Green Infrastructure Webinar Series

Webinar 2: Equitable Green Infrastructure in a Changing Climate

Thursday, 25 July 2024
10:00am Mountain Time

This program is made possible under a cooperative agreement with US EPA.

Logistics

Opening the control panel

Show your control panel

All phones/microphones are muted for the duration of the webinar

Toggle between full screen/window screen view

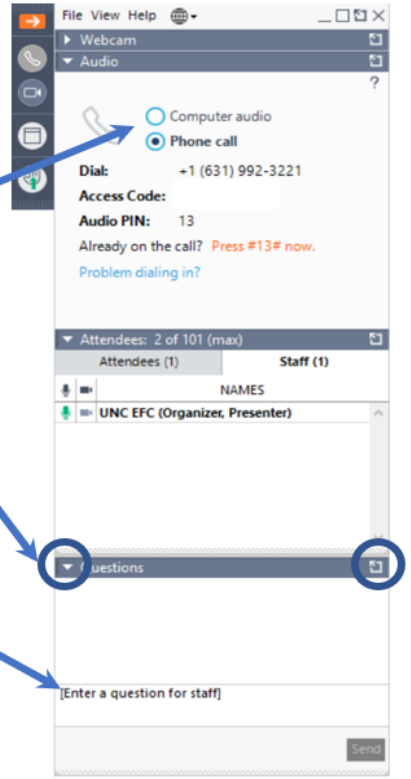
Using the control panel

Audio: please choose between computer audio or phone call

If you do not hear audio right now, please check your speaker volume or enter #[your Audio PIN]# if using phone

Click to open in Control Panel

Submit **questions** in the Questions box at any time, and press [Send]



Click to open in separate box and resize

Certificate of Completion

This session has **NOT** been submitted for pre-approval of Continuing Education Credits, but eligible attendees will receive a certificate of attendance for their personal record.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

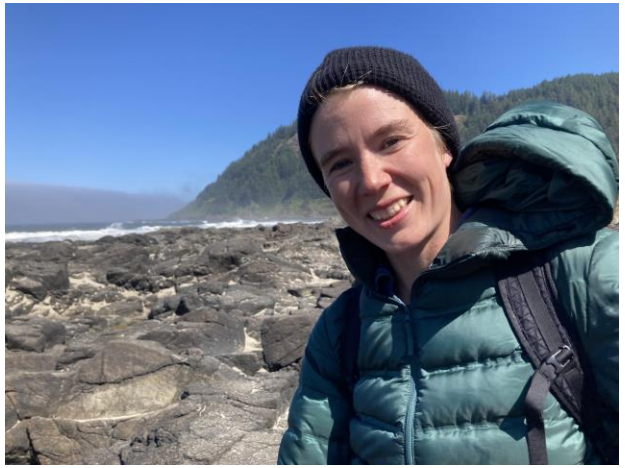
If you have questions or need assistance, please contact smallsystems@syr.edu.

About Us

The **Environmental Finance Center Network (EFCN)** is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and water infrastructure.

The EFCN works collectively and as individual centers to address these issues across the entire U.S, including the 5 territories and the Navajo Nation. The EFCN aims to assist public and private sectors through training, direct professional assistance, production of durable resources, and innovative policy ideas.

Today's Speakers



Shannon Sloane Pepper
Research Scientist

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

Dany Garcia Moreno
Climate Resilience Planner

Carson Risner
Senior Research Analyst

EARTH ECONOMICS

About You!

Please complete the poll that pops up on your screen.

Quick Recap: Green Infrastructure

What makes green infrastructure such a compelling water management option for communities of all sizes?

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Water/Wastewater/Stormwater Infrastructure

Gray:

Green:

Example: Gray & Green Stormwater Infrastructure

Gray

Sewer pipe

Green

Infiltration trench

Some co-benefits of infiltration trench:

- Filtration of water through soil
  - Plant & fungi uptake of pollutants
- Dispersed absorption – stormwater does not make it to treatment plant
- Space for public enjoyment, habitat

Function: Convey storm water away from roads/buildings

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Why Green Infrastructure?

Climate Resiliency

Co-Benefits

Partnerships

Webinar Series Overview

Title	Date
Green Infrastructure 101	18 April 2024
Equitable Green Infrastructure in a Changing Climate	25 July 2024
Navigating the Green Infrastructure Policy Landscape	10 October 2024
Asset Management for Green Infrastructure	23 January 2025
Funding Green Infrastructure	24 April 2025
Partnerships are Critical to Successful Green Infrastructure	17 July 2025
Building a Green Infrastructure Workforce	16 October 2025
Green Infrastructure Frameworks for Environmental Justice	22 January 2026
Source Water Protection and Watershed Planning for Wildfire	16 April 2026
Bridging the Gap: Integrating Land and Water Planning for Sustainable Futures	16 July 2026

Anthropocene Alliance (A2)

An introduction to our community-led, environment and climate justice work

Daniela Garcia Moreno, Climate Resilience Planner

Who is A2?

A2 is the nation's largest coalition of frontline communities fighting for climate and environmental justice.

Our Mission

Our mission is to support **frontline communities** impacted by pollution, flooding, fire, excessive heat, and the cumulative impacts of climate change. We do that by proving them technical and organizing expertise, grant writing support, and a platform for sharing ideas and experience. We also educate residents, regulators, and elected officials on the best policies to mitigate environmental harms.

Our Members

- 335 members across 46 U.S. states and territories
- 96% of organizational leaders live in the communities they represent
- 72% organizations are woman-led
- 85% of communities supported are underserved
- 74% community supported are majority BIPOC

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Our Partners

buy in
for a better buyout.

AGU
ADVANCING EARTH AND SPACE SCIENCE

US Army Corps of Engineers®

ENVIRONMENTAL POLICY INNOVATION CENTER

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

river NETWORK
connecting people · saving rivers

ACORN INTERNATIONAL

Climigration Network

Technical Assistance and Track Record

$8,787,050

Total value of pro-bono services received by members via A2 (across 208 members)

$76,516,897

Total value of funds requested by members via A2 (across 221 members)

