



Municipal Strategies to Improve Water Supply and Quality

Mayor Jaclyn Veasey, Evesham Township

Anne Heasley, Sustainable Jersey

Kristi MacDonald, Raritan Headwaters

Louis Wilson, New Jersey Future

Jaclyn Rhoads, Pinelands Preservation Alliance





GOLD STAR STANDARD in WATER

Anne Heasley, AICP
Program Manager for Policy and Planning
Sustainable Jersey



Green Infrastructure



Water Issues



News

Radio & Podcasts

TV

Arts

Events

Education



COMMUNITY

NEW JERSEY

PENNSYLVANIA

TRANSPORTATION

Rectangular Sign

Severe weather spurs flooding, disrupts rail service in Pa., N.J.

By [WHYY Staff](#), [Associated Press](#) · June 20, 2019



Children on bicycles check out the flooding on High Street in Westville, N.J. (Emma Lee/WHYY)

@SJ_Program • #DecadeofImpact • #njleague

Water Issues

NEW YORK

The New York Times


Obtén hasta 0% de APR por 72 meses en modelos 2019 seleccionados, sin pagos por 90 días*

CONOCE MÁS

Algae Bloom Fouls N.J.'s Largest Lake, Indicating Broader Crisis

Lake Hopatcong, normally buzzing with swimmers and water skiers, is filled with cyanobacteria in quantities never before recorded.

Restoration Ship



Lake Hopatcong, normally buzzing with swimmers and water skiers, is filled with blooms of cyanobacteria, fueled by heavy rains and hot, sunny days. Rick Loomis for The New York Times

By Anne Barnard

Aug 8, 2019

[What you need to know to start the day: [Get New York Today in your inbox.](#)]

LAKE HOPATCONG, New Jersey — Around Lake Hopatcong, New Jersey's largest lake, workers have been laid off, sailing lessons canceled and summers ruined. The reason: clouds of blue-green algae in the water, blooming in quantities never before recorded.

State warnings that the water is unsafe — which began in June and remain in effect for all but [one small branch](#) of the lake — have

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Water Issues



SIGN IN NPR SHOP DONATE

NEWS ARTS & LIFE MUSIC SHOWS & PODCASTS SEARCH

NATIONAL

Newark's Drinking Water Problem: Lead And Unreliable Filters

August 13, 2019 · 3:21 PM ET

SASHA INGBER



A Newark, N.J., resident carries a case of bottled water distributed Monday at a recreation center. The Environmental Protection Agency said residents shouldn't rely on water filters the city gave out to address lead contamination. *Katry Wilens/AP*

Lead contamination in the drinking water in Newark, N.J., is not a new problem, but the city's fleeting solution has become newly problematic.

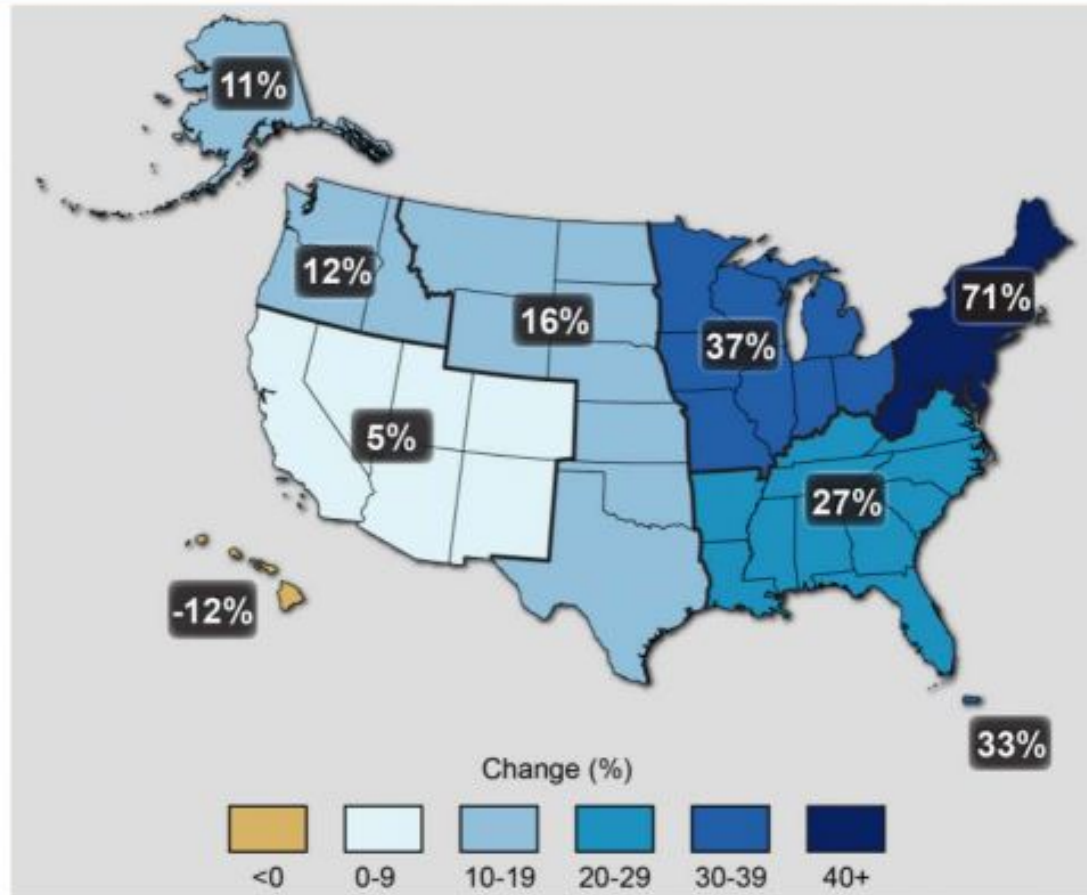
Officials in Newark, the state's largest city, which supplies water to some 280,000 people, began to hand out bottled water Monday.

That's because the U.S. Environmental Protection Agency has concerns about water filters that the city distributed to residents.

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Water Issues

Observed Change in Very Heavy Precipitation



NOTES
The map shows percent increases regionally in the amount of precipitation falling in very heavy events (defined as the top 1% of all daily events) from 1958 to 2002.

SOURCE
National Climate Assessment (NCA) Global Change Research Program, 2008

Water Gold Task Force

Andrew Hendry, **New Jersey Utilities Association**

Dan Van Abs, **Rutgers University**

Ed DiFiglia, **New Jersey Future**

Ellen Creveling, **The Nature Conservancy**

Jennifer Coffey, **ANJEC**

Jennifer Feltis Cortese, **NJDEP**

Jim Waltman, Michael Pisauro and

Lia Mastropolo, **The Watershed Institute**

John Hasse, **Rowan University**

Kristi MacDonald, **Raritan Headwaters**

Margaret Waldock, **Dodge Foundation**

Swarna Muthukrishnan, **Clean Ocean Action**

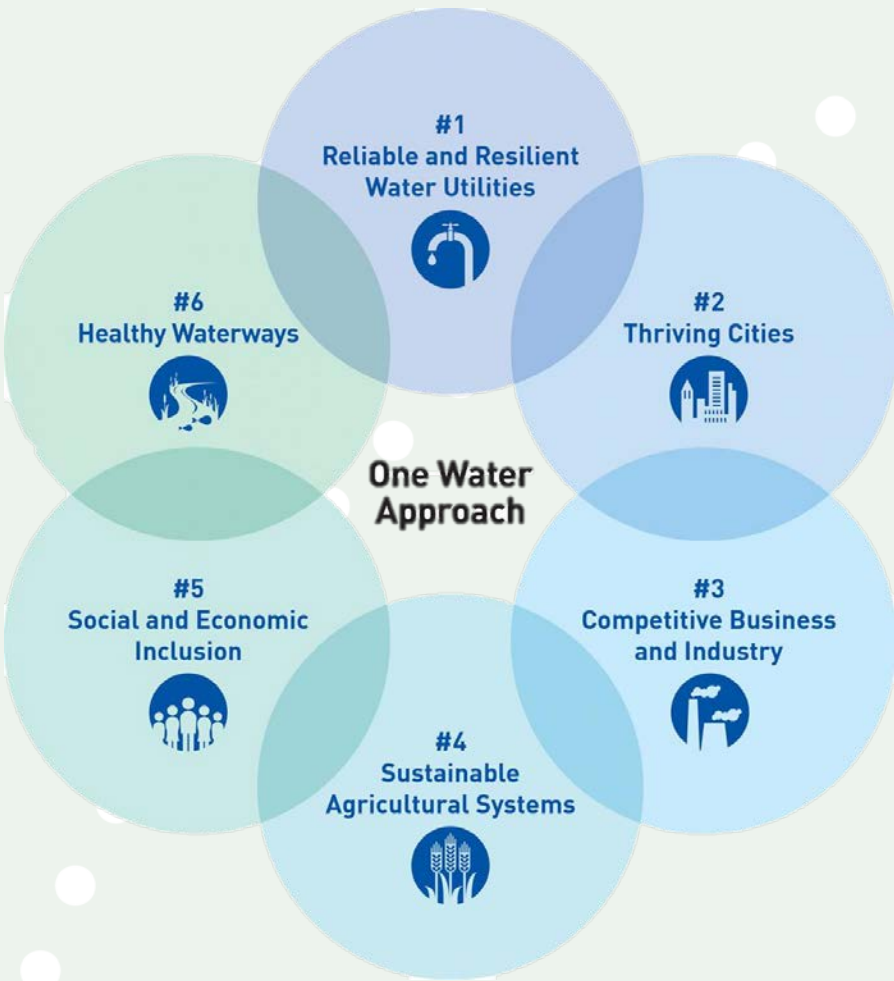
Thomas Flynn, **Woodbridge Township**

Michael Furrey, **American Water Works Assoc.**



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One Water Approach



The Gold Star Standard in Water takes a holistic approach, which includes:

- “all water has value and should be managed in a sustainable, inclusive, integrated way” - *US Water Alliance on One Water Approach*
- Updates to existing SJ actions related to water
- New actions



Sustainable Water Goals

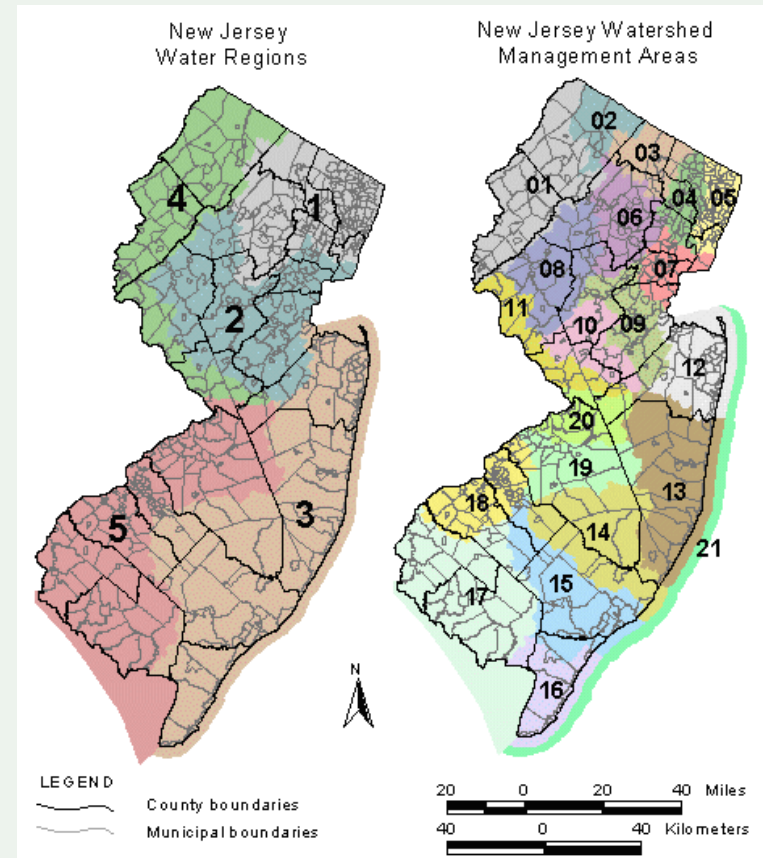


- Drinking water is clean and safe for human consumption.
- Water quality in streams, lakes & wetlands is enough to support species & ecosystems; safe for recreation & fishing.
- Water supply, including streamflow & groundwater, is sufficient for human uses & ecosystems.
- The water system, including infrastructure (drinking, stormwater & wastewater), provides adequate capacity & is resilient to climate change.
- Access to water resources is universally affordable & fairly distributed.



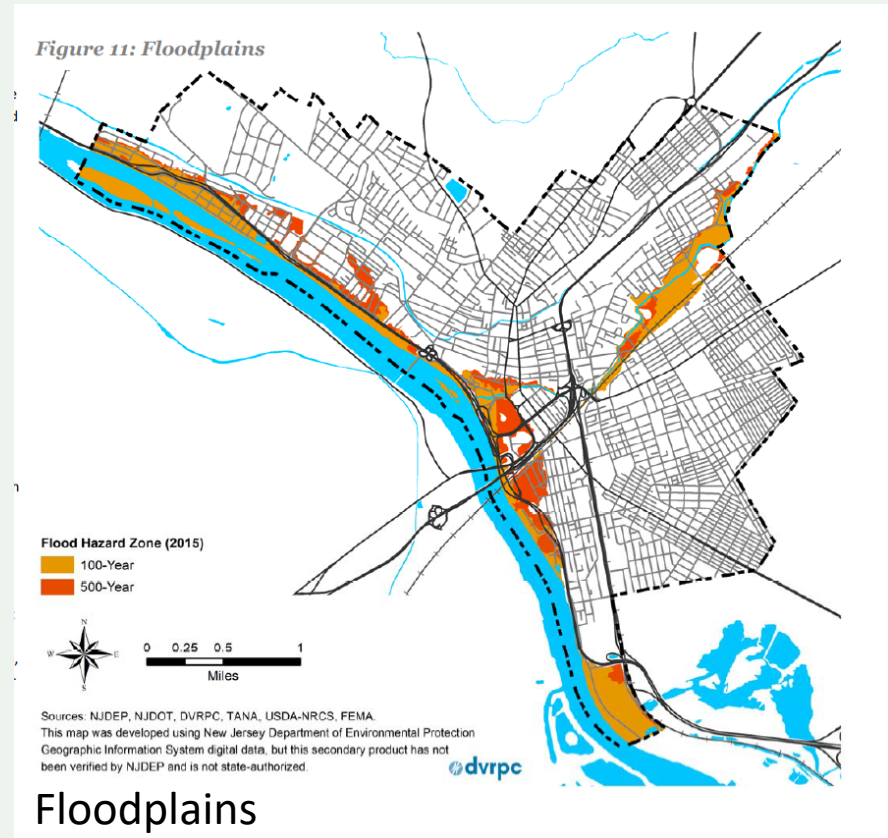
New Jersey's Water Story

- Water Supply – 582 public community water systems
- Sewer (waste) Water Systems – 260 systems
- Water Features – approximately 127 miles of coastline; 6,450 river miles, more than 800 lakes and ponds.
- Range of Issues – Flooding, water quality, saltwater intrusion into water supplies, degraded streams due to poor storm water management or historically contaminated sites, and access to water.



Municipal Water Story

- Tell us your story
 - Water Supply
 - Stormwater (runoff) and wastewater (sewer)
 - Water features
 - Identification of Water Issues
 - Engage the local community –reconnecting to water



From Water Story to Action

Water-related Issue	Sustainable Jersey Action
Areas of repetitive street flooding – standing water after heavy rains.	Enhanced Stormwater Control Ordinance ***
	Green Infrastructure Planning***
	Green Infrastructure Implementation***
	Restoring and Protecting Ground Water Recharge
Quality of drinking water	Lead in Drinking Water
	Private Well Testing
	Riparian Buffer Area Ordinance
Streams water quality impairments as well as undercutting and eroding	Riparian Buffer Area Ordinance
	Enhanced Stormwater Control Ordinance***
	Green Infrastructure Planning***
	Green Infrastructure Implementation***
Water availability	Integrated Water Planning
	Outdoor water conservation***
	Restoring and Protecting Groundwater Recharge

