



2018 NEW JERSEY SUSTAINABILITY SUMMIT



Welcome to

On The Road To Water Gold: Pathways For Protecting & Enhancing Community Water Resources

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WiFi network: [Welcome-to-TCNJ](#) | launch browser & follow prompts



2018 NEW JERSEY
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On the Road to Water Gold: Pathways for Protecting & Enhancing Community Water Resources

Introducing SJ Gold Star Standard in Water

Jennifer Feltis Cortese, AICP

New Jersey Department of Environmental Protection
Water Resources Management

June 21, 2018





Gold Star Standard in Water



Sustainable Water Goals

Drinking water clean and safe for human consumption.

Water quality in streams, lakes & wetlands sufficient to support species & ecosystems; safe for recreation & fishing.

Water supply, including streamflow & groundwater, sufficient for human uses and & ecosystems.

The water system, including infrastructure (drinking, stormwater & wastewater), provides adequate capacity & is resilient to climate change.

Access to water resources universally affordable & fairly distributed.





Gold Star Standard in Water



- The Water Gold Committee is currently developing the standard & new component actions.
- Key actions will track outcomes (performance standards) that reflect progress towards goals.
- ***One Water***: Just as the goals are interrelated, new actions & action updates will cover the range of water resources: drinking water, stormwater, surface, ground & wastewater.



SJ Gold Star Standard in Water



- Work in Progress
- Water Gold Committee formed May 2017
- Goal to have Standard released by June 2019



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SJ Gold Star Standard in Water



- Current Sustainable Jersey Actions with Water Focus:
 - Stormwater Model Ordinance (soon to be launched)
 - Green Infrastructure Planning and Implementation
 - Water Conservation Ordinance
 - Water Conservation Education
 - Others maybe explored for enhanced water requirements (for example, Green Grounds)



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SJ Gold Star Standard in Water



- **Actions Currently Under Development:**
 - Utility Services Plan Element
 - Drinking Water Quality Education
 - Lead in Drinking Water
 - Riparian Buffer Ordinance
 - Municipal Water Use Audit
 - Groundwater recharge
 - List continually updated



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SJ Gold Star Standard in Water



- **Actions under Consideration**

- Surface Water Quality Monitoring
- Total Maximum Daily Load (TMDL) Plans and Land Use Strategies
- Health and awareness of water quality and testing of private drinking water wells
- Watershed Management
- Salt/De-icing Alternatives
- List continually updated



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SJ Gold Star Standard in Water



- **Next Steps**

- Continued development of new actions and updates to existing actions
- Consideration of what actions and standards will be required/optional for Water Gold Star Standard
- Consideration of requirements for new and existing actions for Water Gold Star Standard
- Finalize Water Gold Star Standard and Promote



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Water Gold Committee



Jennifer Feltis Cortese	NJDEP, WRM Coordination
Randy Solomon	Sustainable Jersey/TCNJ, Executive Director
Melanie McDermott	Sustainable Jersey/TCNJ, Senior Researcher
Linda Weber	Sustainable Jersey/TCNJ, Project Specialist
Dan Van Abs	Rutgers University; Environment & Clean Water Council
Andrew Hendry	New Jersey Utilities Association, President & CEO
Michael Furrey	Agra Environmental & Laboratory Services; NJ AWWA
Ed DiFiglia	NJ Future, Program Manager
Margaret Waldock	Geraldine R. Dodge Foundation, Program Director
Ellen Creveling	TNC-NJ, Director Freshwater Programs
Swarna Muthukrishnan	Clean Ocean Action, Staff Scientist
Kristi MacDonald	Raritan Headwaters, Director of Science



Jennifer Feltis Cortese, AICP

NJDEP, Water Resources Management
Chair, Sustainable Jersey Water Gold Committee

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Water Gold Star Standard

Preview of Select Actions and Standards

Linda B. Weber, AICP, PP, Project Specialist

Sustainable Jersey

June 21, 2018



Water Gold Star Standard



Select Water Gold Actions (existing and pending)

- Green Infrastructure Planning and Implementation
- Stormwater Management Control Ordinance
- Riparian Buffer Ordinance
- Utility Master Plan Element



Green Infrastructure Benefits



- Reducing stormwater runoff
- Improving water quality
- Reducing CSS overflows
- Reducing flooding
- Increase groundwater recharge
- Reducing heat island
- Improve air quality
- Improve habitat

Benefit	Reduces Stormwater Runoff				Increases Available Water Supply	Increases Groundwater Recharge	Reduces Salt Use	Reduces Energy Use	Improves Air Quality	Reduces Atmospheric CO ₂	Reduces Urban Heat Island	Improves Community Livability					Improves Habitat	Cultivates Public Education Opportunities
	Reduces Water Treatment Needs	Improves Water Quality	Reduces Grey Infrastructure Needs	Reduces Flooding								Improves Aesthetics	Increases Recreational Opportunity	Reduces Noise Pollution	Improves Community Cohesion	Urban Agriculture		
Practice																		
Green Roofs	●	●	●	●	○	○	○	●	●	●	●	●	◐	●	◐	◐	●	●
Tree Planting	●	●	●	●	○	◐	○	●	●	●	●	●	●	●	●	◐	●	●
Bioretention & Infiltration	●	●	●	●	◐	◐	○	○	●	●	●	●	●	◐	◐	○	●	●
Permeable Pavement	●	●	●	●	○	◐	●	◐	●	●	●	○	○	●	○	○	○	●
Water Harvesting	●	●	●	●	●	◐	○	◐	◐	◐	○	○	○	○	○	○	○	●

● Yes ◐ Maybe ○ No



Green Infrastructure Planning



Tier 1. Impervious
Cover Assessment
[5 pts]

Use GIS watershed maps
Calculate impervious cover
and stormwater runoff volumes



Tier 2. Green
Infrastructure
Action Plan
[10 or 15 pts]

Set short-term Impervious cover
management goal (% or acreage)
Identify sites for GI projects
Develop concept plans/ project sheets



Tier 3. Green
Infrastructure
Strategic Plan
[20 pts]

Set long-term Impervious cover
management goal (% or acreage)
Identify long-term GI projects
Assess the water quantity and quality
benefits (modeling)



Green Infrastructure Implementation



Tier 1. Implement Green Infrastructure demonstration Projects [10 pts]

Use GIS watershed maps
Calculate impervious cover and stormwater runoff volumes



Tier 2. Implement Green Infrastructure Action Plan [20 pts]

Achieve the short-term goals for reducing impervious cover and increasing green infrastructure projects.



Tier 3. Implement Green Infrastructure Strategic Plan [30 pts]

Achieve the long-term goals for reducing impervious cover and increasing green infrastructure projects.



Enhanced Stormwater Control Ordinance



Developed by a workgroup of environmental and watershed advocates, organizations, engineers, academics, and planners

Three most significant distinctions between this ordinance and the DEP model ordinance:

- Applicability of the ordinance
- Stormwater retention requirement
- Technical infeasibility provision



Enhanced Stormwater Control Ordinance



Applicability of the ordinance

- What is “major development”?
 - Now includes redevelopment and public projects
 - Size threshold lowered to ½ acre disturbed land or 1,000 sf impervious coverage (10 pts)
- Option of including “minor development”
 - For projects with a minimum 1,000 sf of disturbed/impervious land (20 pts)
 - For projects with a minimum of 250 sf of disturbed/impervious land (30 pts)



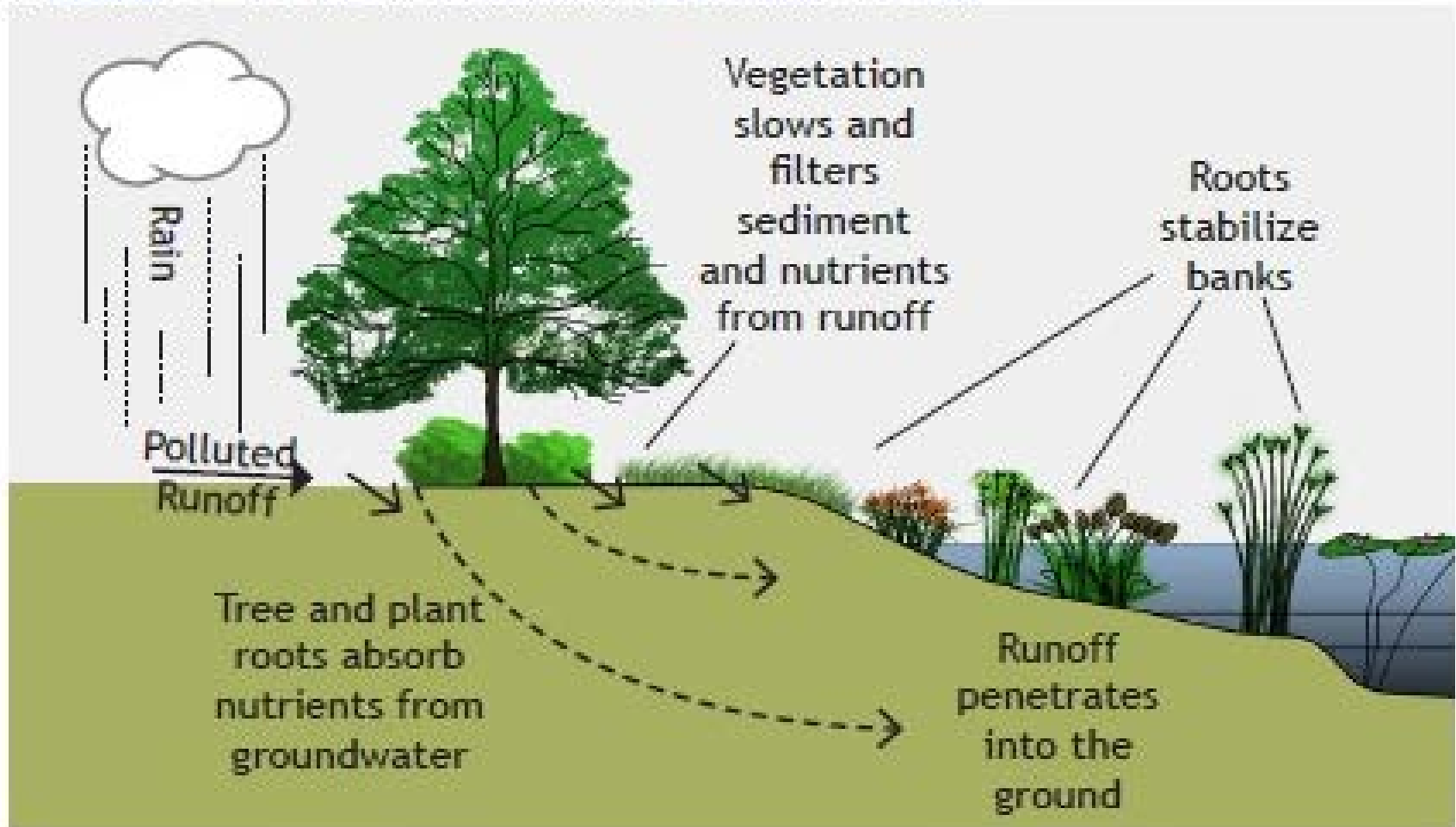
Enhanced Stormwater Control Ordinance



Stormwater retention requirement

- **Major:** Retain 1.25-inch, 2-hour rainfall event on-site using green infrastructure
- **Minor:** For each 250 sq. ft. of impervious surface, retain 450 gallons of runoff on-site using GI

What is a Riparian Buffer?



Catawba Riverkeeper Foundation



Enhanced Stormwater Control Ordinance



Technical infeasibility provision

- Alternative compliance: treat 1.5x the volume not recharged or retained on-site
- What conditions could lead to infeasibility?
 - Dense development conditions
 - High industrial pollutant loadings in runoff
 - Adverse hydraulic impacts to water table



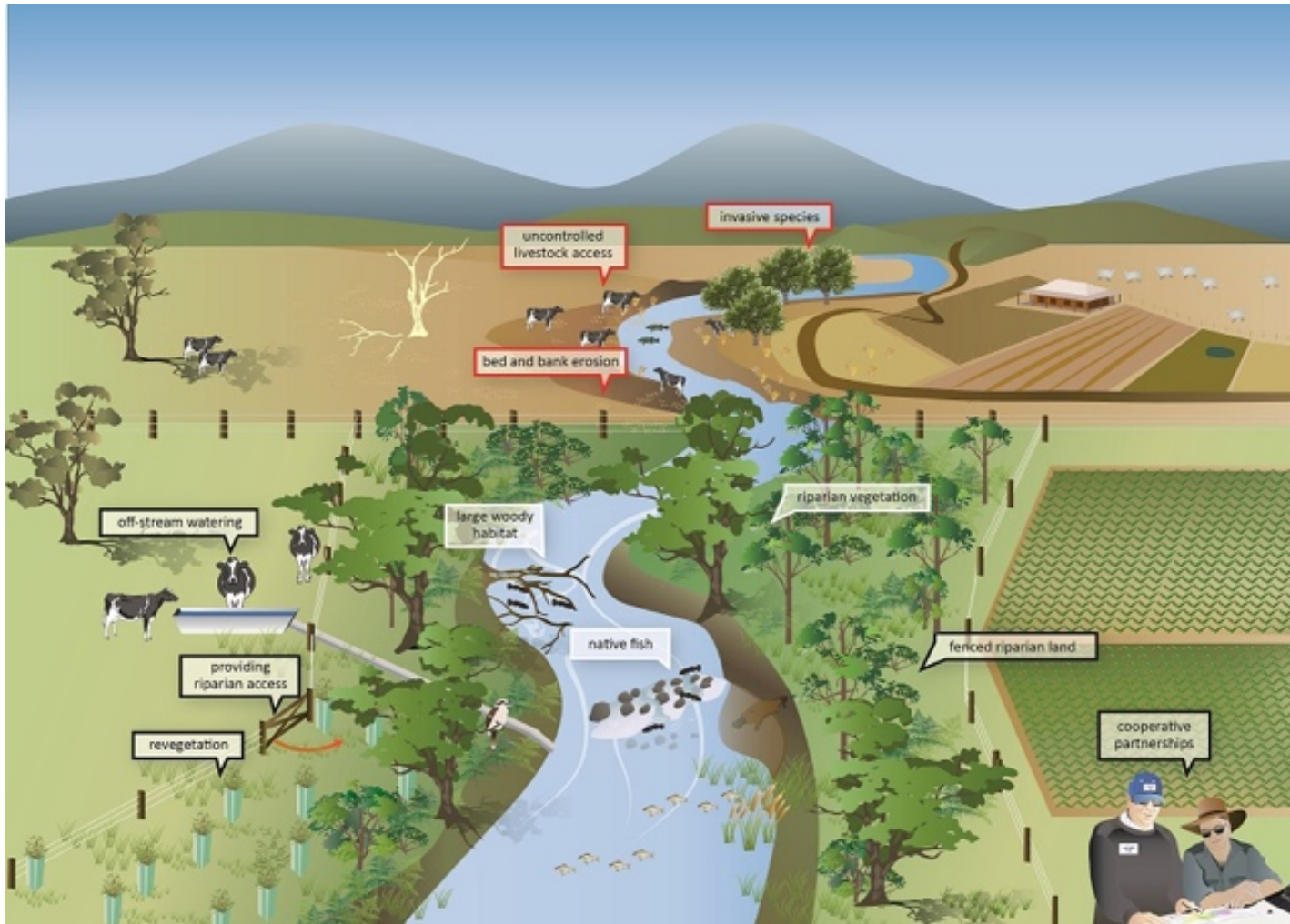
Riparian Buffer Ordinance



Potential expanded (beyond DEP) requirements in a Sustainable Jersey model ordinance

- Defines forested buffers
- Provides additional standards due to steep slopes, soils and/or other physical conditions
- Required for all major and minor development
- Other criteria under consideration

Riparian Buffer Considerations





Utility Master Plan Element



Inspired by the **One Water** concept of a systems approach to water

Provides important baseline data for land use regulations

Identifies (and strengthens) the relationship between water planning policy and land use regulations



Utility Master Plan Element



A new action may require:

- **Wastewater utility information:** Inventory of utilities, current capacity, future capacity, levels of service.
- **Groundwater capacity:** Assessment of groundwater deficits and recharge
- **Surface water impairment:** (reference to NRI)
- **Water challenges:** Analysis of water issues and challenges for quantity and quality
- **Municipal policies/activities:** Land use policies and strategies to address low capacity, groundwater deficits and water challenges.



Story of A Stormwater Management Ordinance

A Case Study: Princeton NJ



An Opportunity Arises



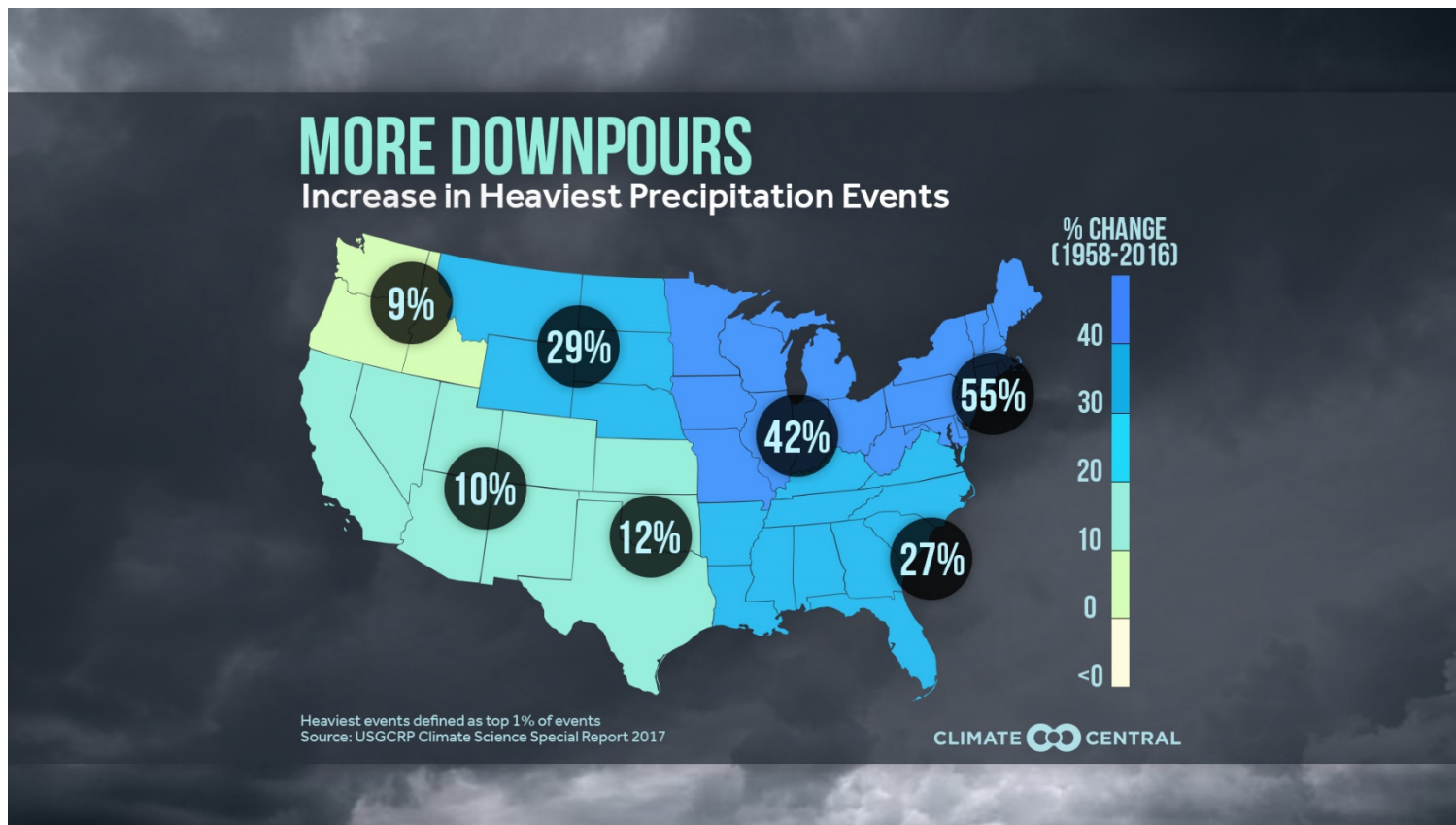


What Did We Need to Know?

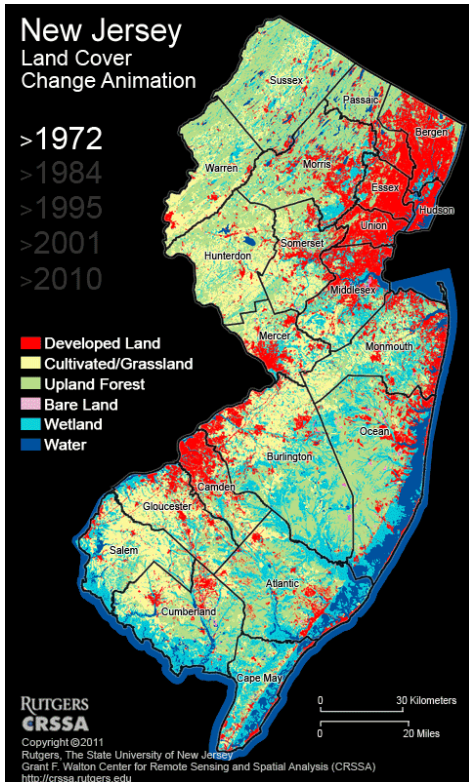
- What characteristics of our town's natural and built environment needed to be considered?
- Best practices in stormwater management?
- What were other towns doing?
- How could we educate ourselves and our town government about these quite technical topics?



