



Stormwater Regulation Compliance: Watershed Improvement Plans



September 10, 2026

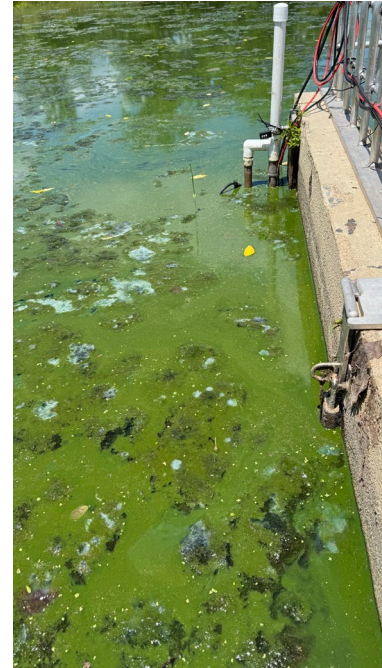
Questions?

- Are NJ's streams, creeks and lakes clean?
- Why are NJ's waterways polluted?
- What is causing flooding?
- What does MS4 stand for?

Why is Stormwater Management Important



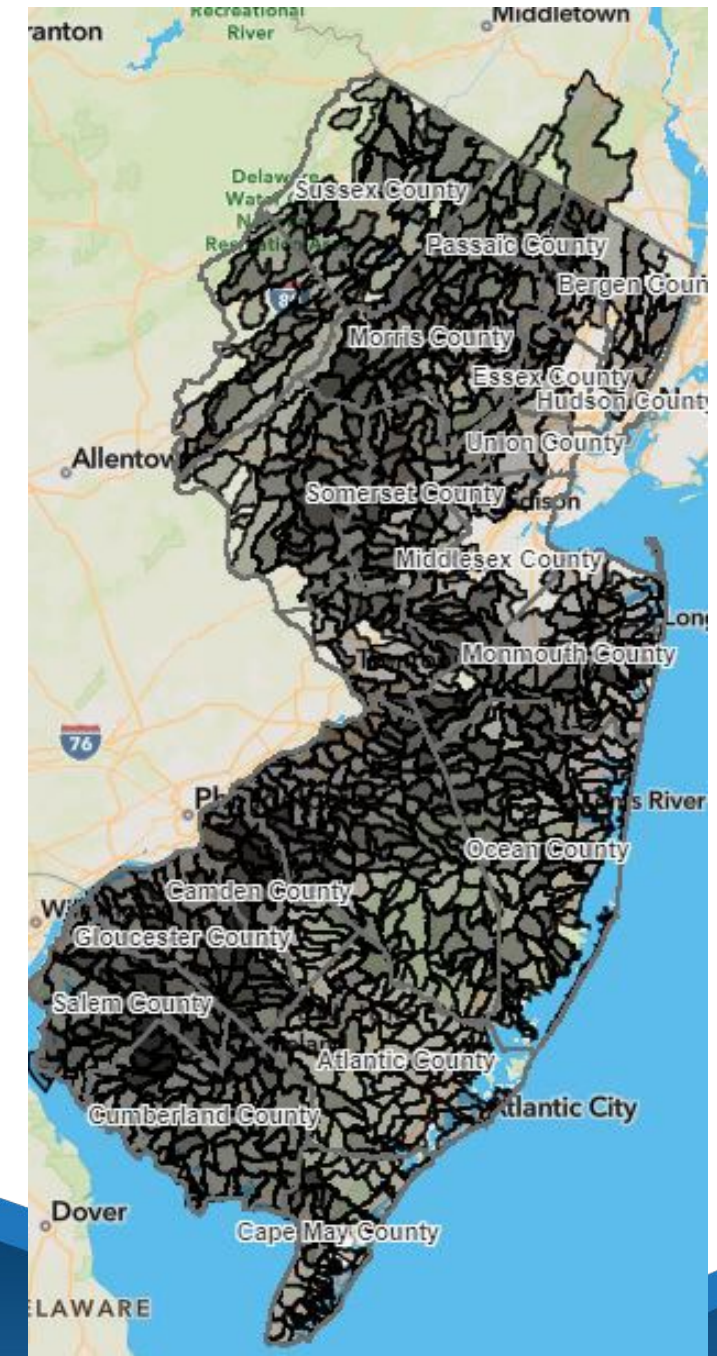
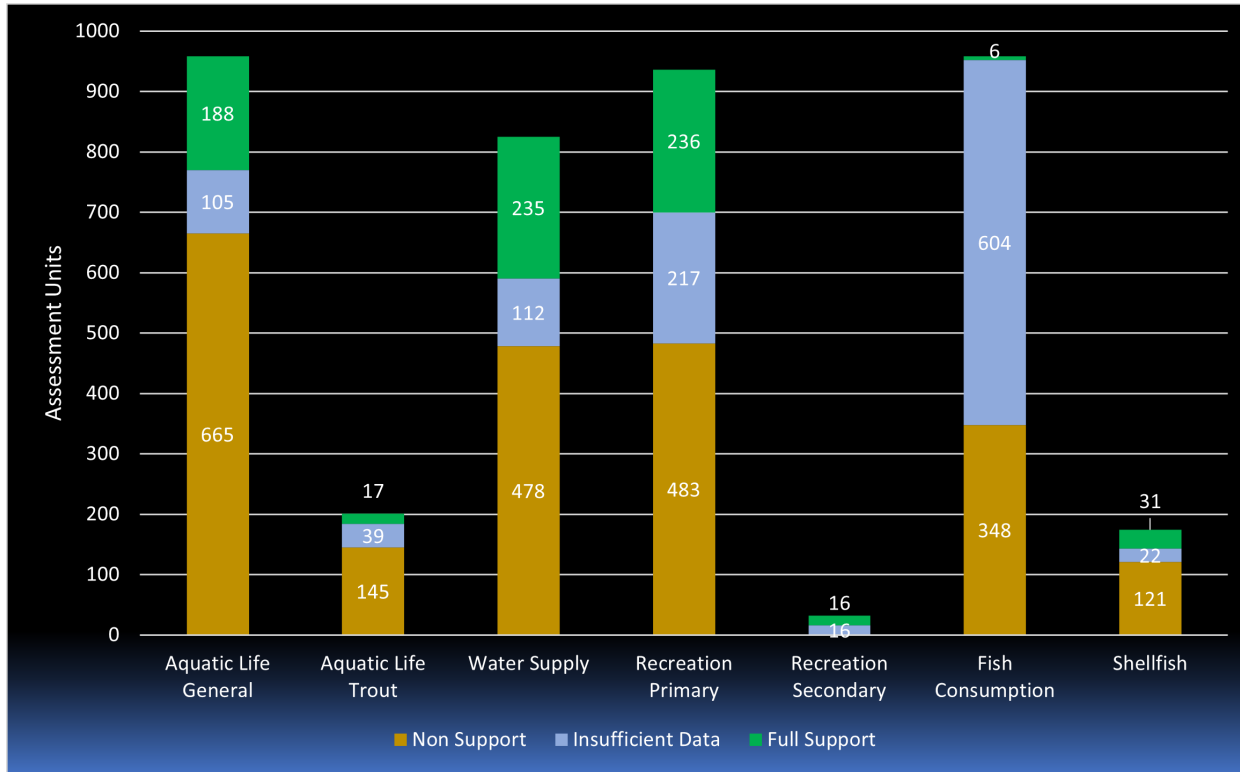
Why is Stormwater Management Important



