



Office of Research and Development

## Monthly Water Research Webinar Series

SAFE AND SUSTAINABLE WATER RESOURCES RESEARCH PROGRAM

February 24, 2016

**TODAY'S TOPIC:**

# Financing Opportunities for Implementing Green Infrastructure Projects to Manage Stormwater

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The Nature Conservancy is working across the country on leveraging existing, and developing new innovative approaches, to finance and deploy green infrastructure projects to manage stormwater. Josh will provide an overview of work done around the country that enables the utilization of public and private funding sources to implement GI in order to create the greatest ecological, economic and social benefits. Josh will also discuss how the Conservancy is exploring ways to share lessons learned and best management practices across multiple jurisdictions and municipalities.



## **Joshua Kurtz**

Josh is a policy analyst with The Nature Conservancy's MD/DC Chapter working on stormwater management policies and regulations that allow for leveraging private investment for green infrastructure deployment in the Chesapeake Bay watershed. Josh also works on a team evaluating stormwater management policies across the country, focusing on innovative funding mechanisms.

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EPA will provide an overview of innovative financing for green infrastructure programs and highlight low-cost, state-of-the-art financing opportunities for green infrastructure projects through State Revolving Funds. EPA's new Water Infrastructure and Resiliency Finance Center will also be discussed. This center of financial expertise is a resource to communities who are exploring options for financing resilient drinking water, wastewater, and stormwater infrastructure. The Center is working to promote innovative financing approaches and expand capacity building efforts through collaborative technical assistance, specifically on how to best support communities to develop dedicated sources of revenue for their stormwater and green infrastructure programs.



## **Holly Galavotti**

Holly has worked at EPA for 11 years. She works in the Office of Wastewater Management on the municipal stormwater permit program and coordinates with regions, states, municipalities, and other stakeholders on implementing the program. Holly also works with EPA's new Water Infrastructure and Resiliency Finance Center, where she focuses on providing information and technical assistance to communities on stormwater and green infrastructure financing. Holly has a master's degree in Environmental Sciences from the University of Virginia and a bachelor's degree in Biology from James Madison University.

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The Nature  
Conservancy



# Financing Green Infrastructure for Stormwater Management

Josh Kurtz

Director of Policy Development

February 24, 2016



A globe of the Earth is shown from a high-angle perspective, with a network of thin, glowing white lines overlaid on it. These lines represent a global network or infrastructure, with many lines radiating from specific points on the globe, suggesting hubs or major nodes. The background is a dark blue sky, and the globe itself shows various geographical features like continents and oceans.

AT WORK  
IN MORE THAN  
35 COUNTRIES

HOME TO

600

STAFF SCIENTISTS

# PROTECT

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We conserve the lands and  
water on which all life  
depends



# NATURE'S SOLUTIONS



# RESILIENT CITIES



# TNC Involvement in Stormwater Finance

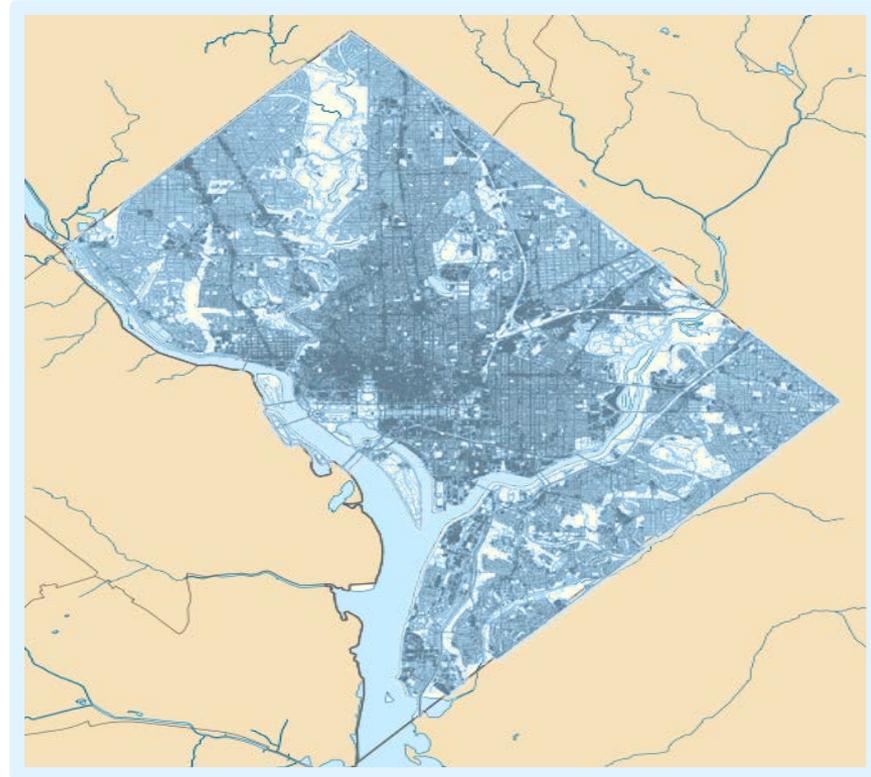
- State policy advocacy
- Sharing innovative finance models/regulations across multiple jurisdictions
- Working on watershed scale approaches and co-benefits to gain financing for green infrastructure