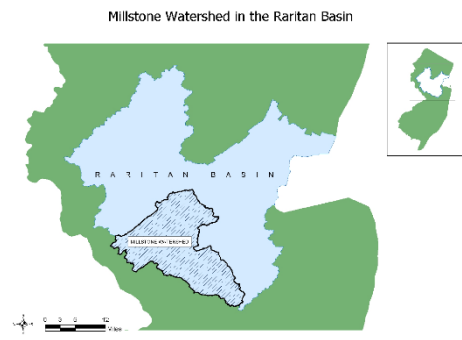
Extreme Rainfall Events On Rise



Development Continues to Expand



Between 1995 and 2012, impervious surfaces in the Millstone Watershed increased by more than 30 percent to 20,878 acres

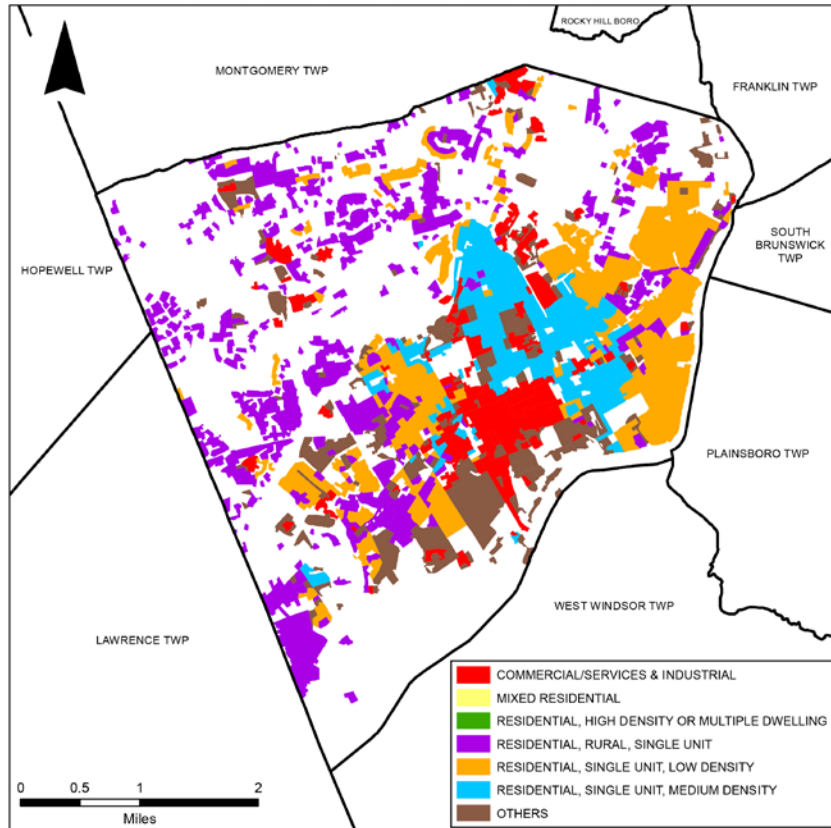


Source: Grant F. Walton Center for Remote Sensing and Spatial Analysis, Rutgers University

Land Use Changes- Urbanization of Princeton



Urban Land Use Types for Princeton (1995)



Data Sources: NJ Dept. of Environmental Protection - Land Use/Land Cover 1985 & March 2014.
This secondary map product has not been verified or authorized by the source agency. Map created by the GIS Center of the Stony Brook-Millstone Watershed Association 1/2017. Project: Princeton_LULUCR_Urban.mxd

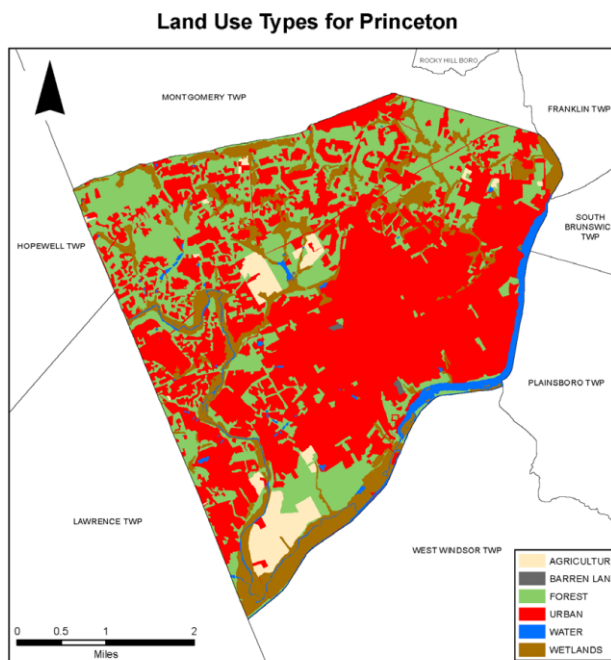
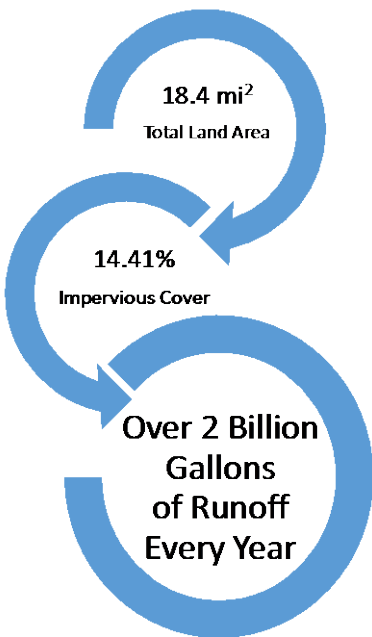
Impervious Coverage:

1995: 1521.18 acres
2002: 1598.58 acres
2007: 1634.16 acres
2012: 1644.08 acres



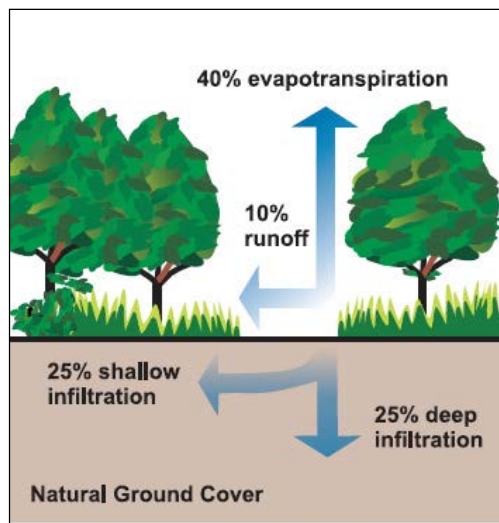
Land Use Changes- Urbanization of Princeton

Impervious Cover in Princeton

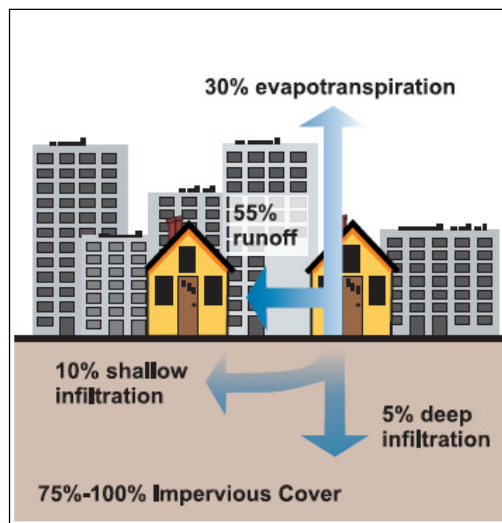


The Water Cycle has been altered

“Natural” Watershed



Urban Watershed



Extreme Rainfall Events On Rise



Princeton Junction after 7”+ of rain, July 2016

34
34

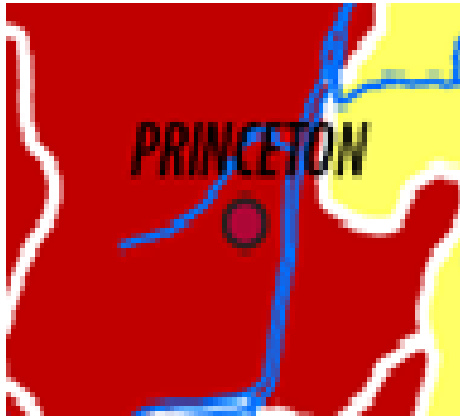


Extreme Rainfall Events On Rise

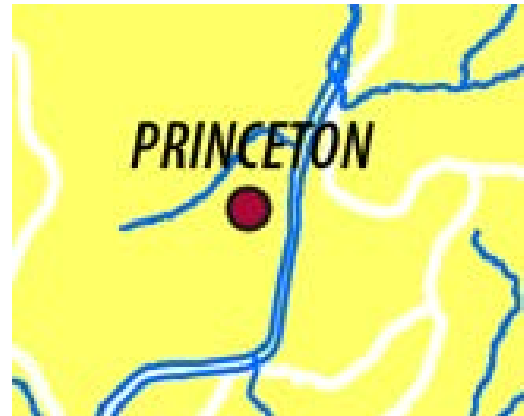


Route One after Hurricane Irene, August 2011 (7''+)

Water Pollution Issues



Phosphorus



E Coli



Aquatic Life



Old thinking:



Remove standing water from developed properties as quickly as possible



Problems:

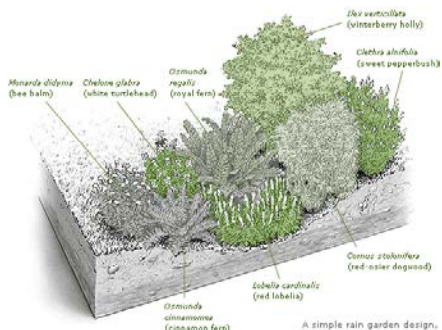
- Flooding problems are just pushed “downstream”
- Pollutants picked up by stormwater and carried to streams
- Reduction in groundwater “recharge” can harm aquifer

Stormwater Management

New thinking:



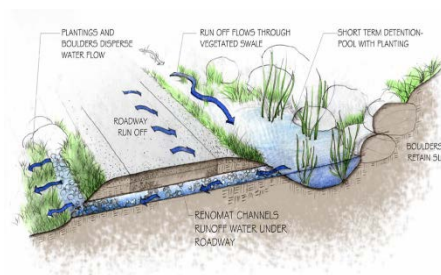
Retain water on site and infiltrate to groundwater



Rain Gardens



Rain Bladders & Cisterns



Vegetated Swales

Benefits:

- Reduce flooding
- Reduce water pollution
- “Recharge” aquifers



Components of A Stormwater Ordinance

NJ requires municipalities to adopt stormwater ordinances that address stormwater from “major developments” (a project that disturbs 1 acre of land or adds ¼ acre of impervious cover)

- Retains 100% of pre-development groundwater on-site or infiltrate the increase in the 2-year storm
- Reduces post development peak flows for the 2, 10 and 100-year storms by 50%, 75% and 80% or demonstrate no impact with full development in stream area
- Reduce total suspended solids by 80% and reduce nutrients to the “maximum extent possible in post-construction runoff
- Require use of “non structural strategies” to the “maximum extent practicable”



Priorities for Strengthening Stormwater Ordinances

NJ municipalities are authorized to adopt more protective stormwater ordinances than state minimums.

Priorities for strong ordinances:

- Reduce threshold for definition of “major” development
- Create requirements for “minor” developments
- Require action for redevelopment
- Require maintenance of stormwater systems
- Require mitigation fee to secure waivers
- Emphasize nonstructural techniques & Green Infrastructure

What Was Right for Our Town?



- **Reduce threshold for definition of “major” development**
 - **1/2 acre or 5,000 square feet**
- **Create requirements for “minor” developments**
 - **Capture 2 gallons/square foot when adding over 400 square feet of new impervious surface (2 year storm)**
- **Make the stormwater management requirements for “minor” developments easy to understand and calculate**



What Is Next?

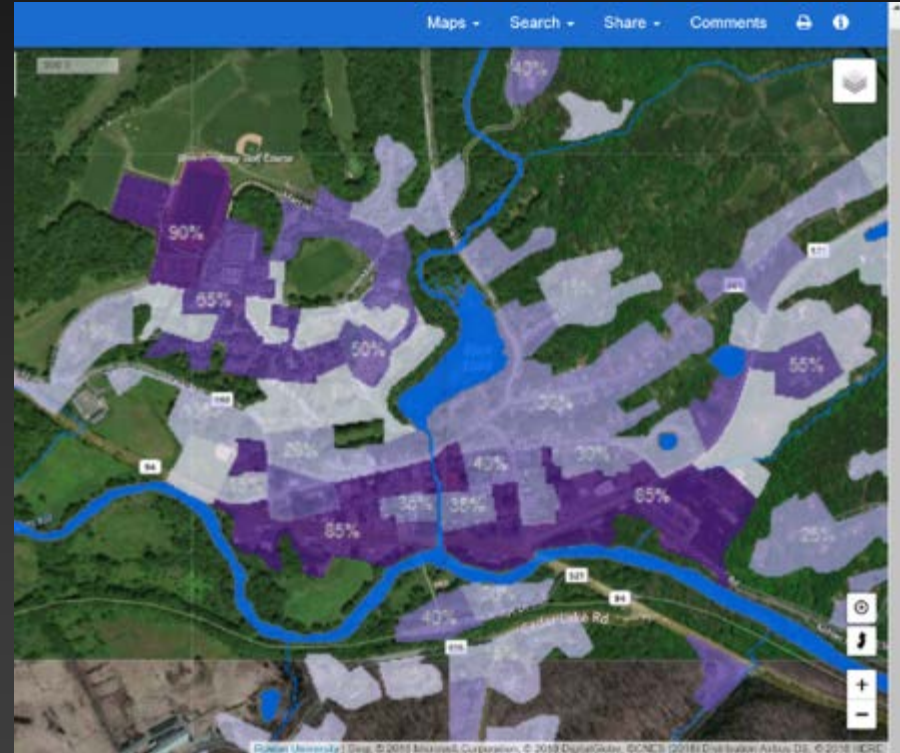
- **Tracking**
 - **How much stormwater is being captured?**
 - **Are more projects using green infrastructure?**
- **Recognize the need to do more**
 - **Address redevelopment**
 - **Learning about stormwater utilities**
- **In partnership with the Watershed Institute, build our town's "Water IQ"**
 - **Engineers, architects, builders landscape architects**
 - **Residents**



Lessons Learned

- **Accessing technical expertise was very important**
- **An education campaign was critical**
- **Getting to green infrastructure is not easy**
- **To have major impact, redevelopment must be addressed**

Web Mapping to support Watershed-based Sustainability



John Hasse, Ph.D. Rowan University
Geospatial Research Laboratory



What is NJ MAP?

An Interactive Atlas for

Packaged for the GIS non-expert

- Ecological Resources

- Environmental Education

- Sustainable Communities

- Real time access to digital mapping

- map-based story telling of NJ's environment

- Educational laboratory for students to learn digital mapping



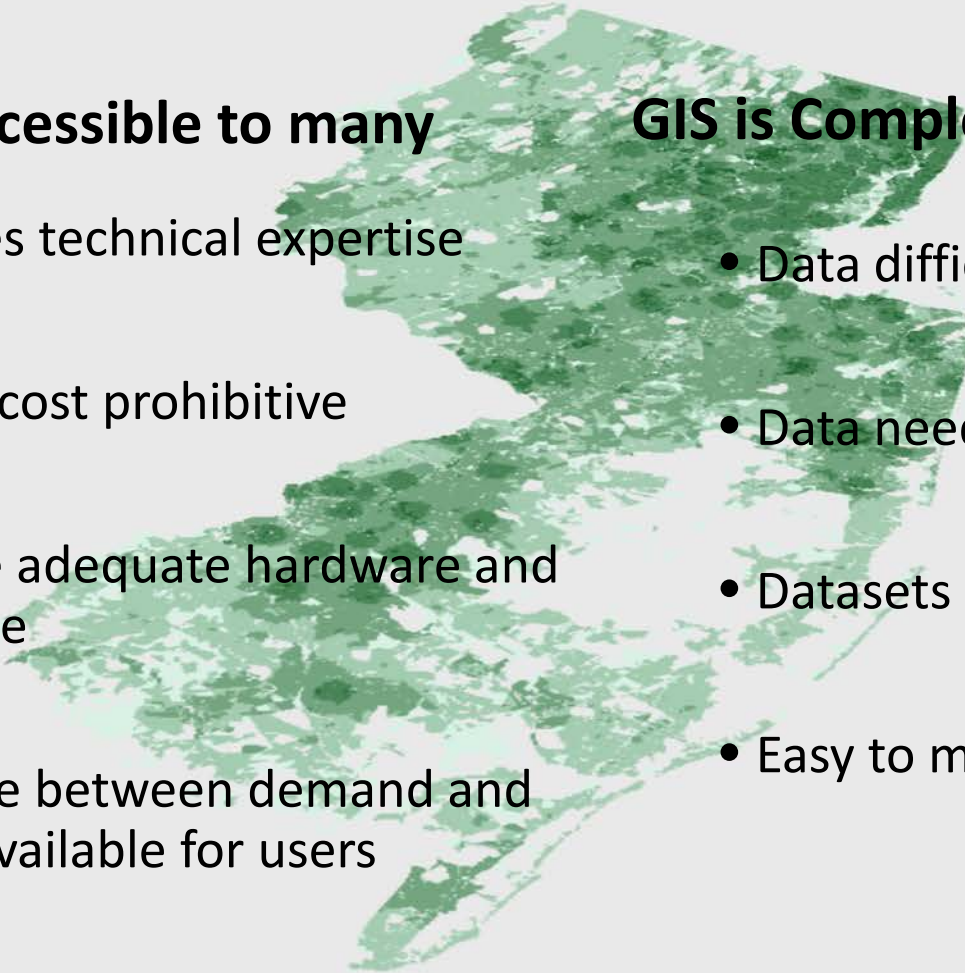
Why NJ MAP?

GIS not accessible to many

- Requires technical expertise
- Can be cost prohibitive
- Require adequate hardware and software
- Lag time between demand and when available for users

GIS is Complex

- Data difficult to understand
- Data needs constant updating
- Datasets are huge
- Easy to make bad GIS maps



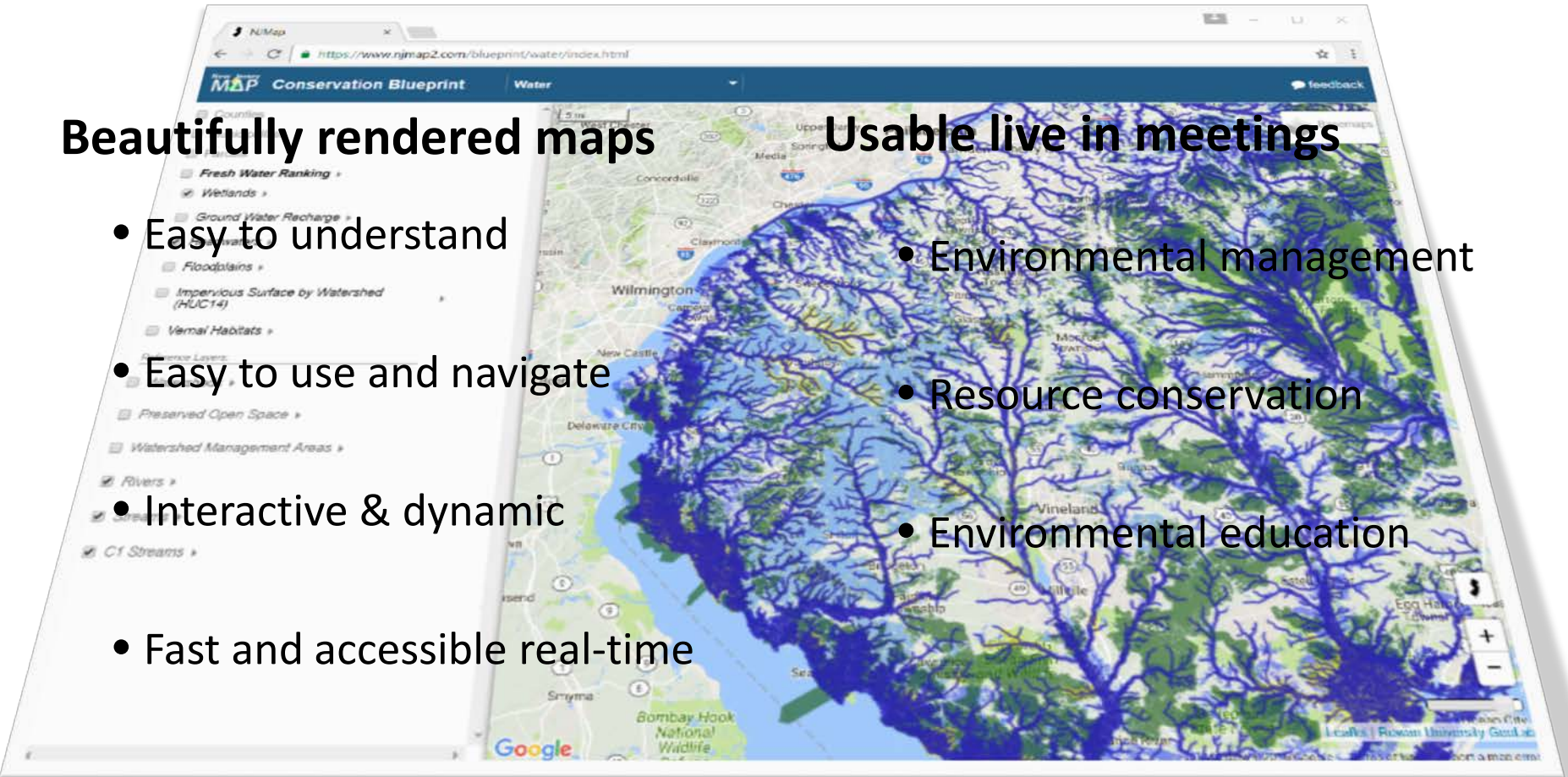
NJ MAP Goals

Beautifully rendered maps

- Easy to understand
- Easy to use and navigate
- Interactive & dynamic
- Fast and accessible real-time