Why is Stormwater Management Important



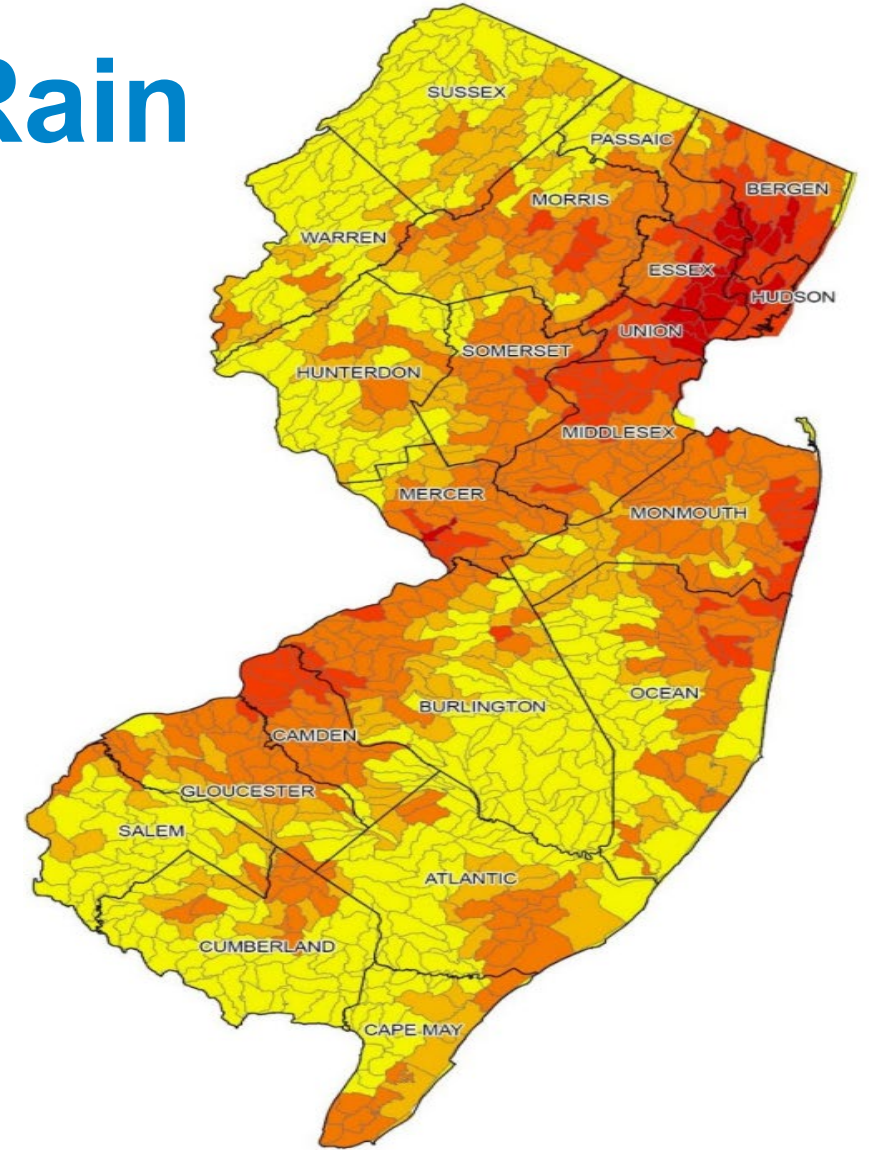
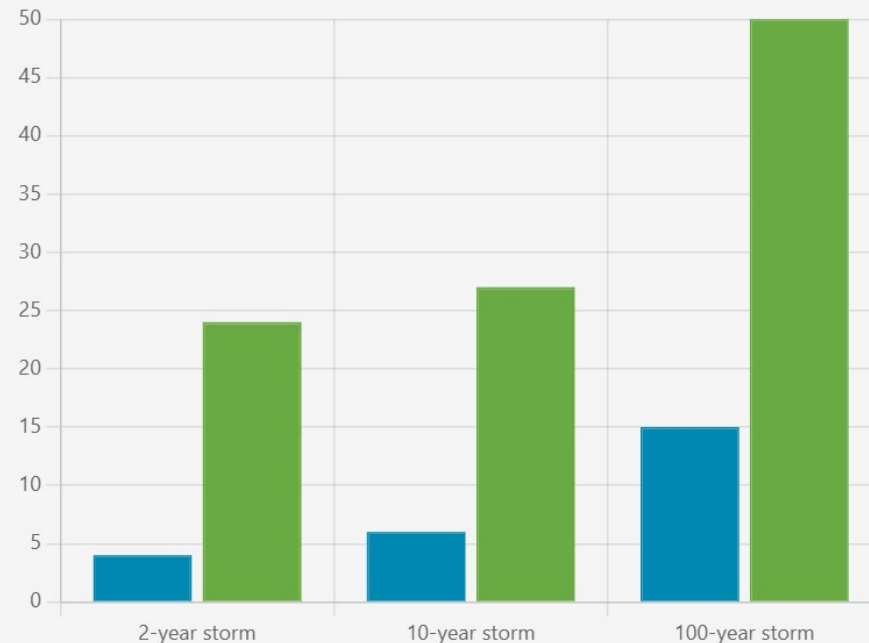
Why is Stormwater Management Important