# Innovative Funding Models

- Leveraging Private Investment
- Public/Private Partnerships
- Market-Based Approaches

# Why: The Problem of Runoff in DC

- 43% of District's land area is impervious (concrete).
- A single storm falling on this area produces about 525 million gallons of stormwater runoff.



# X 795



# How the 2013 Stormwater Rule Works

- New construction and renovation over 5,000 sf



## 3 Options to meet requirements:

- 100% Onsite
- 50% onsite +:
  - In-Lieu Fee paid to city or
  - Buy offsite credits

# 100% Retention Onsite in Practice

Less below  
ground  
parking

Less amenity  
space



More expensive  
structure and  
systems

# The Market Place - Offsite Option

- Developers can purchase Stormwater Retention Credits (SRCs ) for up to 50% of their retention requirement

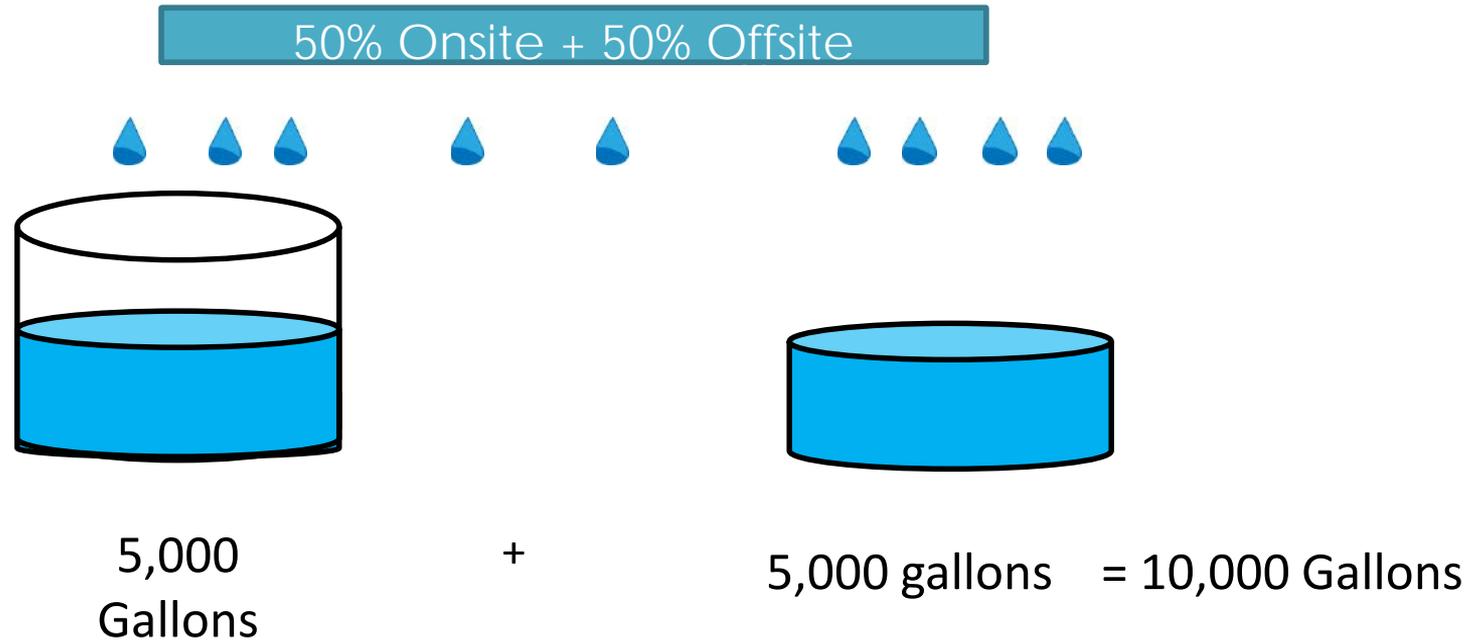


*Buy offsite credits  
for cost savings and  
design flexibility*



- Non-regulated site builds retention on their property to create credits
- Credits can only be generated in DC
- Credits have to be purchased in perpetuity to meet annual requirements

# Impact of 50% Onsite Requirement = More Retention



- 1.2" retention standard reflects 90<sup>th</sup> percentile storm event
- Offsite retention allows more property to retain lesser storms







# Market Enabling Conditions

- Dedicated Stormwater Fee
- Post-Construction Retention Standard
- Development Pressure

# Next Steps for the D.C. Market

- Implementation of green infrastructure
- Monitoring
- Further Site Selections
- Lessons Learned/Exportation



# Financing Opportunities for Implementing Green Infrastructure Projects to Manage Stormwater

Holly Galavotti  
EPA Office of Wastewater Management  
February 24, 2016

Green Roof in  
Burlington, VT

# Overview

- How communities finance green infrastructure projects and programs
- How EPA's new Water Infrastructure and Resiliency Finance Center is helping communities
- Innovative Clean Water State Revolving Fund (CWSRF) opportunities for financing green infrastructure projects



Maplewood Mall, MN  
(photo by Alisha Goldstein)

# How do communities pay for green infrastructure projects?

Sources of Financing	Covers Construction Cost	Covers Operation and Maintenance Cost	Dedicated, Equitable Cost (based on stormwater impacts)
Loans (i.e. CWSRF), Municipal Bonds	✓		
General Fund (Property taxes), Water/Sewer Budget, Grants	✓	✓	
Stormwater Fee/Utility, Permit/Inspection Fees, Special Assessment/Benefit District	✓	✓	✓