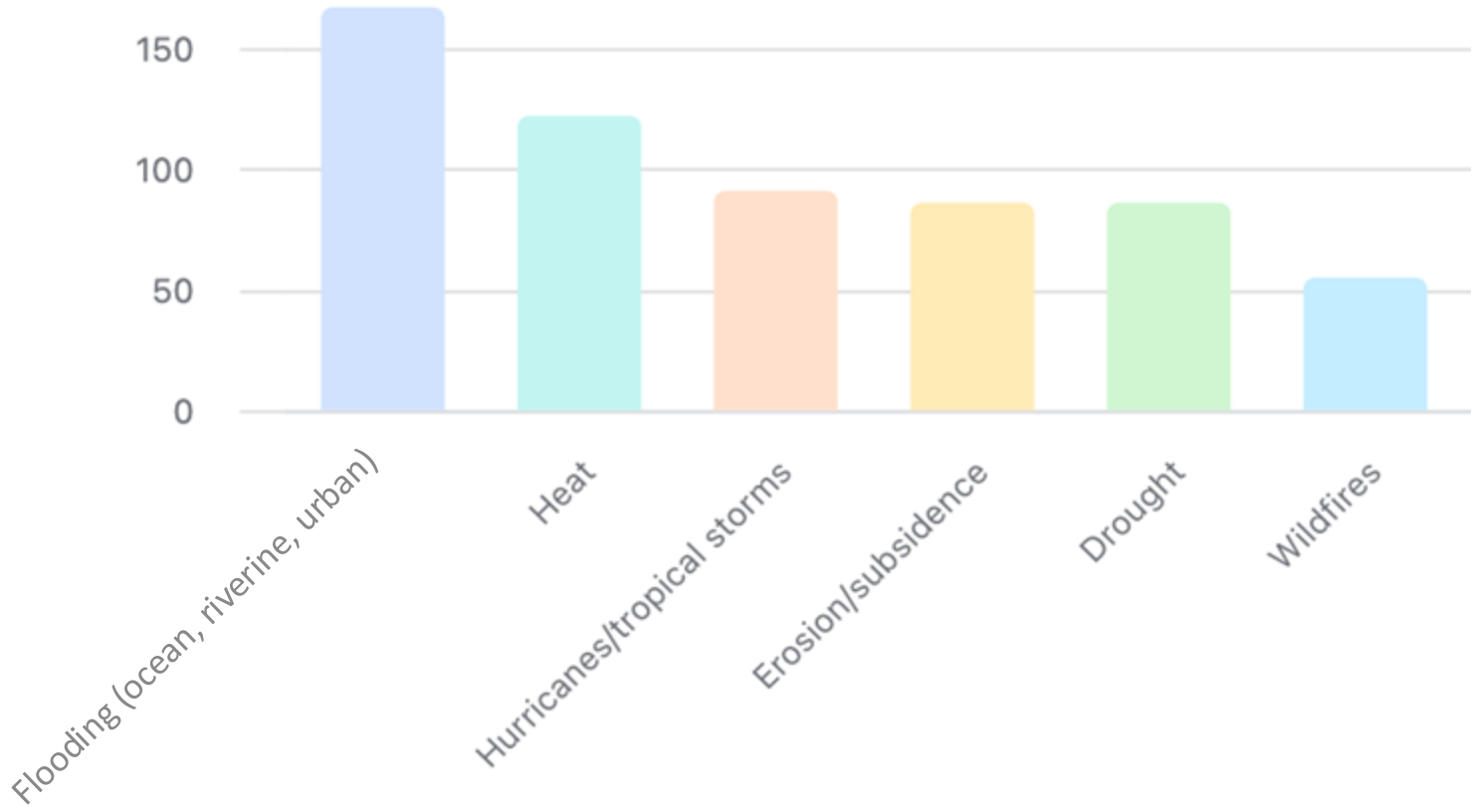
Environmental Justice Communities

Justice 40 Definition:
Communities that are marginalized by underinvestment and overburdened by pollution (and other environmental harms/climate impacts)

Resources for Identifying EJ communities:

- Climate and Economic Justice Screening Tool (CEJST)
- FEMA National Risk Index
- EPA Environmental Justice Mapping and Screening Tool (EJScreen)

Primary Concerns



Our Solutions

Focus on community-led projects and support

- Mutual Aid
- Community Engagement/Organizing
- Capacity Building
- Supporting projects from Planning to Implementation

Mutual Aid Fund

- Lifeline for impacted communities
- Fund provides up to $4,000 in pre and post-disaster relief
- Can be used for: hotel and other emergency housing, generators, drinking water, cleaning and sanitation goods, baby supplies, materials for repairs, tools, food and clothing, transportation, and medical supplies
  Donate here!

Community Engagement and Organizing

Members using A2 advocacy merchandise

Community organizing training in New Orleans, LA in collaboration with ACORN International

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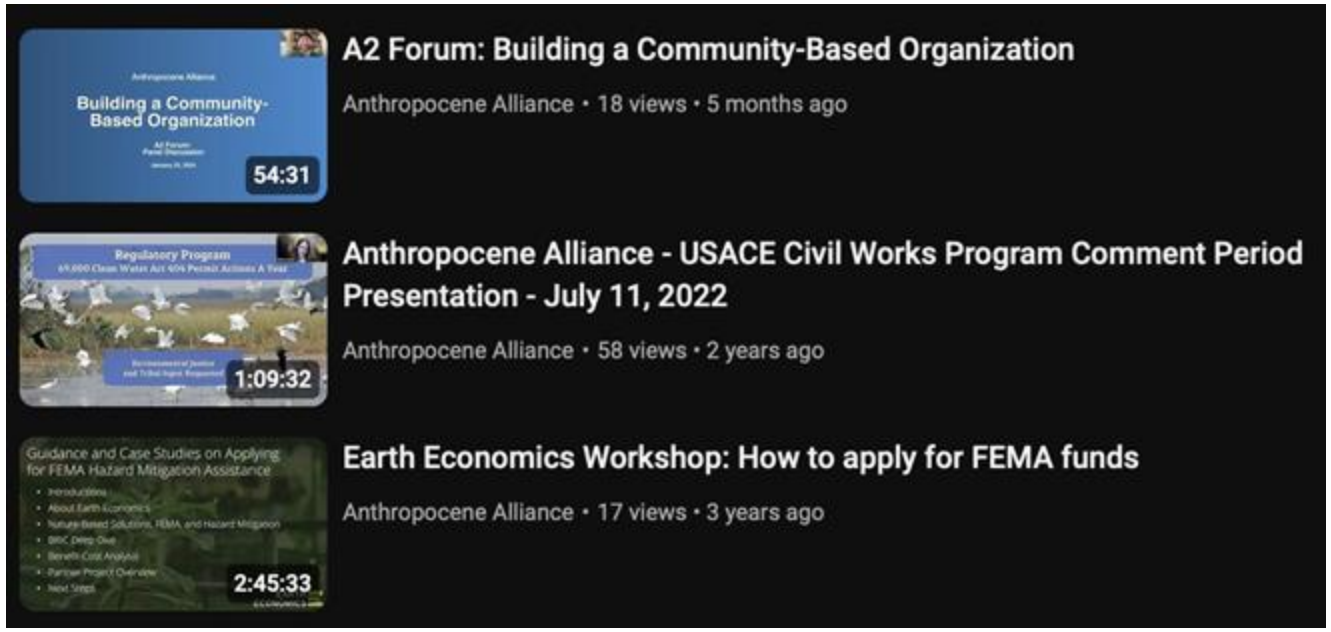
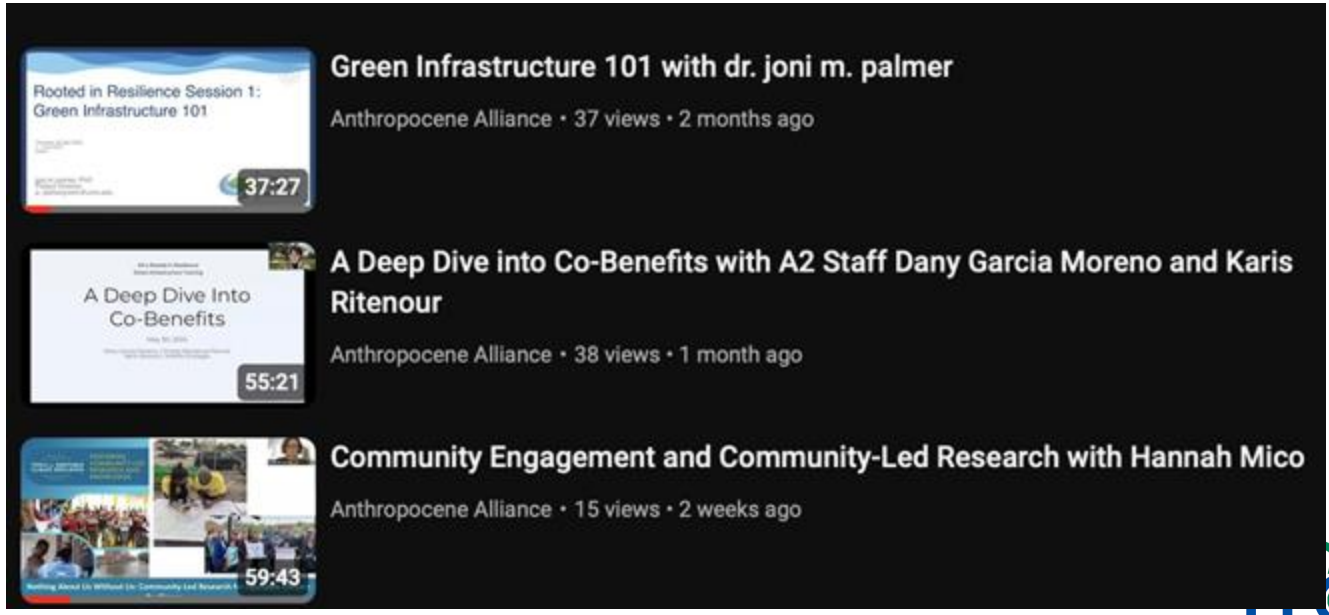
Capacity Building