More Impervious More Rain

Highest Observed and Projected Precipitation Change

■ Observed Precipitation Change Since 1999
■ Projected Precipitation Change Under a Moderate Emissions Scenario for 2050-2099



% Impervious Surface 2020



Changing Landscapes in the Garden State:
Land Use Change in NJ 1986 to 2020

Evolution of NJ's Stormwater Management Regime

1981 Stormwater
Management Act

1990s Stormwater
Management
Regulations

2004 Stormwater
Rules & MS4 permit

2018 MS4 Permit

2019 Green
Infrastructure
Rule

**2023 MS4
Permit**

2023 Inland Flood
Protection Rule

2026 REAL Rule

Why Do We need to Improve Water Quality and Reduce Flooding?



Clean Water Act

The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

It is the national goal that the discharge of pollutants into the navigable waters be eliminated by **1985**;



It is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by **July 1, 1983**;

33 U.S.C. 1251(a)

NJ Water Pollution Control Act

It is the policy of this State to restore, enhance and maintain the chemical, physical, and biological integrity of its waters...

- to protect public health
- to safeguard fish and aquatic life
- scenic and ecological values ...

N.J.S.A. 58:10A-2.



Surface Water Quality Standards

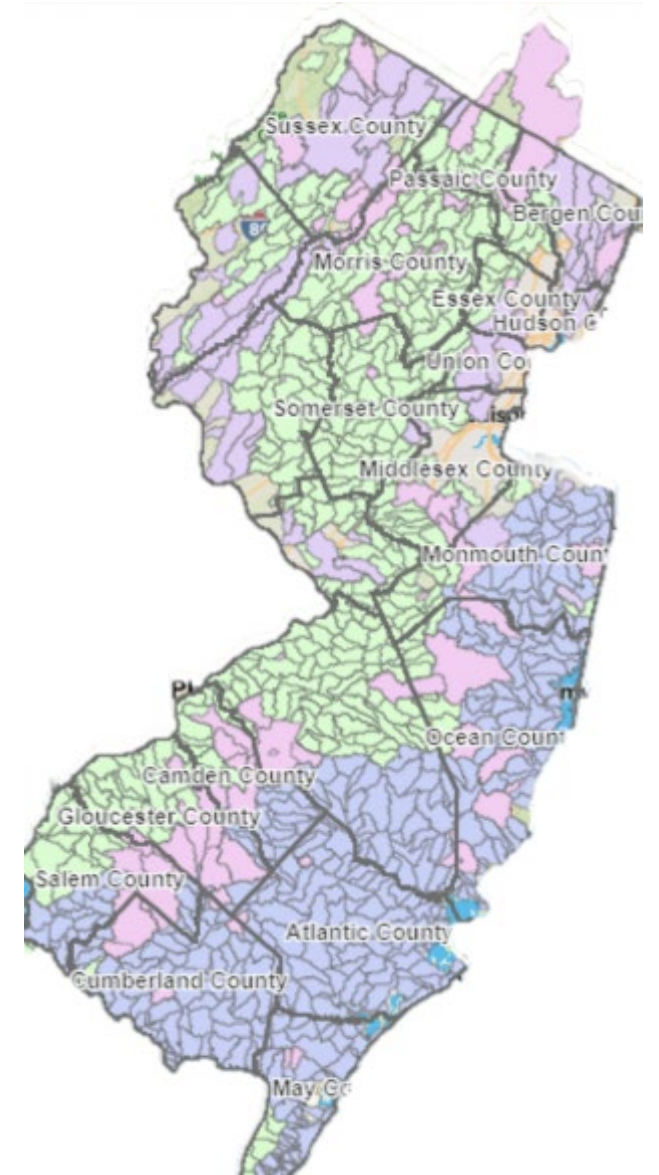
No irreversible changes may be made to existing water quality that would impair or preclude attainment of designated uses of a waterway.