*** = Action currently available on Sustainable Jersey website



Gold Star Standard in Water

Threats to water from land and Actions to address them

Private Well Testing

Ground water Recharge

Green Infrastructure Plan

Env Resource Inventory

Water Story

Integrated Water Plan

Green Infrastructure Implement

Riparian Buffer Area Ordinance

Water Access

Limited water access

Failed septic systems
nutrients and pathogens

Green Grounds

Stormwater runoff
sedimentation, toxins, nutrients, and pathogens

Habitat destruction
sedimentation

Development
toxins

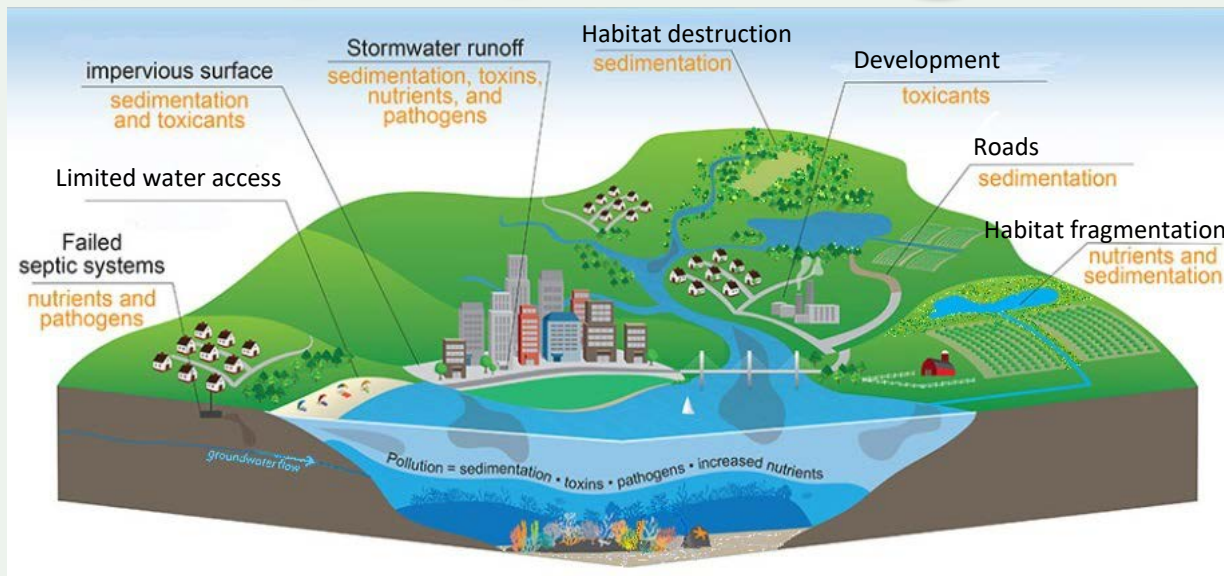
Roads
sedimentation

Habitat fragmentation
nutrients and sedimentation

Watershed Restoration

Salt & De-icing Management

Septic Management



Lead in Drinking Water



Gold Star Standard in Water

Water supply, quality and access

Completion of four actions + development of an application for Water Gold = a navigational path for determining two additional actions for continual improvements.

Environmental
Resource
Inventory

Water
Story

Navigational
Path

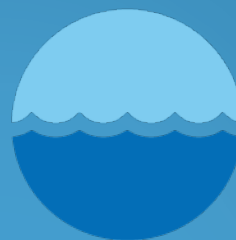




Partnering with municipalities to protect land and water resources

Kristi MacDonald, PhD
Director of Science & Stewardship
kmacdonald@raritanheadwaters.org

NJLM Conference
November 20, 2019



**Raritan
Headwaters**

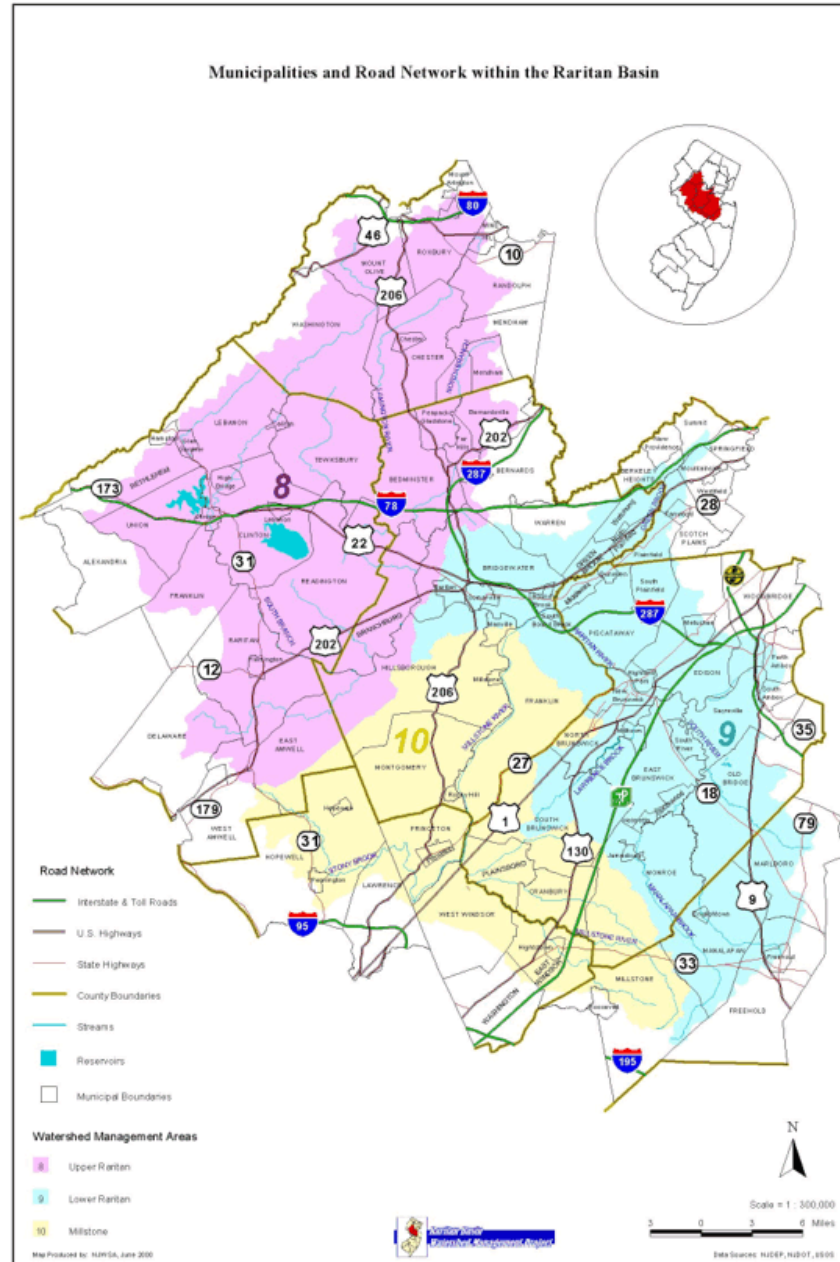
Your water is our mission.

Topics

- 💧 Raritan Headwaters Association – who we are and what we do
- 💧 Local and regional watershed associations and non-Profits, valuable resources for municipalities
- 💧 Partnering for Sustainable Jersey Water Gold and other environmental initiatives
 - 💧 Data on water quality identifying problems
 - 💧 Projects to address problems
 - 💧 Outreach & Engagement with various constituents

