

Green Infrastructure Financing: Innovative Ideas and Emerging Trends

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www.efc.umd.edu



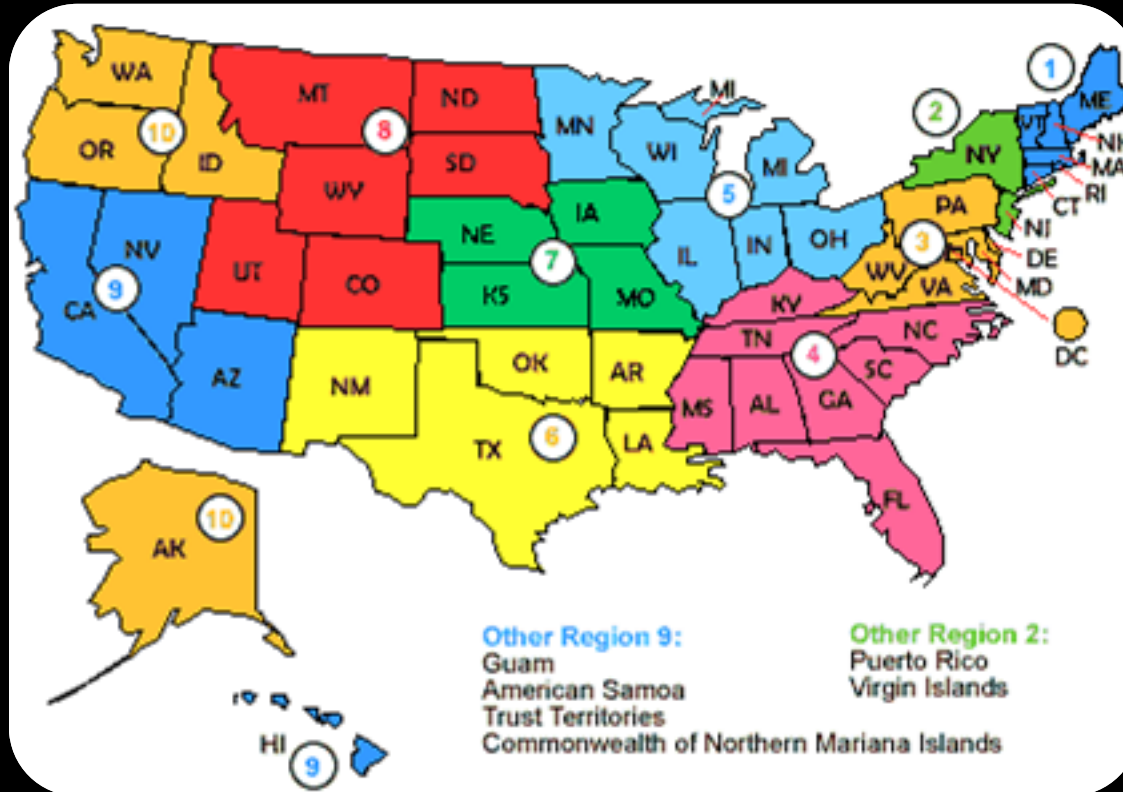


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The EFC: Who are we?



Applying a financing lens
across sectors . . .

- **Technical Assistance**
- Stormwater
- **Green Infrastructure**
- Agriculture
- **Air Quality**
- Climate & Energy
- **Sustainability**
- Program & Policy Analysis



Green Infrastructure: EFC's Point of View

A resource management approach with the capacity to:

- Reduce implementation costs
- Deliver benefits that serve multiple community priorities
- Engage the private sector
- Spur behavior change through the marketplace
- Provide return on investment to local economies



Telling the financing story through the use of graphics

LENEXA, KS

Location: Johnson County
Area: 34.45 square miles
Founded: 1869
Population: 48,190



MULTIPLE FINANCING MECHANISMS

- local development charge
- state and federal grants
- protective ordinances
- comprehensive planning
- stormwater utility
- outreach and education



SYSTEM UPGRADES



Voter approved 1/8 cent sales tax



Generated \$15+ million between 2000-2010

SYSTEM MAINTENANCE



\$66 annual fee for residential properties



Non-residential based on amount of runoff

RAIN TO RECREATION



Core project was creation of a 35-acre lake and 240 acre park that serves multiple community priorities



Additional focus on engaging private property owners through voluntary programs like:

- Kansas Healthy Yards certification program
- free technical assistance for rain barrel installation



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Green Infrastructure Finance: Components

Successful green infrastructure financing tends to rely on:

- A consensus driven plan
- Strong leadership and leading by example
- Leveraging multiple financing mechanisms
- Collaboration with a network of partners
- Careful communications, messaging , and outreach
- Making the business case for green infrastructure
- Incentivizing participation from the private sector



The image features a scenic landscape. The top portion shows a bright blue sky with large, white, fluffy clouds. Two thin power lines stretch across the sky from the top left. Below the sky is a dark, semi-transparent horizontal band containing the text 'Community Examples'. The bottom portion of the image shows a valley with rolling hills. The trees are in various stages of autumn, with some showing vibrant yellow and orange, while others are still green or have turned brown. There are some buildings and a road visible in the valley. The foreground is a grassy slope with some fallen leaves.

Community Examples

Developing a Plan

PITTSBURGH, PA

Location: Three Rivers Watershed
Area: 58 square miles
Founded: 1717
Population: 306,211

LONG RANGE PLANNING

As little as 1/10 of an inch of rain can overwhelm the system and cause a sewage overflow!

Like many US cities, Pittsburgh has a combined sewer system subject to regulations designed to reduce overflows and improve local water quality

GREENING THE PITTSBURGH WET WEATHER PLAN
An integrated watershed approach that . . .

- ✓ is the result of a consensus-building process where nonprofits and public and private sector representatives devoted more than **1000** hours to discussion and plan development
- ✓ promotes green infrastructure and adaptive management to deliver greater benefits to the City
- ✓ recommends PWSA take on a leadership role, engage partners to expand capacity, and create a utility to provide a dedicated revenue stream

SPOKANE, WA

Location: Spokane River Watershed
Area: 60 square miles
Founded: 1871
Population: 209,525

INTEGRATED CLEAN WATER PLAN

City plan is addressing stormwater and wastewater simultaneously to improve Spokane River water quality

Plan looks to incorporate green practices into all City infrastructure projects to reduce costs

Around 1 billion gallons of untreated stormwater enters the Spokane River from storm drains each year

Also in Pittsburgh:

- Guidance on reuse of vacant lands
- Pilot projects that help communities visualize solutions

Also in Spokane:

- Urban tree initiative
- Stormwater utility
- SRF funding

Leadership and Setting the Example



CHICAGO, IL

Location: Cook County
Area: 234 square miles
Founded: 1833
Population: 2,718,782

MAJOR PUBLIC INVESTMENT

Mayor's initiative to upgrade and improve water and sewer infrastructure

Will incorporate green infrastructure into existing capital projects using guidance from the City's Green Stormwater Infrastructure Strategy

\$50 MILLION OVER 5 YEARS

The infographic features a stylized illustration of a city skyline with green trees and a white truck on a road in the foreground.



TUCSON, AZ


Location: Gila River Watershed
Area: 350.2 square miles
Founded: 1718
Population: 343,829

GREY AND GREEN

The City is integrating green infrastructure into:

- Curb cuts and basins in right of ways
- Chicanes, medians and traffic circles
- Street width reductions
- Parking Lots

By considering where green infrastructure can fit into existing capital projects Tucson has made GI the norm for their roadways and other projects



The infographic includes a stylized illustration of a city skyline with green trees and buildings in the background.

Also in Chicago:

- Coordination with school system and DOT
- CNT partnership engages residents and businesses

Also in Tucson:

- Action plan for water sustainability
- LID & GI guidance manuals
- Estimating value of benefits

Leveraging Multiple Financing Mechanisms

LOS ANGELES, CA

Location: Los Angeles County
 Area: 530 square miles
 Founded: 1781
 Population: 3,884,307



LEVERAGING FUNDS

Implementation projects stretched local dollars further by leveraging multiple funding sources and local priorities

South LA Wetlands Park

9 acre passive and active recreation site that includes a constructed wetland that collects trash and can treat up to

680,000

gallons of urban runoff a day



That's enough to fill an Olympic-size swimming pool

Prop 0 funds were supplemented with

- ⌘ settlement agreement dollars
- ⌘ transit authority funds
- ⌘ an EPA brownfields grant
- ⌘ other bond funding

Cesar Chavez Groundwater Improvement

This repurposed landfill site is now home to a

41

acre recreational complex that includes

10,800 acre feet of annual groundwater recharge which reduces spending on imported water

Other funds included ...