# Paying for the Public Service of Stormwater Management:

*Similar to a drinking water or sewer utility, a dedicated source of revenue for a stormwater program is funded through service fees and administered separately from the general tax fund.*



Louisville Metropolitan Sewer District (photo by Alisha Goldstein)

## Community Benefits of a Dedicated Source of Revenue for Stormwater

- Sustainable funds dedicated to stormwater
- Equitable Cost
  - Connects the fee to stormwater generated on the property
  - Includes all properties generating stormwater: government properties, schools, colleges and universities.
- Incentivizes green infrastructure projects
- Secures repayments for State Revolving Fund loans or other financing for capital projects
- Revenue growth potential
- Revenue to leverage opportunities to attract additional capital partners and public-private partnerships
- Community benefits of green infrastructure to attract new partners

[1500 Stormwater Utilities Established Nationwide](#)

[About 40% of states have numeric retention standards](#)

# Water Infrastructure and Resiliency Finance Center

- Created on January 16, 2015 to identify innovative financing strategies for drinking water, wastewater, and stormwater infrastructure.
- The Center's expertise helps communities across the country make informed financing decisions for resilient and sustainable water infrastructure.
- Provides information on innovative financing practices for water infrastructure and provides technical assistance to communities.



EPA Administrator Gina McCarthy joined Vice President Biden to announce EPA's new Water Infrastructure and Resiliency Finance Center on January 16, 2015.

# Water Infrastructure and Resiliency Finance Center

## Current Activities

- Promote Innovative Financing Practices
  - State Revolving Fund Peer to Peer Learning Program
  - Public Private Partnership Study and Workshops
- Hold Regional Water Finance Forums
- Provide financial technical assistance to WaterCARE disadvantaged communities
- Compile Compendium of Water Utility Customer Assistance Programs



# Water Infrastructure and Resiliency Finance Center

## Stormwater Financing Activities

- Create Stormwater Financing Clearinghouse - one-stop shop for over 500 references about stormwater financing
- Provide financial technical assistance to communities to develop dedicated source of revenue for stormwater programs
- Share success stories of communities setting up dedicated source of revenue for stormwater and market based programs.

