherent to these systems is one of the most dynamic aspects of the CWSRF program, allowing states to pursue projects that meet their own unique economic and environmental objectives. Priority systems funnel CWSRF resources to communities of all sizes, address a wide variety of water quality concerns, and can play a critical role in encouraging the adoption of green infrastructure solutions.

Priority Points

¹ Only fee revenue that is non-program income can be used to pay for technical assistance.

State priority systems can effectively communicate water quality goals if they are transparent, with information readily available to potential assistance recipients. Priority systems should be accessible to the public and easy to locate. This allows potential borrowers to take state priorities into account when considering project alternatives. Many states post their priority systems online or include them in their intended use plans. During the planning and design phase of a project, potential assistance recipients in these states can assess their project against the priority system, making necessary adjustments to ensure the project is an attractive candidate for CWSRF funding.

States may assign additional priority points to sustainable project alternatives, including green infrastructure. The states in the table below use their priority systems to encourage sustainable project design, including specific incentives for a variety of green infrastructure practices.

State	Priority Approach
New Hampshire	20 of a possible 100 points are awarded for GPR projects. An additional 15 points are available to projects that address sustainability factors such as climate change adaptation.
Maryland	25 of a possible 100 points are available for sustainable project elements such as green infrastructure, asset management, and LEED design. While not specifically reserved for green infrastructure, additional points are available for nutrient removal and cost-effectiveness.
New Mexico	25 of a possible 475 points are awarded to projects that protect designated beneficial uses such as aquatic life. An additional 25 points are awarded to projects that incorporate structural/non-structural stormwater best management practices. 25 bonus points are awarded to projects that meet one of the four GPR categories: energy efficiency, water efficiency, green infrastructure, or environmental innovation.
Georgia	50 of a possible 100 points are available to projects that implement certain agricultural best management practices, protect stream buffer zones, and take other measures to reduce non-point source pollution. An entire section is devoted to assessing green infrastructure, non-point source, and stormwater management benefits.
Oregon	Criteria are scored between 1 and 5 with 5 points denoting very high likelihood of achieving the desired goal. Individual criteria include, but are not limited to, inclusion or expansion of sustainable project elements,, green infrastructure components, and improvement or protection of aquatic habitat.

Set-Asides

States can also prioritize by setting aside funding to specifically incentivize green infrastructure. CWSRF programs have the flexibility to reserve funding and direct it towards desirable projects. This pool of money could also be offered at a reduced interest rate as an added incentive to potential borrowers. This option should not be confused with the Drinking Water SRF set-asides, which require states to reserve a portion of their capitalization grant for specific activities or recipients identified in statute.

STATE SPOTLIGHT: CALIFORNIA

In March 2014, the California State Water Resources Control Board approved low-interest financing terms to incentivize water recycling projects, making \$800 million available at 1 percent interest. Among the projects eligible for funding are recycled water treatment, distribution and storage facilities. The financing will help California reach its goal of recycling 150,000 acre-feet of water annually.

Financial Incentives

States reward high-priority projects by utilizing financial incentives. The CWSRFs have considerable flexibility in setting conditions for loan assistance, an authority that can be exceptionally helpful in financing green infrastructure projects. For example, CWSRFs can lower interest rates, provide additional subsidization, and structure repayment schedules to suit the needs of the borrower.

Interest Rates

The ability to offer competitive interest rates is one of the most attractive incentives states can offer potential assistance recipients. CWSRF interest rates vary from market rate to as low as zero percent. Most states index their interest rates to a measurement of financial capability (usually median household income), giving the lowest interest rates to the poorest communities. States may also offer additional interest rate breaks to desirable projects, including green infrastructure.

Repayment Schedules

While maturities cannot exceed 30 years or the useful life of the project, CWSRF programs can be flexible in how they structure loan repayment schedules. For example, loan repayments could start small and gradually increase over the life of the loan. Alternatively, the majority of the loan principal could be paid at the end of the term through a large balloon payment. Using these options can help make green infrastructure projects more affordable.

Additional Subsidization

Since ARRA was passed in 2009, annual appropriations authorized states to provide a portion of their capitalization grant as additional subsidization. Allowable forms of subsidy include principal forgiveness, negative interest loans, and grants. This authority to provide additional subsidization was made permanent with the passage of WRRDA in 2014. States can use this authority to target assistance to green infrastructure projects. Since 2009, states have provided more than \$70 million in additional subsidization for eligible green infrastructure projects.

STATE SPOTLIGHT: NEW YORK

The New York State Environmental Facilities Corporation (EFC) uses their additional subsidy dollars to provide funding to green infrastructure projects through their Green Innovation Grant Program (GIGP). GIGP-funded projects cover eight green infrastructure practices, ranging from rain gardens to stream "daylighting" projects. Recipients receive grants covering up to 90 percent of eligible project costs and are required to provide at least 10 percent matching funds. To date, the EFC has awarded \$115.3 million through GIGP to 153 projects across New York State.

Financing Mechanisms

The CWSRF's flexibility can help borrowers overcome barriers and more easily obtain affordable financing for green infrastructure projects. To accomplish this goal, state programs have developed a number of innovative financial programs and assistance-delivery mechanisms. Such state efforts have resulted in highly beneficial options for local communities. The following discussion includes ideas on how to design and implement financing options that will help states fund green infrastructure projects and engage potential borrowers.

Co-Funding

In addition to the CWSRF, there are a variety of funding sources to help finance green infrastructure, including the United States Department of Interior, the Department of Transportation, and state funding programs. These other funding sources offer opportunities for the CWSRF to co-fund projects. This is especially useful for large projects that cannot be entirely funded by the CWSRF, or projects with costs that are not eligible under the CWSRF but are eligible under another funding program. Another advantage of co-funding is that by partially funding projects, states can use the same funding level to assist a greater number of eligible projects.