- ⌘ Urban planning grants
- ⌘ Waste Management Board funds
- ⌘ Capital Improvement spending

GREENVILLE, SC

Location: Greenville County
 Area: 26.14 square miles
 Founded: 1663
 Population: 61,397



LEADERSHIP

The mayor saw daylighting the falls as an economic development opportunity

PARTNERSHIP

He engaged the Garden Club whose outreach created Community demand for Removing the Bridge



GARDEN CLUB FUNDRAISING & HOSPITALITY TAX

Covered the cost of \$13.4 million award winning pedestrian bridge and park

FALLS PARK ENDOWMENT

manges donations from corporations, businesses, foundations, and the general public to provide amenities, services, and maintenance not covered by the parks department



Partnership and Collaboration

Also in Omaha:

- Watershed fee
- Grants
- World O!
Water
- Ordinances

OMAHA, NE

Location: Papillion Creek Watershed
Area: 130.6 square miles
Founded: 1854
Population: 434,353

REGIONAL APPROACH

The Papillion Creek Watershed connects:

- portions of **3** counties,
- 1/3** of the state's population
- 11** local governments and,

The Papillion Creek Watershed Partnership ... created a watershed management plan to establish regionally common goals and guide a collaborative approach to managing water quality and quantity

- Better Water Quality
- Reduced Runoff

- ## Also in Puyallup:
- Planning for future growth
 - Incentivizing residential BMPs

PUYALLUP, WA

Location: Puget Sound Watershed
Area: 12.2 square miles
Founded: 1890
Population: 38,147

ENGAGING PARTNERS

Public and private sector stakeholders are collaborating around local water quality

- City of Puyallup
- Pierce County
- Washington State University
- Puyallup Nation

This expands capacity and enables partners to do more than they could ever do alone

LEVERAGING FUNDING SOURCES

Puget Sound grant to Puyallup Tribe will address sediment in hatcheries

\$1 million Ecology grant to WSU and the City for campus retrofits

EPA support as a partnership community

Communications and Outreach

NORFOLK, VA

Location: Elizabeth River
Chesapeake Bay

Area: 96 square miles

Founded: 1682

Population: 136,836

MAKING NORFOLK MORE RESILIENT

Downtown Norfolk experiences routine flooding... even in the absence of weather events

Normal tides in Norfolk have risen 1 1/2 feet over the past century!

Also in Norfolk:

- Stormwater utility, regional planning, and urban tree canopy

Also in Warrington:

- Other grants, partnerships, leveraging local priorities

WARRINGTON, PA

Location: Bucks County, PA

Area: 13.8 square miles

Founded: 1734

Population: 17,580

OPEN SPACE REFERENDUM

Residents voted to borrow **\$3 million**

To be repaid through a small property tax increase

LEVERAGING FOR GREATER IMPACT

Grants

\$350,000 from Bucks County and pursuing grants and other funding programs stretches local dollars further

Partnerships

Partnering with the land trust community can expand capacity and reduce the burden to the Township

Other Local Priorities

Considering open space planning in the context of other community priorities such as stormwater requirements and economic development goals can create efficiencies and reduce implementation costs

PHILADELPHIA, PA

Location: Delaware Watershed
Area: 141.6 square miles
Founded: 1682
Population: 1,533,165

THE PLAN IS PROJECTED TO...



Add 250 green jobs per year

Remove up to 1.5 billion tons a year of carbon emissions

Raise Philly's total property value 2-5%



Making the Business Case

LANCASTER, PA

County: Lower Susquehanna Watershed
Area: 7.34 square miles
Founded: 1742
Population: 60,000

COMPARING COSTS

The City must divert **750** million gallons from the Combined Sewer System

Gray Alone



\$300 million

Green Approach



\$140 million

NEW ORLEANS, LA

Location: Mississippi River Delta
Area: 350.2 square miles
Founded: 1718
Population: 343,829

WHAT ARE THE POTENTIAL BENEFITS?