N.J.A.C. 7:9B-1.5(d)(1)(ii)

TMDLs

Total Maximum Daily Load

The amount of pollutant from point, nonpoint, and natural background sources, that may be discharged to a water-quality-limited receiving water and that waterbody achieving water quality standards.



All Together

All National Pollution Discharge Elimination Permits must include Waste Load Allocations in a TMDL.

- 40 C.F.R. 122.44d(1)(vii)(B)

MS4 permits are NPDES permits.

Table 9. Distribution of TSS WLAs and LAs among source categories for parts of the Carnegie Lake Watershed

Long Term Average Daily Load (kg/d TSS)	Upper Millstone River Watershed			Stony Brook Watershed			Carnegie Lake Direct Watershed		
	Existing Condition	TMDL Allocation	Percent Reduction	Existing Condition	TMDL Allocation	Percent Reduction	Existing Condition	TMDL Allocation	Percent Reduction
Sum of Wasteload Allocations (WLAs)	3,961	1,506	62.0%	2,286	401	82.5%	602	96	84.0%
Treated Effluent from WWTP Discharges [*]	502	953	-89.6%	20	38	-89.6%	0	0	0%
Stormwater from Residential Land Cover Areas	1,615	258	84.0%	1,529	245	84.0%	272	44	84.0%
Stormwater from Other Urban Land Cover Areas	1,843	295	84.0%	737	118	84.0%	329	53	84.0%
Sum of Load Allocations (LAs)	2,775	2,060	25.8%	2,624	1,328	49.4%	58	49	14.9%
Boundary Inputs	0	0	0.0%	0	0	0.0%	0	0	0.0%
Tributary Baseflow	1,267	1,267	0.0%	297	297	0.0%	29	29	0.0%
Stormwater from Agricultural Land Cover Areas	851	136	84.0%	1,543	247	84.0%	10	2	84.0%
Stormwater from Forest and Barren Land Cover Areas	51	51	0.0%	525	525	0.0%	6	6	0.0%
Stormwater from Wetlands Land Cover Areas	605	605	0.0%	260	260	0.0%	13	13	0.0%
Total Margin of Safety (% of LC)	n/a	172	4.5%	n/a	152	8.0%	n/a	24	14.4%
Reserve Capacity (% of WWTP load)	n/a	103	10.8%	n/a	25	66.5%	n/a	0	n/a
Loading Capacity (LC)	6,735	3,841	43.0%	4,909	1,906	61.2%	660	170	74.2%

^{*} Although the TSS TMDL allocation is reflective of discharging up to current permitted flow and existing NJDPES permit TSS limits, the WLAs for total phosphorus effectively limit loadings due to TP being present in suspended solids in WWTP effluent.
n/a - not applicable

MS4- Watershed Improvement Plan

- Objective
 - Improve water quality by reducing contribution of pollutant parameters found in a Total Maximum Daily Load (TMDL)
 - Improve water quality by reducing contribution of pollutant parameters causing water quality in Integrated Report
 - Reduce and/or eliminate stormwater flooding in the municipality, prioritizing the areas of flooding for corrective actions based on threat to human health and safety, environmental impacts, and frequency of occurrence.
- 3 phases
 - Watershed Inventory Report
 - Watershed Assessment Report
 - Final Watershed Improvement Plan Report

Watershed Improvement Plans



**Watershed
Inventory Report**
Due: Dec. 2025



**Watershed
Assessment Report**
Due: Dec. 2026



**Watershed
Improvement Plan
Report**
Due: Dec. 2027

Watershed Inventory Report

- All outfalls
- Drainage areas for each outfall
- Receiving waterbodies for those outfalls
- Water Quality Classification
- Interconnection from municipality into another entity
- Drainage areas for those interconnection
- Interconnection into municipality from another entity
- All storm drain inlets



- Areas associated with each TMDL
- Area associate with each water quality impairment
 - Overburdened communities
 - Impervious areas
 - Location of BMPs