Sponsorship

Sponsorship lending pairs a traditional publicly owned treatment works (POTW) project with a nontraditional one, such as a green infrastructure project. A municipality receives a loan with a reduced interest rate as compensation for also undertaking (i.e. sponsoring) a nontraditional project, thus allowing municipalities to address pressing watershed restoration or protection priorities without placing a repayment responsibility on green infrastructure projects. This arrangement works best when the cost of the combined project is equal to or less than the cost of a stand-alone POTW project when financed at normal CWSRF interest rates.

For example, a \$1 million loan for a traditional infrastructure project at 3.8 percent interest would result in a total loan cost of \$1,436,707 over a 20-year term. A \$1,393,442 loan at 0.3 percent interest results in the same loan cost over 20 years. In a sponsorship scenario, the state opts to subsidize the loan interest, allowing a municipality to borrow \$1 million for a traditional POTW project plus \$393,442 to implement green infrastructure projects at no additional cost to the borrower. For added incentive, a CWSRF could reduce the interest rate further so the municipality would save money rather than break even.

Conduit Lending

Conduit lending mechanisms include pass-through loans to credit intermediaries and linked deposit loans through commercial banks. Both facilitate lending to small, nontraditional projects by CWSRF programs and are excellent tools for funding green infrastructure projects.

For pass-through loans, a CWSRF program makes a loan to a state agency or local government entity that then provides funding for eligible projects. Assistance through the intermediary can be provided to recipients in the form of loans, grants, or the purchase of debt obligations. In the case of grants, the

STATE SPOTLIGHT: DELAWARE

The Delaware Department of Natural Resources and Environmental Control (DNREC) has developed an innovative financing approach to fund conservation easements and fee-simple land purchases. Annually, municipalities that have wastewater projects on the fundable portion of the project priority list can enter into sponsorship agreements to conserve forestland, open space and wetlands with implementing partners such as the Delaware Department of Agriculture's Forestland Conservation Program and Agricultural Lands Preservation Foundation, or DNREC's Open Space and Conservation Easement Programs. Funded land conservation easements and/or fee-simple land purchases must have demonstrated water quality improvement benefits and be managed in perpetuity.

STATE SPOTLIGHT: IOWA

The Iowa Finance Authority (IFA) has partnered with local lending institutions and the Iowa Department of Agriculture and Land Stewardship's local Soil and Water Conservation Districts to administer their Stormwater Best Management Practices Loan Program. The program uses conduit lending to offer low-interest loans for projects to control stormwater runoff, including detention basins, grassed waterways, infiltration practices, pervious paving systems, ponds or wetland systems, soil-quality restoration, and other practices that are shown to improve or protect water quality.

intermediary is still responsible for repaying the CWSRF loan, with interest, to the state. The intermediary also assumes the credit risk and cost of administration.

Linked-deposit loans are similar to pass-through loans except the CWSRF works with a bank instead of a state agency or local government entity. Combining the lending and investment authority of the program, a CWSRF purchases a certificate of deposit (CD) or similar investment (e.g., an interest-bearing account) at a commercial bank at a reduced rate in exchange for the bank providing below-market-rate loans to borrowers. In both the pass-through and linked deposit scenarios, the risk of managing the loan is placed with the government agency partner or bank.

Conduit lending is a useful strategy for funding green infrastructure on a small scale (e.g., rain barrels at private residences and certain agricultural best management practices). This practice enables CWSRFs to fund a number of smaller projects that would otherwise be too cumbersome or costly to manage. With direct CWSRF loans, the borrower must have a dedicated source of repayment, but with conduit lending it is the government agency or bank that must secure a source of repayment. Additionally, some smaller borrowers such as homeowners may be more comfortable working with their local banks or local governments.

Guaranties

State CWSRF programs can also establish a loan guaranty program to support borrowing for green infrastructure projects. Guaranties provide additional security for local debt and allow for reduced interest rates. This is done by transferring the credit risk from private investors, who purchase bonds from local governments, to the CWSRF. Because CWSRF programs generally have very high credit ratings, local governments would be able to borrow at the most favorable market rates available. Given the relative novelty and accompanying uncertainties of many green infrastructure projects in terms of cost, performance, and repayment streams, CWSRF guaranties seem poised to play an important role in allocating credit resources to these projects.

Guaranties require a minimal outlay of CWSRF money, allowing states to stretch their CWSRF dollars even further. Guaranties could be used in combination with loans for large projects. For example, many wet weather projects are very costly, possibly exceeding the finance capacity of the CWSRF. As an alternative, the CWSRF could loan a share of the cost and guaranty the local debt issued to pay for the balance. Importantly, while there are some Internal Revenue Service restrictions on federal guaranties of tax-exempt debt, no such restriction exists for the CWSRF.

Looking Forward

The best practices discussed in this guide are not exhaustive, nor are they intended to portray the CWSRF as the only financial vehicle that can play a role in sustainable stormwater management; however, as the largest public source of water quality financing in the United States, the CWSRF program has the national reach, resources, experience, and creativity to encourage the adoption of green infrastructure and expand its use across the wastewater sector. The CWSRF is one resource among many, but it is a resource that embodies a robust and comprehensive financing toolbox with a long track record of success. In order to proactively address the challenges posed by stormwater pollution and more broadly encourage sustainability within the water sector, state programs don't need to reinvent the wheel, but can and should rely on each other to the maximum extent possible. The CWSRF program's success with respect to green infrastructure and sustainability is ongoing and states should continue to adapt their programs to meet tomorrow's challenges.

