



**American Rivers**  
*Rivers Connect Us*

## *American Rivers' winter webinar series for Chesapeake Bay communities*

# Benefitting from Green Infrastructure:

## A look at costs, funding and financing



# Benefitting from Green Infrastructure



## Benefits of Green Infrastructure

Green Infrastructure values, including green jobs

Presented by American Rivers

Recording available at:

<http://americanrivers.adobeconnect.com/p9pjqgf85lw/>

## Green Infrastructure Funding Programs

- Water Resources Educational Network
- PA- Dept. of Conservation & Resources
- PA Infrastructure Investment Authority

Recording available at:

<http://americanrivers.adobeconnect.com/p28i74ta41m/>

# A Case for Financing Strategies for Clean Water



<http://www.americanrivers.org/newsroom/resources/going-green-to-save-green.html>

Innovative Financing for Sustainable Water Infrastructure, and  
Restoring Flows: Financing the Next Generation of Water Systems

ASCE infrastructure survey:

<http://www.infrastructurereportcard.org/>



*American Rivers' winter  
webinar series for Chesapeake  
Bay communities*

Today:

# Financing Strategies for Green Infrastructure Programs



**Your host:**

Liz Deardorff

American Rivers' Clean Water Program- Pennsylvania

**Presenters:**

Jennifer Cotting, Research Associate- Green Infrastructure

Monica Billig, Program Manager- Pennsylvania

The University of Maryland's Environmental  
Finance Center



# Financing Strategies for Green Infrastructure Programs

Jennifer Cotting and Monica Billig  
Environmental Finance Center

University of Maryland

March 2013

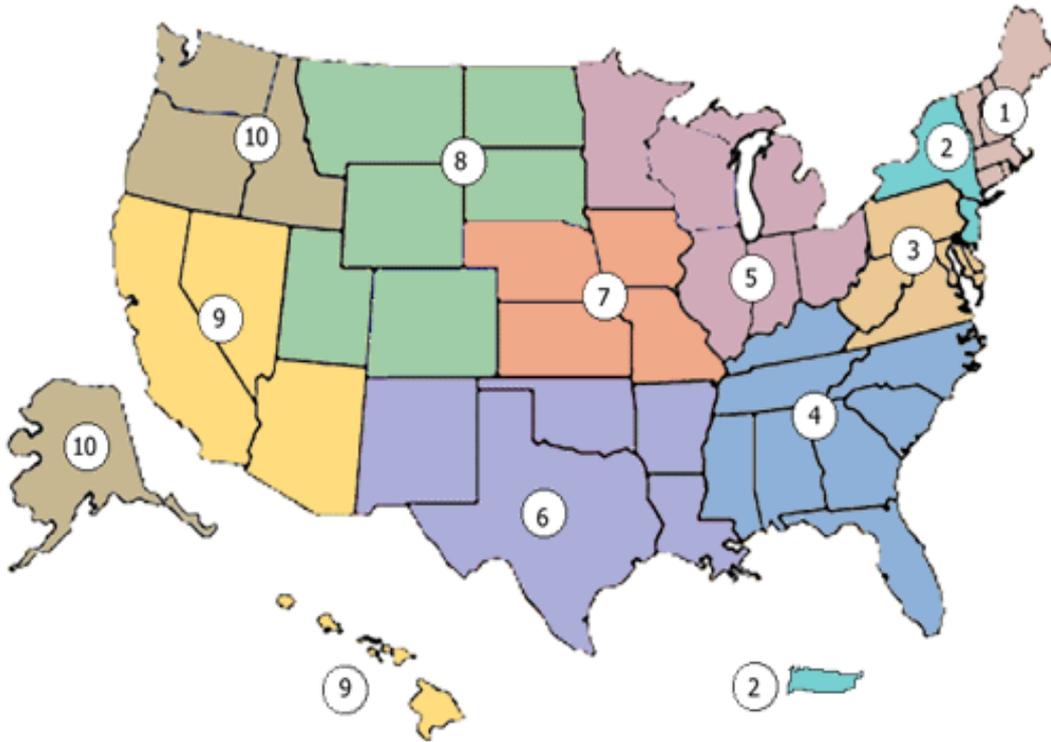


# Green Infrastructure Financing

- Who is the EFC?
- Why does finance matter?
- What makes for a successful financing strategy?
- What are the components of a financing strategy?
- What are some examples of good green infrastructure financing?
- What does this mean for me?



