



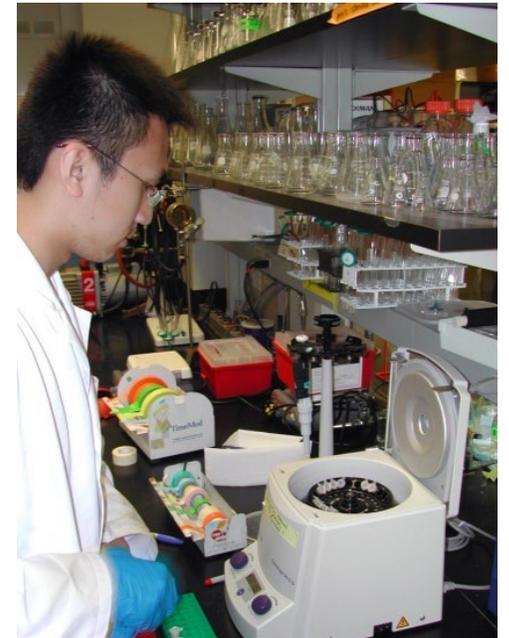
IMAGINE A BETTER NEW JERSEY



NFWF

Rutgers Cooperative Extension

Rutgers Cooperative Extension (RCE) helps the diverse population of New Jersey adapt to a rapidly changing society and improves their lives through an educational process that uses science-based knowledge.



New Jersey

- Most densely populated state
- 21 counties, 565 municipalities
- 95% of our waterways are impaired
- Harmful algal blooms (HABS) in many of our lakes
- Hammered by Ida, Henri, Sandy, and a bunch of Nor'easters
- Climate change is real – more severe storms and sea level rise



Water Quality Impairments in NJ

- In 2002, 95% of NJ's waterways were impaired
- Lots of new laws were passed:
 - 2004 New Stormwater Management Regulations
 - 2004 Municipal Separate Storm Sewer System (MS4) Permits issued
 - 2011 New Jersey Fertilizer Law
 - 2021 Updated Stormwater Management Regulations
- In 2022, 95% of NJ's waterways are impaired
- Population increased by 724,000
- Urban land uses increased by 57,203 acres

Insight to current problem

- Stringent stormwater regulations on new development has not improved water quality
- We must retrofit existing older development with stormwater management to reduce impairments to our waterways
- Green infrastructure is a great tool to retrofit existing older development
- Local champions are needed to advocate for green infrastructure retrofits
- We need to create these champions where they don't already exist

Green
Infrastructure
in New Jersey



Green infrastructure is ...

...an approach to stormwater management that is cost-effective, sustainable, and environmentally friendly.

Green infrastructure projects:

- capture,
- filter,
- absorb, and
- reuse

stormwater to restore the natural water cycle.



Bioretention Systems

- Rain Gardens
- Bioswales
- Stormwater Planters
- Curb Extensions
- Tree Filter Boxes

Permeable Pavements

Rainwater Harvesting

- Rain Barrels
- Cisterns

Dry Wells

Rooftop Systems

- Green Roofs
- Blue Roofs

Green Infrastructure Practices



Parker Urban Greenscapes, 2009.

Role of Green Infrastructure in NJ

- New “major” development is required to use green infrastructure
- Communities with combined sewers are using green infrastructure
- On a voluntary basis, existing development is being retrofitted with green infrastructure



Role of Rutgers

- Educate community leaders, municipal officials, environmental commissioners, engineers, landscape architects, and planners on new regulations and green infrastructure
- Help CSO communities advocate for green infrastructure and identify appropriate locations
- Create local champions to promote green infrastructure for retrofitting existing development
- Help communities develop green infrastructure action plans, design demonstration projects, and install projects



Green Infrastructure Champions

Green Infrastructure Champions are key players in implementing green infrastructure as a stormwater management approach in their community.



Cheryl Reardon works for the Association of New Jersey Environmental Commissions.



Nathaniel Sajdak works for the Wallkill River Watershed Management Group.



Laura McBride created the Deal Lake Watershed Alliance.