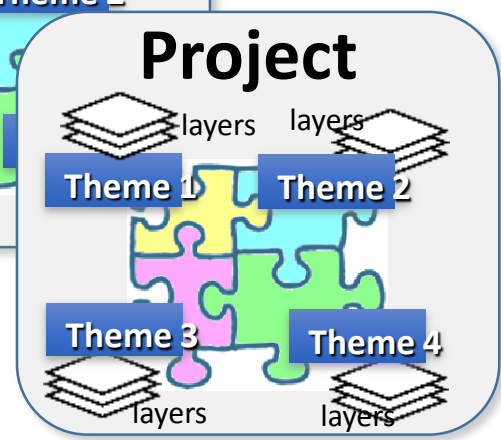
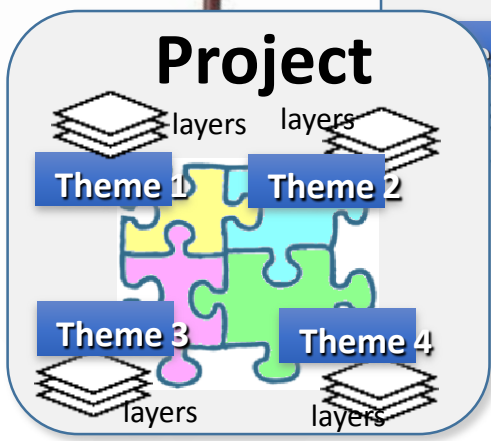
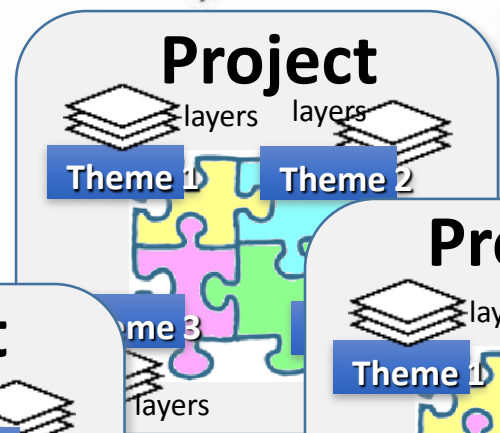
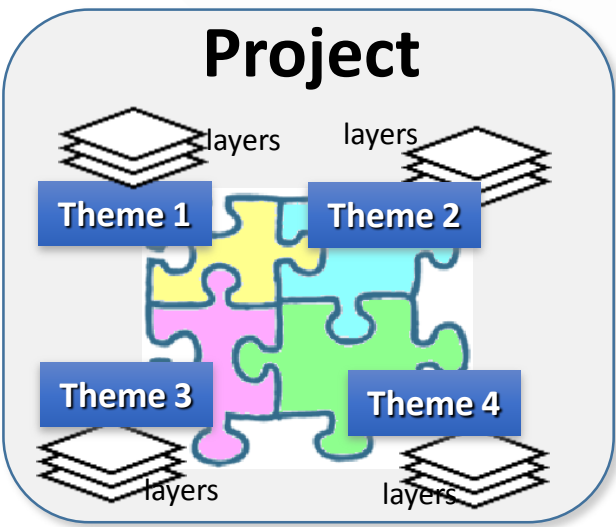
Usable live in meetings

- Environmental management
- Resource conservation
- Environmental education



Organizational Framework

NJMAP Platform

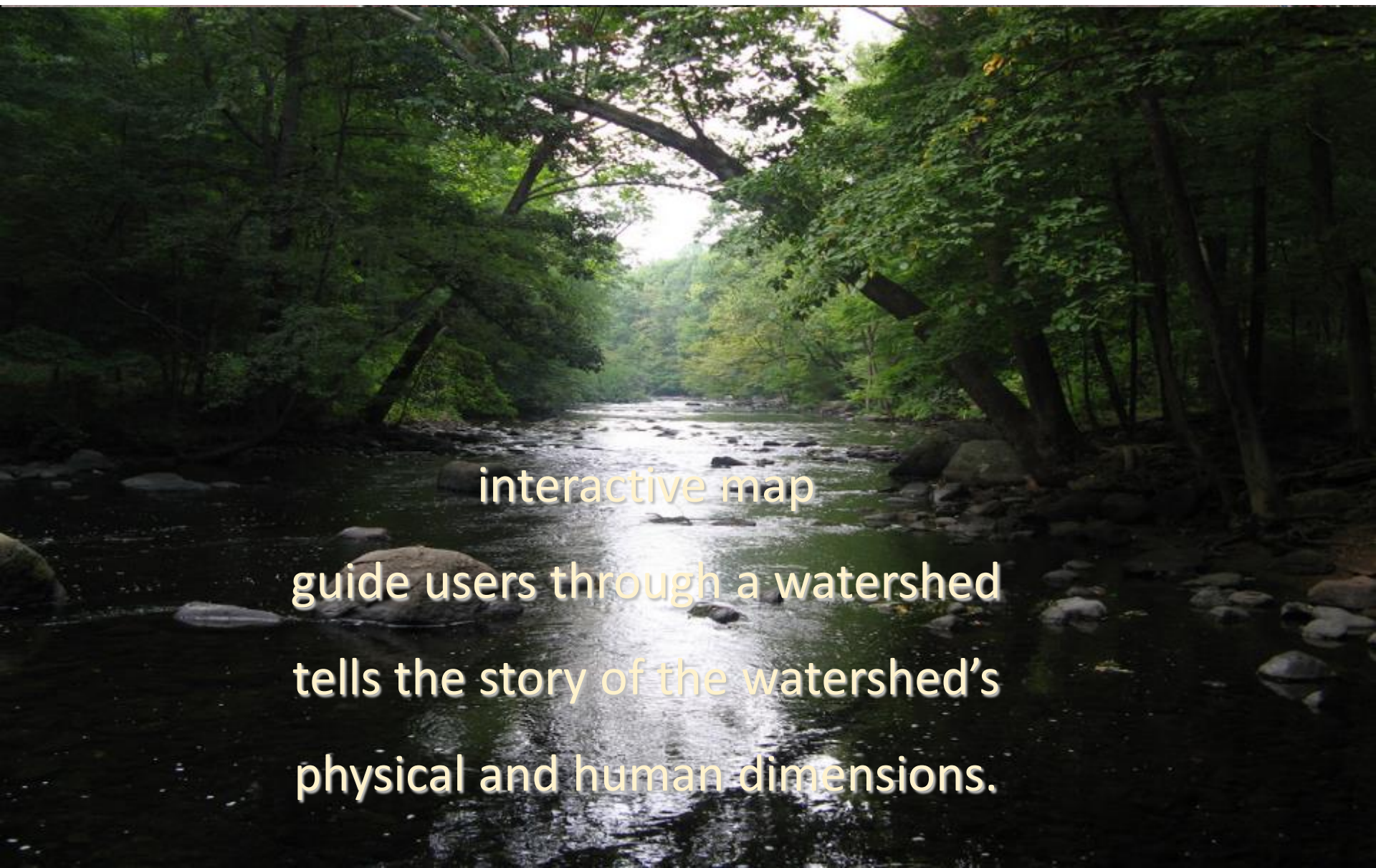


New NJ MAP Theme

Concept for 2018

NJ Watershed Explorer

NJ Watershed Explorer

A scenic view of a river flowing through a dense forest. The river is surrounded by large rocks and lush green trees, creating a serene and natural environment. The text is overlaid on the lower half of the image.

interactive map
guide users through a watershed
tells the story of the watershed's
physical and human dimensions.

Pilot Watershed

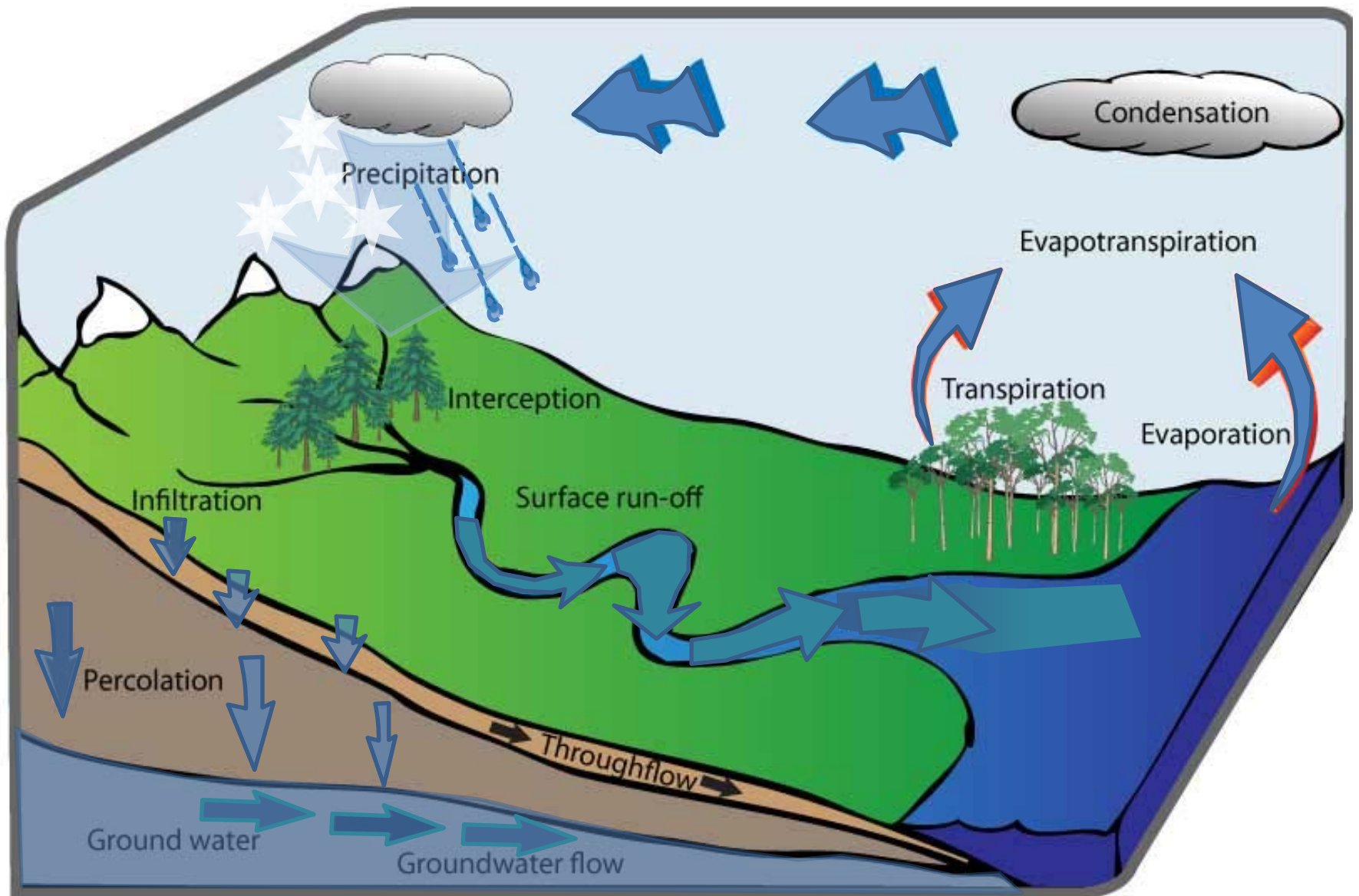
Musconectong River Watershed



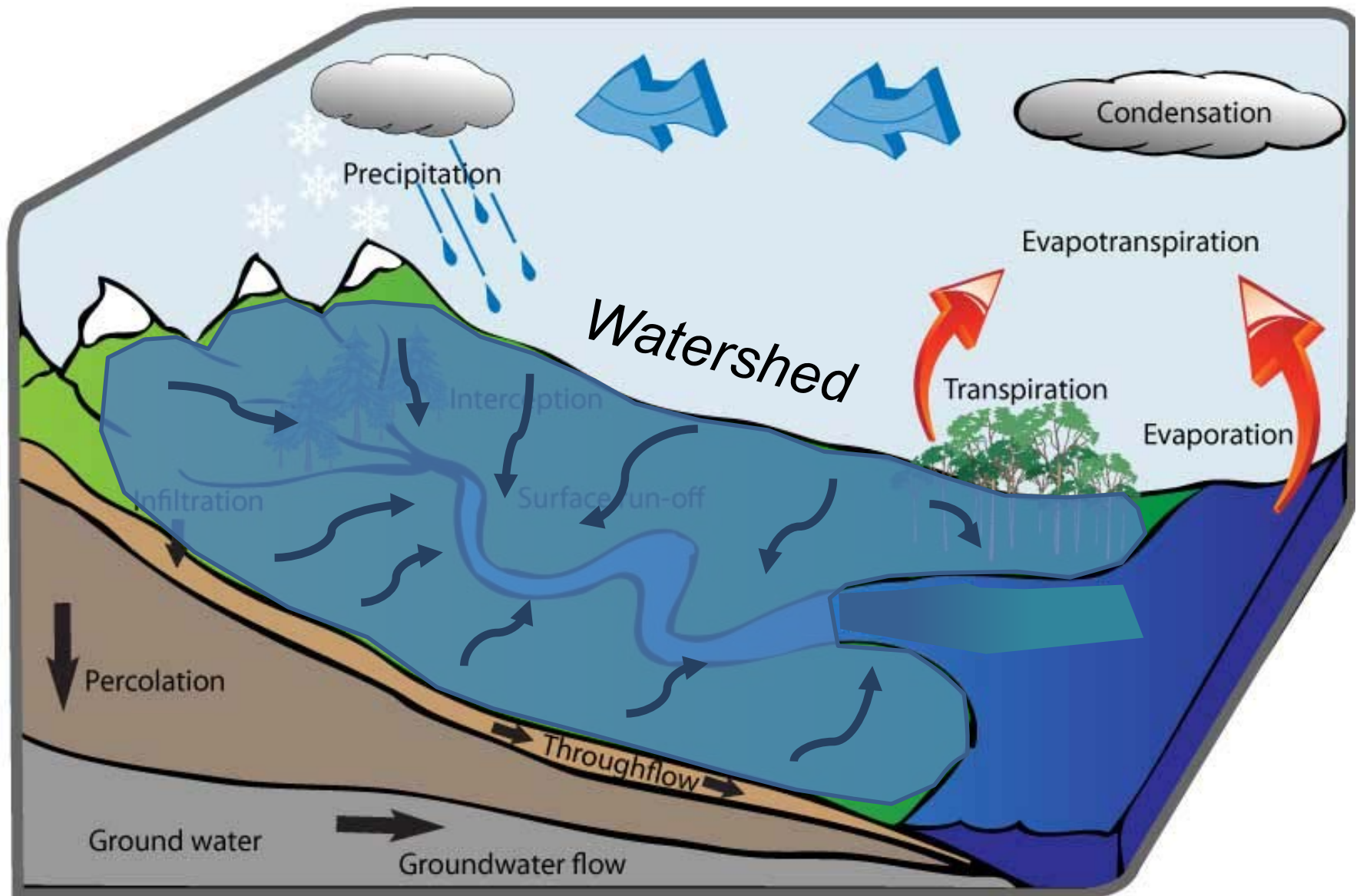


CLEAN WATER

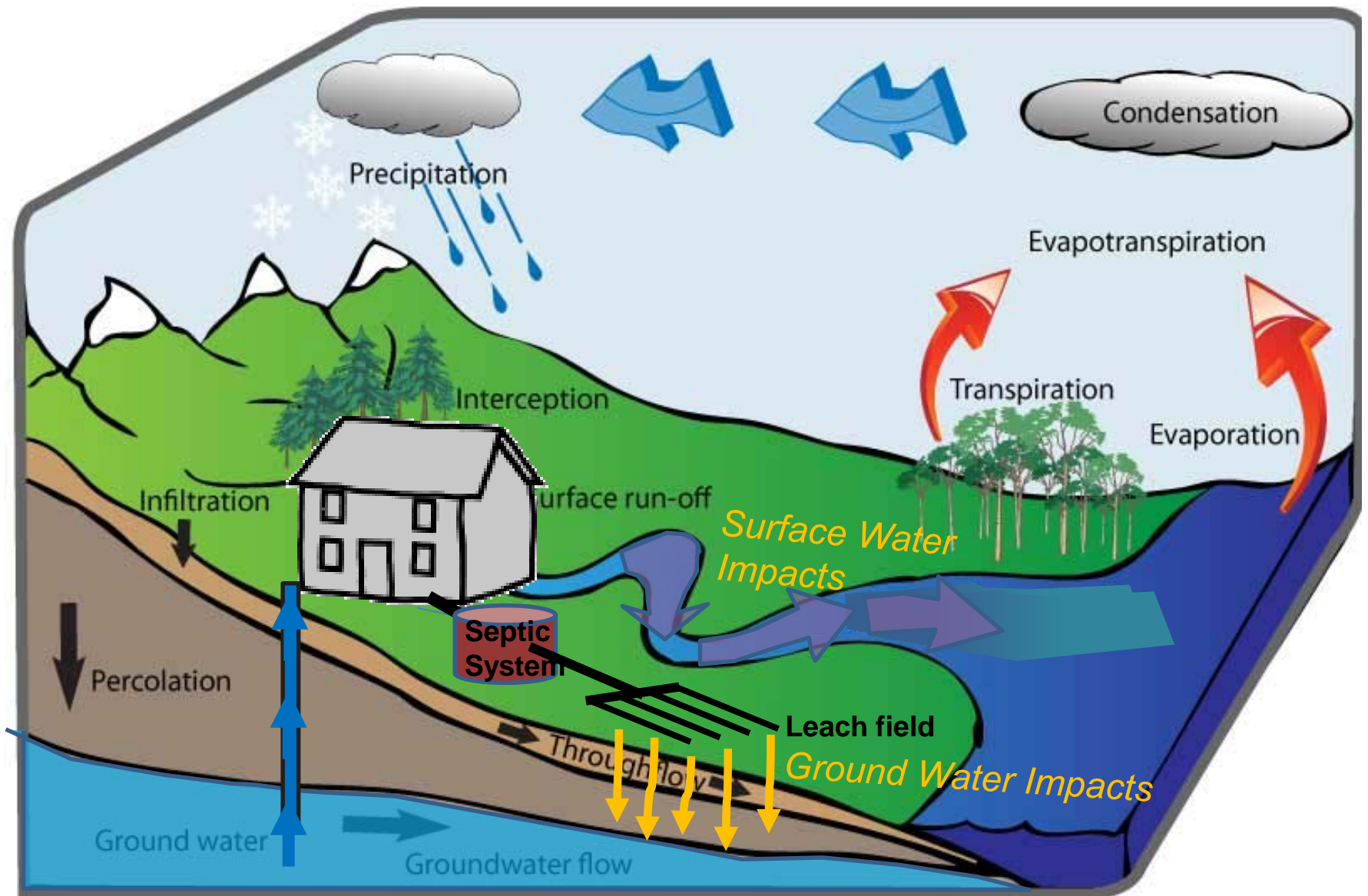
THE HOROLOGIC CYCLE



WATERSHEDS- NATURAL UNITS OF THE ECOSYSTEM



HUMANS AND WATERSHEDS

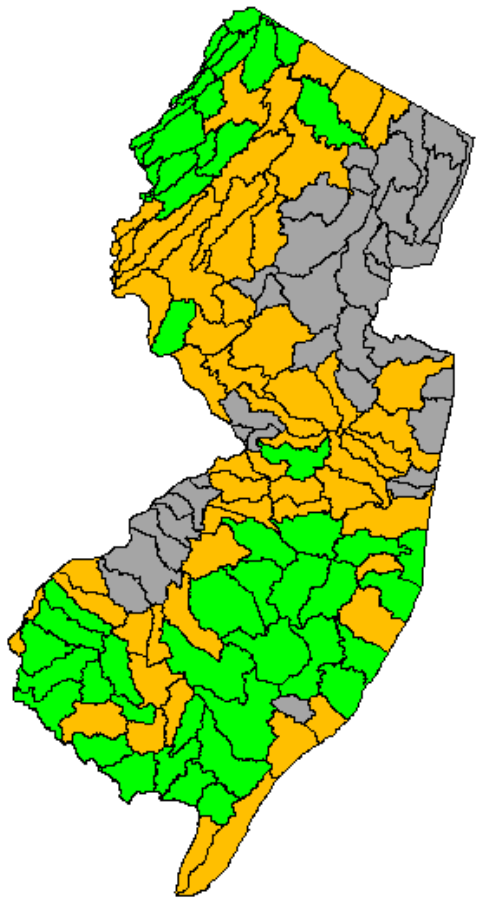


~~Watersheds are an integral part of our communities.~~
Communities are an integral part of our Watersheds.