Watershed Assessment Report

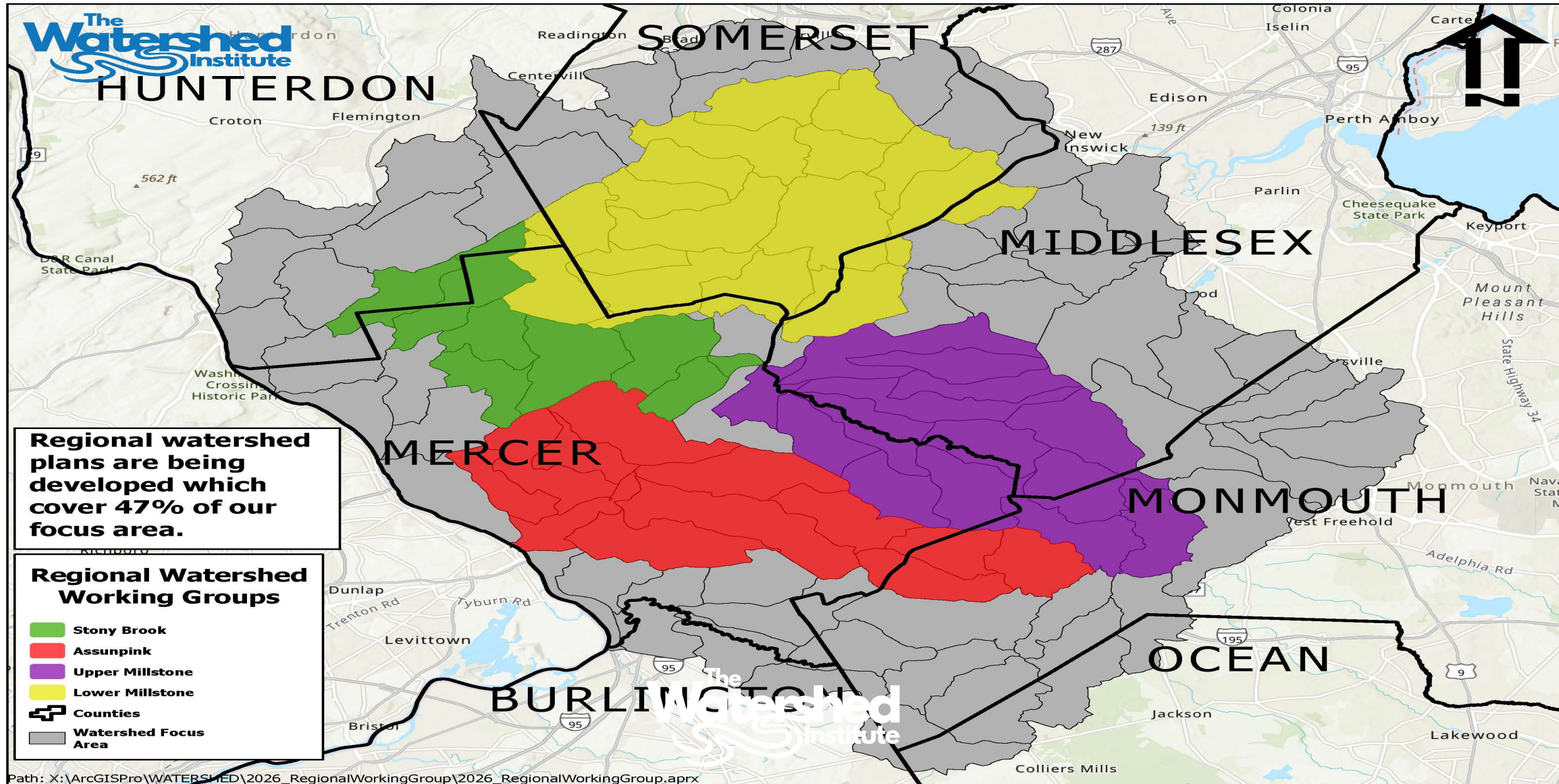


- Assessment of potential water quality improvement projects
- Estimate of percent reduction in loading of TMDL/Impaired
- Estimate of funding for each project and identification of funding
 - NJ Water Bank
 - SWU
 - 319
 - FEMA
 - Etc.
- Estimate of implementation schedule
- Public Information Session
- Comment period on draft plan

Watershed Improvement Plan Report

- Assessment of potential water quality improvement projects
- Estimate of percent reduction in loading of TMDL/Impaired
- Integrating public comment on the plan
- How Overburdened communities are prioritized
- Estimate of cost of each project and identification of funding sources
- Estimate of implementation schedule

