

Funding and Financing Green Infrastructure:

SRF and Environmental Impact Bonds

EFCN Green Infrastructure Webinar Series Webinar 5: Funding Green Infrastructure / April 24, 2025

Ashley Lucht lucht@quantifiedventures.com Quantified Ventures designs, capitalizes, and scales investible solutions that drive transformational environmental and social impact.



- Impact Assessment
- Build Local Capacity
- Strategy and Planning
- Support Decision-making
- Secured Funding & Financing



Eligible Uses of CWSRF and §319 Funds



NPDES-permitted wastewater & stormwater

Energy and water efficiency

Activities addressing NPDES permit enforcement actions

New sewer collection lines into decentralized/septicserved areas

> Resilience of treatment works

> > Wastewater reclamation and reuse

> > > Well capping

Landfill capping

Both

d Agricultural BMPs Te TMDL Implementation Habitat protection & restoration BMPs that Implement watershed-based plans Urban runoff not associated with an NPDES permit Abandoned mine drainage treatment & remediation Brownfield/Superfund sites: water quality issues

Decentralized/septic wastewater system repair, replacement & upgrades

Land acquisition for watershed protection Development of watershed-based plans

> Erosion/sediment control Streambank stabilization

§319

Technical assistance & coordination from state NPS program staff

> Salaries for regional/ local watershed coordinators

> > NPS project management & oversight

Ambient water quality monitoring

NPS monitoring: general & project-specific

Septic system inspections

Green Infrastructure

- Green roofs, streets, and walls
- Rainwater harvesting collection, storage, management, distribution
- Real-time rainwater harvest control systems
- Constructed wetlands
- Bioretention/bioswales (rain gardens)
- Permeable pavement
- Wetland/riparian/shoreline creation, protection and restoration
- Urban tree canopy restoration/creation
- Replacement of grey with green infrastructure





Financing Green Infrastructure with CWSRF

- \$38M in CWSRF invested in 2021
- The most flexible eligibility in the CWSRF tool kit—any borrower, huge variety of projects
- Stormwater or flood water?

Potential repayment sources include:

- Stormwater utility fees
- Fees paid by developers
- Recreational fees (fishing licenses, park entrance fees
- Dedicated local, county, or state taxes or fees
- Donations or dues made to nonprofit organizations
- Wastewater user charges
- Business revenues





Camden SMART Initiative

- Combined Sewer system -> outfall events
- Camden Country Municipal Utilities Authority received \$2M grant + \$3.6M low-interest loan from NJ Environmental Infrastructure Trust
- Goal = capture 100 million gallons of stormwater annually

Measures:

- 17 new rain gardens
- Daylighted a stream that was paved over in the 1920s
- Converted abandoned factory into a 5.5-acre riverfront park
- Replaced several failing portions of CSO system









Ohio Natural Infrastructure Example: Lick Run (Cincinnati, OH)



Challenge:

- One of top 5 CSO dischargers
- Federal consent decree to reduce discharge
- Each year ~14 billion gallons of raw sewage into the watershed
- EPA and Cincinnati knew that separation was too costprohibitive

Highly impermeable, old industrial area; stream primarily culverted, functioning as storm and combined sewer

Ohio Natural Infrastructure Example: Lick Run After



\$122M SRF Loan from OH EPA

Measures:

- Bioswales
- Stream restoration
- Bio-infiltration
- 1 mile-long constructed waterway
- Daylighted stream that was buried 100 years ago
- Replaced 20 flood-prone residential/commercial buildings with stream, trees, access paths, and bike trail



Agriculture BMPs



Cropland Activities

- Water efficient irrigation
- Conservation tillage
- Windbreaks
- Sediment control basins
- Terraces
- Diversions
- Buffer and filter strips
- Rip-rapping
- Streambank stabilization
- Chemical use reduction
- Cover crops
- Extended crop rotations



Case Study: Soil & Water Outcomes Fund





Soil and Water Outcomes Fund Impacts





Resource Extraction, Contaminated Sites, Landfills

Quantified[°] Ventures

- Resource extraction: mining, quarrying, hydraulic fracturing, and oil/gas operations—projects that remediate or prevent contamination
 - Acid mine drainage
 - Clean up from fracking wastewater
 - Prevent aquifer contamination
- Contaminated Sites: Brownfield, Superfund, Storage tanks
- Landfills: Closure and landfill leachate and treatment



Before image of the Genetta Park area. Source: 2D Studio LLC



Genetta Stream prior to the final phase. Source: 2D Studio LLC

Habitat Protection & Restoration



Shoreline Activities

- Re-establish riparian vegetation
- Wetlands development or restoration
- Swales
- Filter strips
- Barrier beach and dune systems

Instream Activities

- Re-establish aquatic vegetation
- Restoring oyster/mussel beds
- Establish artificial reefs
- Fisheries and shellfish restocking or restoration
- Fish ladders
- Removal of contaminated sediment
- Water control structures for flow regime and salinity
- Dam removal
- Culvert removal

• Equipment to remove or

prevent invasive species spread



Habitat Restoration + CWSRF in Action



In 2018 GEFA signed a \$35 million assistance agreement with The Nature Conservancy for the purchase of the 11,000+ acre Cabin Bluff property on the southern coast of Georgia. Cabin Bluff includes softwood forests and intracoastal marshes and is the largest remaining undeveloped coastal property in the state. The land is home to many important threatened plant and animal species, including the longleaf pine, gopher tortoise, eastern indigo snake, tricolor bat and manatee. This agreement will protect the land in perpetuity. The Nature Conservancy is developing plans to fully restore its longleaf pine ecosystem and intends to open parts of the land to the public.



The Cabin Bluff property supports longleaf pine forest.



Quantitative prediction of a project outcome metrics

Post-implementation evaluation of actual project outcomes

Disclosure of actual outcomes to investors and stakeholders

EIBs may have some terms of the investment change with outcomes

Municipal bonds 101: a type of loan taken out by a municipal government to fund public projects for community benefits





Most municipal investments lack post-implementation evaluation to know how effectively the projects served the community





An EIB provides transparency for the community, credibility for investors, and performance data for issuers



Quantified®

Ventures

EIB Payment Structure: Washington, DC



Quantified[®] Ventures



Environmental Impact Bond Structures Are Highly Customizable Based on Local Context, Priorities, and Needs



	WASHINGTON DC		HAMPTON VA	
Primary Value	What is the cost-	How can green	How can outcomes	Can an outcomes-based
Proposition of EIB	effectiveness of green vs. grey infrastructure for CSO reduction?	infrastructure improve local flooding, water quality, and economic conditions?	disclosure and reporting signal climate preparedness to investors?	positive incentive help Buffalo over-achieve on its CSO goals?
Size	\$25 million	\$14 million	\$12 million	\$54 million
Term	30 years (5 year mandatory tender)	10 years	20 years	30 years
Placement	Private	Limited Public	Public	Public
Outcome Metric	Volume capture (flow / runoff)	Volume capture (<i>capacity / storage</i>)	Volume capture (<i>capacity / storage</i>)	Impervious surface area managed
Regulatory Driver?	Yes	No	No	Yes
Outcomes- Based Financing Structure	 3-tiered performance payment structure (Low, Base, High) 	 2-tiered performance payment structure (Base, High) 	 Outcomes evaluation, reporting, and disclosure only 	Outcomes-based early call option, coinciding with step-up in coupon rate 20