# Environmental Finance Center Network



1 - University of Southern Maine

2 - Syracuse University

3 - University of Maryland

4 - UNC -Chapel Hill and  
University of Louisville

5 - Cleveland State University

6 & 8 - University of New Mexico

7 - Wichita State University

9 - Dominican University of  
California

10 - Boise State University

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# Environmental Finance Center Network



- University of Maryland, College Park
- National Center for Smart Growth
- Five States and the District
- Large focus on watershed issues



# EFC Services and Assistance

Our work includes:

- Sustainability programs
- Stormwater unit
- Agriculture unit
- Air quality programs
- Capacity development
- Program and policy analysis

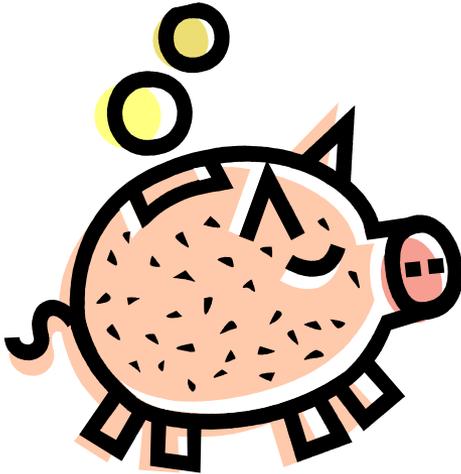
The logo for EFC is displayed in a bold, green, sans-serif font. To the right of the text is a decorative graphic consisting of a solid green horizontal bar at the bottom. Above this bar, there are several stylized green shapes: a small triangle, a larger triangle, and a jagged mountain-like silhouette. The overall design is clean and modern, using a consistent green color palette.

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# Green Infrastructure Financing

Coming to “terms”