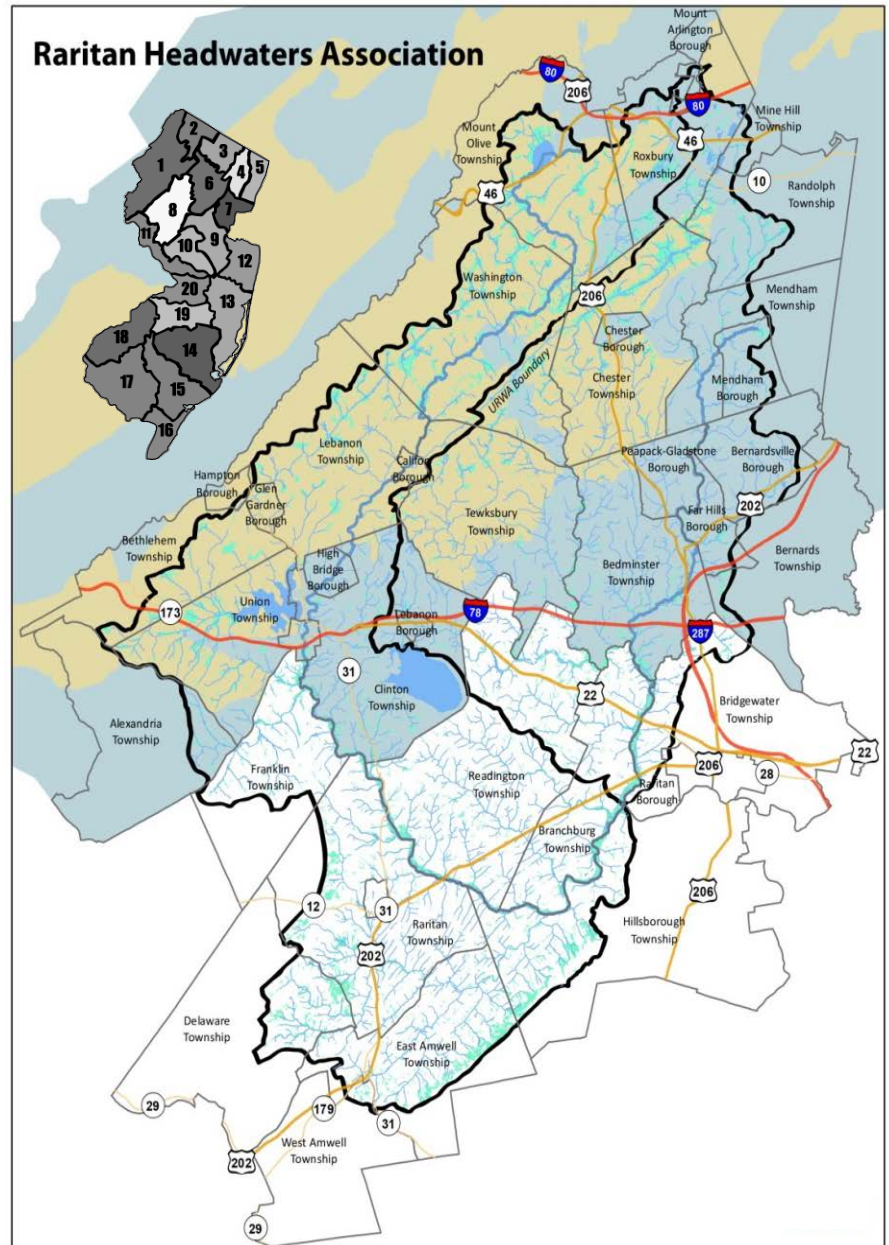


Raritan River Basin



Upper Raritan Watershed Region

- 470 square miles
- located in 3 Counties:
Hunterdon, Somerset & Morris
- includes all or parts of 38 municipalities
- 52 subwatersheds (HUC-14s)
- home to nearly 400,000 people
- contains large areas of undeveloped, environmentally significant land
- provides drinking water to more than 1.5 million citizens beyond the region into NJ's urban areas



Our Mission

Protecting the water in our rivers, our streams, and our homes through science, education, advocacy, stewardship, and preservation.



Partnering to Achieve Sustainable Jersey Water Gold



Are aquatic ecosystems in my municipality healthy?



Volunteer Stream Monitoring Program



Is our water safe to drink?





WELL TESTING PROGRAM

- RHA partners with municipalities throughout the region to offer residents the opportunity to test their well water.
- Testing is done by a state-certified laboratory for analysis.
- Test results come directly to us, and we share the results directly with residents.

partnership * community service * convenience *
affordability * privacy

West Amwell Township
WELL TESTING
SATURDAY, MAY 20
West Amwell Municipal Building
8:00 AM-12:30pm

Basic Kit \$60
(coliform and nitrates)
Arsenic \$35
Lead \$25
Hardness \$15
Iron \$15
Gross Alpha \$80

*other testing options available

 **For more information visit**
TestMyWell.org
or call 908-234-1852 ext 401 

The only way to know your well water is safe is to test it!



How can we work together?

Projects to protect and restore water resources

Land Preservation

- Acquisition
- Easements
- Regulations
- Land use planning

Restoration & Stewardship

- In stream restoration
- Dam removal
- Riparian forest buffer and wetland restoration
- Invasive control
- Deer management

Best Management Practices (BMPs)

- River Friendly practices – non-point source pollution
- Stormwater management with green infrastructure
- Local ordinances
- Regulations
- Well testing
- Wastewater management

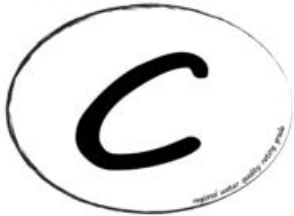
Learn about the issues

- Our Annual State of Our Watershed Conference
- Invite us to present to your EC, Council, etc.



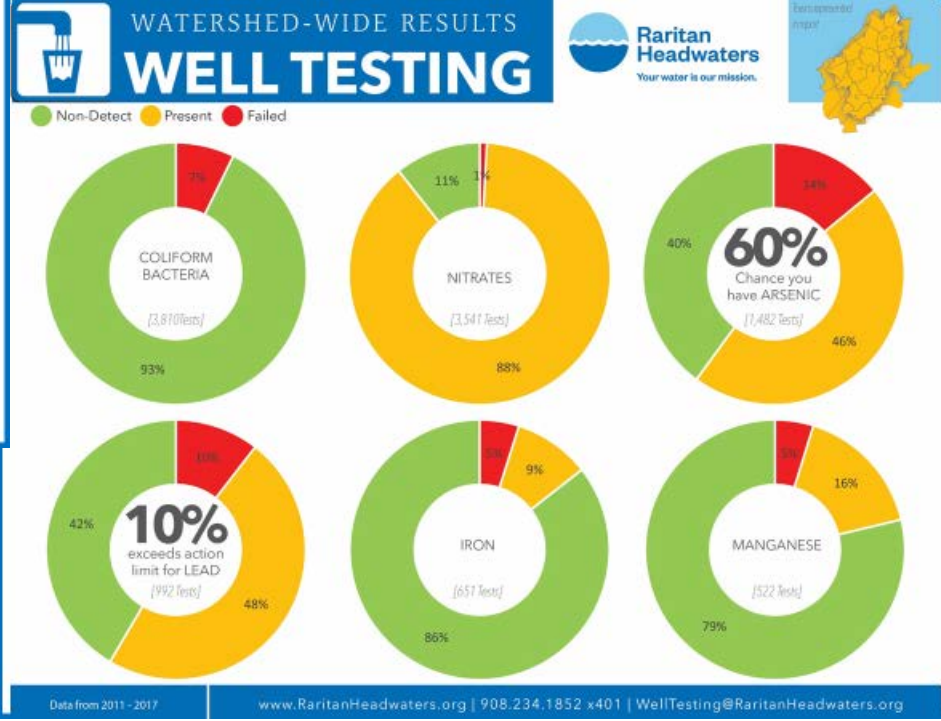
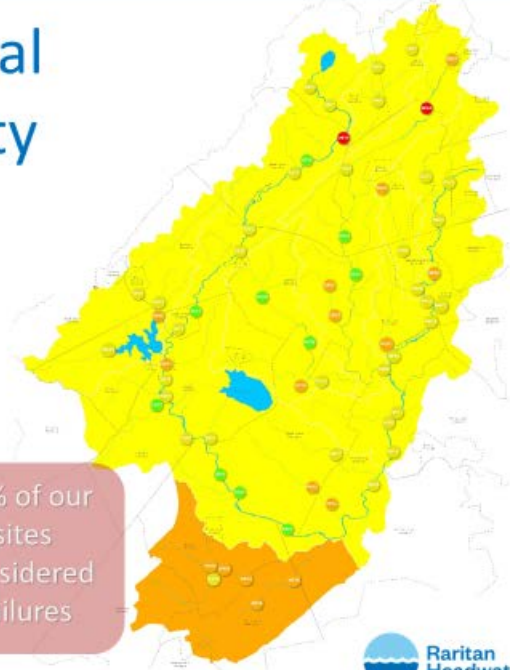
Report Cards

2018 Regional Water Quality



- Stream monitoring site rated by HGMI
- Excellent
 - Good
 - Fair
 - Poor
- Major Subwatershed rated by avg. HGMI
- Excellent
 - Good
 - Fair
 - Poor

28% of our sites considered Failures



THE QUALITY OF OUR



GROUNDWATER

A Preliminary Analysis of Trends in Contaminants in Private Well Water
in the North and South Branch Raritan Watershed
(1984-2015)

Kristi MacDonald, PhD, and Melissa Mitchell Thomas, GIS Specialist
Raritan Headwaters
June 2016





Raritan Headwaters Seminar Series

Watershed Tools for Local Leaders, Spring 2018



**Stream Buffer Restoration Project:
Prevent Flooding and Protect Water
Quality in your Community**

Dr. Kristi MacDonald and Melissa Mitchell Thomas, RHA

Thursday, March 1

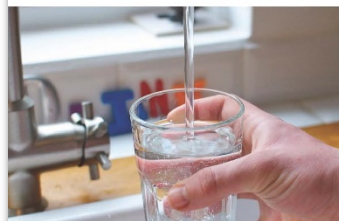
Held from 3:00 - 5:00 pm with a registration fee of \$10

**Restoring Balance to our Public
Forests: Managing Damage from
Deer and Invasives**

Dr. Jay Kelly, Raritan Valley Community College and
Dr. Mike Van Clef, Invasive Species Strike Team

Thursday, March 29

Held from 3:30 - 6:00 pm with no registration fee



**What's in Your Water?
Establishing a Drinking Water
Testing Program in Your Community**

Mara Tippett, RHA

Thursday, April 12

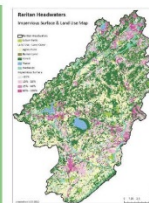
Held from 3:30 - 6:00 pm with no registration fee

**Intro to Environmental Mapping
and Data Resources for
Municipalities**

Dr. Kristi MacDonald and Angela Gorczyca, RHA

Thursday, May 17

Held from 3:00 - 6:00 pm with a registration fee of \$10



Watershed Tools Seminar on Impervious Cover Assessments and Reduction Action Plans



Dr. Chris Obropta, Water Resources Program, NJ Agricultural Experiment Station, Rutgers University

Green Infrastructure



Land Preservation & Stewardship





Rockabye Meadow, Gladstone

Volunteer Tree Planting

Join Raritan Headwaters, Peapack-Gladstone Environmental Commission & DPW, & NJ Water Supply Authority as we restore the stream corridor along the Peapack Brook. Trees help keep streambanks from eroding, control flooding, clean the water and maintain cool temperatures for trout.