**Getting to Green:  
Paying for Green Infrastructure**  
Financing Options and Resources for Local Decision-Makers

EPA United States Environmental Protection Agency EPA 842-R-14-005



**EFC**

January 2014

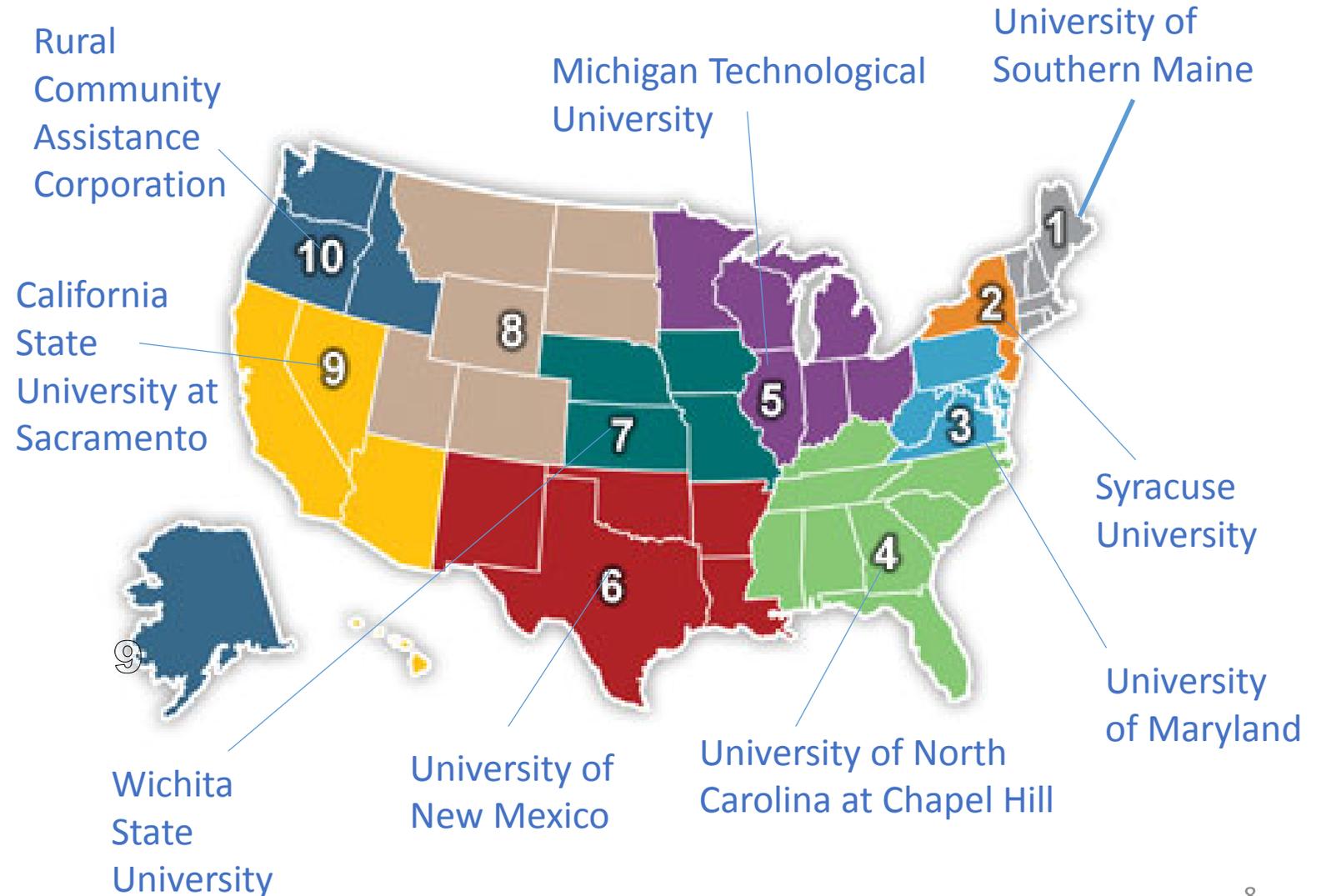
**Local Government Stormwater Financing Manual:  
A Process for Program Reform**

NATIONAL ESTUARY PROGRAM Office of Wetlands, Oceans, and Watersheds National Estuary Program

Prepared by  
Environmental Finance Center  
University of Maryland

# Environmental Finance Center Network in EPA Regions

The Environmental Finance Centers deliver targeted technical assistance to, and partner with states, tribes, local governments, and the private sector in providing innovative solutions to help manage the costs of environmental financing and program management.