Impervious Surface



Sprawl is creating massive quantities of impervious surface, impacting water quality



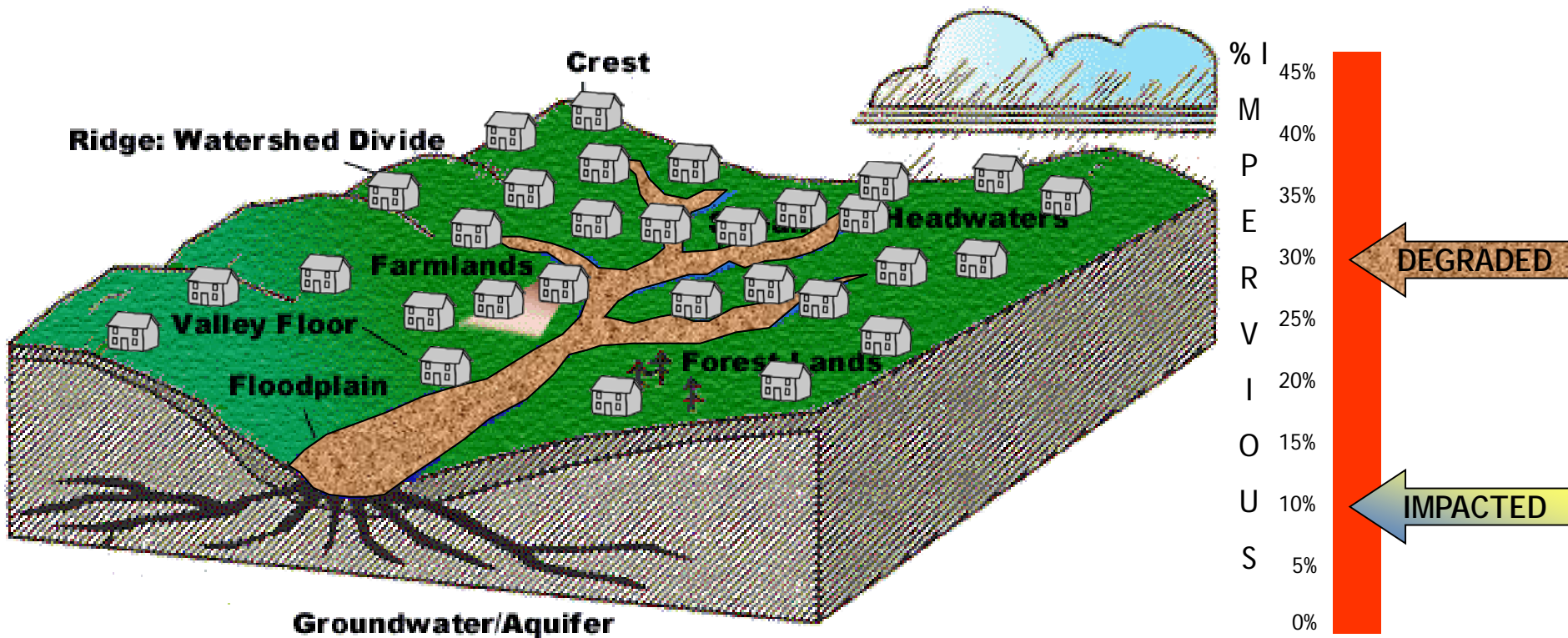
Abandoned Grocery Store

Impervious Surface (11 ff/day)

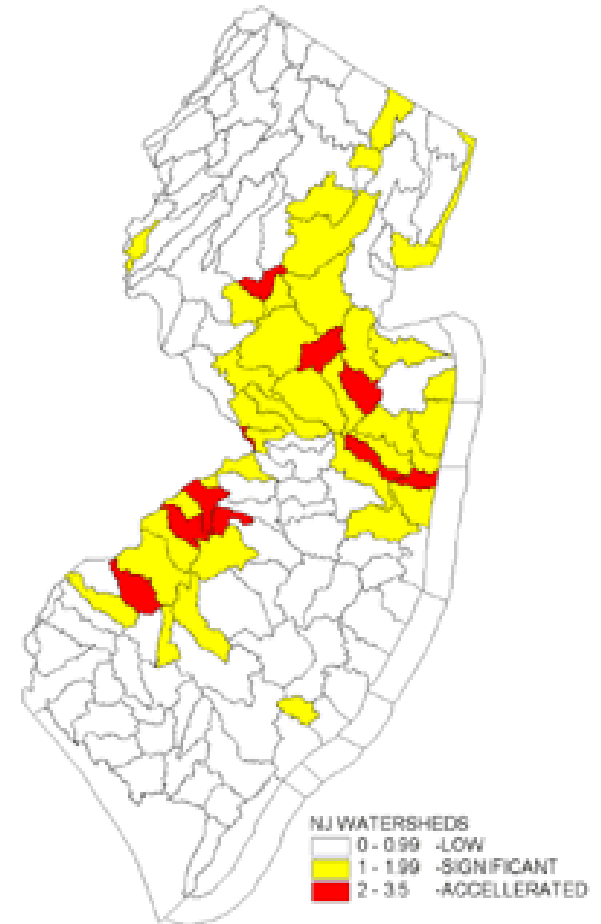
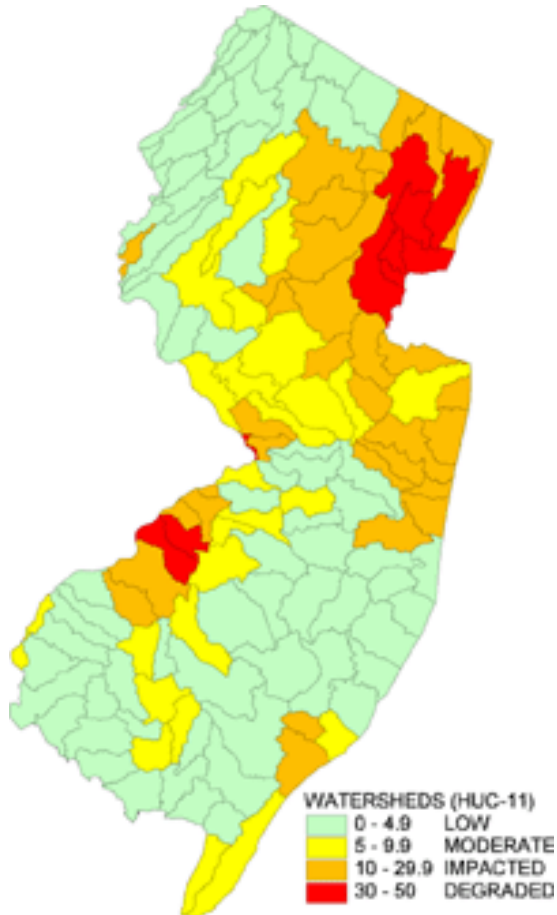


Why Impervious Surface is Important

Hydrological Function of a Watershed



New Jersey Watershed Conditions and Impervious Surface



% TOTAL IMPERVIOUS COVER







IMPERVIOUS INCREASE

Watersheds are an integral part of our communities.



NEW JERSEY **MAP** Watershed Explorer (beta)

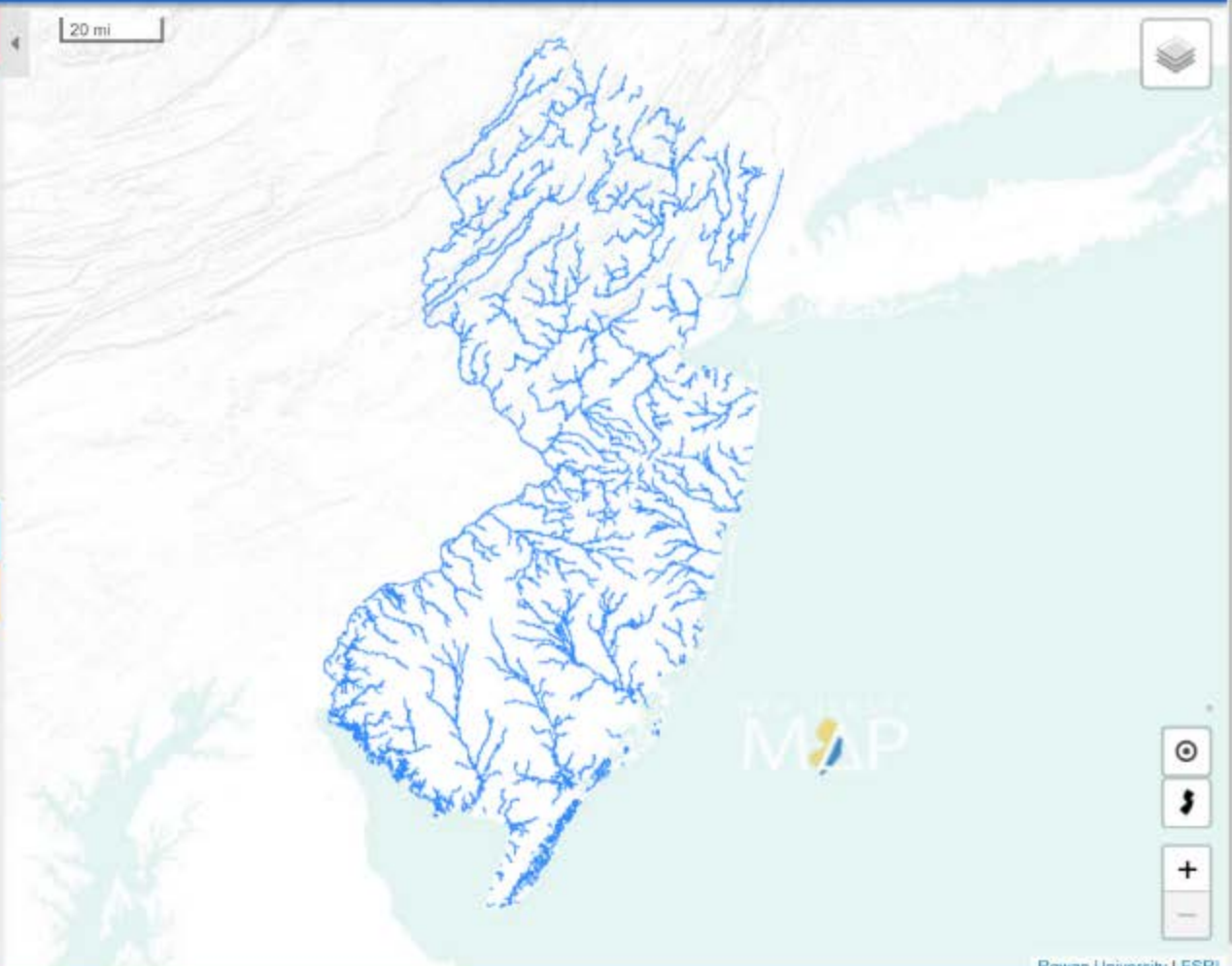
Watersheds (beta)  ▾

- NJ Hydrography 
- Watershed Management Areas 
- Watershed Boundaries (HUC11) 
- NJ River Basins 
- Watershed Areas (HUC11) colored 
- Impervious % (land use polys) 

Reference Layers ▾

Water Resources (beta) ▸

Land Resources (beta) ▸



NEW JERSEY MAP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments  

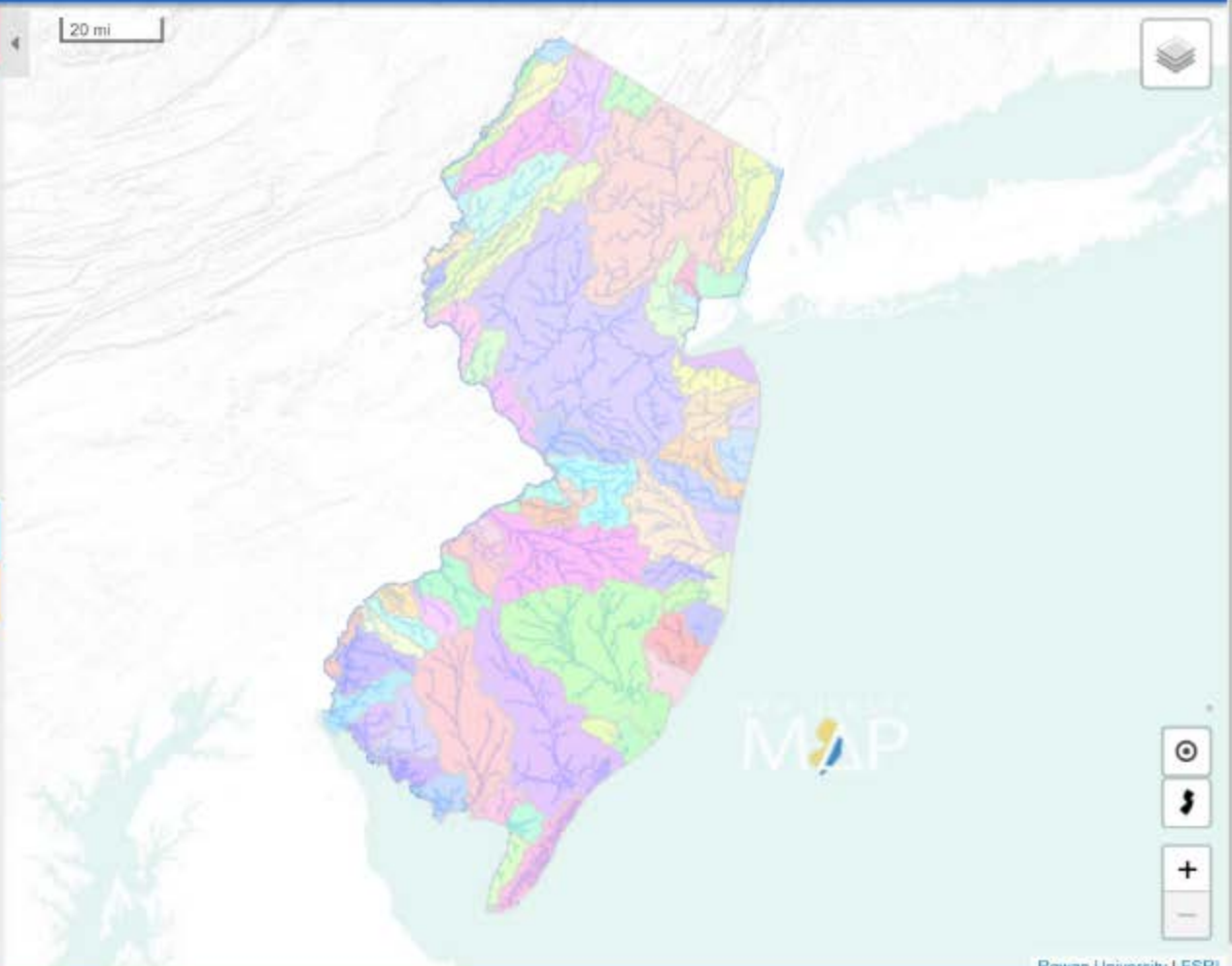
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Water Resources (beta) ▸







Land Resources (beta) ▸



NEW JERSEY MAP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments  

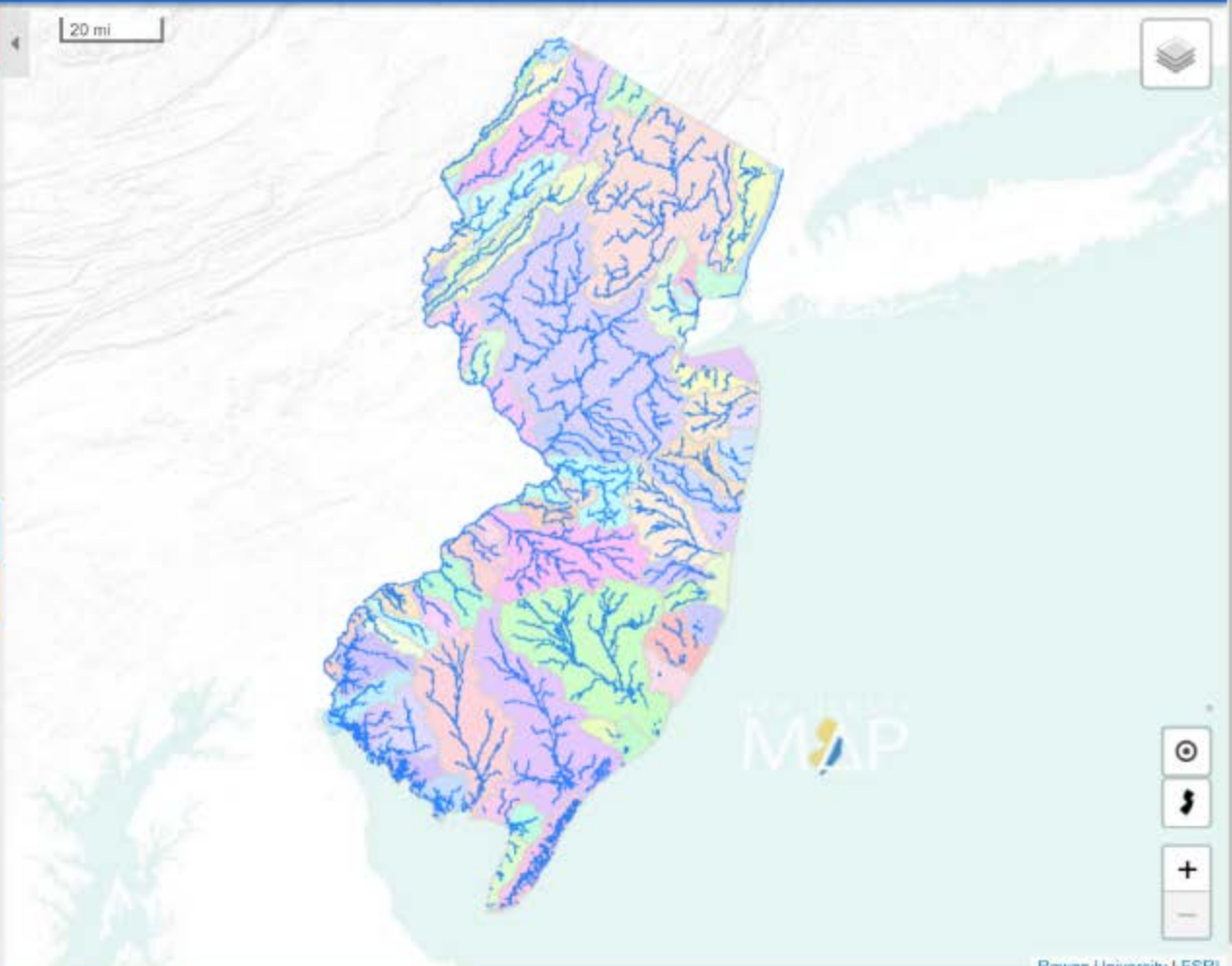
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- NJ River Basins 
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- Impervious % (land use polys) 

Reference Layers ▾

Water Resources (beta) ▸



Land Resources (beta) ▸



NEW JERSEY **M**AP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments  

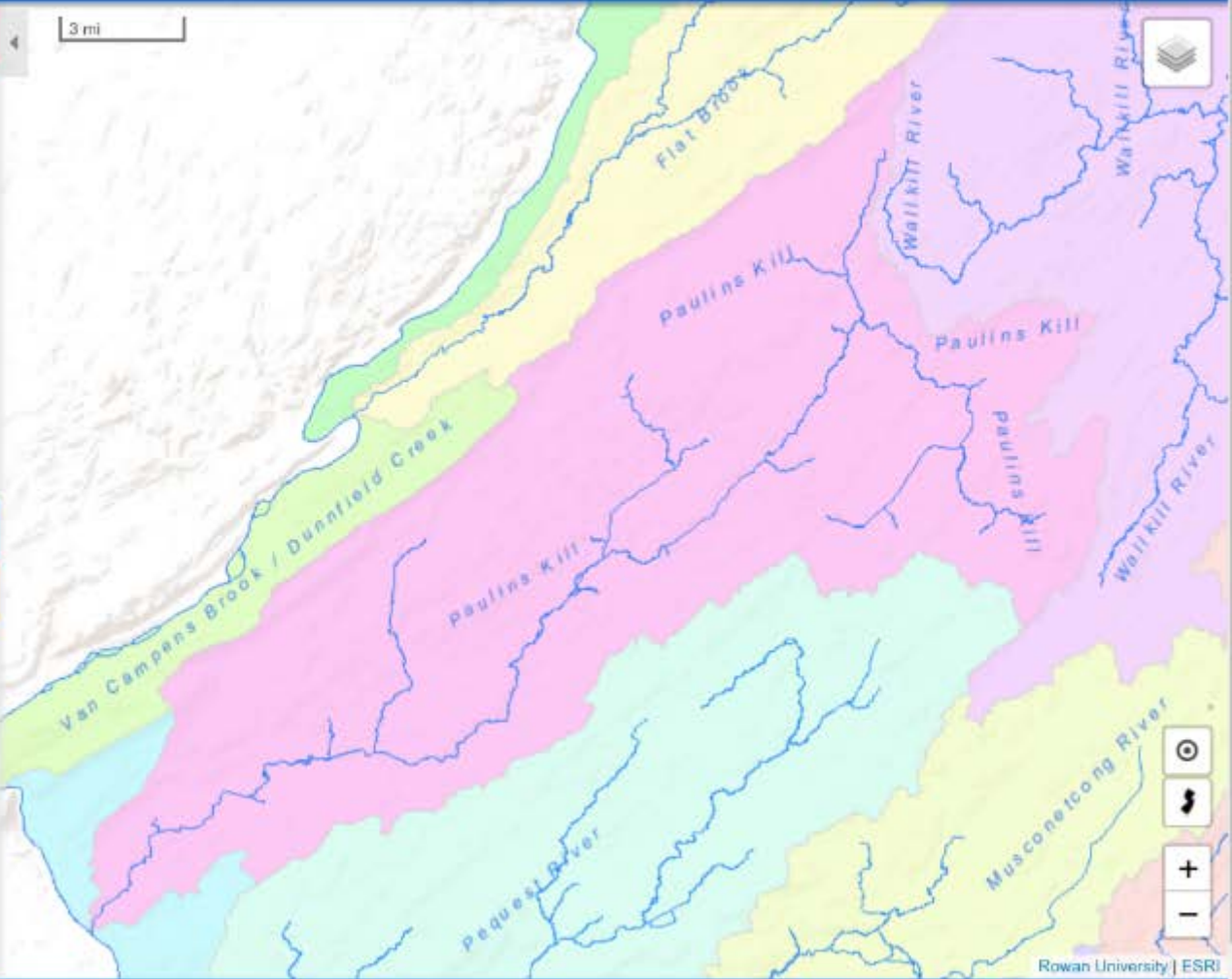
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Reference Layers ▾





Water Resources (beta) ▸

Land Resources (beta) ▸











NEW JERSEY MAP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments  

- Watershed Boundaries (HUC11) 
- NJ River Basins 
- Watershed Areas (HUC11) colored 
- Impervious % (land use polys) 