Building Community Capacity for Resilience Planning





Planning to Implementation

Vision:
Sweetwater Preserve,
Reidsville, GA

Key Takeaways

Listen and learn

Meet communities where they are

Be an ally and advocate

Lean on partnerships and existing resources

Please answer this question in the chat box:

What is the top Environmental Justice priority or issue, related to stormwater and wastewater, in your community or a community you are working with?

Community Resilience: Making the Case for Nature-Based Solutions

Carson Risner, Senior Research Analyst| 07/25/2024

EARTH ECONOMICS

Earth Economics

quantifies and values the benefits nature provides

NATURAL CAPITAL
performs natural functions that
provide goods and services that humans need to survive.

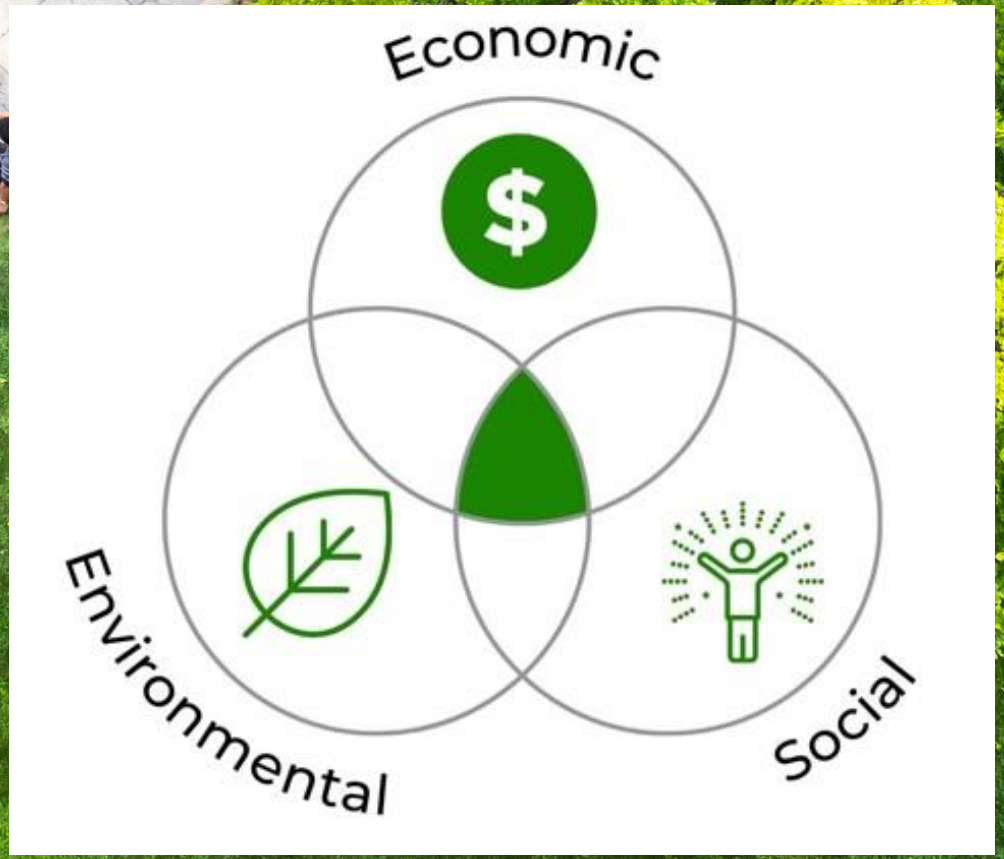
ECOSYSTEM SERVICES

are quantifiable benefits humans receive from nature.