- **Funding:** financial resources
- **Financing:** managing fiscal resources



**Goal: increase return on investment**

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# Financing Truths

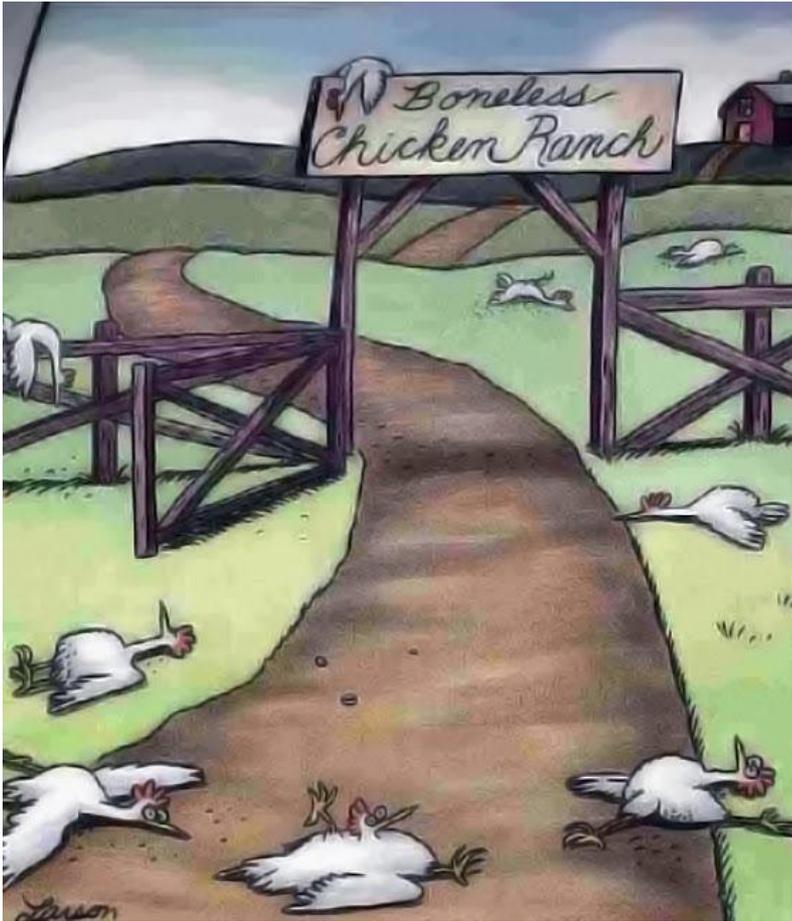


[Bullandbeaessentials.com](http://Bullandbeaessentials.com)

- It is cheaper to protect than to restore
- Grants will never be enough

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# Why does financing matter?



- Provides backbone for implementation plan
- Resonates with decision-makers
- Lends credibility with funders
- Your plan cannot become a reality without it!

# The Financing Process

## Identify goals

- Define desired outcomes



## Identify costs

- What's it going to take to get there?

## Gauge community capacity

- Not just fiscal resources



## Fill the financing gap



# Effective Financing Strategies



- Community-based
- Integrated
- Mirror the resource



# Sustainable Financing Strategies

Tend to interweave several elements:

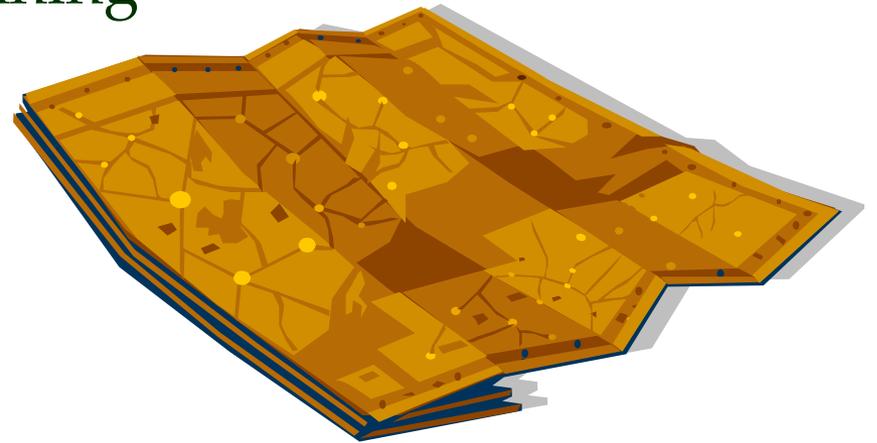
- Cost reduction strategies
- Revenue generators
- Market-based programs



# Cost Reduction Strategies

## Planning

- Strategic planning
- Community visioning
- Comprehensive planning



# Cost Reduction Strategies

Effective, enforced rules and regulations:

- Zoning
- Ordinances
- Forest conservation laws
- Buffer set-back requirements



# Cost Reduction Strategies

## Partnership

- Coordination with other community priorities
- Connect with existing resources
- Reduces costs through efficiencies
- Creates alliances
- Increases political will



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# Revenue Generators

## Fundraising

- Membership programs
- Major donor programs
- Corporate sponsorships
- Special events
- Merchandising



# Revenue Generators



## Grant and loan programs

- Federal
- State
- Foundations



# Revenue Generators

## Federal Programs

A ROADMAP TO GREEN INFRASTRUCTURE IN THE FEDERAL AGENCIES												
KEY		DOC	DOD	DOE	DHS	DOI	DOT	EPA	HHS	HUD	USACE	USDA
		Department of Commerce	Department of Defense	Department of Energy	Department of Homeland Security	Department of the Interior	Department of Transportation	Environmental Protection Agency	Health and Human Services	Housing and Urban Development	Army Corps of Engineers	Department of Agriculture
ISSUE AREAS	Air Quality	○	○	○	○	○	●	●	○	○	○	○
	Biodiversity and Land Conservation	○	●	○	○	○	○	●	○	○	●	●
	Climate Adaptation and Disaster Mitigation	●	○	○	●	○	○	○	○	○	●	●
	Economic and Community Development	○	●	●	○	●	●	●	○	●	○	○
	Urban Forestry	○	○	●	○	●	○	○	○	○	○	●
	Public Health	○	○	○	○	○	●	●	●	○	○	○
	Stormwater Management and Water Quality	●	●	●	●	●	○	●	○	○	●	●
FEDERAL AGENCIES												