9am - 12pm

October 13th & 14th*

Meet at Rockabye Meadow
Church St. parking area,
Gladstone

Bring Gloves & a Shovel

***Rain dates October 20th & 21st**

For more info contact **Kristi MacDonald** at
kmacdonald@raritanheadwaters.org. To learn more visit
www.raritanheadwaters.org and www.peapackgladstone.org



Raising awareness about drinking water



Well Test
[Purchase Kits Here](#)
Oct 3 - 21 Mon-Thurs
9:00am - 1:00pm & 2:00 - 4:00
Oct 11 & 18
5:00 - 8:00pm
Readington Twp Office



Annual Stream Cleanup



River Friendly Program Participants

- 💧 Resident
- 💧 School
- 💧 Golf Course
- 💧 Business
- 💧 Farm



njriverfriendly.org



Children's Education Programs



- 💧 RiverFest
- 💧 WaterWays (school programs)
- 💧 Nature Camps
- 💧 River Friendly Schools
- 💧 Monthly Community Programs



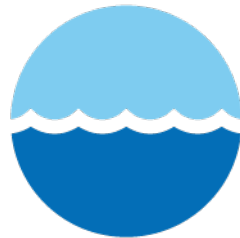
Thank you!

Kristi MacDonald, PhD

kmacdonald@raritanheadwaters.org

(908)234-1852 x322

www.raritanheadwaters.org



**Raritan
Headwaters**

Your water is our mission.



NEW JERSEY



FUTURE



**SMART GROWTH RESEARCH, POLICY,
ADVOCACY, AND ASSISTANCE**

Municipal Strategies to Improve Water Supply and Quality

Louise Wilson
Director, Green Infrastructure
New Jersey Future

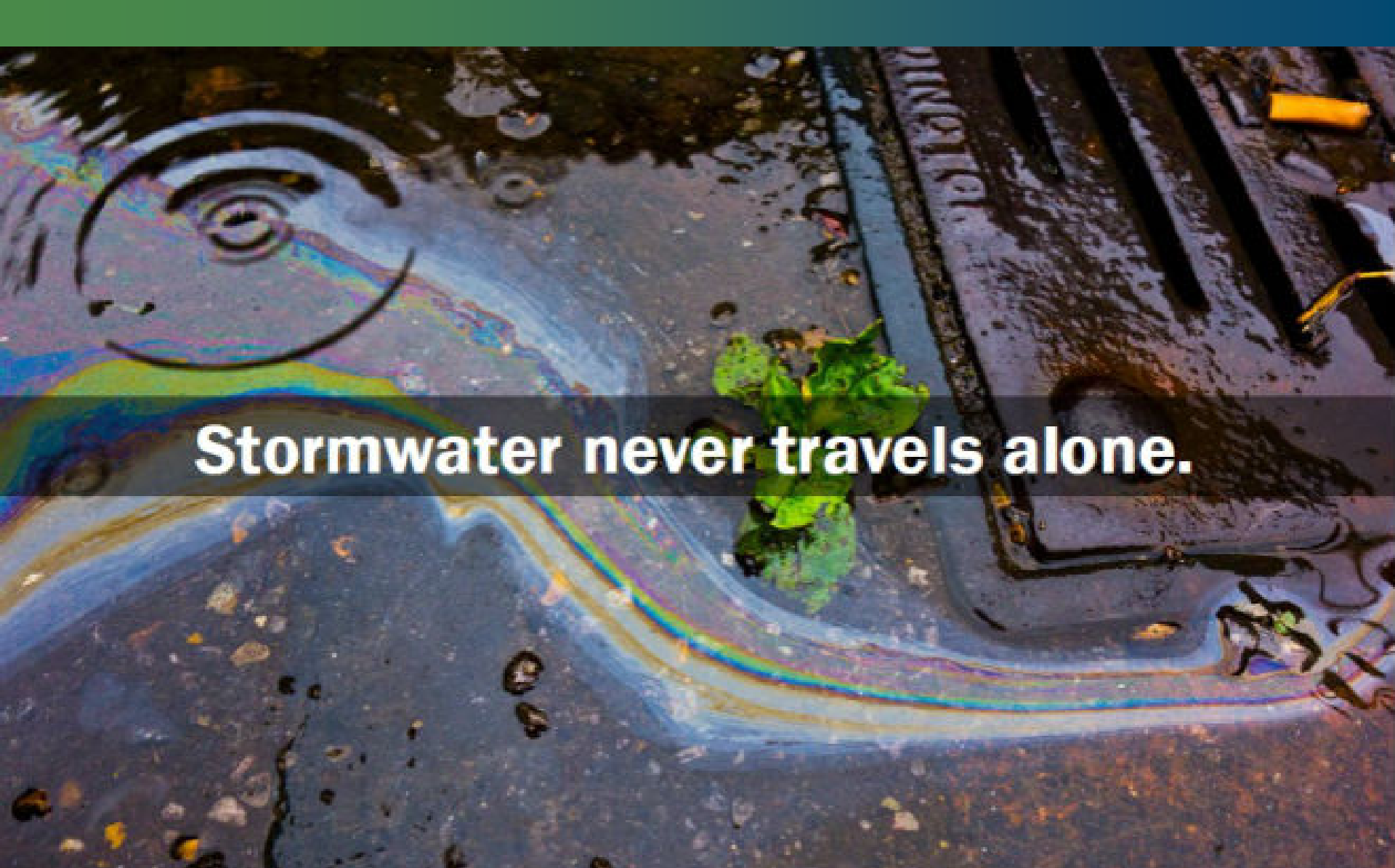
November 20, 2019
NJLM



**The
Stormwater Rule
is changing.**

It's a BFD.





Stormwater never travels alone.

Current Language (minus alphabet soup):

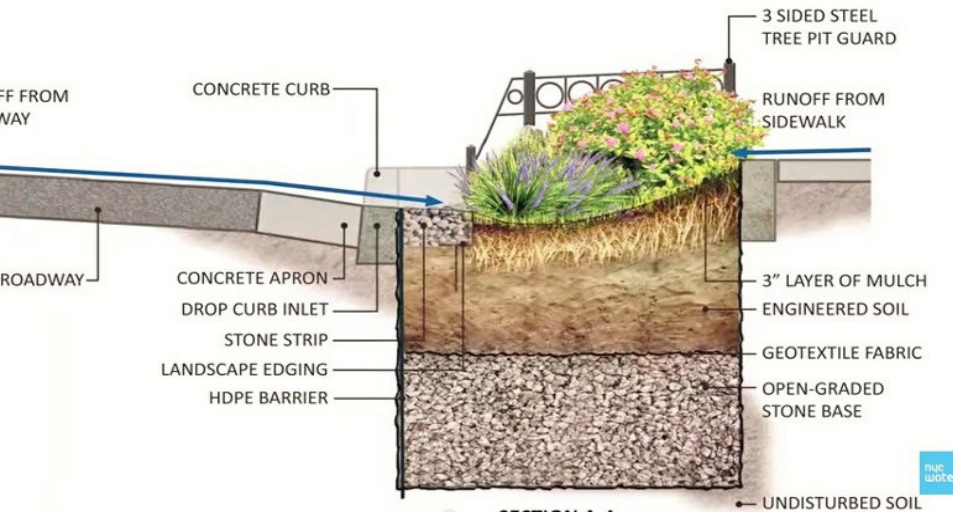
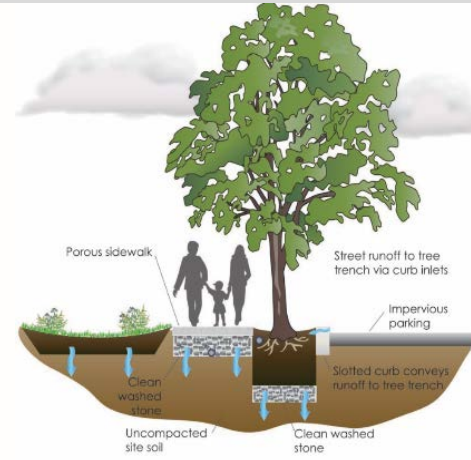
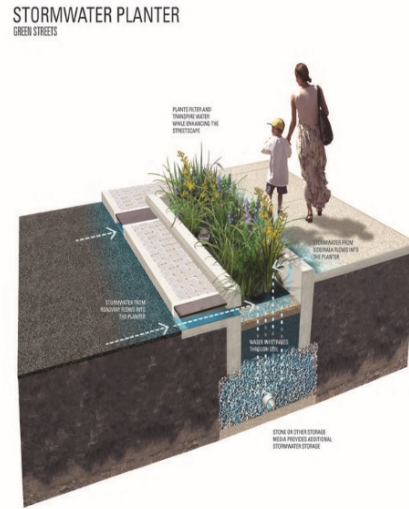
“To the maximum extent practicable, the standards in NJAC 7:8 ... shall be met by incorporating nonstructural stormwater management strategies ... into the design.”