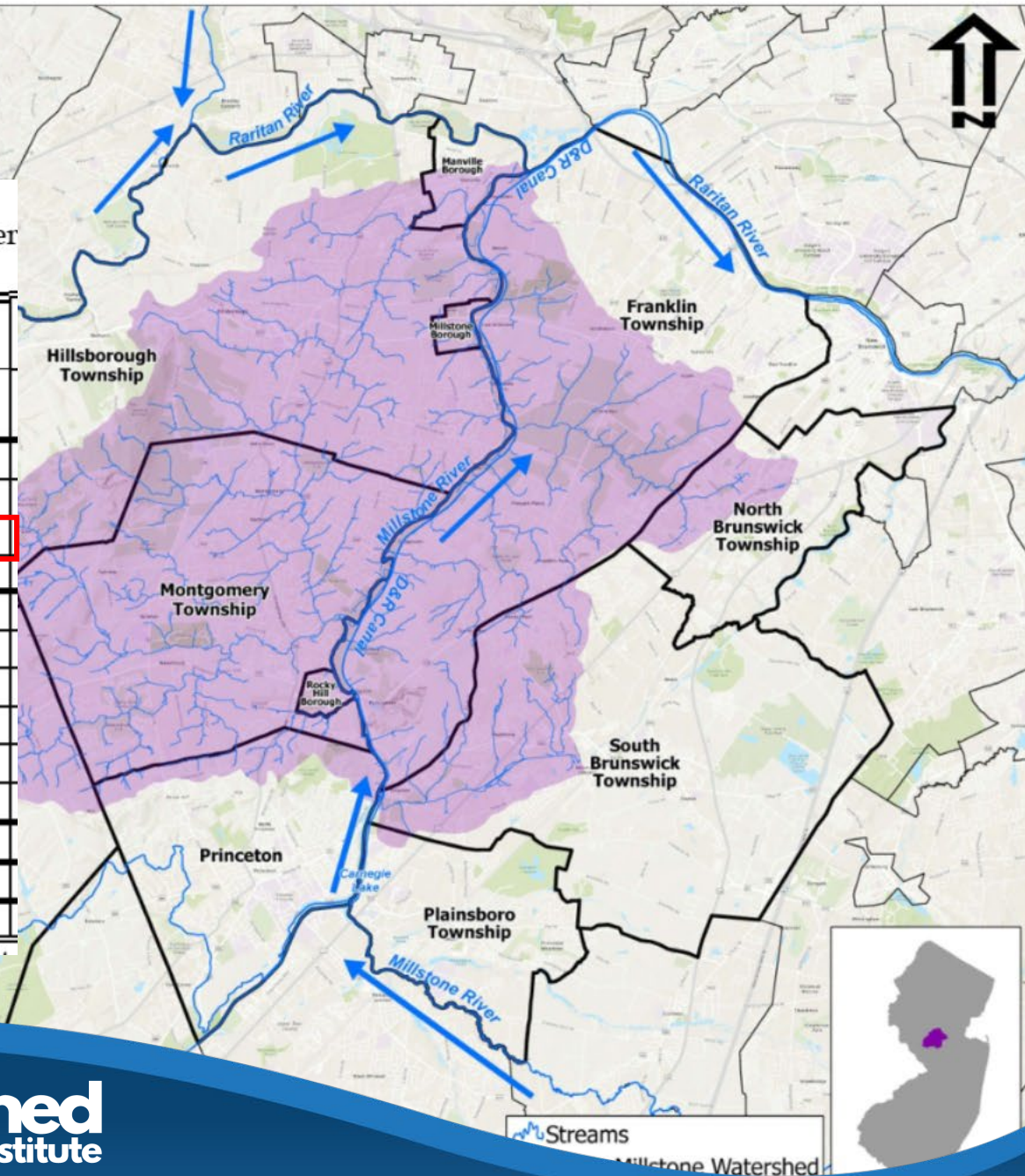
Regional Approach



Why Regional

Table 11. Distribution of TSS WLAs and LAs among source categories for the Lower watershed

Long Term Average Daily Load (kg/d TSS)	Lower Millstone/Raritan River (except Beden)*		
	Existing Condition	TMDL Allocation	Percent Reduction
Sum of Wasteload Allocations (WLAs)	13,791	8,590	37.7%
Treated Effluent from WWTP Discharges [#]	3,127	4,325	-38.3%
Stormwater from Residential Land Cover Areas	5,835	2,334	60.0%
Stormwater from Other Urban Land Cover Areas	4,829	1,932	60.0%
Sum of Load Allocations (LAs)	42,171	25,741	39.0%
Boundary Inputs**	39,091	23,575	39.7%
Tributary Baseflow	460	460	0.0%
Stormwater from Agricultural Land Cover Areas	1,523	609	60.0%
Stormwater from Forest and Barren Land Cover Areas	399	399	0.0%
Stormwater from Wetlands Land Cover Areas	698	698	0.0%
Total Margin of Safety (% of LC)	n/a	1,219	3.4%
Reserve Capacity (% of WWTP load)	n/a	156	3.6%
Loading Capacity (LC)	55,961	35,707	36.2%



Regional Approaches Are Encouraged!