# Clean Water State Revolving Fund (CWSRF)

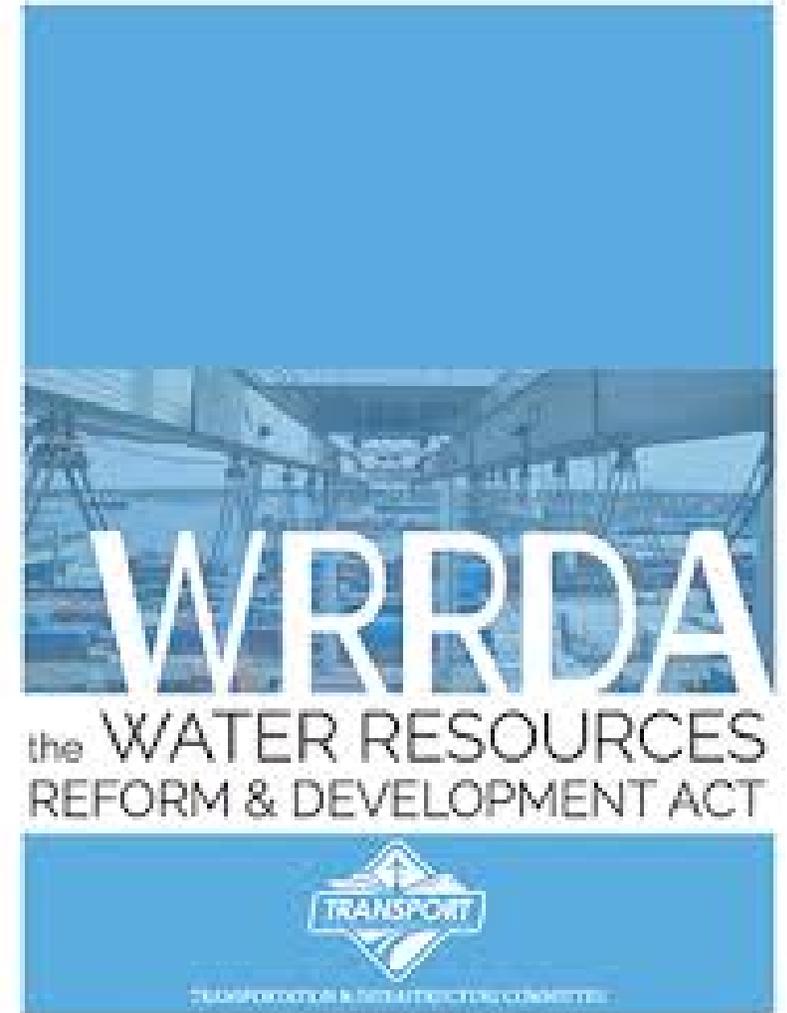
- The CWSRF program provides low-cost financing for a wide range of water quality infrastructure projects.
  - State implemented and operated program
  - Flexible authority to incentivize green infrastructure projects
    - Type of assistance: loans, refinancing, guarantees
    - Loan terms: interest rate, projects funded
    - Additional subsidization (negative interest, principal forgiveness or grants)
- Green Project Reserve of the CWSRF (established under ARRA in 2009) provided \$4.1 billion to sustainable water infrastructure projects since 2010
  - \$878 million to over 600 green infrastructure projects
  - > \$70 million in additional subsidization for green infrastructure projects



# Clean Water State Revolving Fund

Water Resources Reform and Development Act (WRRDA) of 2014

- Expanded Eligibilities for Green Infrastructure - amended Section 603(c)(5) - *publicly and privately owned, permitted and unpermitted projects that manage, reduce, treat, or recapture stormwater or subsurface drainage water are eligible*
- Up to 30 year loan terms or the useful life of the project (the lesser of the two)
- Additional subsidization - permanent authority to offer principal forgiveness, negative interest loans, and grants



[EPA WRRDA Guidance 2015](#)

# CWSRF Funded Green Infrastructure Projects

The New York State Environmental Facilities Corporation uses their additional subsidy dollars to provide funding to green infrastructure projects through their [Green Innovation Grant Program](#).