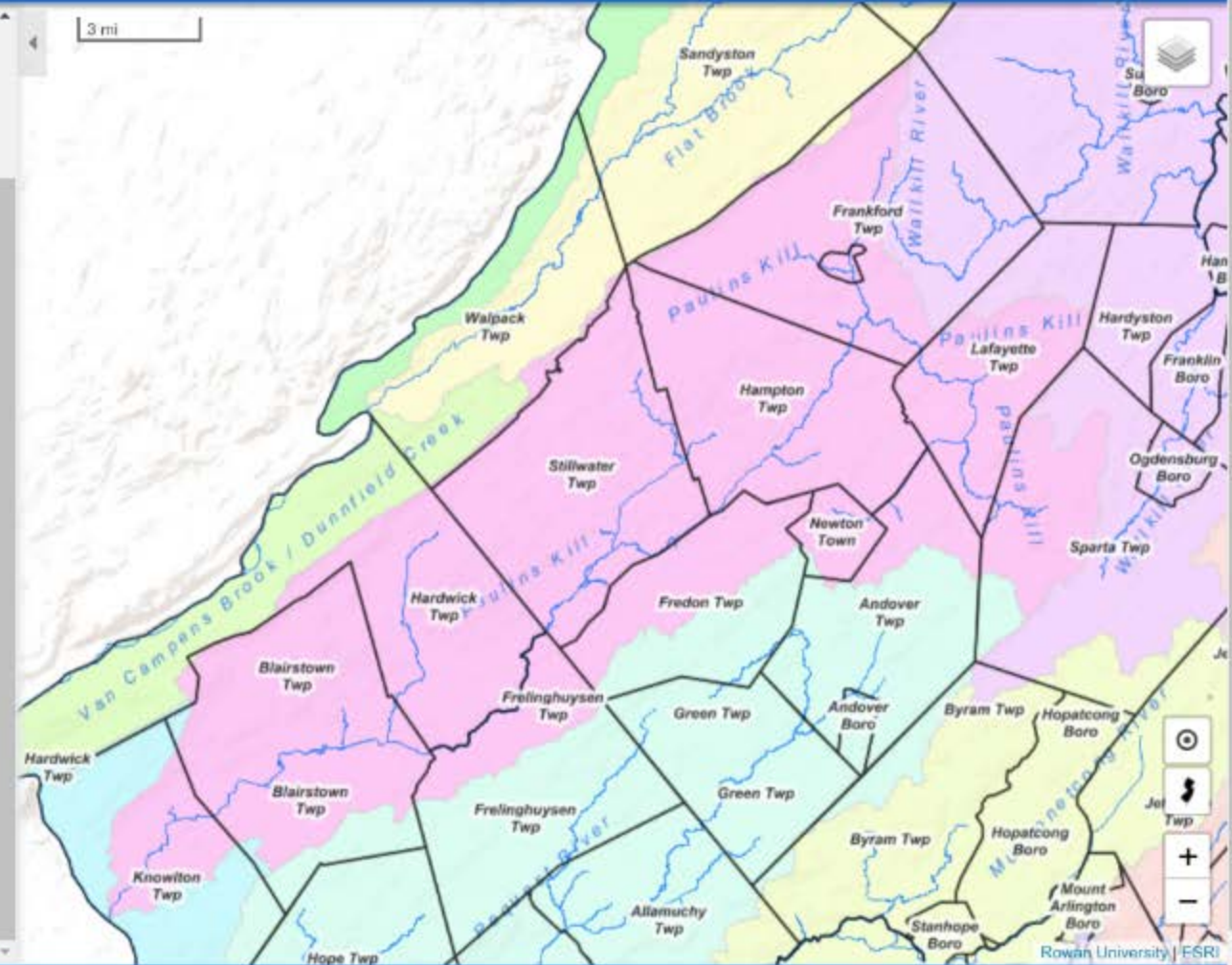
Reference Layers ▾

Water Resources (beta)

- Municipalities 
- Parcels 
- Rivers 
- Streams 
- Waterbodies 
- C1 Streams 
- Wetlands with Buffers 
- Active River Area (Flood Zone) 







Reference Layers ▾

Land Resources (beta)











NEW JERSEY MAP Watershed Explorer (beta)

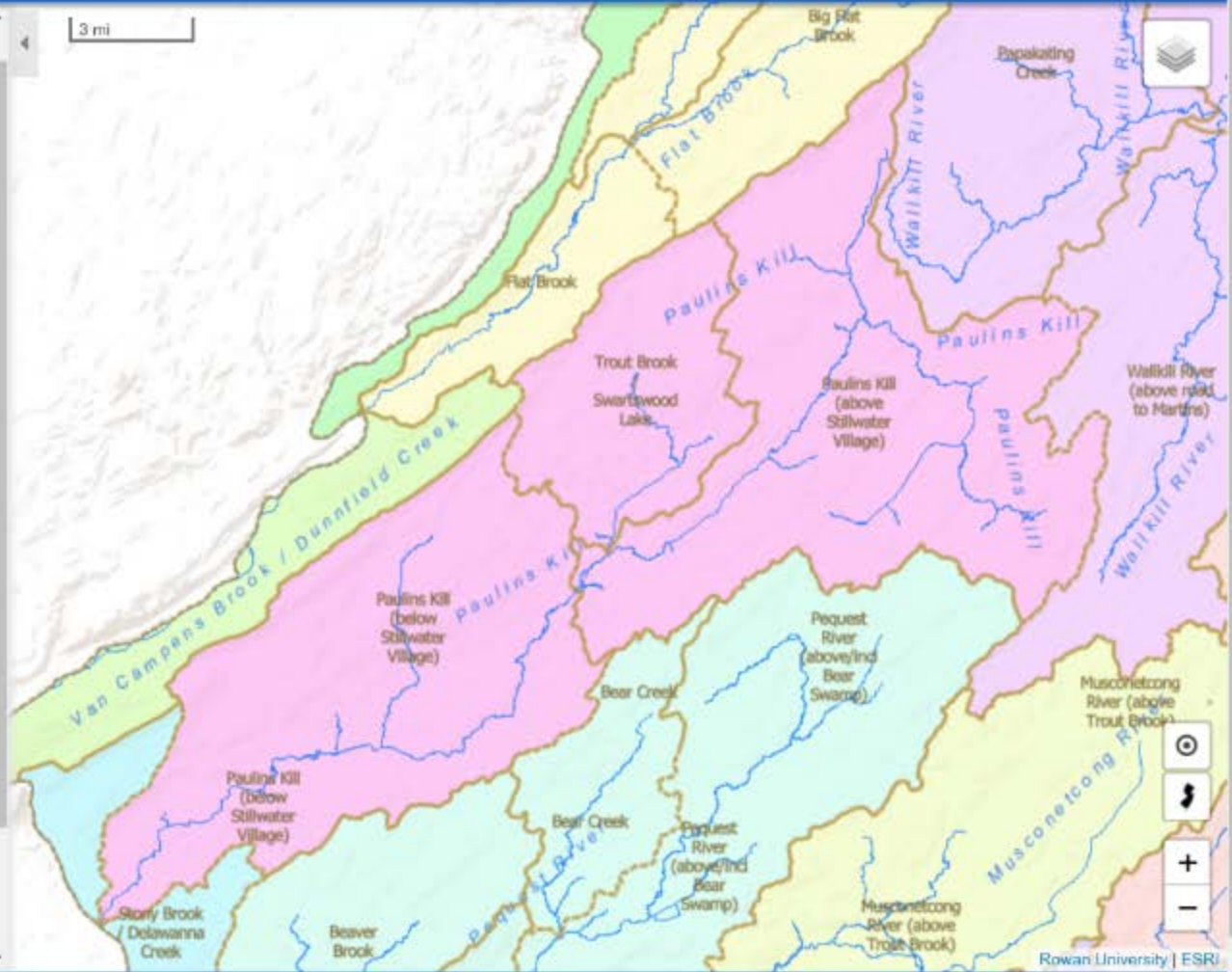
Maps ▾ Search ▾ Share ▾ Comments  

- NJ Hydrography 
- Watershed Management Areas 
- Watershed Boundaries (HUC11) 
- NJ River Basins 
- Watershed Areas (HUC11) colored 
- Impervious % (land use polys) 

Reference Layers ▾







Water Resources (beta) ▾

- Municipalities 
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- Active River Area (Flood Zone) 











NEW JERSEY MAP Watershed Explorer (beta)

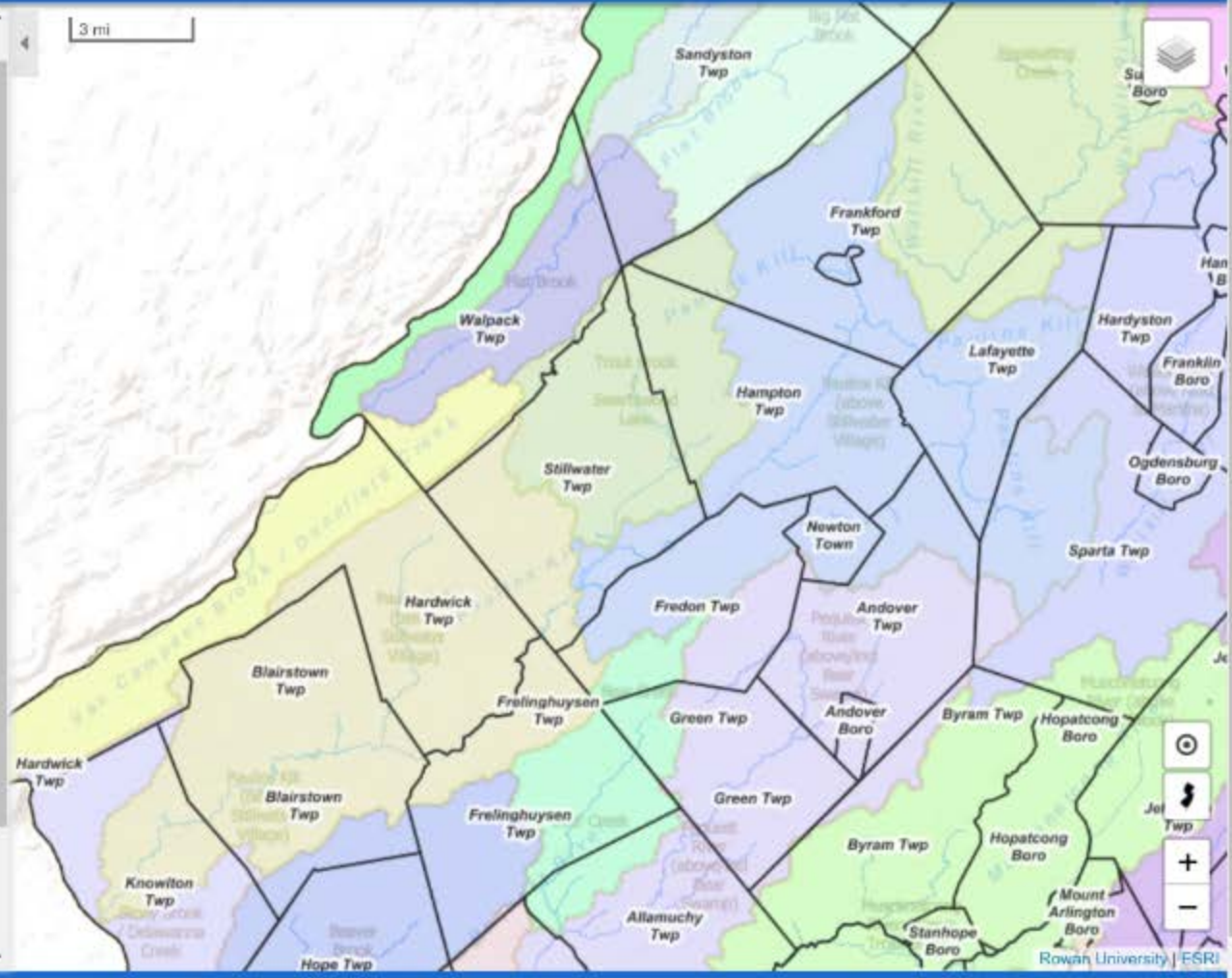
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Reference Layers ▾

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- C1 Streams 
- Wetlands with Buffers 
- Active River Area (Flood Zone) 



NEW JERSEY MAP Watershed Explorer (beta)

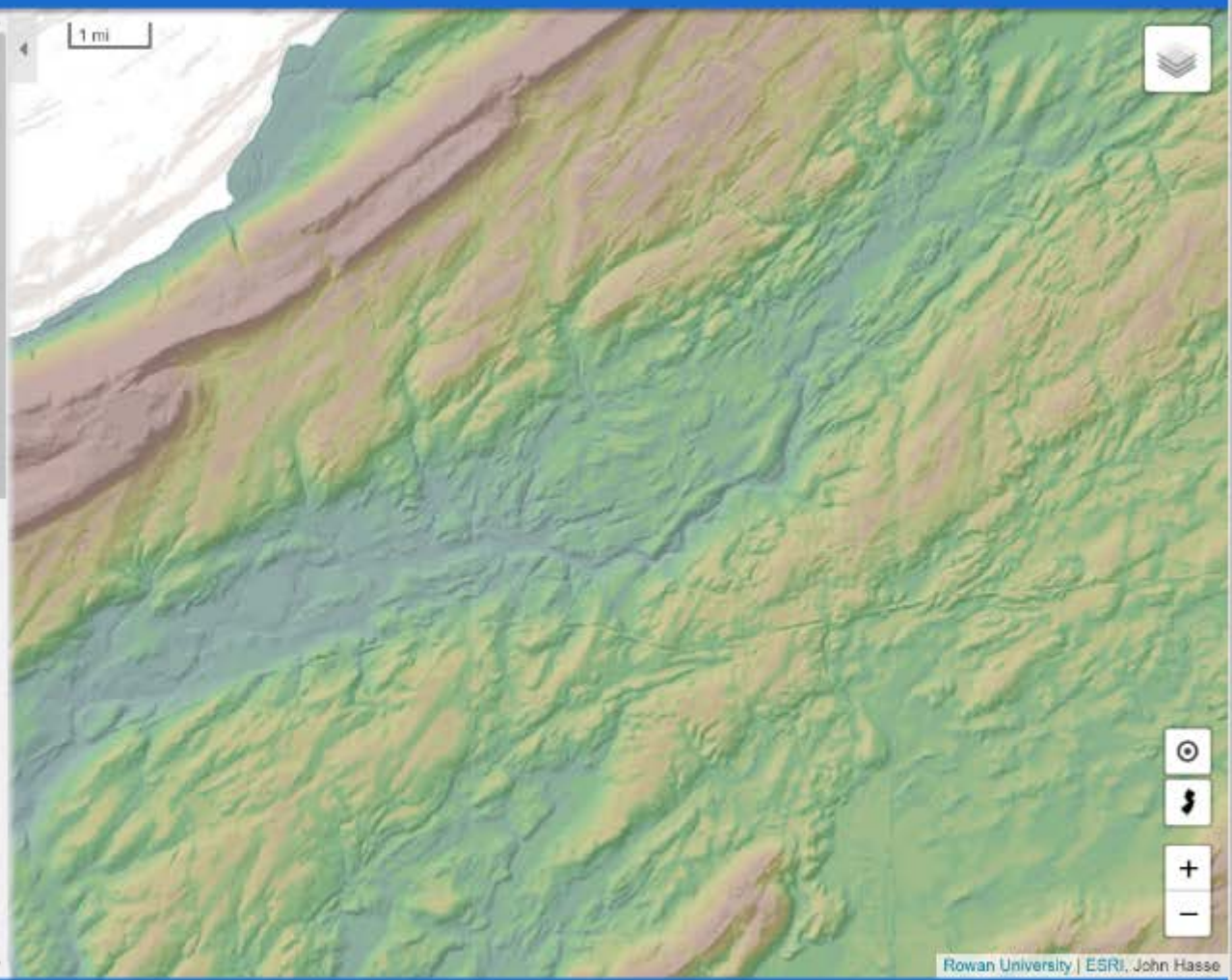
Watersheds (beta)

- NJ Hydrography
- Watershed Management Areas
- Watershed Boundaries (HUC11)
- NJ River Basins
- Watershed Areas (HUC11) colored
- Impervious % (land use polys)

Reference Layers

Water Resources (beta)

- Municipalities
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- Wetlands with Buffers



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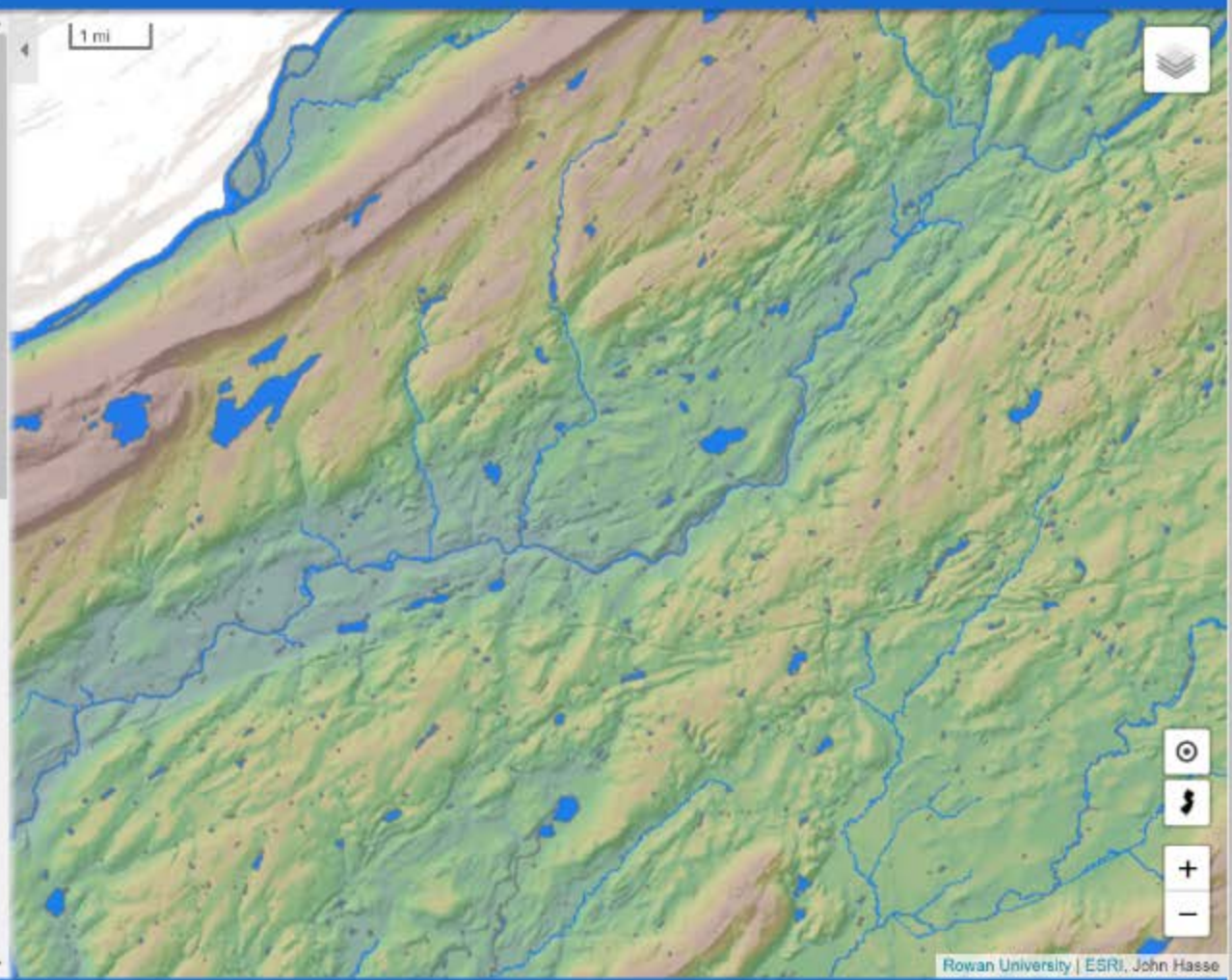
Watersheds (beta) ↻ ▾