# Revenue Generators

## State Programs



# Revenue Generators



## Foundations

- National Fish and Wildlife Foundation
- Chesapeake Bay Trust
- Private Foundations



# Revenue Generators

## Sustainable, dedicated funding



### Tax and fee-based sources

- Real Estate and Sales taxes
- Tax Increment Financing
- Impact fees
- Stormwater utilities



# Revenue Generators

## Stormwater Authorities

- Dedicated
- Equitable
- Sufficient
- Accountable

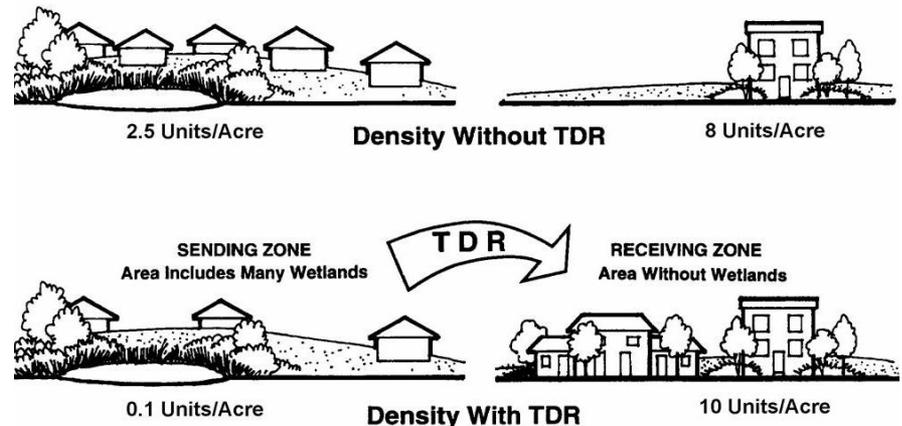


# Market-based Programs

## Market-based programs

### Regulatory Markets

- Federal/State
  - Clean Air Act
  - Clean Water Act
  - ESA
- Local
  - zoning ordinances
  - Watershed Implementation Plans



# Market-based Programs

## Market-based programs

### Voluntary Markets

- Incentive programs
- Tourism-based programs
- Private sector greening
- Other voluntary programs



Top photo from [www.gcbl.org/system/files/rn\\_grdn3.jpg](http://www.gcbl.org/system/files/rn_grdn3.jpg)  
Lower photo by Kevin Robert Perry, from  
[pruned.blogspot.com/2008/02/hyperlocalizing-h...](http://pruned.blogspot.com/2008/02/hyperlocalizing-h...)

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# Financing Green Infrastructure in the Chesapeake Bay

- EPA discretionary funding programs
- EPA permitting
- Other federal programs
- State Revolving Loan Funds
- Chesapeake Bay Trust
- National Fish and Wildlife Foundation
- State programs

# Successful Financing Programs: Case Studies



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# Sustainable Financing Example: Lenexa, Kansas



- Kansas City Metropolitan Area
- Intense development pressure
- Major concerns with flood mitigation and stormwater management

# Sustainable Financing Example: Lenexa, Kansas

## Sustainable Financing Strategy

- Planning
- Regulation
- Existing public programs
- Sales tax
- Stormwater utility
- New development charge



# Sustainable Financing Example: Lenexa, Kansas

## Planning and Regulation



- Land protection policies in 20 year comprehensive plan
- Green infrastructure approach to capital and redevelopment projects
- Coordinated with regional plan
- Stream set-back ordinance

# Sustainable Financing Example: Lenexa, Kansas

## A Green Infrastructure Approach

- In 2004 construction begins on a large lake that would become part of a series of constructed lakes, detention ponds, and greenways designed to direct runoff, maintain water quality, and control flooding.
- The City was able to address multiple community priorities by making the 35-acre Lake Lenexa the focal point of a 240 acre park and recreational area