On or before December 3, **DEP will adopt amendments that require the use of green infrastructure** to meet standards for water quality, groundwater recharge and runoff quantity.

Less of this:



More of this::



We expect the rule will lay out a tiered approach:

Tier 1:

- Small-scale, decentralized green infrastructure
- Required for water quality and recharge, optional for quantity control

Green Stormwater Infrastructure

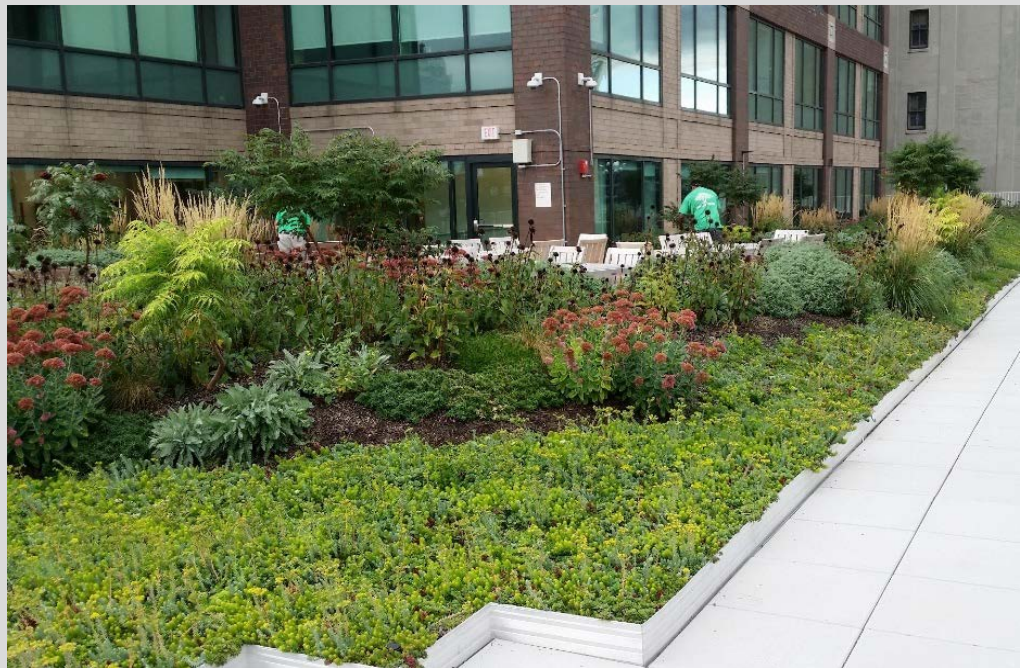




Tier 2:

- Larger scale / backup. Unlimited drainage area.
- Handles quantity if distributed GI isn't enough.
- May get permitted for water quality (?)
- Not for recharge.







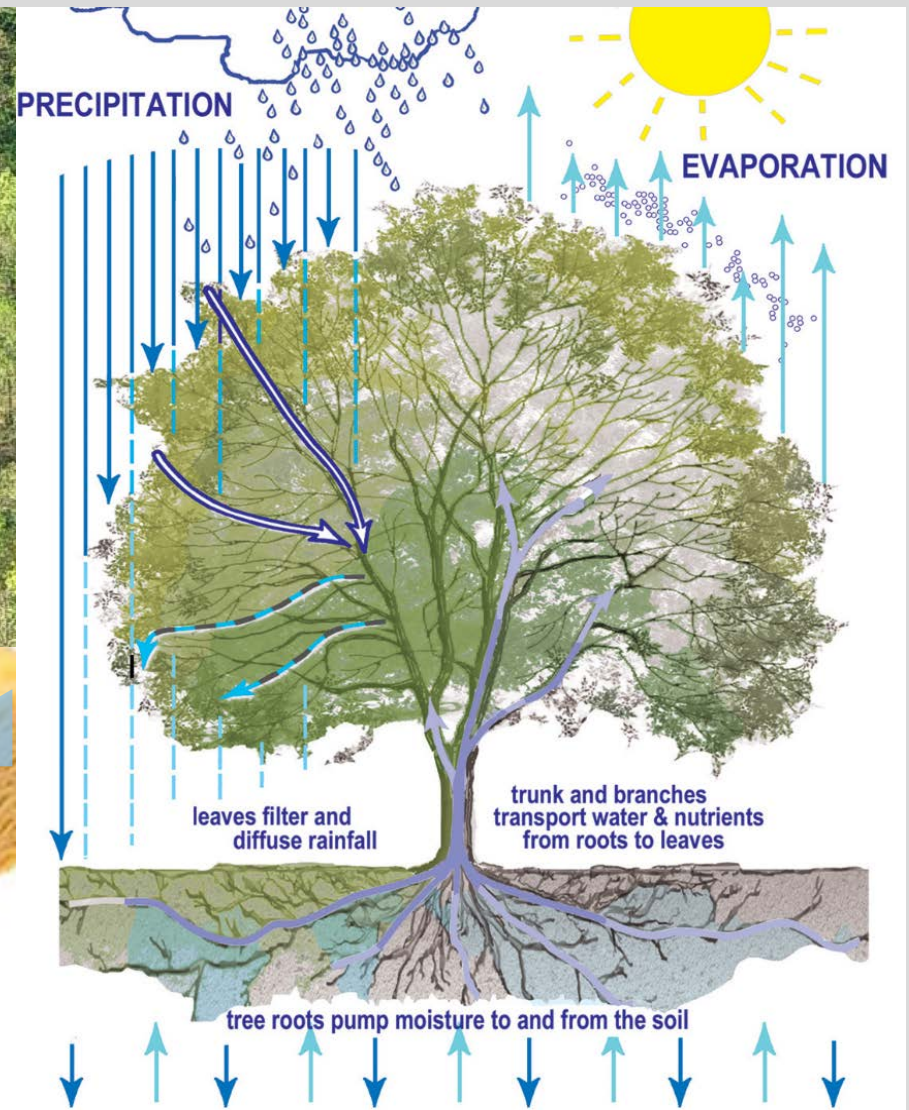
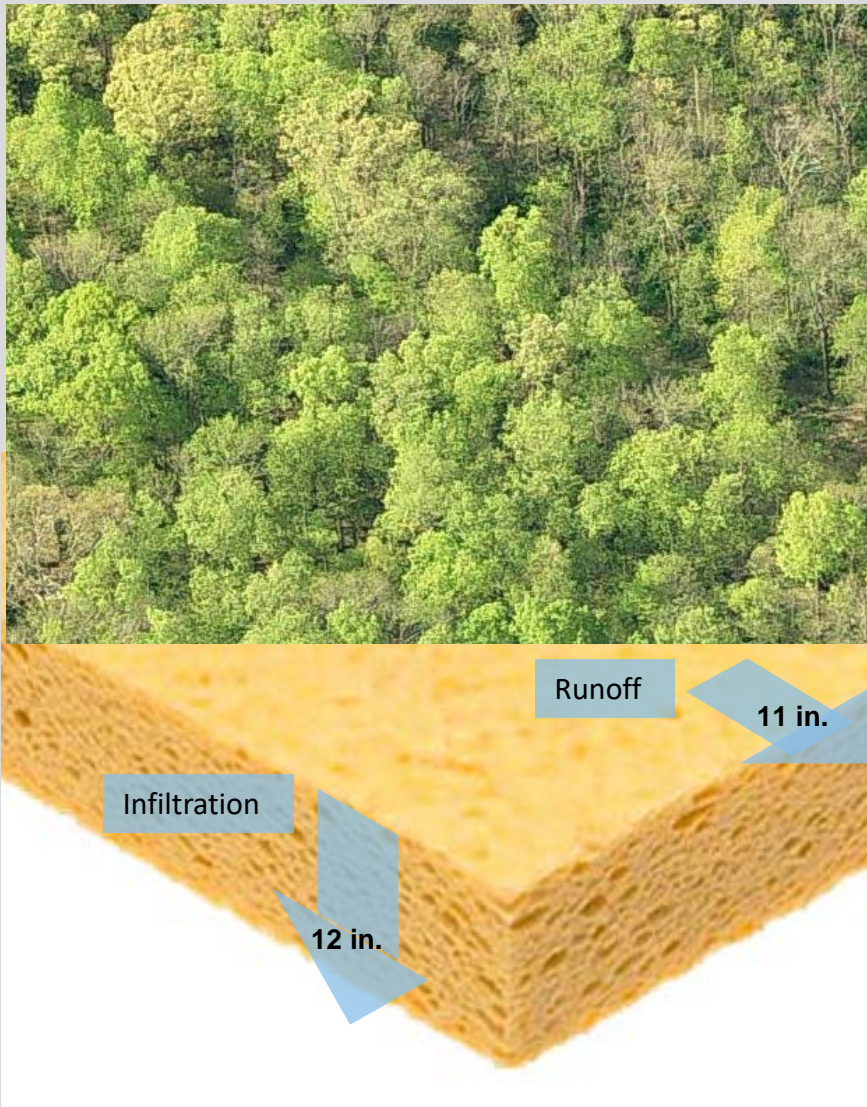
Also...