More Green Infrastructure Champions

Green Infrastructure Champions are also from very urban areas like the City of Newark and Jersey City



Kim Gaddy, National
EJ Director for Clean
Water Action and South
Ward Environmental
Alliance



Dawn Giambalvo,
Director of Innovation
Department of
Infrastructure
Office of Innovation
Jersey City, NJ



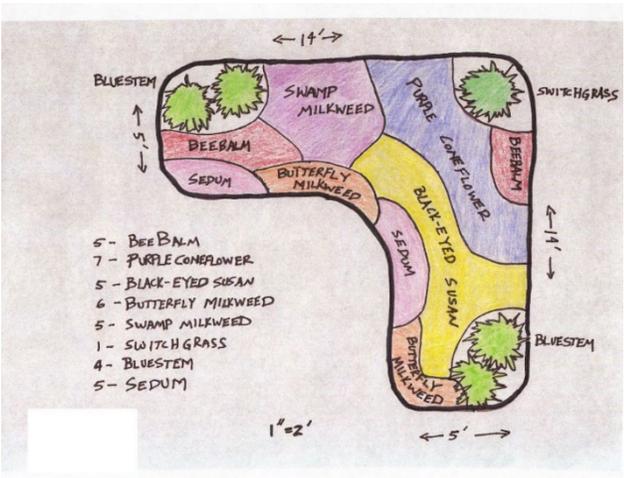
Nicole Miller, Principal of
MnM Consulting, Co-
Chair of NewarkDIG, Co-
Chair Jersey Water Works

Rutgers inputs to the Green Infrastructure Champion Training Program

- 10 training classes on various aspects of green infrastructure planning and implementation
- Professional staff to provide technical support to develop designs for green infrastructure demonstration projects
- Networking opportunities with other Green Infrastructure Champions for mutual support
- Assistance with grant writing and submission

Green Infrastructure Champion Training Program Classes

1. How to identify green infrastructure projects in your town
2. Moving from planning to implementation of green infrastructure



Green Infrastructure Champion Training Program Classes

3. Maintaining green infrastructure practices/projects

4. Stormwater management regulations, policies, and ordinances



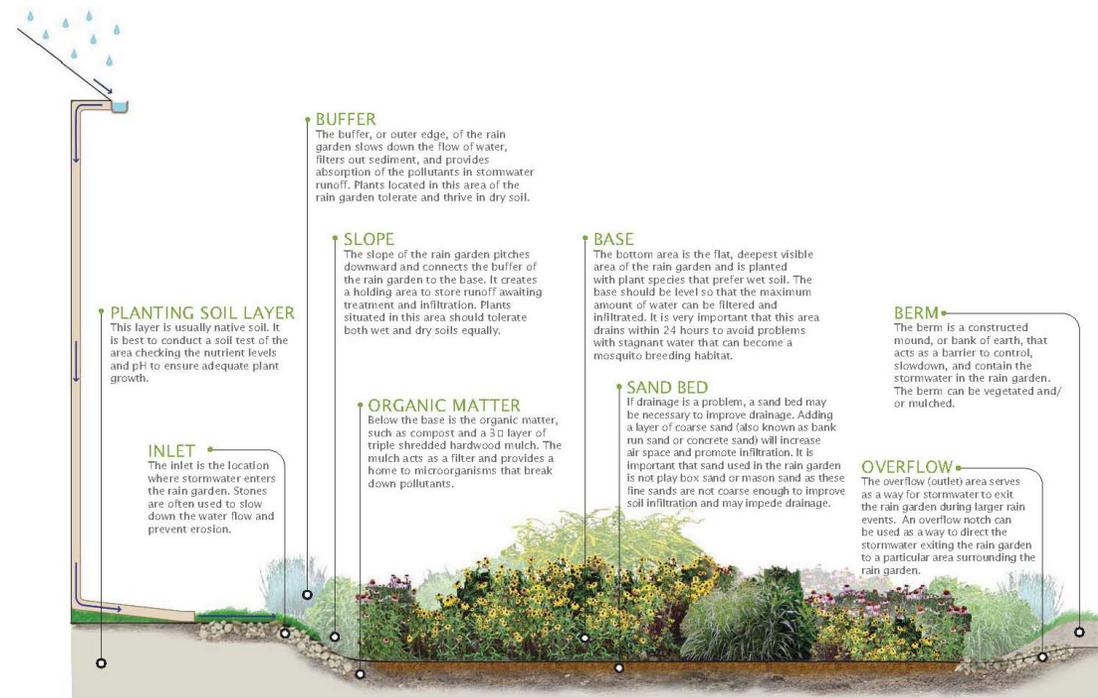
Green Infrastructure Champion Training Program Classes

5. Green infrastructure planning and implementation for Sustainable Jersey points
6. Green infrastructure projects for schools