# Sustainable Financing Example: Lenexa, Kansas

## Existing Public Programs

- Federal and state grants including USEPA nonpoint source funding
- Surface Transportation Project funding which provided capital for demonstration projects which tied transportation to parks.
- The Johnson County Stormwater Management Advisory Council provided a 1/10<sup>th</sup> cent sales tax

# Sustainable Financing Example: Lenexa, Kansas

## Addressing the Financing Gap:

- Existing upgrades needed
- New development impacts
- Long-term operations and maintenance
- Private property owner engagement

# Sustainable Financing Example: Lenexa, Kansas

## Sales Tax

- 2000 Voter-approved 1/8<sup>th</sup> cent sales tax
- Supported upgrades and repairs to existing infrastructure problems – capital costs
- Generated \$7.2 million between 2000-2005
- Voters approved extension of tax through 2010 projected to raise an additional \$8.1 million



# Sustainable Financing Example: Lenexa, Kansas

## New Development Charge

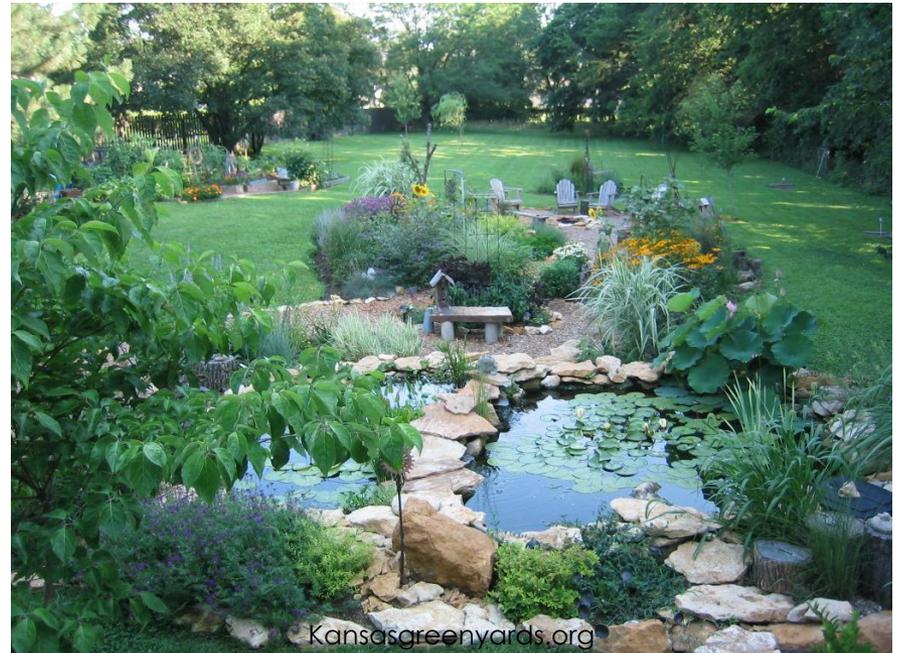


- Systems Development Charge in 2004
- Developers pay a one-time fee when applying for a permit as a means of recovering the costs of capital improvements
- Growth pays for growth

# Sustainable Financing Example: Lenexa, Kansas

## Engaging Private Property Owners

- Voluntary programs
  - Kansas Healthy Yards Communities
  - Rain barrel program



# Sustainable Financing Example: Lenexa, Kansas

## Stormwater Utility

- A monthly \$5.50 fee approximately \$66 annually for residential properties
- Commercial and non-residential properties is based on the amount of stormwater runoff generated by the parcel.
- Collected by the County via annual property tax
- Covers long-term system upkeep



# Sustainable Financing Example: Lenexa, Kansas



## Current Status

- Sales tax has sunset
- Utility and new development charges provide sufficient income for operations and maintenance
- Focus shifts to outreach and education to engage private property