Millenium Ecosystem Assessment Framework

Services	Example Benefits
Provisioning	
Energy and Raw Materials	Fuel, fiber, fertilizer, minerals, and energy
Food	Livestock, crops, fish, wild game
Medicinal Resources	Traditional medicines, pharmaceuticals, assay organisms
Ornamental Resources	Clothing, jewelry, handicrafts, decoration
Water Storage	Usable surface or groundwater, stored reliably
Regulating	
Air Quality	Ability to create and maintain clean, breathable air
Biological Control	Disease, pest and weed control
Climate Stability	Ability to support a stable climate at global and local levels
Disaster Risk Reduction	Ability to prevent or mitigate flood, wildfire, drought, and other natural disasters
Pollination, Seed Dispersal	Dispersal of genetic material via wind, insects, birds, etc.
Soil Formation	Soil creation for agricultural and/or ecosystem integrity
Soil Quality	Soil quality improvement due to decomposition and pollutant removal
Soil Retention	Ability to retain arable land, slope stability, and coastal integrity
Water Quality	Water quality improvement due to decomposition and pollutant removal
Water Supply	Ability to provide natural irrigation, drainage, and other water flows
Navigation	Ability to maintain necessary water depth for recreational and commercial vessels
Supporting	
Habitat	Ability to sustain species and maintain genetic and biological diversity
Information	
Aesthetic Information	Sensory enjoyment and appreciation of natural features
Cultural Value	Use of nature in art, symbols, architecture, or for religious or spiritual purposes
Science and Education	Use of natural systems for education and scientific research
Recreation and Tourism	Hiking, boating, travel, camping, and more

Ecosystem Service Valuation (ESV)



Types of Resiliency Projects

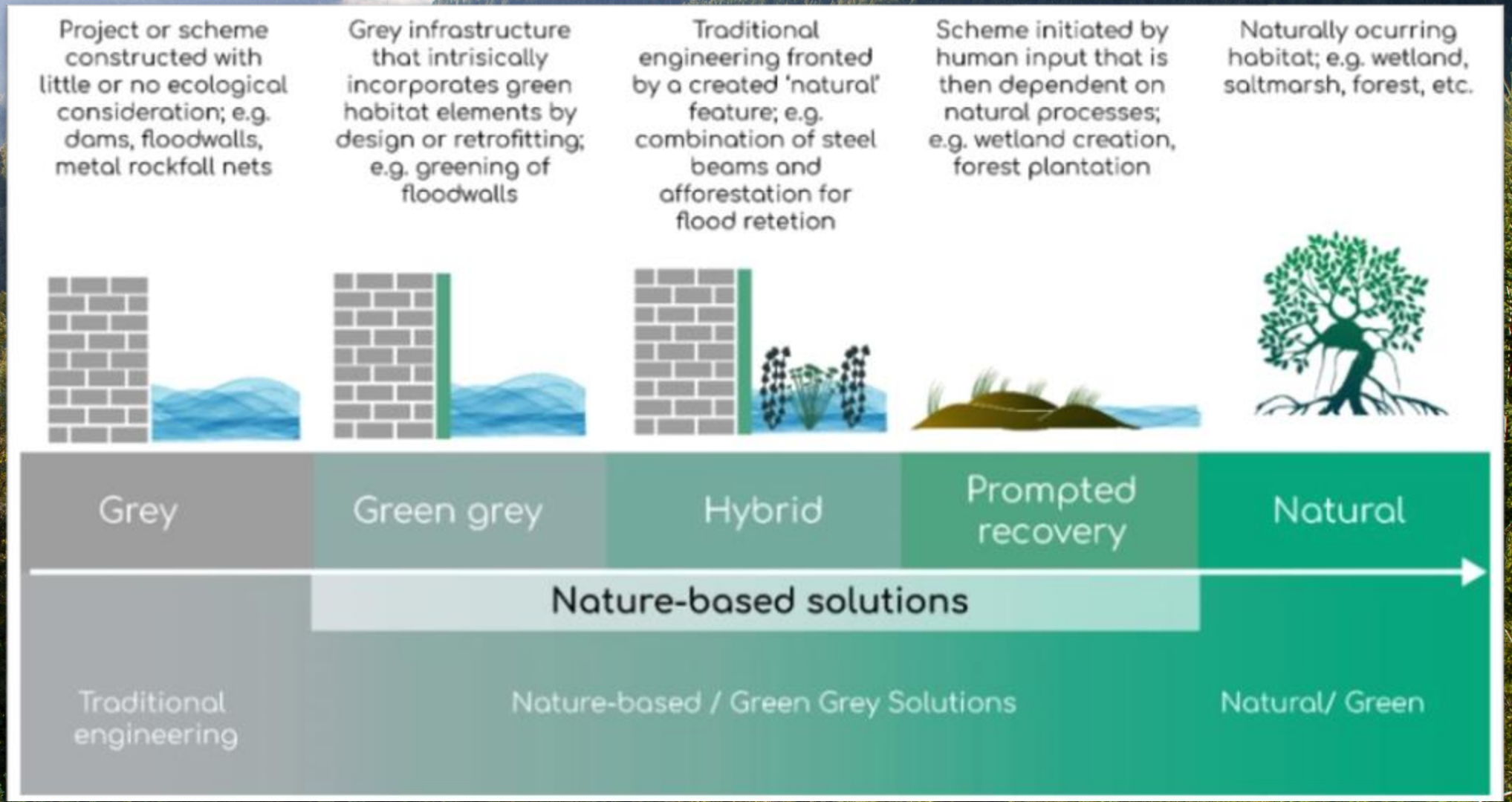
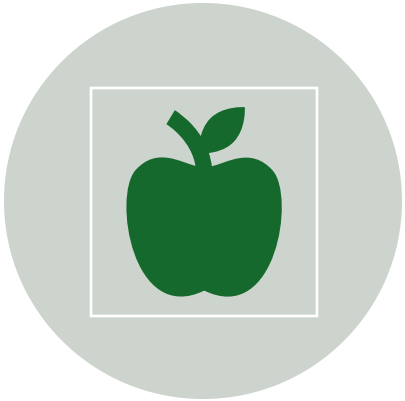


Figure credit: Martin et al. (2021)

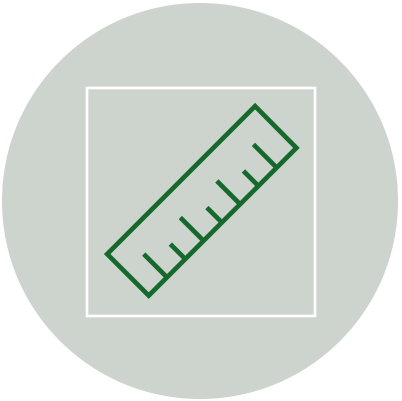
Nature-Based Solutions and ESV

- Address vulnerability
- Provide co-benefits
- Improve quality of life

Why Valuation?