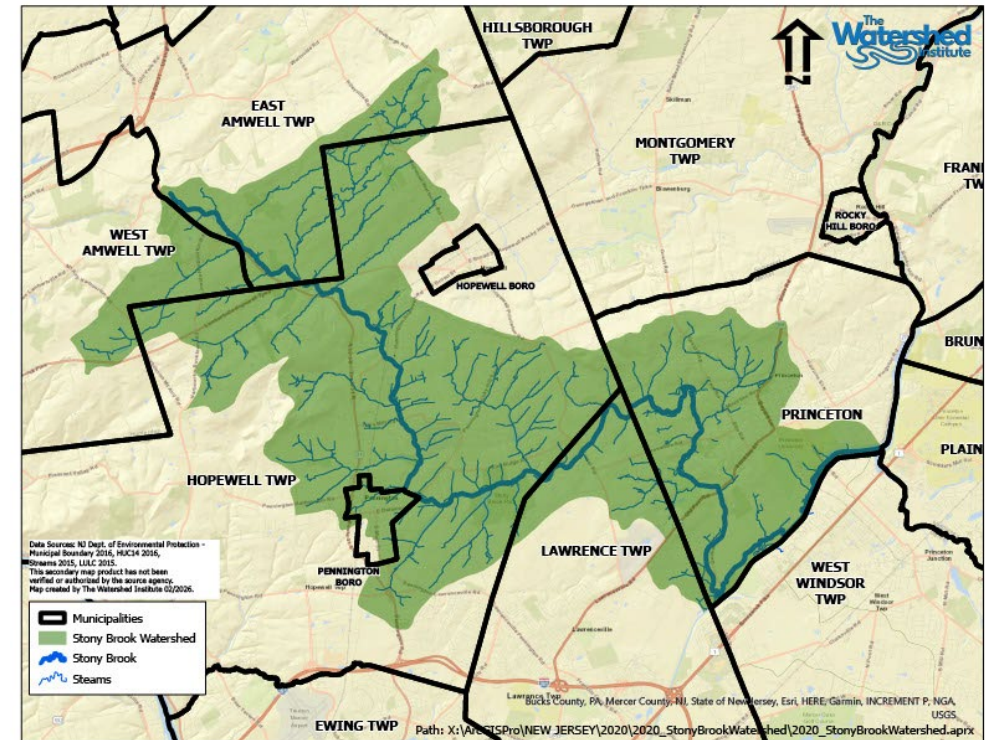
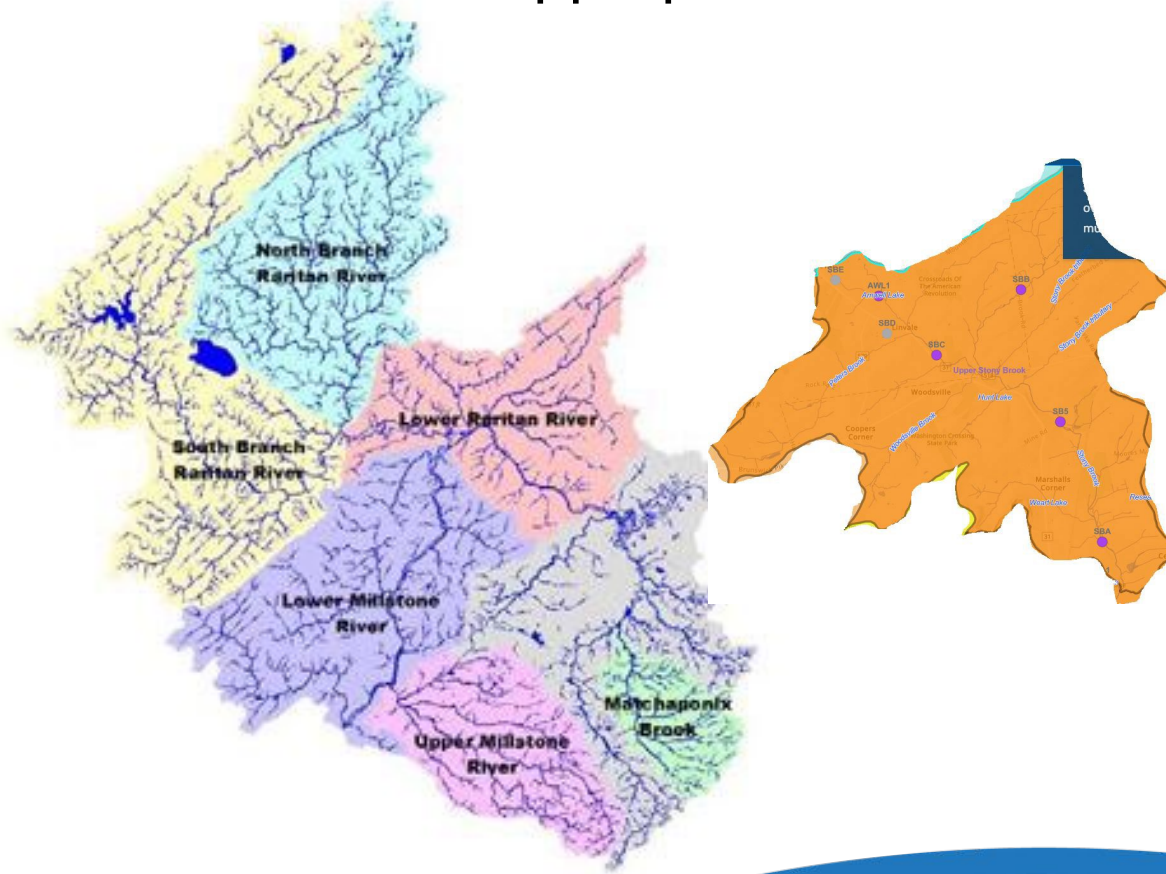
However, if multiple dischargers were to choose to coordinate their watershed improvement activities on a regional basis where one permittee was able to remove more than their percent reduction, then other towns in that HUC could conceivably remove less, as long as there was a net overall percent reduction achieved in the HUC(s) and no water quality impairments were allowed to get worse.

Regional Approaches Are Encouraged!

And since watersheds and subwatersheds do not follow municipal boundaries, the requirement in this Tier A renewal permit to develop and implement a Watershed Improvement Plan (WIP) in Part IV, Section H.1.b, also **requires municipalities to interact with stakeholders including their neighboring municipalities** that discharge to the same waterbodies so that watershed improvement actions can be coordinated within the subwatersheds. **These are ideal opportunities for more regional efforts to be developed and multi-municipality collaboration.** However, while **the Department prefers and encourages the WIPs to be developed on a regional basis**, it should be noted that this permit does not require municipalities to take a regional approach to the WIPs.