# Sustainable Financing Example: Lancaster, Pennsylvania

## Location:

- Lancaster County
- South Central Pennsylvania
- 7 square miles

## Demographics:

- Population: 60,000
- Most of the population lives in area of 4 square miles



the city of **Lancaster**  
*a city authentic*

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# Sustainable Financing Example: Lancaster

## Sustainable Financing Strategy

- Planning and regulation
- Existing public programs
- State revolving fund loan
- Stormwater authority (pending)



# Sustainable Financing Example: Lancaster

## Stormwater Management

- Old system combined rainwater and sewer water
- Heavy storms volumes would overtax the treatment facility
- Raw sewage dumps to the Conestoga River



Photo courtesy of US EPA



# Sustainable Financing Example: Lancaster

## Stormwater Management

- A gray infrastructure solution would cost about \$300 million in capital costs
- Would also cost \$1 per 1000 gallons for treatment of delayed flow– a total of close to \$750,000 annually
- Use green infrastructure to divert 750 million gallons of rainwater from the system annually



**SAVE IT!**

*saveitlancaster.org*

YOUR WATER.  
YOUR MONEY.  
YOUR CITY.

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# Sustainable Financing Example: Lancaster

## Green Roofs

- 77,000 square feet of vegetation
- Capture and retain 50-70%
- Slow 90% of rainfall

## Park Improvements

- Basketball court replacement project
- Tweaked plans to reroute runoff
- Gravel bed under court, porous court surface
- Addresses run off for \$0.16 per gallon, gray alternative would have cost \$0.30 per gallon



Photo from Bay Journal

# Sustainable Financing Example: Lancaster

## Rain Barrels

- Available to property owners at subsidized rates
- City partnering with LIVE Green
- Ones installed at City collect enough to water entire city garden



## Tree Canopy

- Currently 25%, Goal: 40%
- Planting 6000 trees every 3 years
- Tree sale program – private property owners select from 20 different native species at wholesale price
- Benefits include increase in property value, rental rates, retail sales



# Sustainable Financing Example: Lancaster

## Sustainable Financing Strategy

- Green infrastructure approach would initially cost about \$140 million
- Use existing City improvement projects as opportunities to incorporate green infrastructure
- Stormwater ordinance requires no net increase in runoff – looking to require 20% increase in on-site treatment
- Grant programs where appropriate/available
- \$7 million from the Pennsylvania Infrastructure Investment Authority (PENNVEST)
- Working to put utility in place – proposed \$10 quarterly

# Emerging Efforts Specific to PA

- Legal, economic, social barriers to addressing stormwater in PA -- greater need for *creativity*
- Communities in PA beginning to assess stormwater in a more comprehensive and collaborative way
- Due to limited capacity in smaller communities, must utilize resources and pull from existing examples



Lititz Run Watershed Alliance



Girl Scouts®



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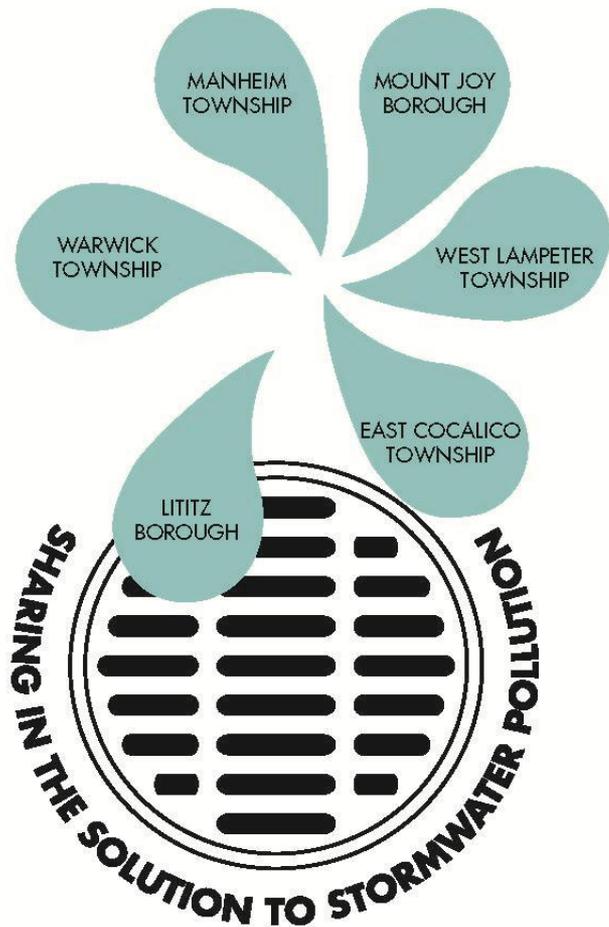