APPLES TO APPLES COMPARISON



MEASURE OF IMPORTANCE

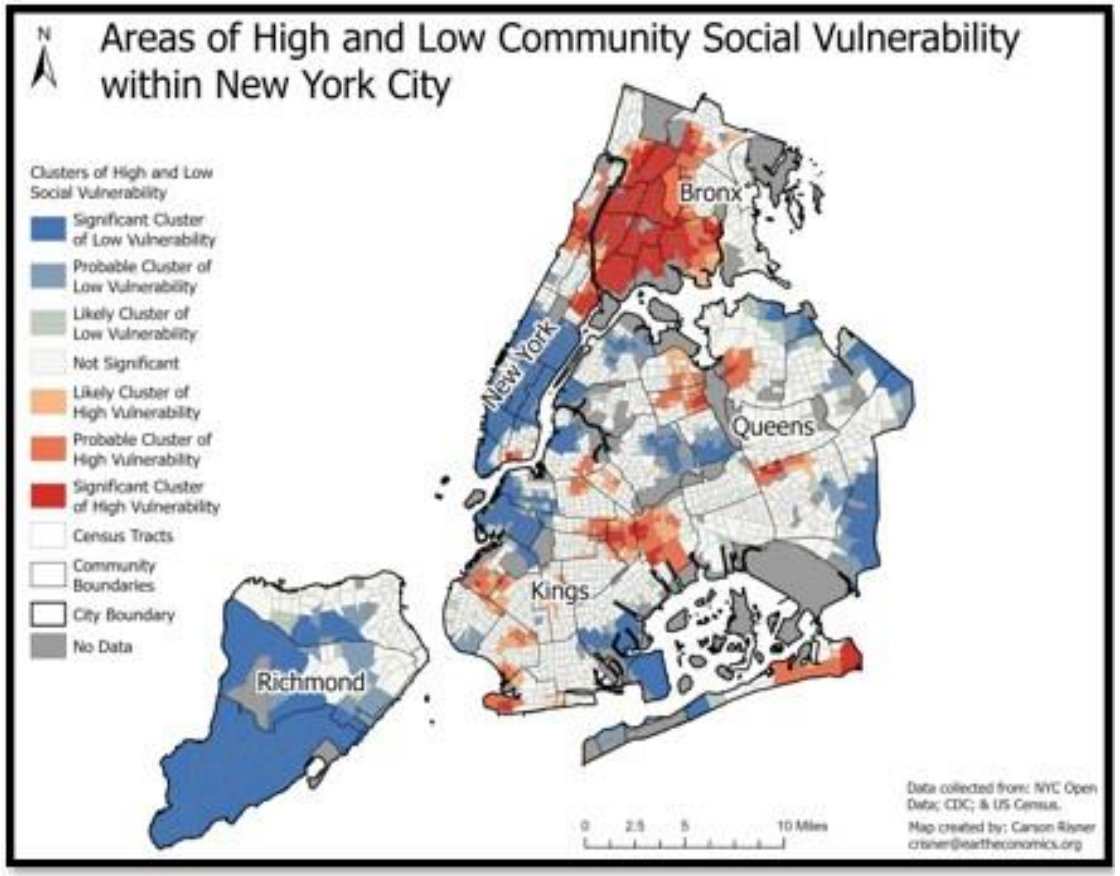
INCLUDE NATURE WITHIN DECISION MAKING

Uses of ESV

- Raising awareness
- Applying for funds
- Reporting on impacts
- Community development planning
- Stormwater/carbon/environmental credits

ESV and Equity

- Environmental justice
- Beneficiary mapping



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How Others Have Used ESV

- South Bronx Unite- Awareness raising
- Water Wise Gulf South- Community development
- Green Compass- Reporting/stormwater credits
- Federal Emergency Management Agency- Decision making & reporting

THE WATERFRONT PLAN WILL PROVIDE MUCH-NEEDED COMMUNITY BENEFITS

Earth Economics, South Bronx Unite, and the Center for Sustainable Urban Development's Resilient Coastal Communities Project collaborated to estimate the value of Waterfront Plan's economic and community benefits.

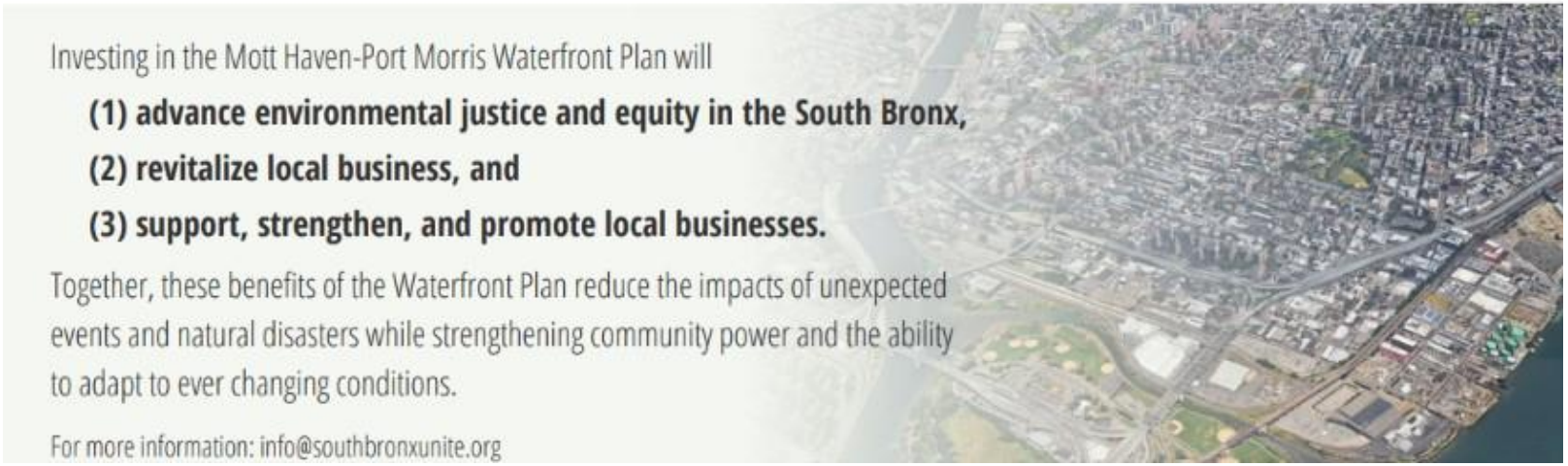
The analysis finds that the Waterfront Plan will provide over $258 million (USD 2021) in social, environmental, and economic benefits every year.

In addition, the Waterfront Plan will support 537 construction jobs and another 1,063 jobs in related industries, generating at least $105.3 million (USD 2021) in local economic activity over 50 years.

Waterfront access points, waterfront trails, and parks beautify the community, increase opportunities to be in nature, and provide spaces for people to gather and engage in healthy physical activity, improving physical and mental health and nurturing a greater sense of belonging. Water-side parks and greenspaces can also host education and community events that help people feel connected to each other and the neighborhood.

Street trees, and greenspace provide additional benefits, reducing air, water, and noise pollution and reducing extreme heat through evapotranspiration and shade.

Bioswales, rain gardens and pervious pavements also provide environmental benefits, including lower stormwater management costs. Bioswales and raingardens are large garden beds filled with mulch, low-growing plants, and trees that collect, store and filter polluted stormwater before it infiltrates into the groundwater.



Investing in the Mott Haven-Port Morris Waterfront Plan will

(1) advance environmental justice and equity in the South Bronx,

(2) revitalize local business, and

(3) support, strengthen, and promote local businesses.

Together, these benefits of the Waterfront Plan reduce the impacts of unexpected events and natural disasters while strengthening community power and the ability to adapt to ever changing conditions.