Organizing Regional WIP

- Determine the appropriate watershed?



Who to invite

- Municipal Engineer/Planner
- Stormwater Coordinator
- Elected Official
- EC members
- County Planner/Engineer
- County Commissioner
- Water Company
- NJDEP
- Local NGO
- Potential consultants



Plan B if no regional plan

- Coordinate regular meetings of consultants
- Utilize the same consultant
- Exchange draft plans early and often
- Review neighboring municipalities' inventory report

Plan B if no regional plan

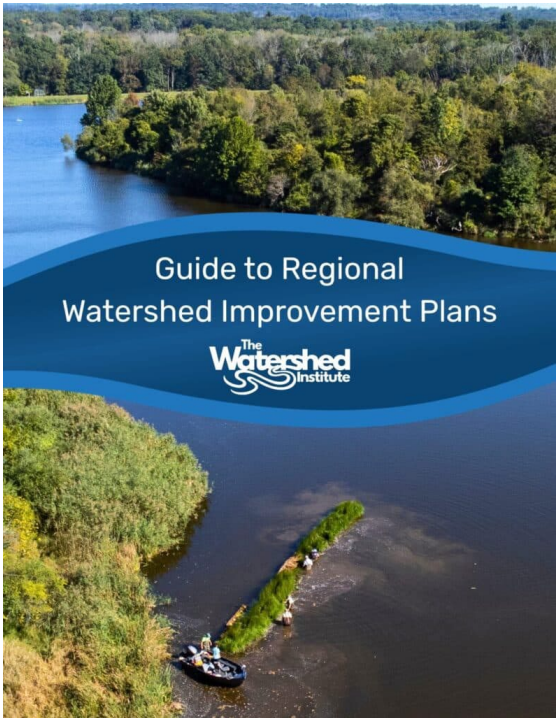
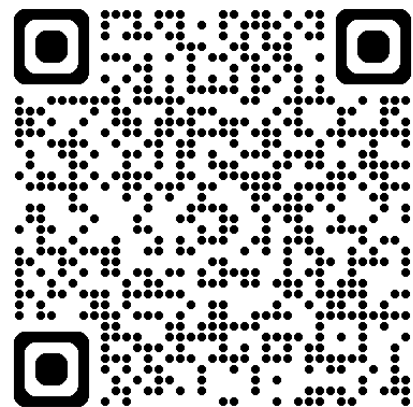
- Develop the Watershed Improvement Plan Report

EC Involvement

- EC should be at the meetings with consultants
- EC should be part of the Public Information Session
- Review and comment on early drafts of WAR
- Meet with neighboring municipality's ECs

Guide to Regional WIPs

The Guide will be found on our Professional Resources Page.



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Resources

- Enhanced Stormwater Management Ordinance Webinar - <https://www.youtube.com/watch?v=ROn4wtzyp4k>
- Enhanced Stormwater Management Ordinance - <https://thewatershed.org/the-watershed-institute-releases-enhanced-stormwater-management-model-ordinance/>
- Regional Watershed Improvement Plan Webinar - <https://www.youtube.com/watch?feature=shared&v=t3MxukT6d6M>
- Guide to Regional Improvement Plans - <https://thewatershed.org/watershed-improvement-plans/guide-to-regional-watershed-improvement-plans-2025/>
- Understanding MS4 Requirements in NJ Webinar - <https://www.youtube.com/watch?v=KK6gX7KLbfE>
- Impervious Cover Assessment/Reduction Action Plan- <https://thewatershed.org/impervious-cover-assessments/>
- Stream Watch- <https://thewatershed.org/monitoring/>
- NJ Salt Watch- <https://njwatershedwatch.org/>
- NJDEP MS4 Permit - <https://dep.nj.gov/stormwater/municipal-stormwater-regulation-program/ms4-permits/>
- MS4 Deliverables Timeline - <https://dep.nj.gov/wp-content/uploads/stormwater/updated-deliverables-timeline-tier-a.pdf>
- Stormwater Ordinances - <https://dep.nj.gov/stormwater/municipal-stormwater-regulation-program/example-ordinances/>
- Enhanced Stormwater Management Plan - https://gitoolkit.njfuture.org/wp-content/uploads/2025/06/Enhanced-Model-Municipal-Stormwater-Management-Plan_2025-Update_final-1.pdf

2026 Technical Fridays

SAVE THE DATE



The following schedule is subject to change.

*Check back on the Professionals Programs page for
webinar updates, descriptions, speaker bios
past webinar recordings, slides, and more.*

**Questions? Email us at
poliveira@thewatershed.org**

October 2 - The Art of Commenting

Understanding state/federal rulemaking and effectively preparing comments.

October 16 - Myths and Misconceptions with Stormwater Design Pt. II

Avoiding design pitfalls and rethinking how we manage stormwater in NJ.

November - The Echoes of Sackett

Understanding NJ's water pollution laws and the impacts of Sackett v EPA.

December - A Local Study on Harmful Algal Blooms

Understanding the impacts of HABs at Wargo Pond on The Watershed Reserve.



<https://thewatershed.org/professional-programs/>



***We are approved to provide PE
and CLE professional
development credits as
appropriate.***

Watershed Improvement Plans

Learn more at thewatershed.org

Stay in touch: 609-737 3735 | mpisauro@thewatershed.org



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