# Key Features of Emerging Efforts

Community	Project	Key feature(s)
Manheim, West Lampeter, Warwick, and East Cocalico Townships; Mount Joy and Lititz Boroughs	Lancaster County Municipal Stormwater Financing Initiative	Collaboration as cost reducer
City of Scranton	Stormwater inventory and financing initiative	Using Lancaster City as model, collaboration across local organizations
Borough of Wrightsville	Riverfront Revitalization Comprehensive Plan	Benefit stacking; Model for historic riverfront communities along Susquehanna River
Cumberland County	StormwaterPA.org	Collaboration; utilize technology to fill information gap



# PA Showcase: Lancaster County, PA



- Assessment of 6 municipal stormwater programs
- Recommendations on financing long-term program
- Sponsored by the Lancaster County Clean Water Consortium
- Funded by the National Fish & Wildlife Foundation

# PA Showcase: Lancaster County, PA

- Greatest opportunity for collaboration is through education and outreach
- Municipalities share similar goals
- Need to know the audience to frame message
- Outreach is first step to putting long-term financing in place, projects on the ground



# PA Showcase: City of Scranton, PA



Three-part project:

- MS4 inventory and public outreach by Lackawanna River Corridor Association
- Incorporating GI practices into program
- Recommendations on financing long-term program
- Funded by the National Fish & Wildlife Foundation



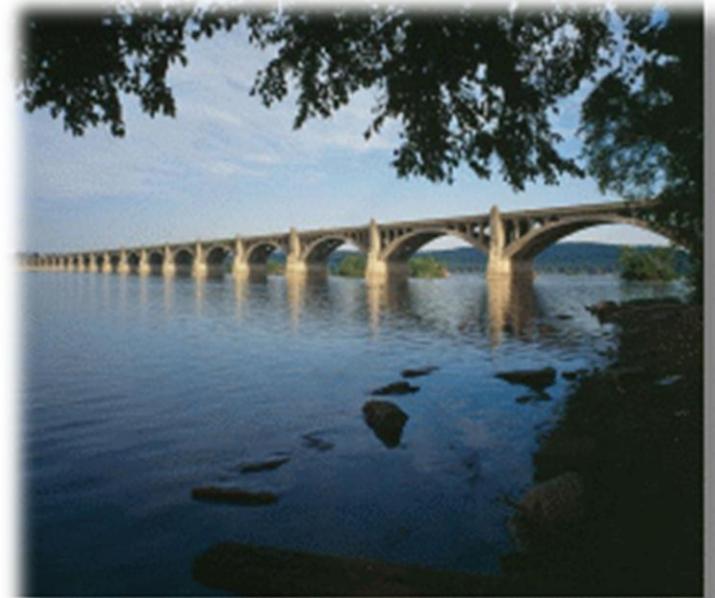
# PA Showcase: City of Scranton, PA

Other partners include:

- Hatala Associates – conducting outreach, working closely with LRCA, McLane
- Scranton Sewer Authority – existing agency, manages Combined Sewer System
- Lancaster City – using as a model due to similar characteristics (CSO and size)

# PA Showcase: Borough of Wrightsville, PA

- Comprehensive Wrightsville Riverfront Revitalization program
  - Collaboration between Borough, Susquehanna Gateway Heritage Area, Borough Engineer
- Currently in design phase
  - Land Studies providing design services for river and stream bank restoration areas
  - Funded by the National Fish & Wildlife Foundation