- Higher bar for granting variances.
- Important updates to BMP Manual, including soil test requirements and guidance.
- Infiltration will “count.”

The BFD:

- Fundamental paradigm shift
- Different mindset, different skill-sets
- Stormwater management becomes integral to the site plan decisions
- Site specific stormwater management plan is a team effort:
 - Engineers
 - Landscape Architects
 - Planners

THE CHALLENGE: CREATE A BUILT ENVIRONMENT THAT WORKS LIKE A FOREST



12-month implementation

- Update your processes - pre-app meetings
- Involve planners, landscape architects and engineers
- Update your ordinance
- Training, training, training
 - Engineers (those who design and those who review)
 - Other professionals: planners, LAs,
 - Staff: planners, inspectors, DPW
 - Planning Board





Jackson St

CHAMBORD PLACE



NO PARKING

M-3226 Z

LIBERTY





NEW JERSEY GREEN INFRASTRUCTURE MUNICIPAL TOOLKIT



**FROM STORMWATER
TO CLEAN WATER**

**PREVENT
POLLUTION**

**REDUCE
FLOODING**

**IMPROVE YOUR
COMMUNITY**

**INTRODUCING YOUR ONLINE, ONE-STOP
GREEN INFRASTRUCTURE RESOURCE**

GIToolkit.NJFuture.org





Thank you!

Louise C. Wilson

lwilson@njfuture.org





GSITools AND RESOURCES

Jaclyn Rhoads
Pinelands Preservation
Alliance



Community Engagement



**Work with Local
Organizations**

Municipal/School Programs



ARE YOU READY FOR A
**LANDSCAPE
MAKEOVER?**

JOIN US FOR AN INFORMATION SESSION

March 25
7:00pm-8:00pm
Evesham Municipal Court, Room B
984 Tuckerton Road
Marlton NJ 08053

Green Infrastructure Planning and Implementation

Come and Find Out How to Get Your Points

This course will review the Sustainable Jersey green infrastructure actions. If your municipality is struggling with localized flooding or unhealthy waterways, this workshop is for you! There are 35 points available for green infrastructure planning and another 45 points available for green infrastructure implementation. The Rutgers Cooperative Extension Water Resources Program has already completed green infrastructure plans for over 140 Sustainable Jersey municipalities. Come find out if you are one of them and how you can adopt these plans for Sustainable Jersey points. If a plan is not already developed for your municipality, we will share with you how to get one done.

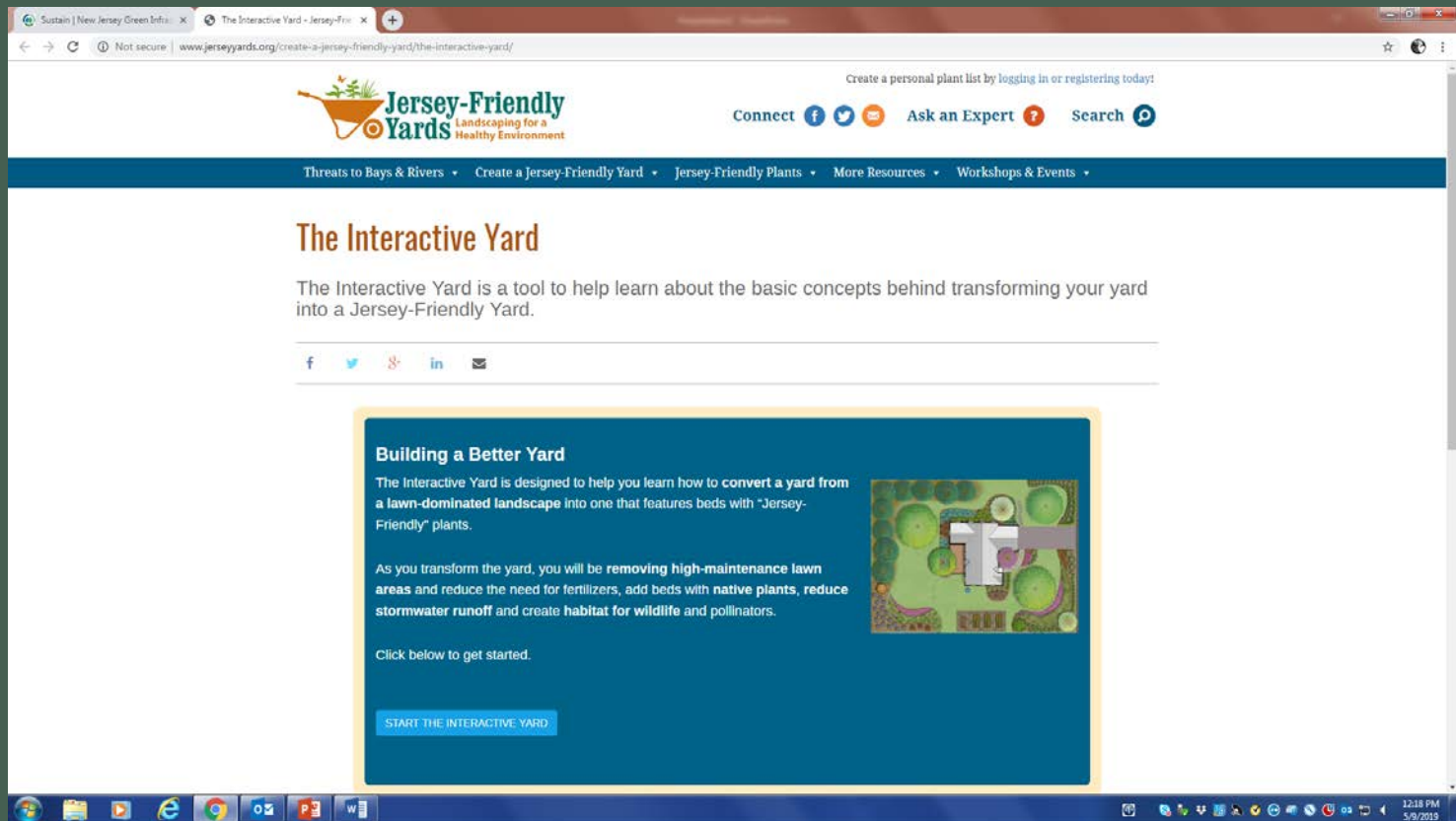
Dates and Locations

Wednesday, September 19 8:30am – Noon Duke Farms – Farm Barn Orientation Center 1112 Dukes Parkway West Hillsborough, NJ 08844 Register: http://bit.ly/SJINFRA19/register	OR	Wednesday, October 17 8:30am – Noon Whitton Art Center – Event Center 1000 Village Drive Millville, NJ 08332 Register: http://bit.ly/SJINFRA17/register
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Agenda

- 8:30 am Registration and continental breakfast
- 9:00 am Welcome by Sustainable Jersey
- 9:15 am What is a green infrastructure plan?
- 9:45 am How to develop a plan?
- 10:15 am How to set realistic green infrastructure targets for your community?
- 10:30 am Break
- 10:45 am How to use a green infrastructure plan?
- 11:00 am How to implement green infrastructure projects to achieve your goal?
- 11:45 am Wrap up
- 12:00 pm Adjourn






Resources



The screenshot shows a web browser window with the URL www.jerseyyards.org/create-a-jersey-friendly-yard/the-interactive-yard/. The page features the Jersey-Friendly Yards logo, navigation links, and a main heading 'The Interactive Yard'. Below the heading is a descriptive paragraph and a call-to-action button 'START THE INTERACTIVE YARD'.