For more information: info@southbronxunite.org

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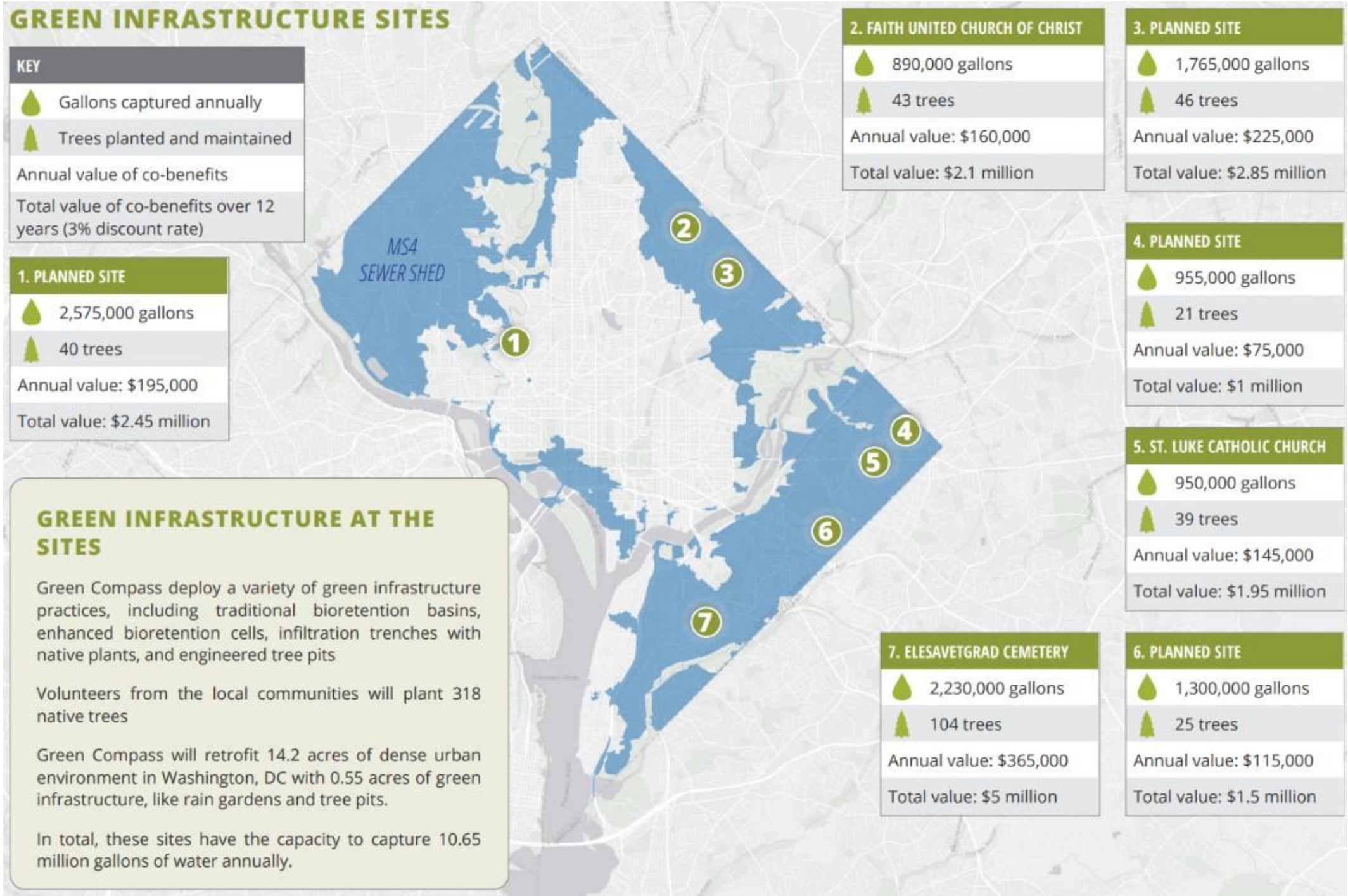
GREEN INFRASTRUCTURE SITES



KEY
Gallons captured annually
Trees planted and maintained
Annual value of co-benefits
Total value of co-benefits over 12 years (3% discount rate)

1. PLANNED SITE
2,575,000 gallons
40 trees
Annual value: $195,000
Total value: $2.45 million

2. FAITH UNITED CHURCH OF CHRIST
890,000 gallons
43 trees
Annual value: $160,000
Total value: $2.1 million

3. PLANNED SITE
1,765,000 gallons
46 trees
Annual value: $225,000
Total value: $2.85 million

4. PLANNED SITE
955,000 gallons
21 trees
Annual value: $75,000
Total value: $1 million

5. ST. LUKE CATHOLIC CHURCH
950,000 gallons
39 trees
Annual value: $145,000
Total value: $1.95 million

7. ELESAVETGRAD CEMETERY
2,230,000 gallons
104 trees
Annual value: $365,000
Total value: $5 million

6. PLANNED SITE
1,300,000 gallons
25 trees
Annual value: $115,000
Total value: $1.5 million

GREEN INFRASTRUCTURE AT THE SITES

Green Compass deploy a variety of green infrastructure practices, including traditional bioretention basins, enhanced bioretention cells, infiltration trenches with native plants, and engineered tree pits

Volunteers from the local communities will plant 318 native trees

Green Compass will retrofit 14.2 acres of dense urban environment in Washington, DC with 0.55 acres of green infrastructure, like rain gardens and tree pits.

In total, these sites have the capacity to capture 10.65 million gallons of water annually.

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References

- Martin, J. G. C., Scolobig, A., Linnerooth-Bayer, J., Liu, W., & Balsiger, J. (2021). Catalyzing Innovation: Governance Enablers of Nature-Based Solutions. Sustainability, 13(4), Article 4. https://doi.org/10.3390/su13041971


THANK YOU
Contact Information: crisner@eartheconomics.org
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Additional Resources

Equity Guide for Green Stormwater Infrastructure Practitioners

PREVENTING DISPLACEMENT
Evaluation Roadmap

Measure What Matters	Suggested Metric	Data Collection Guidance
Are we being proactive about preventing displacement? Community perception that displacement risk is being overlooked is a strong indicator of whether we've done enough to partner with community to prevent displacement.	Percent of stakeholders,[1] disaggregated by race and other prioritized equity factors,[4] who report that they believe our local stormwater management organization is taking proactive steps to mitigate the likelihood of displacement resulting from green infrastructure projects.	**Survey |** Consider asking a likert scale[5] question before and after each project and comparing the results, such as: "To what extent do you feel [insert program / project] may contribute to displacement within your community?"
Are we earning community trust? Perceived or real displacement risk can erode trust (or sustain lack of trust). Understanding trust levels is a strong barometer of whether displacement has been prevented in partnership with communities.	Percent of stakeholders,[1] disaggregated by race and other prioritized equity factors,[4] who report they have a trusting relationship with our local stormwater management organization.	**Survey |** Consider asking a likert scale[5] question at the end of the initiative such as: "To what extent do you have a trusting relationship with your local stormwater management organization?"