- Covers eight green infrastructure practices, ranging from rain gardens to stream "daylighting" projects.
- Recipients receive grants covering up to 90% of eligible project costs and are required to provide at least 10% matching funds.
- \$115.3 million awarded to 153 projects across New York State.

## City of Rome, NY Canopy Restoration Project

\$230,900 SRF grant to install porous pavement and plant 450 trees in low-to-moderate income neighborhoods



[The project](#) has reduced impacts on Wood Creek, the Mohawk River and the NYS Barge Canal. When fully mature, the new trees will capture approximately 695,000 gallons of rainwater and will remove 26,500 tons of carbon dioxide and 430 pounds of air pollutants.

# CWSRF Funded Green Infrastructure Projects

## City of Monona, IA Aquatic Center Permeable Parking Lot



\$245,000 SRF loan to infiltrate stormwater and reduce erosion on Silver Creek, listed as one of the 50 worst sampling sites in the Turkey River Watershed.

Camden County, NJ – Green and grey combined sewer projects – including raingardens and daylighting a stream. \$2M principal forgiveness loan, \$3.6M low interest loan (<1.0% interest) resulted in 100 million gallons of stormwater/yr captured.

Seattle, WA High Point Project - 20 year, 1.5% loan of \$2,715,000 to install innovative natural drainage.

Cohasset, MA - \$479,500 CWSRF loan with 2% interest to retrofit it's stormwater drainage system.

Rockville, MD - \$14 million, 0% interest CWSRF loan to fund planning, design and stormwater of main stem of Watts Branch, paid using Rockville's stormwater fee.

West Jefferson, OH - \$1.1 million in low interest CWSRF loans to Hidden Creek Ltd to fund a variety of projects that protect Big Darby Creek watershed.

San Francisco, CA – the Nature Conservancy used a \$9 million CWSRF loan to fund the interim financing and holding of a critical portion of land to protect pristine Redwood and Monterey Pine forests from development.

Port Townsend, WA - \$400,000 CWSRF loan at 0% interest to purchase wetlands for stormwater attenuation.

# CWSRF Technical Assistance

CWSRF state programs can use administrative fees and loan fees to help pay for technical assistance for green infrastructure

New Mexico SRF provided \$34,920 in technical assistance funding

Solving flooding challenges with Green Stormwater Infrastructure in the Airport Wash Area, Tucson, AZ



The project used a holistic cost/ benefit analysis which showed that green infrastructure can significantly reduce flooding and pollution from both large and small storm events.

# Clean Water State Revolving Fund Green Infrastructure Policy

[Green Infrastructure Policy for the CWSRF](#) (January 2016) to increase financing of green infrastructure projects nationally through actions including prioritizing projects, marketing the program and providing financial incentives, such as additional subsidization.

[Financing Green Infrastructure: A Best Practices Guide for the CWSRF](#) (2015) - illustrates incentives can states can use to encourage financing of green infrastructure and foster sustainability within their programs.

- Innovative financing mechanisms
  - Co-funding - with other federal or state programs
  - Sponsorship – POTW project paired with GI project
  - Conduit Lending - pass-through and linked deposit loans
  - Guarantees

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



2015

# Innovative SRF Financing Opportunities

**SRF Guarantee authority** - expand funding capacity without reducing current levels of lending activity.

- Supports typically lower scoring projects like green infrastructure at the high credit ratings enjoyed by most SRF loan programs.
- New York State Energy Research and Development Authority (NYSERDA) sold \$24.3 million in revenue bonds to finance loans for energy efficiency improvements. These bonds were rated triple-A due to a guarantee from the New York State Environment Facilities Corporation, which operates the NY CWSRF.

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### Utilizing SRF Funding for Green Infrastructure Projects

This report has not been reviewed for approval by the U.S. Environmental Protection Agency; and hence, the report's contents and recommendations do not represent the views and policies of EPA or other agencies in the Executive Branch of the Federal Government. Further, the content of this report does not represent information approved or disseminated by EPA.

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Vine Street in Seattle, WA  
(c) Alisha Goldstein

 <http://www.epa.gov/waterfinancecenter>

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