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Reference Layers ▾

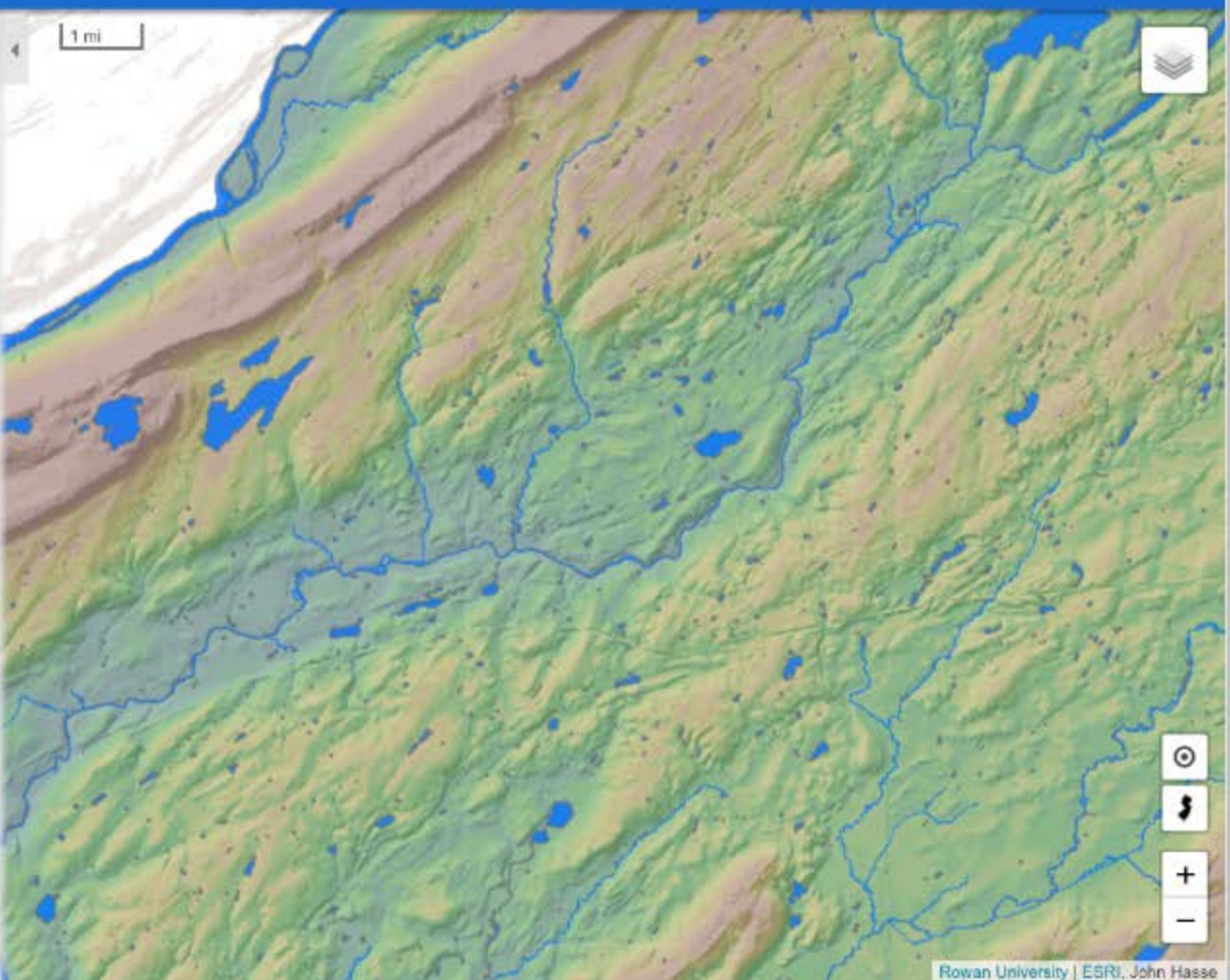
Water Resources (beta) ↻ ▾

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- C1 Streams ⓘ
- Wetlands with Buffers ⓘ



NEW JERSEY MAP Watershed Explorer (beta)

- Impervious % (land use polys)
- Reference Layers
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- Watershed Management Areas
- Wetlands (WMA01)



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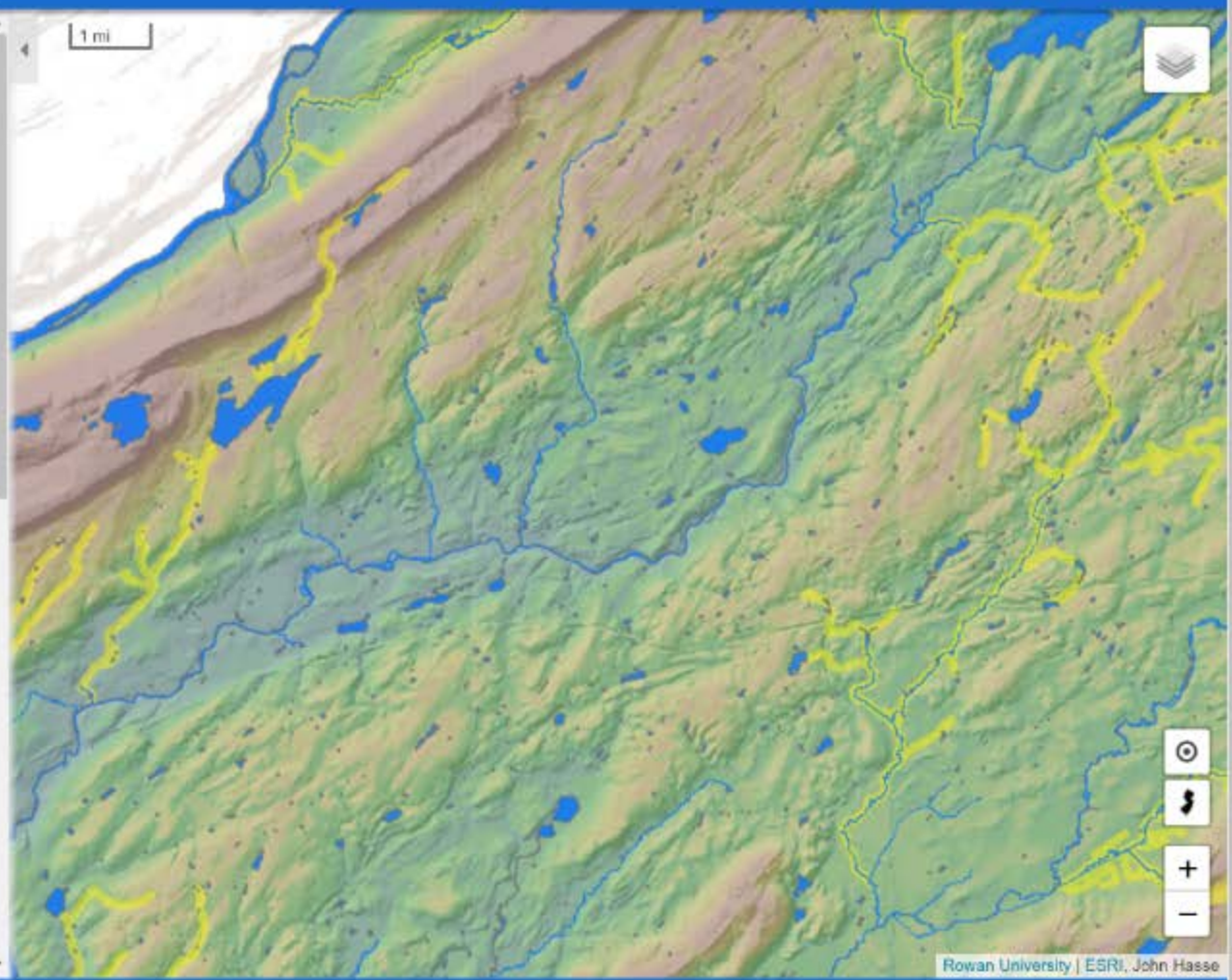
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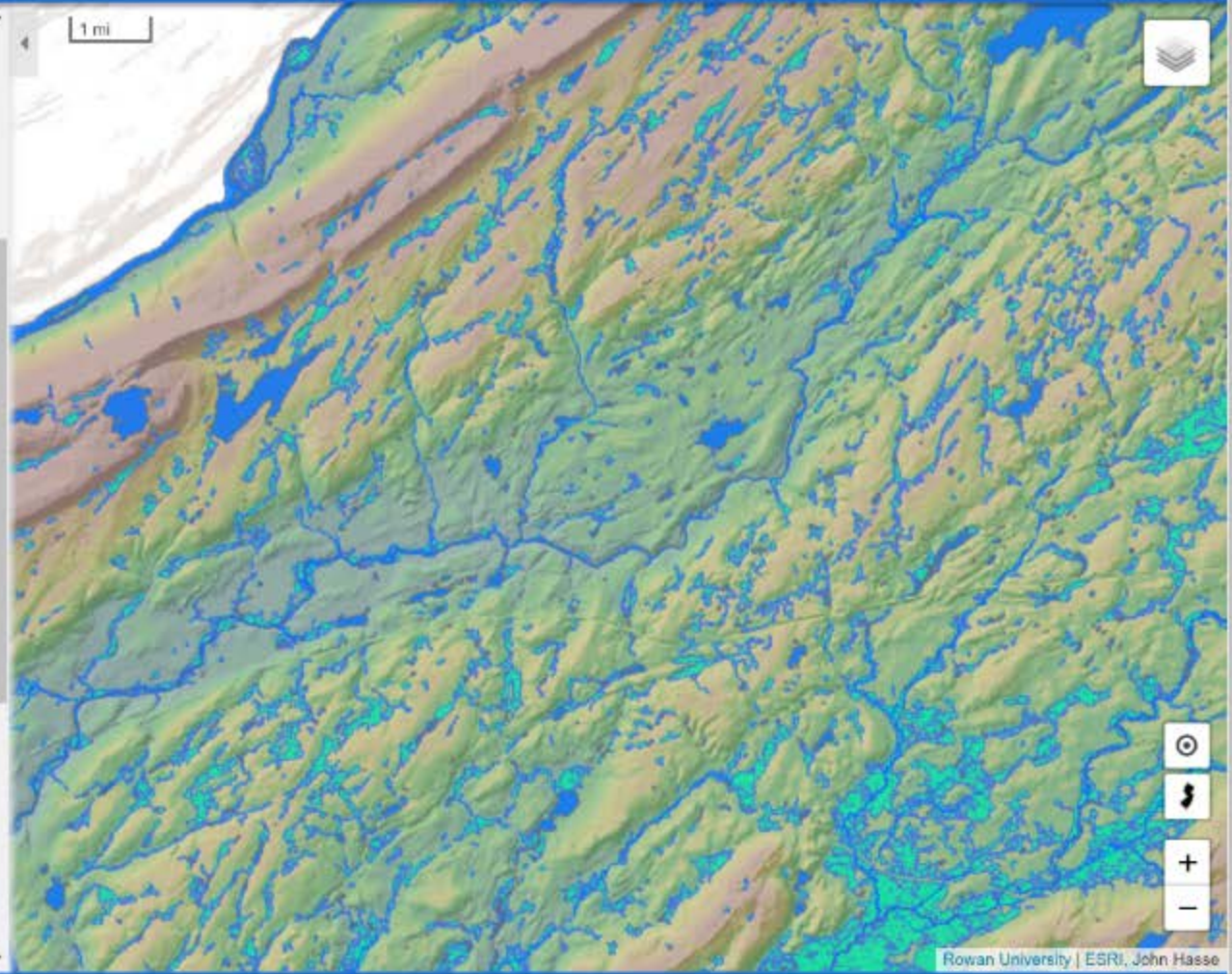
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NEW JERSEY MAP Watershed Explorer (beta)

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 - Vermeule's Forest Map

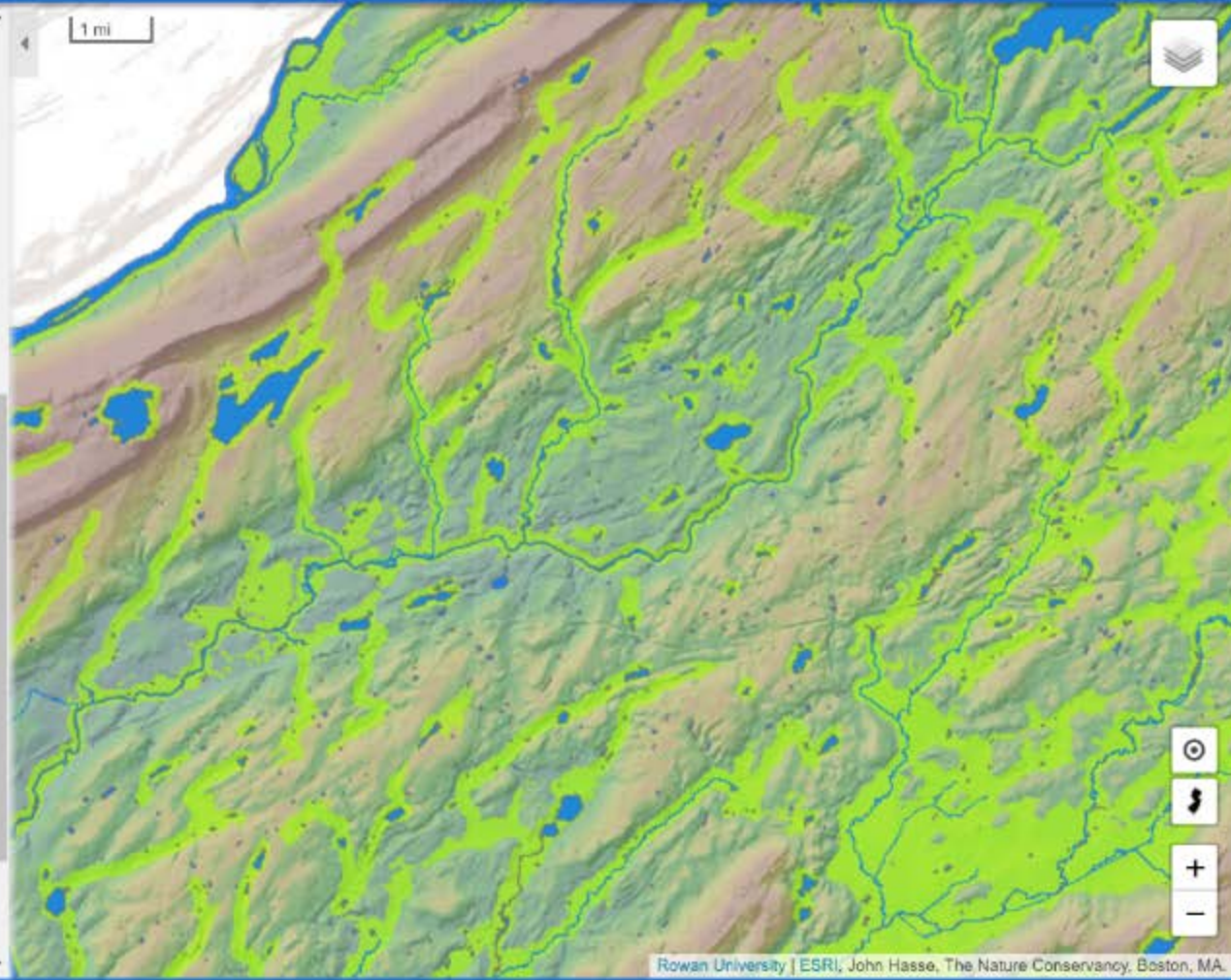


NEW JERSEY MAP Watershed Explorer (beta)

- Waterbodies
- C1 Streams
- Wetlands with Buffers
- Active River Area (Flood Zone)

Reference Layers ▾










- Surface flow WMA01
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- Wetlands (WMA01)
- Vermeule's Forest Map
- WMA1-Relief
- Residential Units (WMA01)
- Floodplains (WMA01)
- Ground Water Recharge (WMA01)
- 1778 Map
- Headwaters (WMA01)



NEW JERSEY MAP Watershed Explorer (beta)

Active River Area (Flood Zone) 

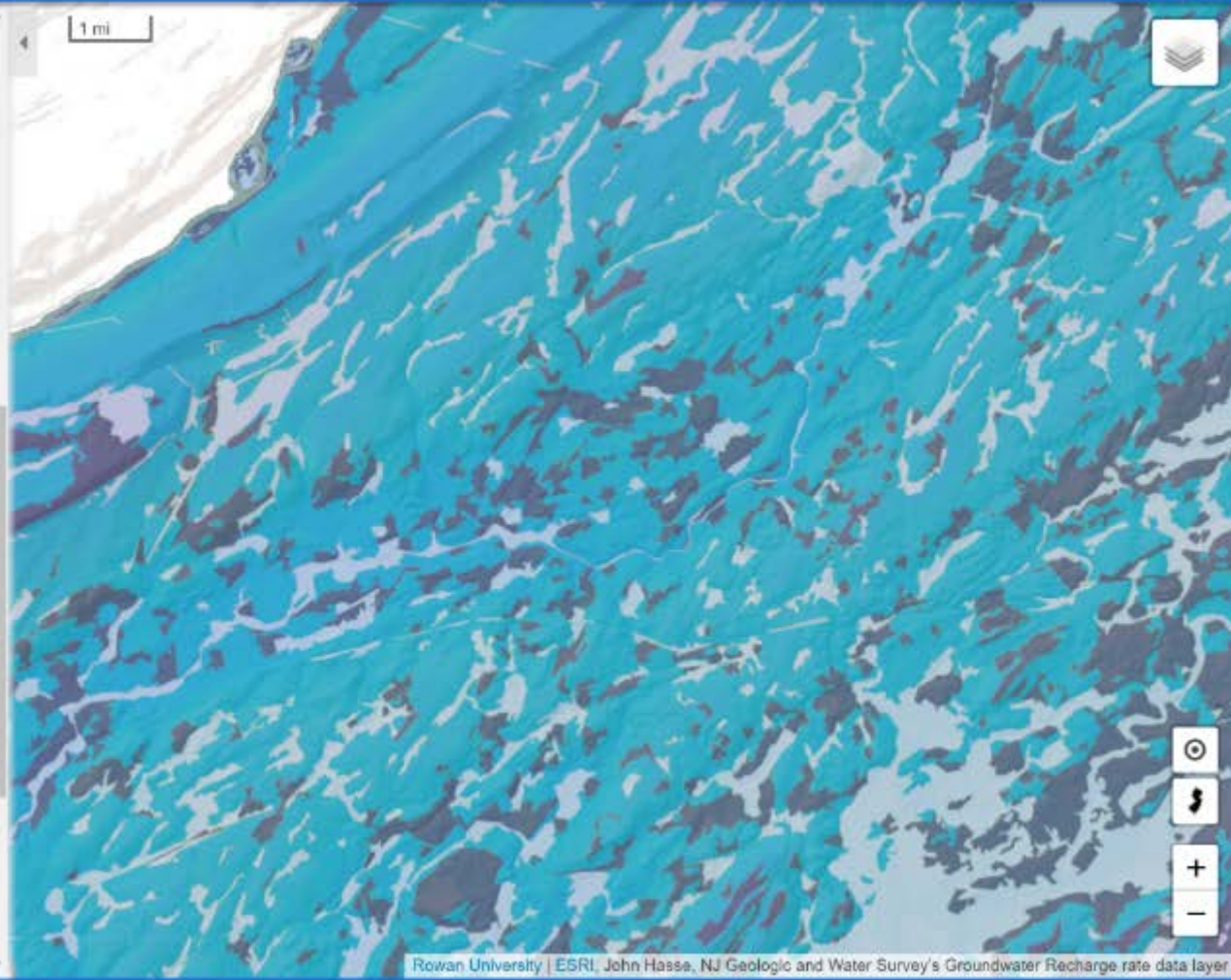
Reference Layers ▾

- Surface flow WMA01 
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Opacity 

Groundwater recharge is the process by which water moves from the surface into the groundwater and is important for clean drinking water and providing water for rivers and streams. [more...](#)

-  High Recharge
-  Medium Recharge




Rowan University | ESRI, John Hasse, NJ Geologic and Water Survey's Groundwater Recharge rate data layer




NEW JERSEY MAP Watershed Explorer (beta)

- Watershed Management Areas ▾
- Wetlands (WMA01) ▾
- Vermeule's Forest Map ▾
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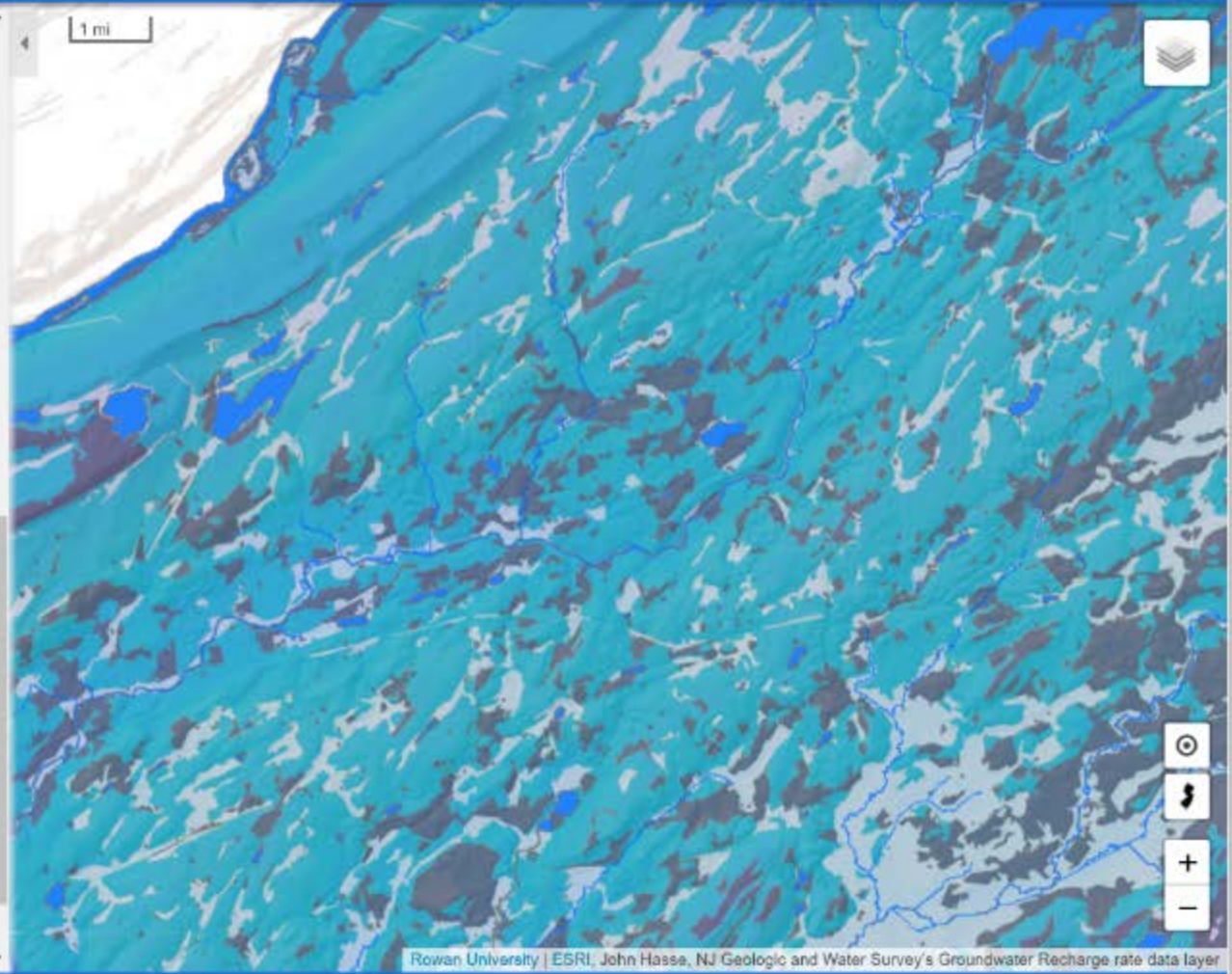
Opacity