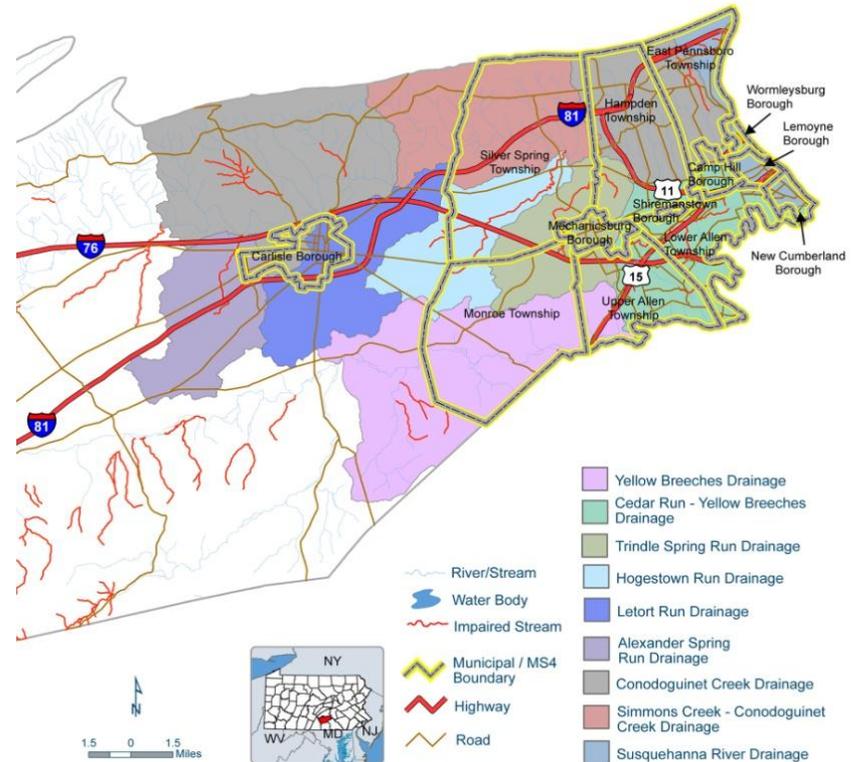
# PA Showcase: Borough of Wrightsville, PA



- Coordinating revitalization of business district and riverfront – way to generate buy-in from elected officials
- Benefit stacking – coupling existing growth strategies, recreation, environmental protection, and historic preservation
- Incorporate natural habitat to support green infrastructure in stormwater management
- Greatest challenge: securing funding for *implementation* phase

# PA Showcase: Cumberland County

- Multi-municipal effort initiated by the Cumberland County Planning Department
- Clear opportunity for partnership across MS4s
- Received funding from the National Fish and Wildlife Foundation Technical Assistance Program
- Project Team was formed, including GreenTreks and the Alliance for the Chesapeake Bay



# PA Showcase: Cumberland County

- Worked to determine what was happening locally
- Identified need for consolidated information
- Leveraged existing materials from GreenTreks and the Alliance for the Chesapeake
- Developed a resource website
- Local focus – local maps, information on watersheds, municipality-specific info, ordinances
- Materials tailored to each audience
- Videos, brochures, pamphlets, fact sheets, kid-friendly resources
- Access to even more water education content via [StormwaterPA.org](http://StormwaterPA.org)



GreenTreks Network, Inc.  
Telling Stories that Change the World



# Successful Financing Strategies

- Community-based
  - Local drivers and priorities
  - Local champions
- Integrated
  - A mix of financing mechanisms
  - A mix of funding sources
- Mirror the resource
  - Different stakeholders contribute in different ways
  - Mix of approaches based on the landscape



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*Rivers Connect Us*

# Q&A

## Green Infrastructure Funding Programs

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### Funding Green Infrastructure Programs

Funding through WREN, PA-DCNR,  
PENNVEST and other programs  
<http://americanrivers.adobeconnect.com/p28i74ta41m/>

### Benefits of Green Infrastructure

Valuing green investment and green jobs  
Recorded at:  
<http://americanrivers.adobeconnect.com/p9pjqgf85lw/>



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