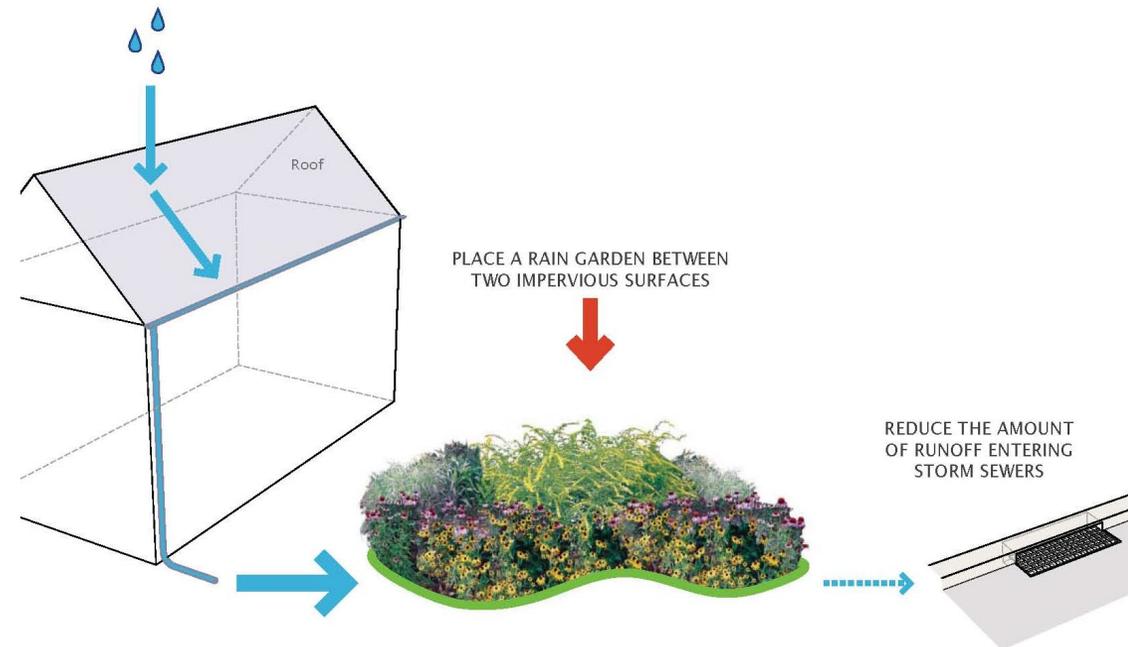


Green Infrastructure Champion Training Program Classes

7. How to design and build a rain garden



8. Retrofitting traditional detention basins with green infrastructure



Green Infrastructure Champion Training Program Classes

9. Developing green infrastructure master plans for an entire site or neighborhood

10. Using green infrastructure to promote climate resiliency



Short-term results/impacts

Green Infrastructure Champions will:

- Increase their knowledge and awareness about green infrastructure practices, planning, and implementation
- Gain a skill set to allow them to engage community leaders, schools, and non-governmental organizations (NGOs) and advocate for green infrastructure as a stormwater management solution
- Identify funding opportunities and secure funding for green infrastructure

Long-term results/impacts

- Green infrastructure practices are installed throughout the community
- Green infrastructure becomes a standard in the community for addressing stormwater problems
- Localized flooding is reduced
- Water quality improves
- Community become more resilient to extreme weather events

606 certified Green Infrastructure Champions in the first five years of the program



So what?

Ann Marchioni and Jane Kinkle on the Caldwell Environmental Commission – Green Infrastructure Champions, 2019

- Prepared a Sustainable Jersey Grant for Green Infrastructure Planning and to build two rain gardens
- Received \$20,000
- Project was a great success
- They wrote another grant to NJDEP's 319h Program
- NJDEP gave them another \$91,106 to build three more rain gardens



Laura McBride was concerned about the algae in a nearby lake. She forms the Deal Lake Watershed Alliance but is unsure what to do. One year later in 2019 she become a Green Infrastructure Champion.

- Offers rain garden workshop
- Secures funding to build a roadside rain garden to protect the lake
- Receives open space funding to restore a piece of municipally-owned vacant land next to the lake – rain gardens, boat launch, porous pavement
- Annual Gala that raises significant funding for lake restoration activities
- Pressures town to do good



**Doriann Kerber, State Environmental
Chair of the Lions Club Int'l and
Environmental Commissioner.
Green Infrastructure Champion, 2019**

- Supporting 10 green infrastructure projects throughout Middlesex County
- Working with youth groups to install rain gardens (Boy Scouts, Girl Scouts, and Leo Club)
- Working directly with schools
- Shares her knowledge to empower other community members
- Tables at all the local environmental events