Groundwater recharge is the process by which water moves from the surface into the groundwater and is important for clean drinking water and providing water for rivers and streams. [more...](#)

-  High Recharge
-  Medium Recharge
-  Low Recharge

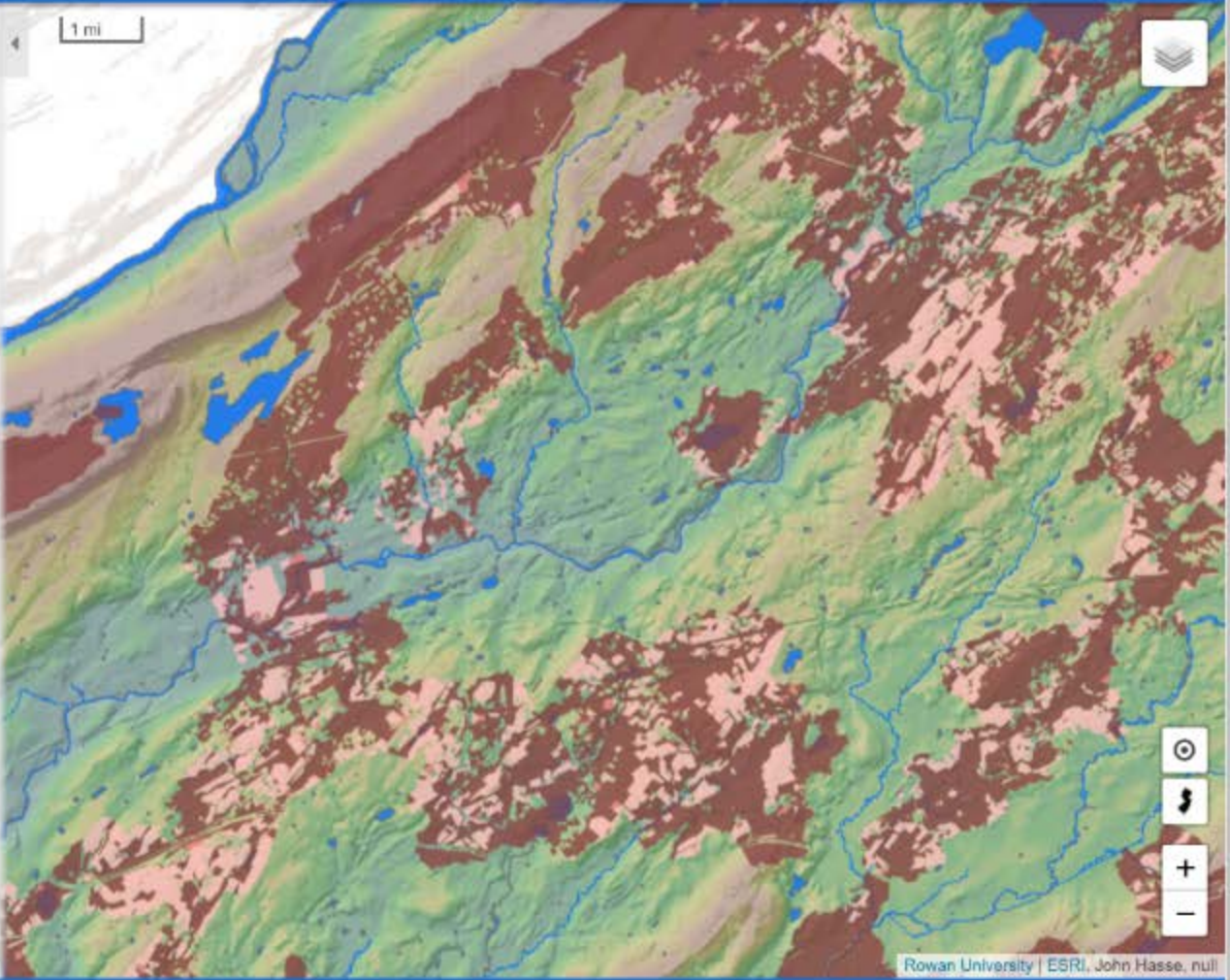
- 1778 Map ▾
- Headwaters (WMA01) ▾
- Colored Elevation ▾



NEW JERSEY MAP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments ⓘ

- Active River Area (Flood Zone) ⓘ
- Reference Layers ▾
- Surface flow WMA01 ⓘ
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- Watershed Management Areas ⓘ
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- 1778 Map ⓘ
- Headwaters (WMA01) ⓘ
- Colored Elevation ⓘ
- Deep Song WS ⓘ



Land Resources (beta) ▶

NEW JERSEY MAP Watershed Explorer (beta)

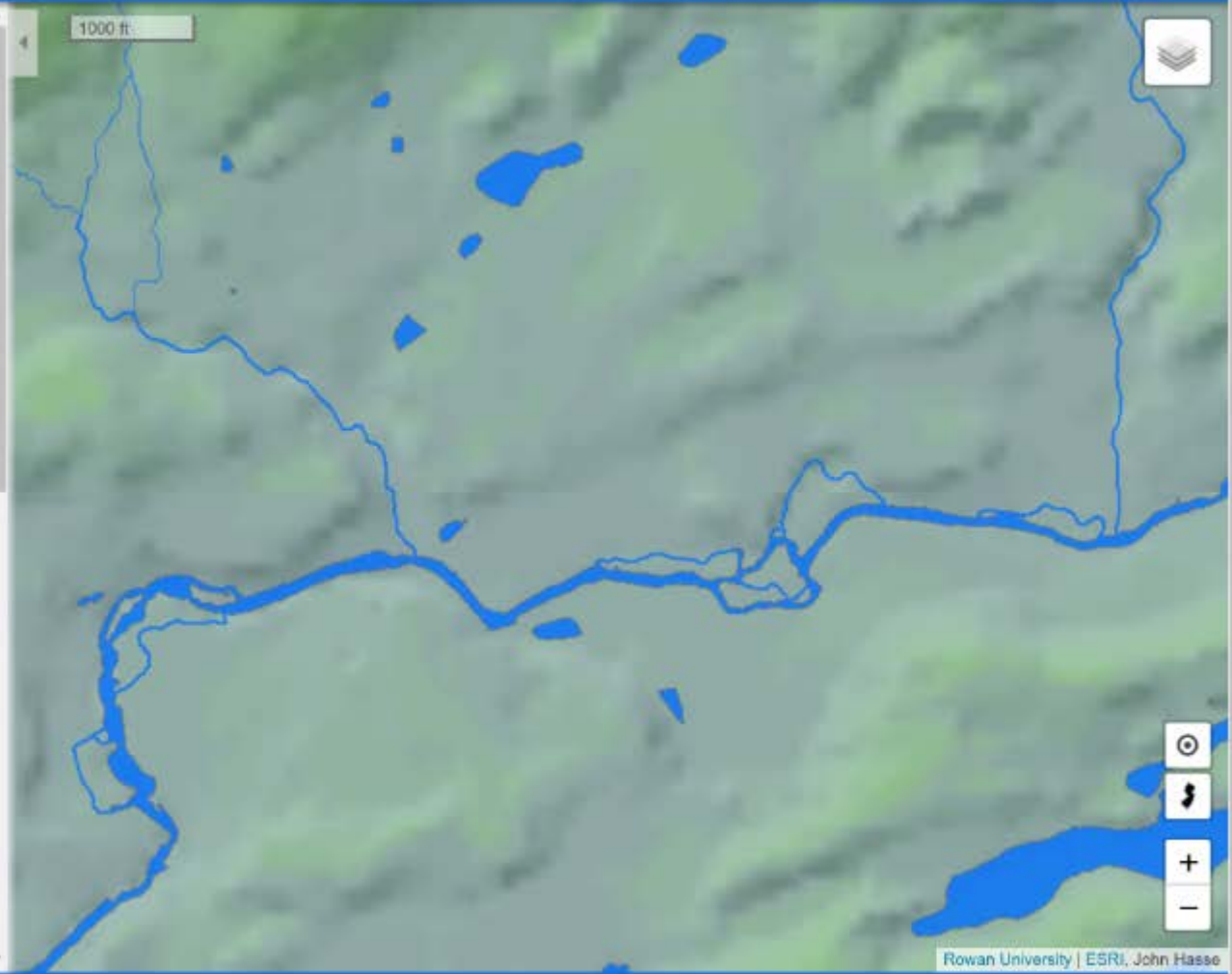
Watersheds (beta)

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- NJ River Basins
- Watershed Areas (HUC11) colored
- Impervious % (land use polys)

Reference Layers

Water Resources (beta)

- Municipalities
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- Wetlands with Buffers
















NEW JERSEY MAP Watershed Explorer (beta)

Maps ▾ Search ▾ Share ▾ Comments  

Active River Area (Flood Zone) 

Reference Layers ▾

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Land Resources (beta) 



NEW JERSEY MAP Watershed Explorer (beta)

Maps Search Share Comments

Watersheds (beta)

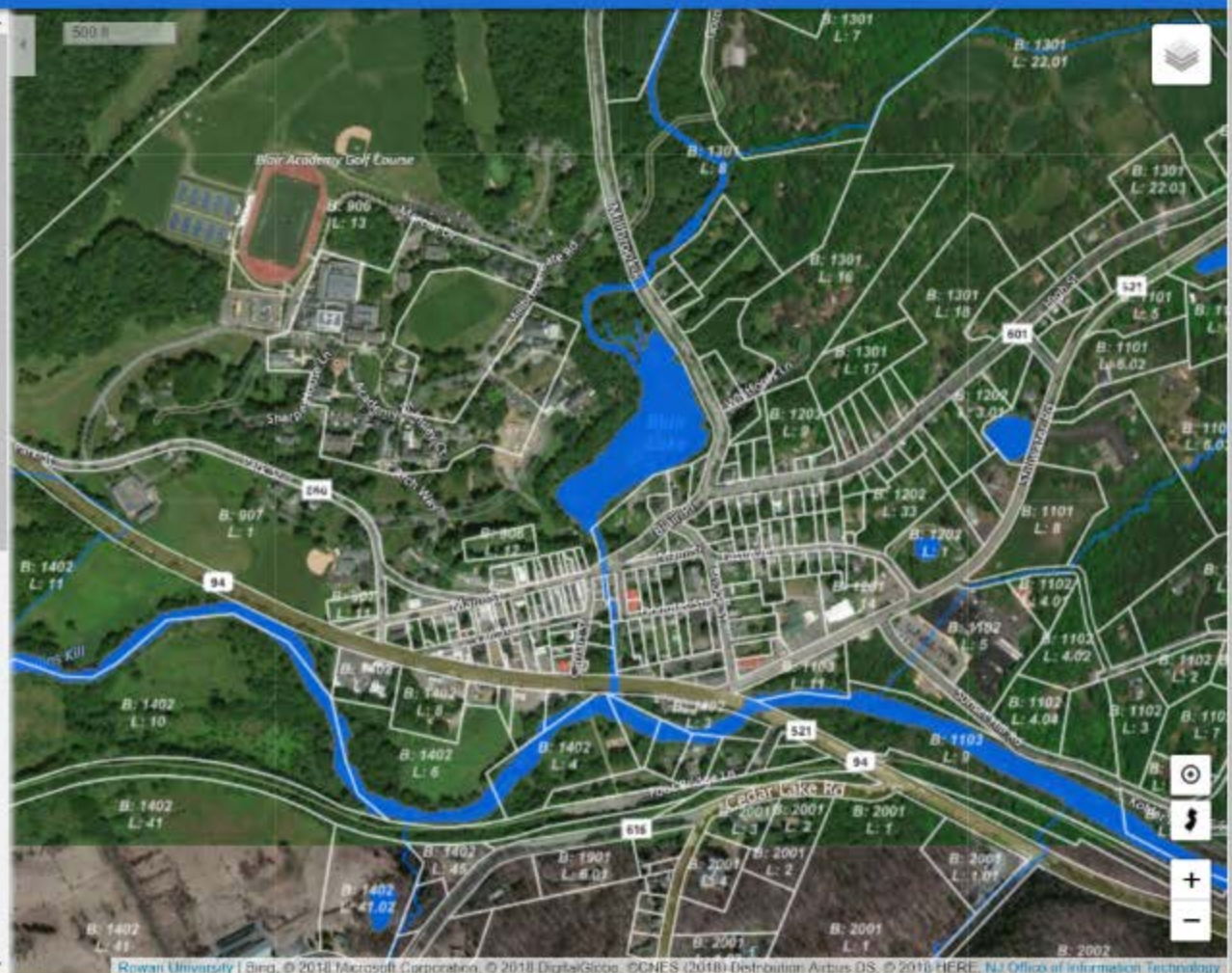
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NEW JERSEY MAP Watershed Explorer (beta)

Watersheds (beta)

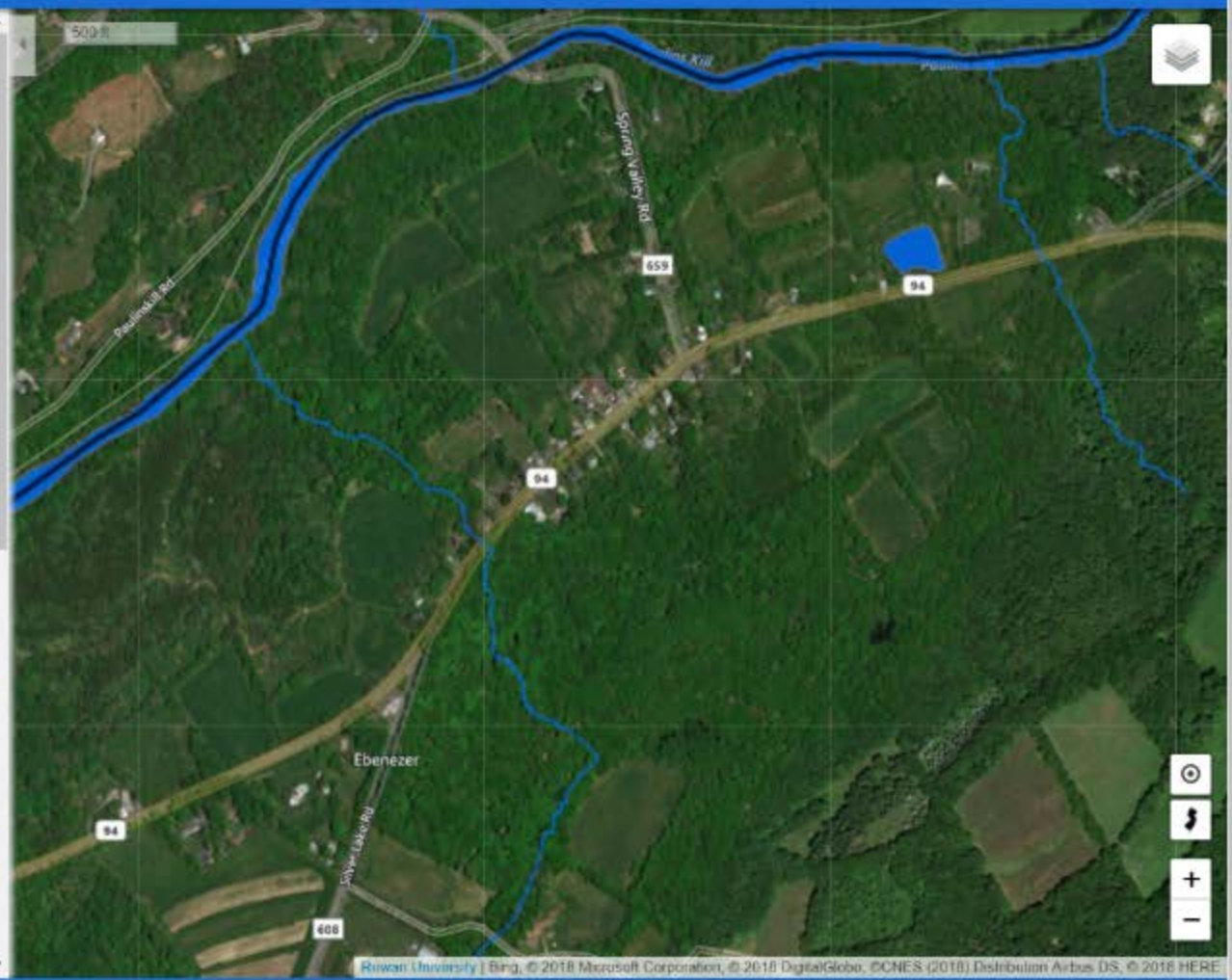
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Maps - Search - Share - Comments

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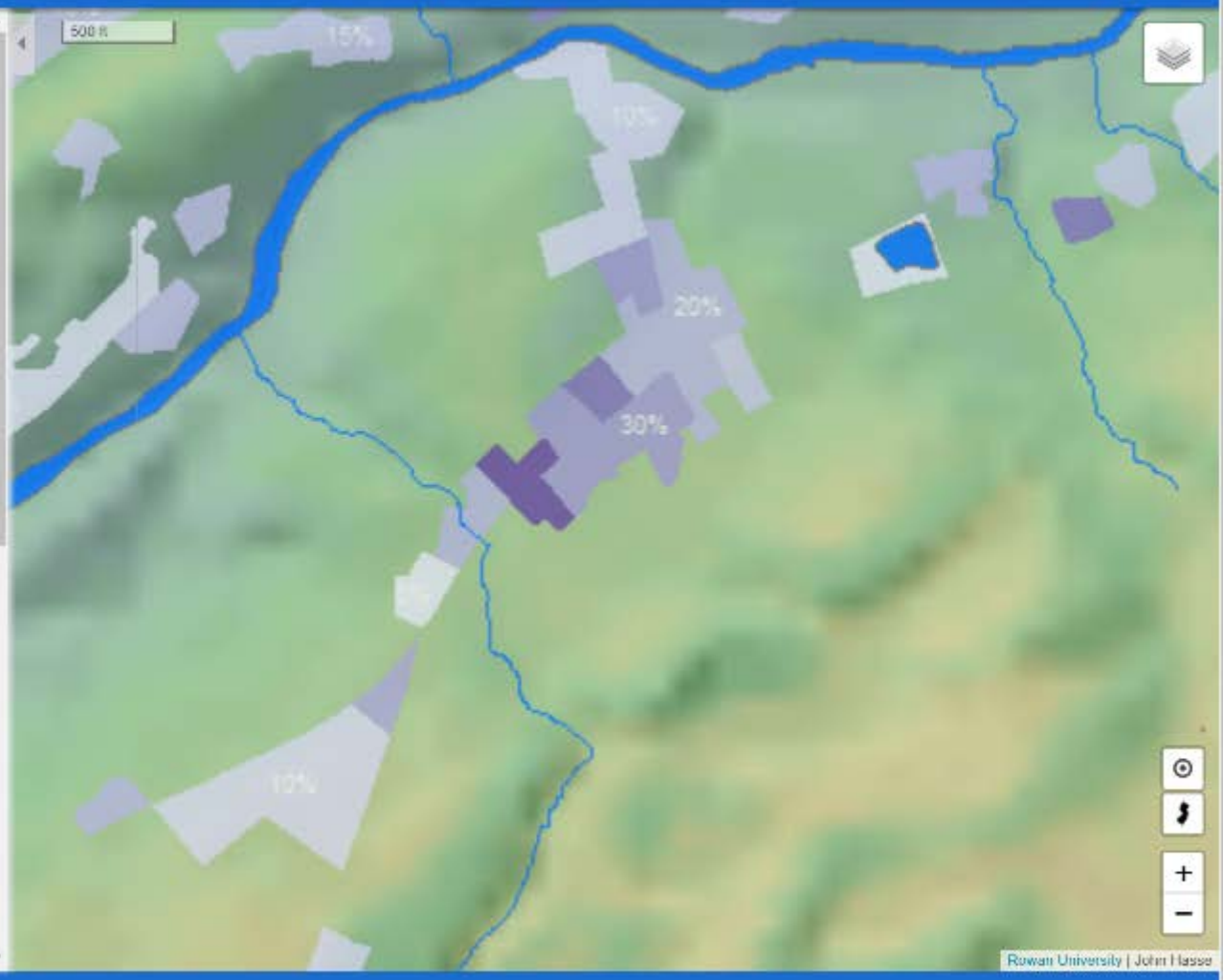
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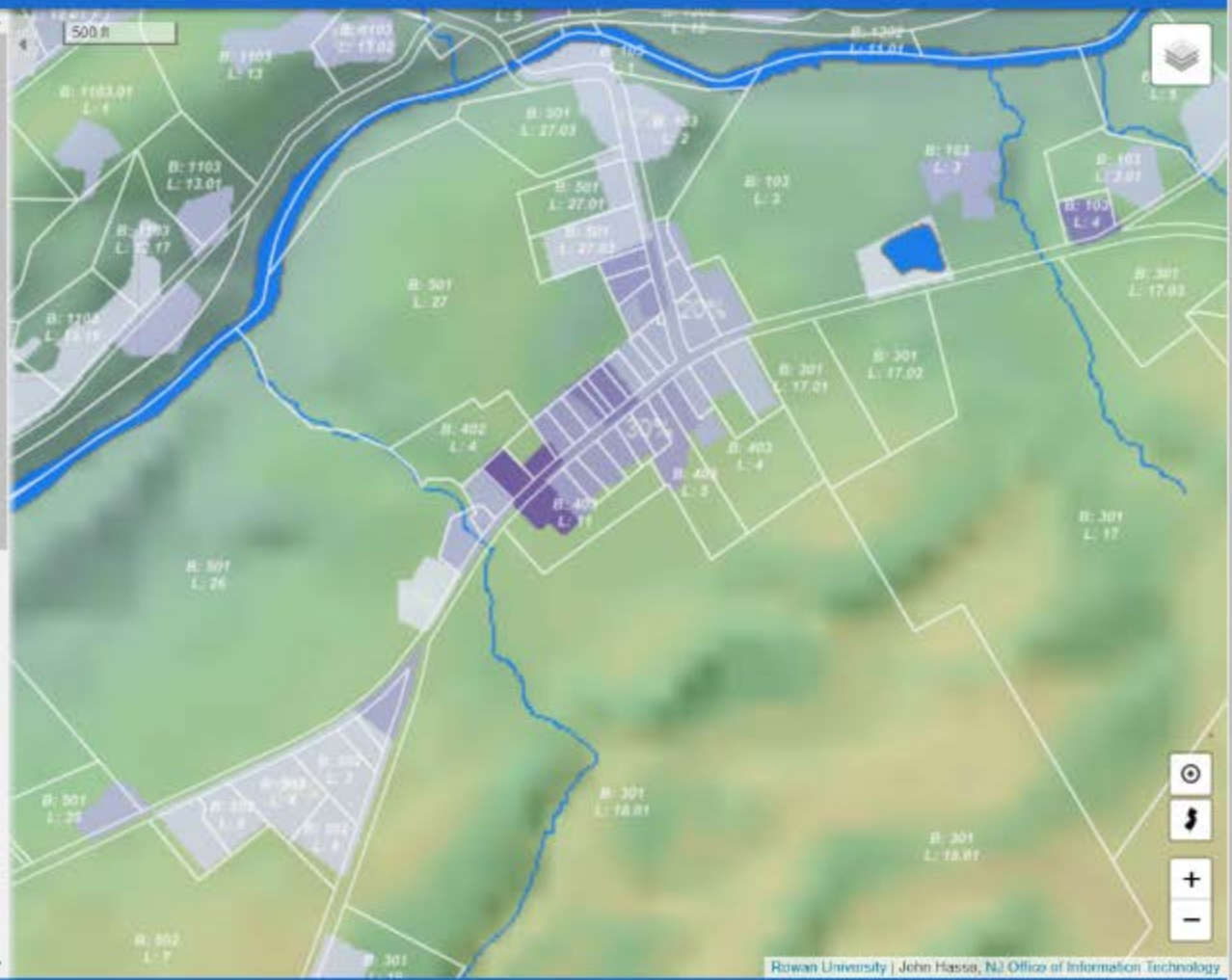
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Maps Search Share Comments