Jersey-Friendly Yards
Landscaping for a Healthy Environment


Create a personal plant list by logging in or registering today!

Connect    Ask an Expert  Search 

Threats to Bays & Rivers • Create a Jersey-Friendly Yard • Jersey-Friendly Plants • More Resources • Workshops & Events •

The Interactive Yard

The Interactive Yard is a tool to help learn about the basic concepts behind transforming your yard into a Jersey-Friendly Yard.



Building a Better Yard

The Interactive Yard is designed to help you learn how to convert a yard from a lawn-dominated landscape into one that features beds with "Jersey-Friendly" plants.

As you transform the yard, you will be removing high-maintenance lawn areas and reduce the need for fertilizers, add beds with native plants, reduce stormwater runoff and create habitat for wildlife and pollinators.

Click below to get started.

[START THE INTERACTIVE YARD](#)

12:18 PM
5/9/2019

Media/Promotion - Signs



RAIN GARDEN
at work!

Rain gardens help control flooding and clean the water before it goes into the sewers. Rain gardens also make our city beautiful with plants that attract birds and butterflies.

PATERSON SMART

Learn more at
www.patersonSMART.org

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY



ARE YOU READY FOR A
**LANDSCAPE
MAKEOVER?**

JOIN US FOR AN INFORMATION SESSION

April 18th
6:15pm, 7:15pm, and 8:15pm
Caslano Next Door
212 Bellevue Ave
Hammerston NJ 08037



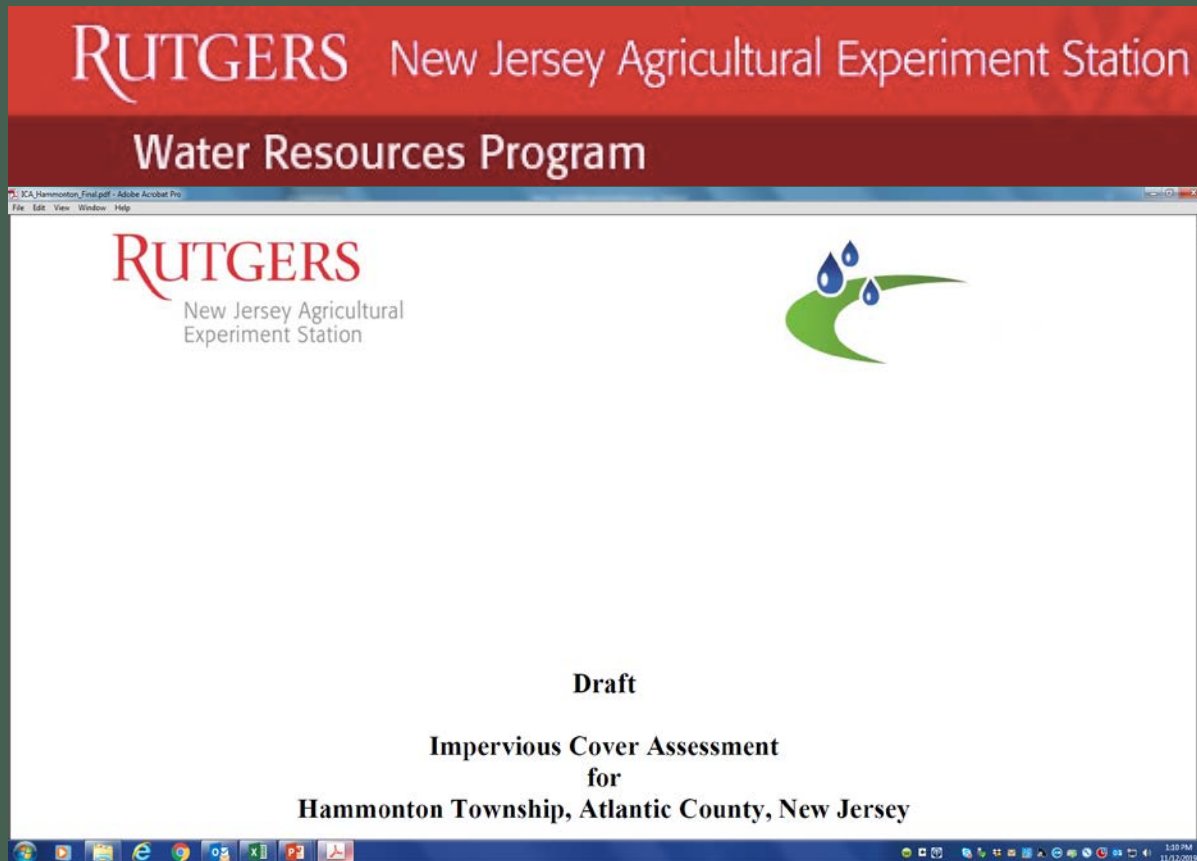
THIS RAIN GARDEN IS PART OF A

**LANDSCAPE
MAKEOVER**

SavetheSource.org
Click Landscape Makeover Program



Impervious Coverage Assessment



Hammonton Town
 Impervious Cover Assessment
Hammonton Volunteer Fire Company No. 2,
51 N White Horse Pike

PROJECT LOCATION:



SITE PLAN:



- 1 **POROUS PAVEMENT:** Portions of the northern parking lots in the parking spaces can be retrofitted to porous pavement to allow some of the runoff to infiltrate.
- 2 **RAINWATER HARVESTING SYSTEM:** Rainwater can be harvested from the downspouts on the south east side of the building and stored in a cistern. The water can be used to wash the firehouse vehicles.



A



B



1 POROUS PAVEMENT



2 RAINWATER HARVESTING SYSTEM

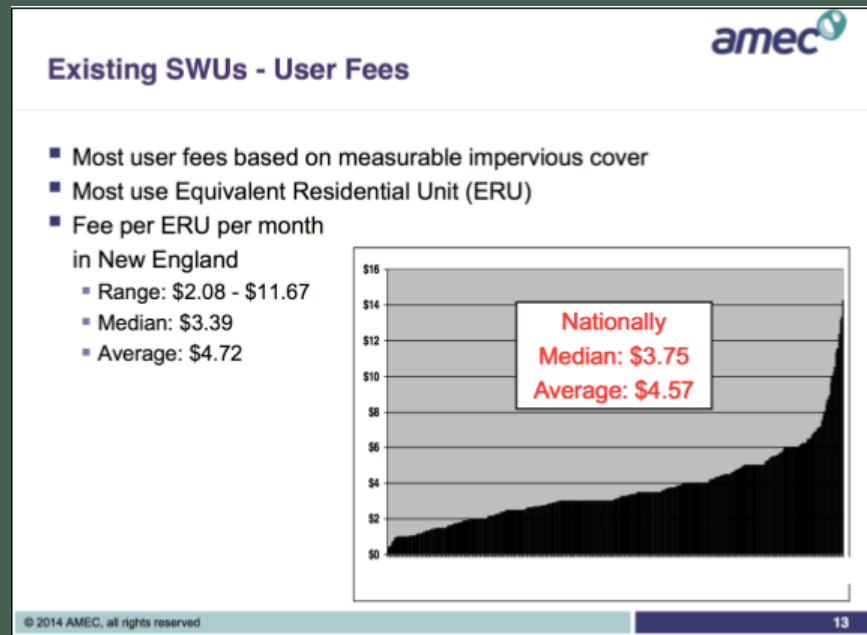


THE STORMWATER SOLUTION

- STORMWATER UTILITY
 - Fund for stormwater problem
 - Installation of green stormwater infrastructure
 - Dedicated entity
 - Deal with flooding and stormwater pollution
- More than 1800 communities across the country have a stormwater utility.

What are typical stormwater fees?

- Fees are typically based on the amount of impervious area on a property that drains towards a stormwater permitted area. Properties are often classified into two groups: residential vs. commercial/institutional /industrial.



<https://capecodstormwater.wordpress.com/stormwater-financing-mechanisms/what-is-a-stormwater-utility/>



Jaclyn Rhoads/Isabella Castiglioni

Jaclyn@pinelandsalliance.org

Isabella@pinelandsalliance.org

[609-859-8860](tel:609-859-8860)

<http://savethesource.org/landscape-makeover-program/>



CONTACT US



Sustainable Jersey Supporters & Sponsors

Program Underwriters



Grants Program



Corporate Sponsors

* 10th Anniversary Sponsors

PLATINUM



GOLD



SILVER



BRONZE



Sustainable Jersey for Schools Supporters

Program Underwriters



Grants Program



Corporate Sponsors

Platinum Sponsors



Founding Sponsor



Founding Sponsor

Gold Sponsor



Founding Sponsor

Silver Sponsor



Bronze Sponsors