Improved & new waterways are estimated to increase property values by

\$183 Million



The plan will save more than

\$10.8 billion

in avoidable flooding costs over fifty years

The plan could generate a total economic benefit of up to

\$22.3 billion



The plan could support up to

101,790 jobs

PORTLAND, OR

Location: Multnomah County
Area: 145.1 square miles
Founded: 1845
Population: 609,456

RESULTS ... 950 Green Street Facilities

42 Acres of Ecoroofs



930,000 kilowatt hours saved annually



\$11,000,000

Saved in stormwater processing

Engaging the Private Sector

BINGHAMTON, NY

Location: Broome County, NY
Area: 11.14 square miles
Founded: 1867
Population: 46,551

SHARING THE COST

50/50

... of green stormwater projects
with residents and businesses

STORMWATER MANAGEMENT FUND

NFWF sponsored program where the City splits the cost of GI projects with developers and landowners up to \$25,000 for going above and beyond the required level stormwater management



GREEN STORMWATER AND LANDSCAPING MATCHING FUND



Local foundation sponsored program where the City provides matching funds for residents, nonprofits, and small businesses who want to install small-scale GI practices such as rain gardens, rain barrels, shade trees, and pervious paving

AURORA, IL

Location: Fox River
Area: 39.38 square miles
Founded: 1837
Population: 199,963

INCENTIVIZING INVESTMENT

River Edge Redevelopment Zone



Zoning overlay along Fox River provides state & local tax credits for locating businesses or development, creating jobs, or remediating environmental hazards in the area

RiverEdge Park

\$15 million
in grants leveraged

for 30-acre, \$18.5 million park at the core of the 10-year revitalization plan offering public space and natural areas for entertainment and recreation



What's Next ?



Creative Use of the SRF

SPOKANE, WA

Location: Spokane River Watershed

Area: 60 square miles

Founded: 1871

Population: 209,525

AWARD WINNING SURGE SRF PROJECT

\$599,000 from the Department of Ecology's Water Pollution Control Revolving Fund

for the SURGE project which created



HALF = 20-year low interest loan
HALF = forgiven loan

37 rain gardens

5 drainage structures

1,200 sq yards of pervious sidewalk



Emerging Bond Markets

Also in the District:

- Stormwater utility
- Credit trading program
- Technical support for residential BMPs

The infographic features a dark green header with the title 'WASHINGTON, DC' in large white letters. To the right, it lists: 'Location: Potomac River', 'Area: 68.3 square miles', 'Founded: 1790', and 'Population: 646,499'. Below this is a stylized illustration of a cityscape with trees, a truck, and buildings. The main title '\$350 MILLION CENTURY BOND' is in large, bold, light green letters. Below it, '1st' is written in large light green font with a downward arrow pointing to 'DC Water 'green bond''. To the right, '100' is written in large light green font with an arrow pointing to '100-year municipal bond for water or wastewater'. Further right, '100' is written in large light green font with an arrow pointing to 'year term equitably shares costs with future benefiteres and locks in lower funding costs for long-term'. A stylized green banknote with a white dollar sign is shown at the bottom right.

WASHINGTON, DC

Location: Potomac River
Area: 68.3 square miles
Founded: 1790
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\$350 MILLION CENTURY BOND

1st → 100-year municipal bond for water or wastewater

↓ DC Water 'green bond'

100 → year term equitably shares costs with future benefiteres and locks in lower funding costs for long-term

Regionalization

LONG CREEK, ME

Location: Long Creek Watershed

Area: 3.45 square miles

SHARED PLAN. SHARED PERMIT



The Long Creek Restoration Plan was the result of the two-year collaborative effort of four municipalities, area business, nonprofits, and state agencies

Upon EPA approval of the plan, the four municipalities created a watershed management district



By 2009, Maine required all property owners in the watershed with 1 impervious acre or more be permitted

The state offered a voluntary group permit option for property owners in the watershed

FUNDING & FINANCING

District members represent 91% of the impervious cover in the watershed



Participating landowners commit to paying

\$3000 per impervious acre for the next **10** years

credits are offered for landowners who install BMPs or take on maintenance or 'good housekeeping' tasks

Participants are saving up to half of what they'd spend on an individual permit



Funding programs have been leveraged too ...

\$2 million in ARRA funding for **2** demonstration projects

that provided proof of concept for pervious paving and streamside plantings



EPA 319 & MEDEP Other grant support includes ...



which made plan development and stakeholder engagement possible

Summary Findings

Successful green infrastructure financing tends to rely on:

- Local ownership of the solution
- Collaboration and partnerships
- Leveraging multiple financing mechanisms
- Engaging the private sector in the solution

Emerging trends include:

- Getting creative with the State Revolving Loan Fund
- Green Bonds
- Regionalization

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