Green Infrastructure Financing: Innovative Ideas and Emerging Trends

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University of Maryland Environmental Finance Center
www.efc.umd.edu
The Environmental Finance Center
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

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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:** 34.49 square miles
- **Founded:** 1888
- **Population:** 40,100

**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

**DEVELOPED BY THE ENVIRONMENTAL FINANCE CENTER**

All references available on our website: www.efc.umd.edu

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Green Infrastructure Financing Map

Twenty communities
Diverse drivers, geography, scales, approach
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
Developing a Plan

PITTSBURGH, PA

**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

Also in Pittsburgh:
- Guidance on reuse of vacant lands
- Pilot projects that help communities visualize solutions

SPOKANE, WA

**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.

Also in Spokane:
- Urban tree initiative
- Stormwater utility
- SRF funding

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Leadership and Setting the Example

CHICAGO, IL

MAJOR PUBLIC INVESTMENT
$50 MILLION OVER 5 YEARS

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

Also in Chicago:
• Coordination with school system and DOT
• CNT partnership engages residents and businesses

TUCSON, AZ

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

Also in Tucson:
• Action plan for water sustainability
• LID & GI guidance manuals
• Estimating value of benefits
Leveraging Multiple Financing Mechanisms

**LOS ANGELES, CA**

**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**

**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**

Manages 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

Also in Puyallup:
- Planning for future growth
- Incentivizing residential BMPs
Communications and Outreach

NORFOLK, VA

MAKING NORFOLK MORE RESILIENT

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

Normal tides in Norfolk have risen 1.5 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

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
Making the Business Case

PHILADELPHIA, PA
Location: Delaware Watershed
Area: 141.5 square miles
Founded: 1790
Population: 1,533,186

THE PLAN IS PROJECTED TO...
- Add 250 green jobs per year
- Remove up to 1.5 billion tons of carbon emissions
- Raise Philly’s total property value 2-5%

LANCASTER, PA
County: Lower Susquehanna Watershed
Area: 7.34 square miles
Founded: 1742
Population: 68,000

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: 343,029

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...
- Green Street Facilities
  - 950
  - 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: 48,551

SHARING THE COST
... of green stormwater projects
with residents and businesses

50/50
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: 199,903

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

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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
1,200 sq yards of pervious sidewalk
5 drainage structures
Emerging Bond Markets

Also in the District:

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

Participating landowners commit to paying $3000 per impervious acre for the next 10 years. District members represent 91% of the impervious cover in the watershed. Credits are offered for landowners who install BMPs or take on maintenance or 'good housekeeping' tasks.

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 which made plan development and stakeholder engagement possible.

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