https://giexchange.org/equity-

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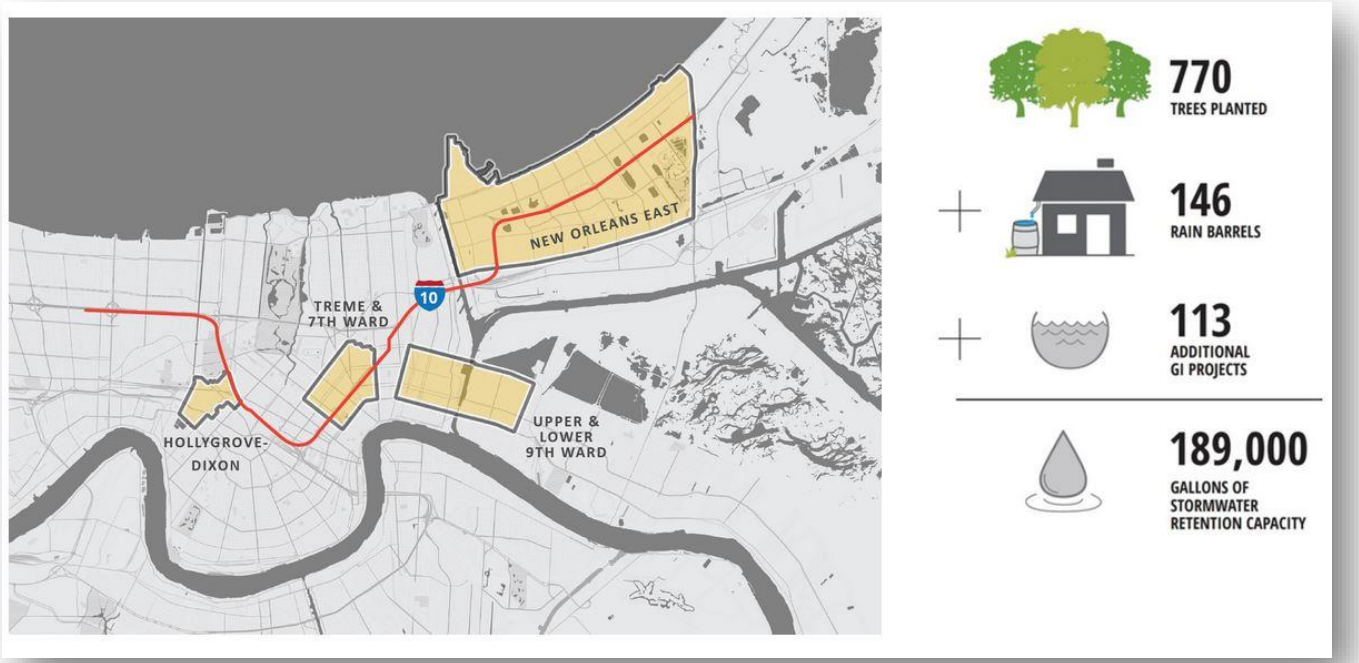
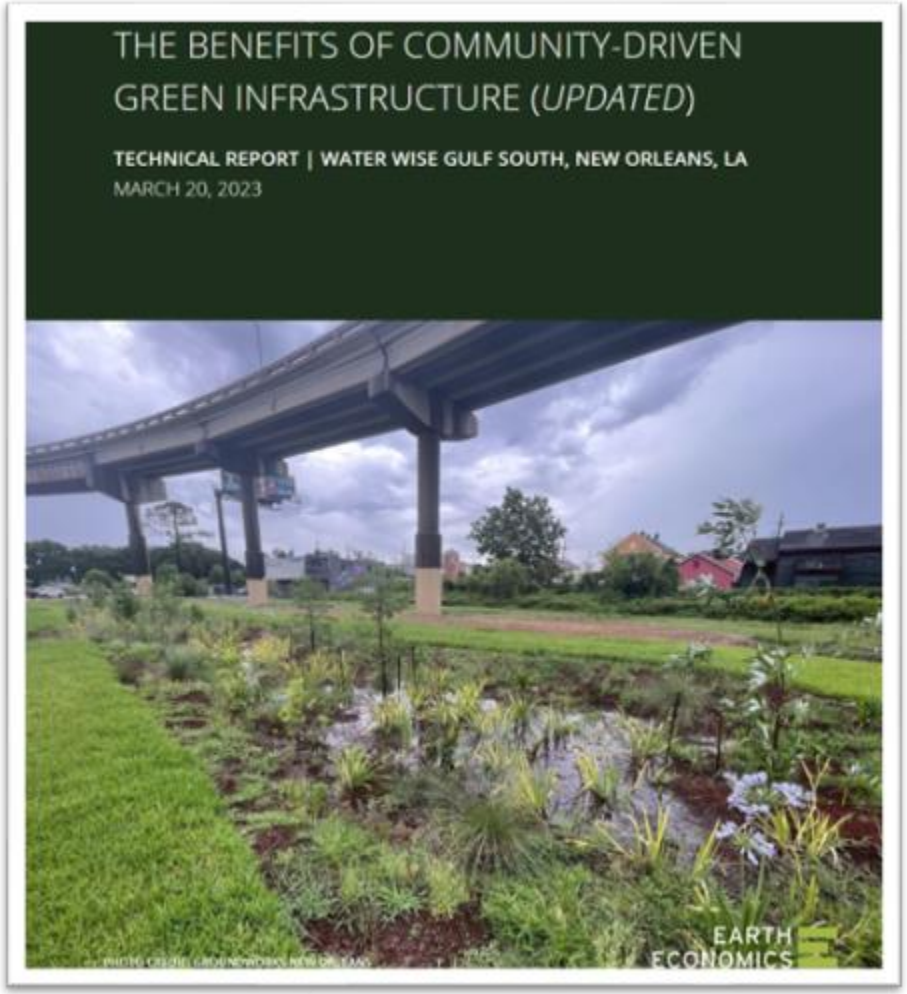
Report: *Benefits of Community-Driven Green Infrastructure*