Kim Gaddy, 3rd generation Newark resident and founder and Director of the South Ward Environmental Alliance in Newark, has 20 years experience as an Environmental Justice Organizer fighting against air and water pollution in Newark. Green Infrastructure Champion, 2020

- Founding member of NewarkDIG
- Green Infrastructure Advocate in Newark
- Lead community effort to incorporate green infrastructure into CSO Long-Term Control Plan
- Ensures residents' voices are heard and they are active participants in decision making policies that impact their neighborhood
- Working with the City on green infrastructure workforce development



David Kois is a municipal planner and zoning official. Green Infrastructure Champion, 2021

- Developed a green infrastructure master plan for the Hillsborough Municipal Complex
- Led the effort to install five rain gardens and naturalize a detention basin
- Secured over \$300K for green infrastructure projects in his town
- Changed the culture of the municipal government employees to embrace green infrastructure
- One of 20 Green Infrastructure Champions from Hillsborough



Nicole Miller, Principal of MnM Consulting, is a communications professional with more than a decade of experience creating targeted publicity and marketing campaigns for a range of clients in private industry and the non-profit sector. She is the co-Chair of NewarkDIG (doing infrastructure green) incorporating green infrastructure into long-term control plan to eliminate CSOs. Green Infrastructure Champion, 2023





Testimonials





“I have indeed begun giving presentations. My first was to about 20 Master Gardeners of Union County. It was warmly received. I’ll be giving one to the Berkeley Heights Township Council and reaching out to other local organizations. As of this date I have been involved in three projects on public property.”

- Richard Leister – Berkeley Heights Environmental Commission

“The material taught during the Green Infrastructure Champions training has been incredibly useful in my work at the NJ Tree Foundation. Trees are a form of Green Infrastructure, so understanding the role they play in managing stormwater has proven useful in applying for funding. When possible, we’ve been creating enhanced tree pits and planting small shrubs and grasses around trees in an attempt to absorb even more stormwater. In the past several years we’ve planted 28 enhanced tree pits, utilizing concepts taught in the Green Infrastructure Champions training.”

- Crystal Wessel – NJ Tree Foundation



“Learning about grant writing and budgeting through the course has been integral to the work of fostering functional and lasting projects and partnerships. Involving students in green infrastructure management today is allowing for succession planning necessary toward the success of the projects put into play into the future.”

-Rachel Dawn Davis – Public Policy & Justice Organizer, Waterspirit (Paterson, 147,000 residents, Perth Amboy, 50,000 residents)



Faith Teitelbaum – Director,
Whale Pond Brook Watershed
Association and Conservation
Chair, NJ Sierra Club

“After learning more about enforceable ordinance requirements, I am helping our watershed towns enhance our stormwater and tree ordinances. I was able to convince two towns in our watershed to put some enhancements into their stormwater ordinance. Another town is just getting underway.”



“I co-chair two subcommittees of Jersey Water Works (JWW) Green Infrastructure Committee. For JWW, I worked on a manual to provide GI guidance by sector – residential, commercial, industrial, etc., as well as a survey of GI related organizations to determine their interest in collaborating in GI training. As a co-chair of the Resilient Task Force of the Together North Jersey program, I supported the development of a GI educational webinar.”

- Tim Van Epp – Environmental Consultant and Westfield Green Team

Tim also led the effort to install the first rain garden in Westfield working with the Department of Public Works and the Mayor’s office.





“Being a Green Infrastructure Champion has been a great benefit with regards to my position as a Process Control Scientist with the Passaic Valley Sewerage Commission (PVSC) as I am able to engage with and support local community groups efforts, throughout the PVSC service area, that support green infrastructure as an approach to stormwater management. ”

- John Pietrykoski – Process Control Scientist, Passaic Valley Sewerage Commission

Next Steps

- Advanced classes
 - Integrating gray with green to manage large storms
 - Living shorelines, floodplain restoration, and stormwater wetlands
 - Biofilter wetlands for homeowners
 - Native plants
 - Soil health
- Green infrastructure program for youth
- Dedicated demonstration project funding for Green Infrastructure Champions
- Create online learning tools
- Hands-on workshops

What else?

- Green street projects in Newark, Paterson, Perth Amboy, and Camden
- Supporting Green Infrastructure Champions in overburdened communities
- Working with Green Infrastructure Champions to identify opportunities and develop plans that satisfy MS4 permit requirements (watershed improvement plans)
- Linking green with gray to stop flooding



Rutgers Cooperative Extension Water Resources Program

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