



SO YOU'RE A GREEN INFRASTRUCTURE CHAMPION, NOW WHAT?

A ROADMAP FOR PROJECT PLANNING & ADVOCACY



TABLE OF CONTENTS

- 1 INTRODUCTION**
- 2 WHO IS THIS GUIDE FOR?**
 - Objectives
 - Commonly Referenced Acronyms
- 3 GREEN INFRASTRUCTURE**
- 4 MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMITS**
 - What is a Tier A MS4 Permit?
 - What are the Tier A MS4 Permit Requirements?
 - Tier A MS4 Permit Requirements Outline
 - Roles & Responsibilities
 - Engaging your Municipal Buildings and Grounds Department or Department of Public Works or equivalent
- 11 PUBLIC EDUCATION AND OUTREACH**
 - What are MS4 requirements for education and awareness of stormwater management and environmental stewardship?
 - What are examples of public education and outreach programs that can be implemented as part of NJDEP's MS4 Permit Requirements?
 - What are examples of helping the municipality with its Watershed Improvement Plan MS4 Permit Requirement?
- 14 RESOURCES**
 - Green Infrastructure Fact Sheets, Guidance, and Manuals
 - General
 - Bioretention Systems/Rain Gardens
 - Green Streets and Parks
 - Rainwater Harvesting Systems
 - Design Specifications and Maintenance
- 15 Stormwater Control Ordinances**
- 15 Stormwater Management Websites – General Education**
- 16 Stormwater Management Presentations**
- 16 Stormwater Management with an MS4 Focus Presentations**
- 17 ABOUT JERSEY WATER WORKS & THE GREEN INFRASTRUCTURE COMMITTEE**
- 17 ACKNOWLEDGEMENTS**

DEAR GREEN INFRASTRUCTURE CHAMPION,

Thank you for your interest in learning more about how you can engage your municipality in advocating for the use of green stormwater infrastructure practices. Green infrastructure (GI) is a stormwater management approach that addresses stormwater close to its source by (1) treating stormwater runoff through infiltration into the subsoil; (2) treating stormwater runoff through filtration by vegetation or soil; or (3) storing stormwater runoff for reuse.

New Jersey Department of Environmental Protection (NJDEP) now requires the use of these Stormwater Best Management Practice approaches under the New Jersey Administrative Code 7:8 (aka the Stormwater Management Rules,) as well as the various Municipal Stormwater General Permits issued under N.J.A.C. 7:14A. By managing stormwater runoff, GI practices reduce flooding, improve the water quality of local waterbodies, enhance the community's resiliency to climate change, and provide environmental, social, and economic benefits.

As a resident of a watershed, you have a vital role to play in advocating for the planning and implementation of green infrastructure practices. You can help raise awareness, educate others, participate in public engagement processes, and influence decisions that affect the planning, design, implementation, and maintenance of green infrastructure projects. By doing so, you create a more livable, sustainable, and healthy community for yourself, your community, and future generations.

This document will provide you with the context you may need to help achieve the goals of the NJ Municipal Separate Storm Sewer System (MS4) permit— helping you strengthen relationships with your municipality to advance green infrastructure. New Jersey municipalities must comply with MS4 requirements, in addition to the Inland Flood Protection (IFP) rule which took effect on July 17, 2023. The IFP rule updated the state stormwater management rules, and municipalities will need to update their local floodplain and stormwater ordinances to comply. Municipalities will have one year from the effective date (July 17, 2024) to modify ordinances. This update follows the NJDEP March 2020 update, which required the use of green infrastructure to meet the stormwater rule's requirements. This document aims to navigate the key questions, resources, and aspects of the MS4 permit where GI can play a vital role in your municipality's stormwater management efforts.

This document also identifies suggested resources that will help you tailor your message and/or materials to your municipality and engage your municipality's Stormwater Program Coordinator (SPC). While some of the information provided in this document may be useful for a larger audience, it is focused on preparing you to engage with your municipal officials, including elected officials, council persons, the SPC, Department of Public Works (DPW) staff, and other municipal departmental staff to facilitate greener stormwater management.

Whether you are new to this topic or already have some experience, we hope that this document will inspire you to act and help make a difference in your community.

Sincerely,

Christopher C. Obropta, Ph.D., P.E.

Rosana Pedra Nobre

William Cesanek, AICP

Co-Chairs of the Jersey Water Works' Green Infrastructure Committee

WHO IS THIS GUIDE FOR?