https://www.eartheconomics.org/all-publications/2021/wwgs

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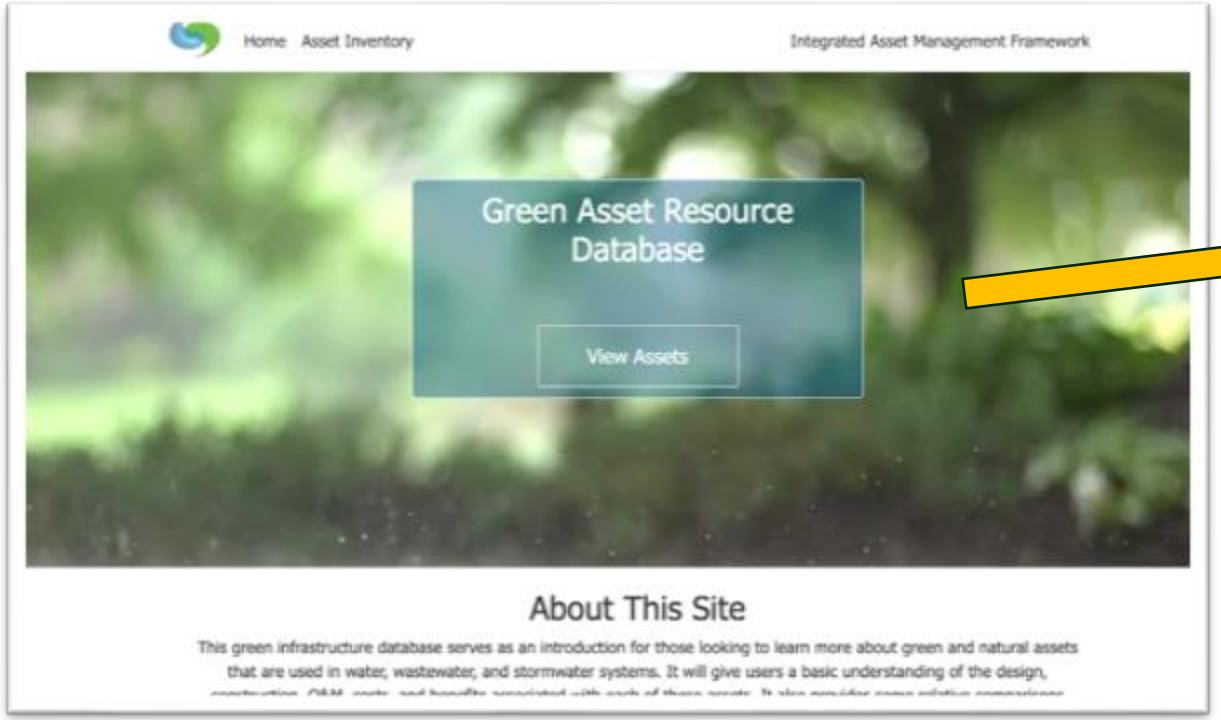
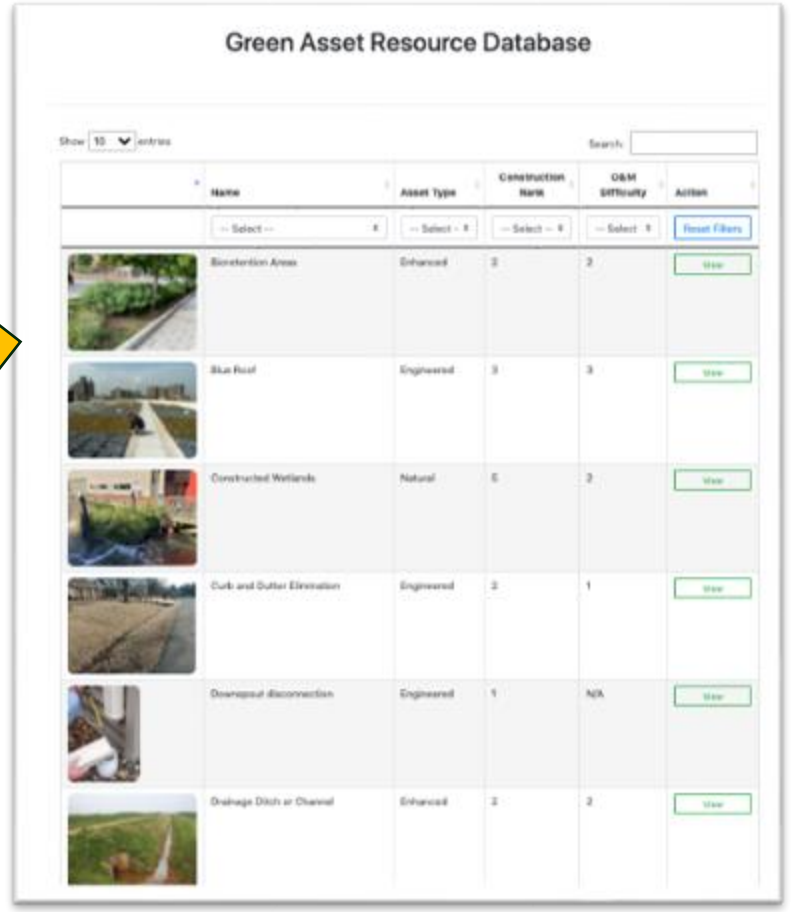
Integrated Asset Management Framework & Green Asset Resource Database





https://swefcapps.unm.edu/gardb

Questions?

Green Infrastructure Webinar Series

Join us for this 10-part webinar series focused on the financial, managerial, and technical aspects of green infrastructure. Experienced practitioners, policy and funding experts, as well as academics, will discuss the opportunities and challenges facing the implementation of green infrastructure. These informative sessions will be offered quarterly, from April 2024 to July 2026.

Series Host: **Shannon Pepper**, Research Scientist, *Southwest Environmental Finance Center*

Green Infrastructure 101 *April 18, 2024 | 12:00-1:00 EDT*	Watch Here
Equitable Green Infrastructure in a Changing Climate *July 25, 2024 | 12:00-1:15 ET*	Register Now
Navigating the Green Infrastructure Policy Landscape *October 10, 2024 | 12:00-1:15 ET*	Register Now
Asset Management for Green Infrastructure *January 23, 2025 | 12:00-1:15 ET*	Register Now
Funding Green Infrastructure *April 24, 2025 | 12:00-1:15 ET*	Register Now
Power of Partnerships in Green Infrastructure *July 17, 2025 | 12:00-1:15 ET*	*Registration TBA*
Building a Green Infrastructure Workforce *October 16, 2025 | 12:00-1:15 ET*	*Registration TBA*
Green Infrastructure Frameworks for Environmental Justice *January 22, 2026 | 12:00-1:15 ET*	*Registration TBA*
Source Water Protection & Watershed Planning in the Face of Wildfires *April 16, 2026 | 12:00-1:15 ET*	*Registration TBA*
Bridging the Gap: Integrating Land & Water Planning for Sustainable Futures *July 16, 2026 | 12:00-1:15 ET*	*Registration TBA*

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Current series flyer in your "Handouts" tab

+ 2 In-Person Workshops in Albuquerque:

- Finding Allies and Building Relationships, Part 1
  Spring 2025
- Finding Allies and Building Relationships, Part 2
  Spring 2026

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Please fill out the survey for this webinar!

Thanks for attending!

Next webinar in our Green Infrastructure Series:

Navigating the Green Infrastructure Policy Landscape

October 10th, 2024

Registration is open!

Shannon Sloane Pepper

Webinar Series Host

spepper@unm.edu

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