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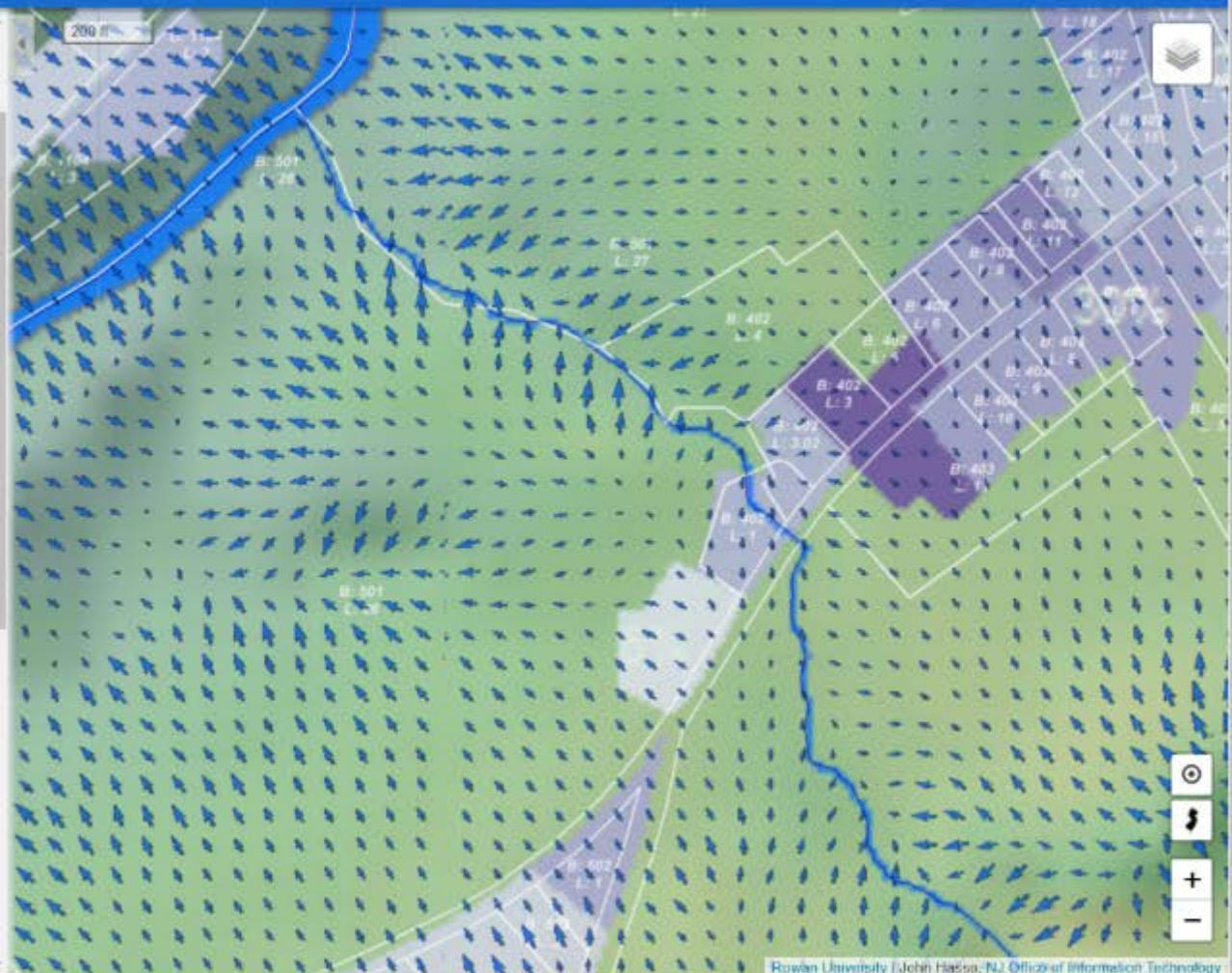
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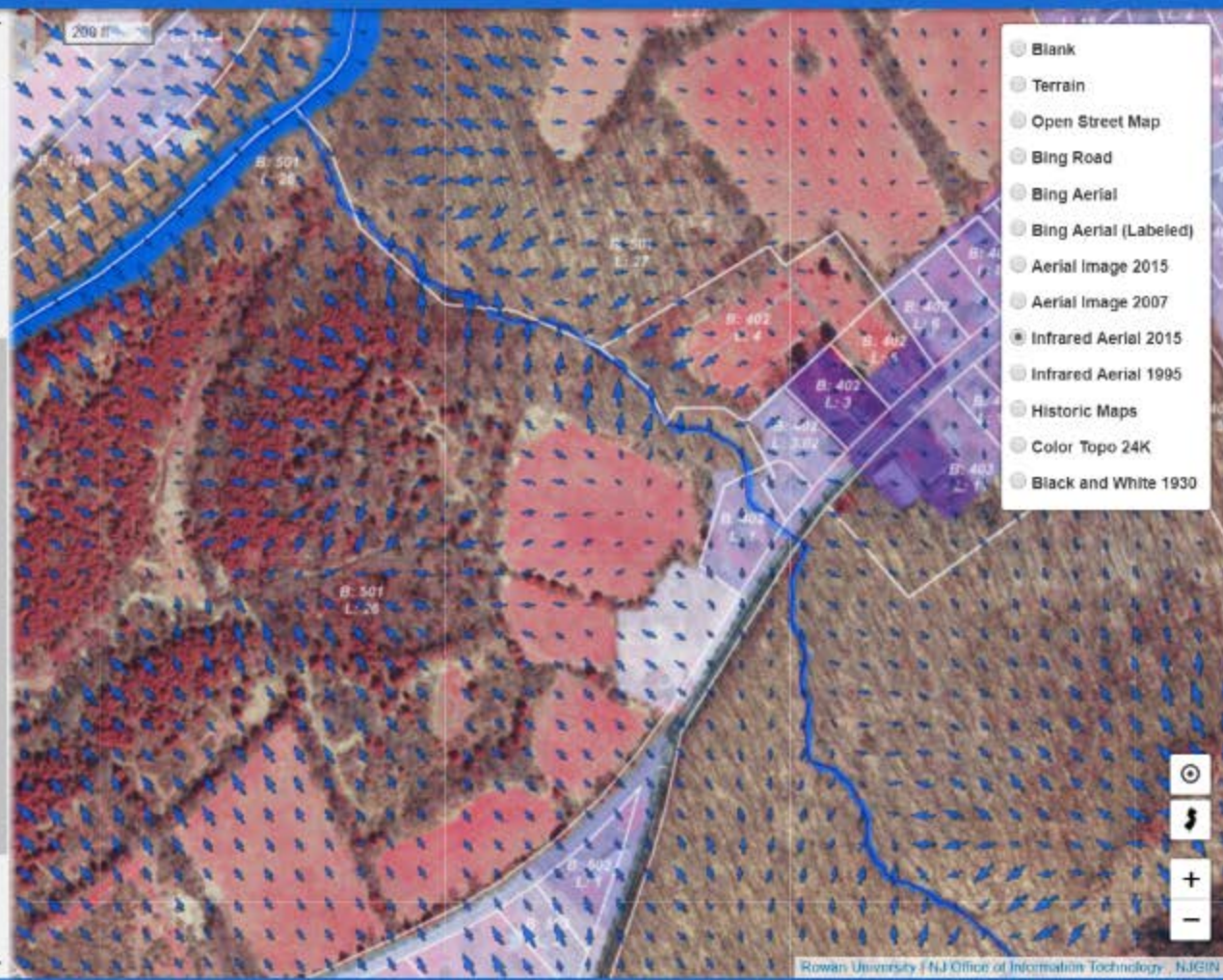
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- Blank
- Terrain
- Open Street Map
- Bing Road
- Bing Aerial
- Bing Aerial (Labeled)
- Aerial Image 2015
- Aerial Image 2007
- Infrared Aerial 2015
- Infrared Aerial 1995
- Historic Maps
- Color Topo 24K
- Black and White 1930

Map navigation controls: Home, Full Screen, Zoom In (+), Zoom Out (-)

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Water Quality
is a cornerstone
of
Sustainability

Geospatial Research Lab
Rowan University

Sustainability can be achieved
one watershed at a time



New Jersey MAP

<https://njmap2.org>



2018 NEW JERSEY SUSTAINABILITY SUMMIT



New Jersey Green Infrastructure Municipal Toolkit

Louise Wilson
Green Infrastructure Manager
New Jersey Future
LWilson@NJFuture.org



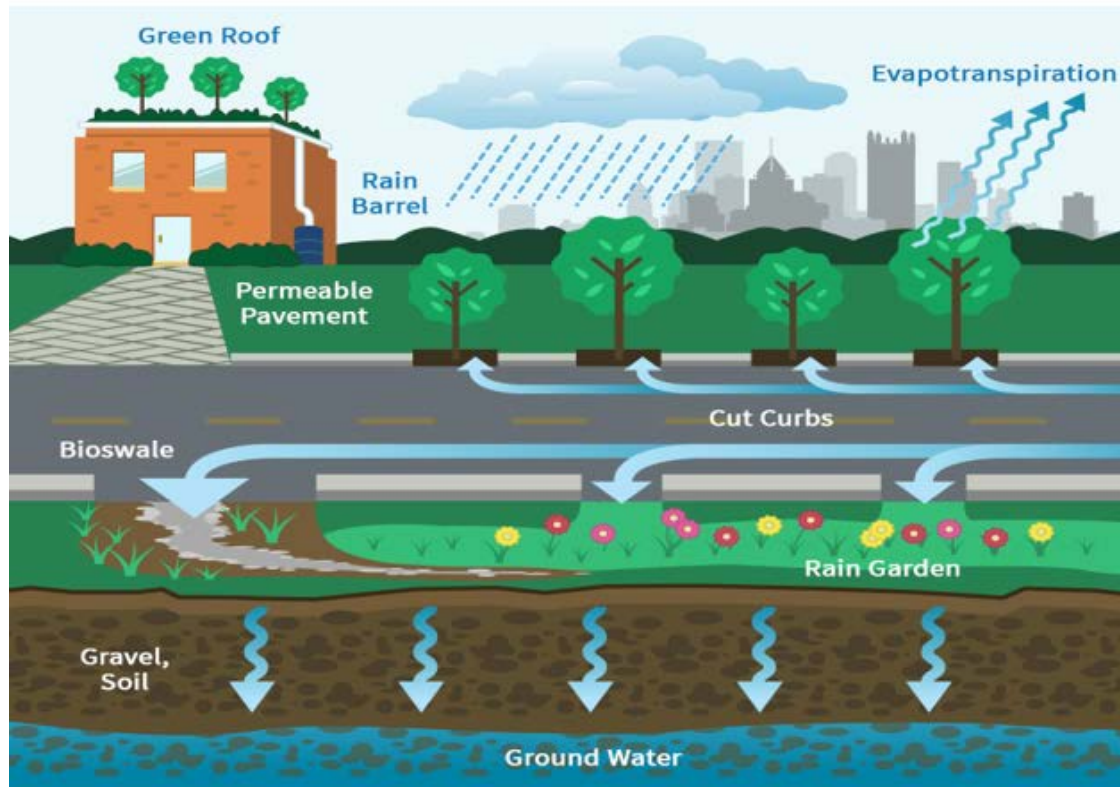
**MAINSTREAMING
GREEN INFRASTRUCTURE**

A program of New Jersey Future



What is Green Infrastructure?

stormwater management practices
that use or mimic the natural water cycle



Examples:

- ✓ Bioretention/rain gardens
- ✓ Bio-swales
- ✓ Permeable pavement
- ✓ Green roofs
- ✓ Cisterns/rain barrels
- ✓ Downspout planters
- ✓ Tree trenches
- ✓ Constructed wetlands
- ✓ Wet ponds

What it looks like: city roofs and streets





What it looks like in suburbia





Virtual Voorhees hospital



Areas of green infrastructure double as a space for people to gather and enjoy the outdoors. Photo Credit: Dewberry





Toolkit Origins, Purpose and Process



- New Jersey Future’s work with cities and towns provided insight:
 - Buy-in from local officials and elected leaders is crucial
 - There are multiple approaches and good resources, but no single “right way” to mainstream green infrastructure – especially in the context of the subjective “maximum extent practicable” standard New Jersey’s Stormwater Rule.
- Needed: a one-stop, go-to source of clear information, and present a variety of options.
- Step 1: Hire a great consultant team.
- Step 1A: Create (and listen to) a Municipal Advisory Committee.



Result: a web-based Toolkit

Primary audience: municipal officials



[Home](#) ▾

[Plan](#)

[Implement](#) ▾

[Sustain](#) ▾

[Resources](#)

[About](#) ▾

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CLEAN WATER: A PRECIOUS RESOURCE THAT NEEDS PROTECTING.

Unfortunately, nearly all of New Jersey's rivers, streams and lakes are impaired. As a municipal leader, **you have the power to protect and improve your community's water.**



Organizing Principles: Plan, Implement, Sustain



**NEW JERSEY
GREEN INFRASTRUCTURE
MUNICIPAL TOOLKIT**

[Home](#) ▾

[Plan](#)

[Implement](#) ▾

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Sustainability is Key to Success

Operations and Maintenance

All municipalities with GI installations need

Reporting/Oversight

The best way to track the performance

Community Engagement

Community engagement and education is



Plan: get those ducks in a row



[Home](#) ▾

[Plan](#)

[Implement](#) ▾

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Make A Plan for Green Infrastructure

Hear from people that are directly involved in the design and development of influential, sustainable green infrastructure projects.

fzprojects.com/clients/njf/resources.php



Implement: Secure \$\$, design & build projects



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GREEN INFRASTRUCTURE
MUNICIPAL TOOLKIT**

Home ▾

Plan

Implement ▾

Sustain ▾

Resources

About ▾

Contact Us

- Site Specific Assessment
- Models
- Demonstration Examples
- Resources for Designers
- Funding

- All Types
- Construction
- Planning
- Design
- Maintenance
- Other
- Implementation

Funding

All Types ▾

Funding Type:

All Types ▾

Eligible Activities:

All Activities ▾

Showing **49** results

United States Environmental Protection Agency

Urban Waters Small Grants

Project Type: Construction

Funding Type: Federal



Sustain: Maintain!



- Home ▾
- Plan
- Implement ▾
- Sustain ▾**
- Resources
- About ▾
- Contact Us



Sustainability is Key to Success

Operations and Maintenance

All municipalities with GI installations need a properly prepared and adequately detailed Operations and Maintenance (O&M) Plan...

[Learn More >](#)

Reporting/Oversight

The best way to track the performance, inspection and maintenance of GI BMPs is by keeping a log book...

[Learn More >](#)

Community Engagement

Community engagement and education is key to promoting the adoption of green infrastructure...

[Learn More >](#)



In each section: guidance, examples, resources



[Home](#) ▾ [Plan](#) [Implement](#) ▾ [Sustain](#) ▾ [Resources](#) [About](#) ▾ [Contact Us](#)

Like all infrastructure, green infrastructure requires monitoring and maintenance in order to function properly over the long term.

Maintaining GI is not complicated and should not deter a city or town from using or requiring these valuable practices. This section contains tools and guidance to help ensure GI installations deliver the highest return on investment

Operations and Maintenance

All municipalities with GI installations need a properly prepared and adequately detailed [Operations and Maintenance \(O&M\) Plan and Manual](#).



Sample Resources



[Home](#) ▾ [Plan](#) [Implement](#) ▾ [Sustain](#) ▾ [Resources](#) [About](#) ▾ [Contact Us](#)

Sustain

Operations and Maintenance

- [Operations and Maintenance \(O&M\) Plan and Manual.](#)
- [NJ Stormwater Best Management Practices \(BMP\) Manual](#)
- [Water Resource Program](#)

Guidance Documents

- [Evaluating Green Infrastructure: A Combined Sewer Overflow Control Alternative for Long Term Control Plans](#)
- [Green Infrastructure Maintenance Procedures](#)
- [This presentation prepared by Rutgers](#)
- [Philadelphia Water Department's Green Stormwater Infrastructure Maintenance Manual](#)

Training Programs

- [Stormwater Training](#)
- [Asking the Right Questions in Stormwater Review eLearning Tool](#)
- [Green Infrastructure Overview: Examples and Properties of a Variety of Stormwater Management Solutions eLearning Tool](#)
- [Green Infrastructure Webcast Series](#)
- [Green Stormwater Infrastructure Operation and Maintenance Course](#)
- [Inventory and Assessment of your Stormwater Infrastructure eLearning Tool](#)
- [Paraprofessionals Watershed Restoration Training Program](#)
- [Rainwater Harvesting with Rain Barrels Trainer Manual](#)
- [Stormwater Management in Your Backyard](#)



Still to come:



- More photos and renderings
- Videos (3 in production)
- “Road Map” for users
- Links to Sustainable Jersey Green Infrastructure Actions and Water Gold
- Primer on the federal, state and local regulatory framework



GREEN INFRASTRUCTURE
Sustainable Stormwater Management





NEW JERSEY GREEN INFRASTRUCTURE MUNICIPAL TOOLKIT

Coming September 2018

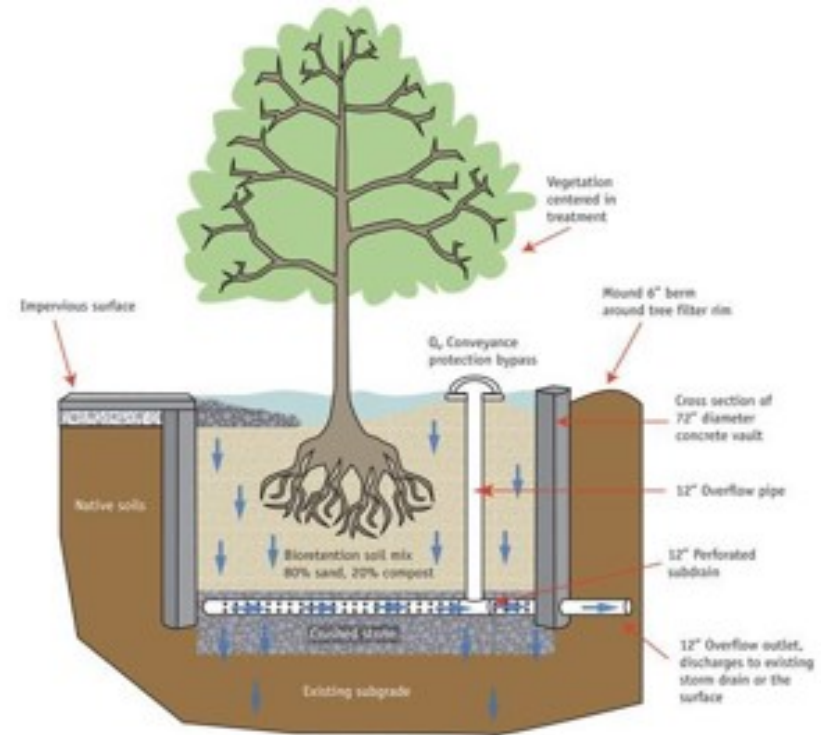
Webinars

Workshops

League Conference (November)



Thank You!



GREEN INFRASTRUCTURE
Sustainable Stormwater Management



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Current Annual Sustainable Jersey for Schools Sponsors

Sustainable Jersey for Schools Underwriters



Small Grants Underwriters



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GOLD



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Q&A

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