This guide and its resources are intended to assist green infrastructure (GI) leaders, such as Green Infrastructure Champions, environmental commissioners, and green team members, with engaging municipal council, elected officials, the Stormwater Program Coordinator (SPC), Department of Public Works (DPW) and other departmental staff on the benefits and opportunities for GI in stormwater management. This resource shares some important information regarding regulatory drivers for GI and highlights the state's Tier A Municipal Separate Sewer System (MS4) permit obligations as a strategy to advance GI practices in your community. The intent is for you to be informed and utilize the resources shared to frame your own strategy to advance GI in your community. The key to success will be through the engagement of your community's influencers and leaders in the communication, identification, planning, implementation, and maintenance of GI solutions.

Objectives

After reading this guidance document, our intention is that you will:

- Understand municipal requirements of the MS4 Tier A permit that relate to GI
- Know how to identify your municipality's SPC and support your environmental commission/green teams
- Access resources and presentations identified herein that can be adapted to your community and target audiences
- Learn about tools to create your own strategy to advance GI in your community.



COMMONLY REFERENCED ACRONYMS

PW	Department of Public Works
GI	Green Infrastructure
IDDE	Illicit Discharge Detection and Elimination
JWW	Jersey Water Works
MS4	Municipal Separate Storm Sewer System
NJDEP	New Jersey Department of Environmental Protection
NPDES	National Pollutant Discharge Elimination System
SPC	Stormwater Program Coordinator
SPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
WIP	Watershed Improvement Plan

GREEN INFRASTRUCTURE

Green infrastructure (GI) is a group of stormwater management strategies that enable stormwater and melting snow to soak into soils near where they fall, be filtered by vegetation, or be captured for beneficial reuse such as irrigation or flushing toilets. GI includes practices—such as rain gardens or bioswales, retention basins, and porous pavement—that treat stormwater at the source. Impervious cover—such as streets, roofs, and buildings—creates stormwater runoff that carries pollutants, such as fertilizer, gasoline, and road salt, to our waterways. GI reduces the quantity of stormwater runoff entering the storm sewer system by capturing it, diverting it into a naturalized system where it is filtered, or delaying stormwater release to improve water quality and reduce localized flooding.

There are several readily available resources that detail the importance of GI, the benefits, and an overview of practices that can help inform you of your strategy. Under

our [resources](#) section, check out resources numbered 1-12 for general guidance about green infrastructure. These resources will further strengthen your understanding of GI and its various applications. GI provides many important benefits to your community, from improving the water quality of your local streams and rivers, reducing localized flooding, increasing access to green space and recreational opportunities, enhancing tree cover to help reduce the urban heat island effect, and much more. To learn more about the different GI practices and their benefits a list of resources is available: for bioretention systems/rain gardens see [Items 13-15](#), green streets and parks see [Items 16-21](#), rainwater harvesting systems such as rain barrels and cisterns see [Item 22](#), and for design specifications and maintenance guides see [Items 22-31](#). GI is also a tool to help municipalities comply with their MS4 permit and can aid in achieving Total Maximum Daily Load¹ (TMDL) reductions.



¹ A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality. For more information about TMDLs please visit: <https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls>

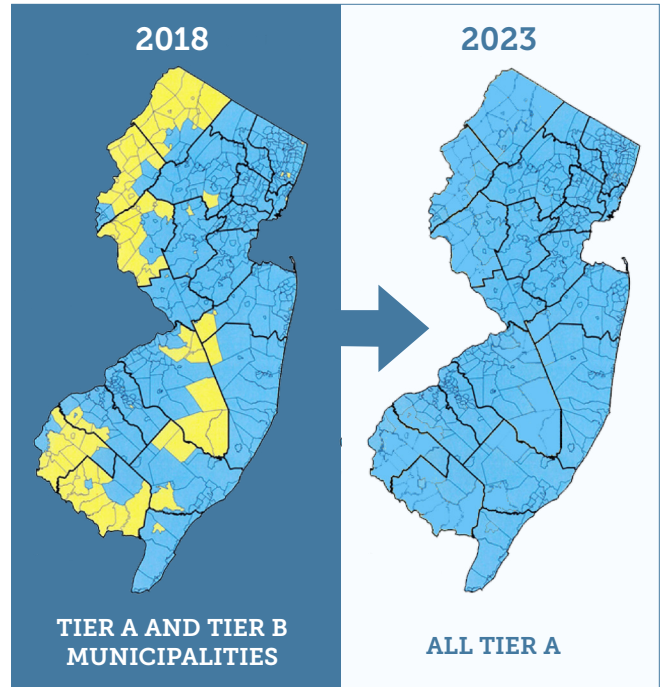
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMITS

In this section, we'll be discussing elements of the MS4 permits to help you understand your municipality's requirements under the permit and where/how GI can plug in. For a more detailed overview, check out New Jersey Future's resource *Understanding the MS4 Permit: A Primer for Municipalities Item 32*.

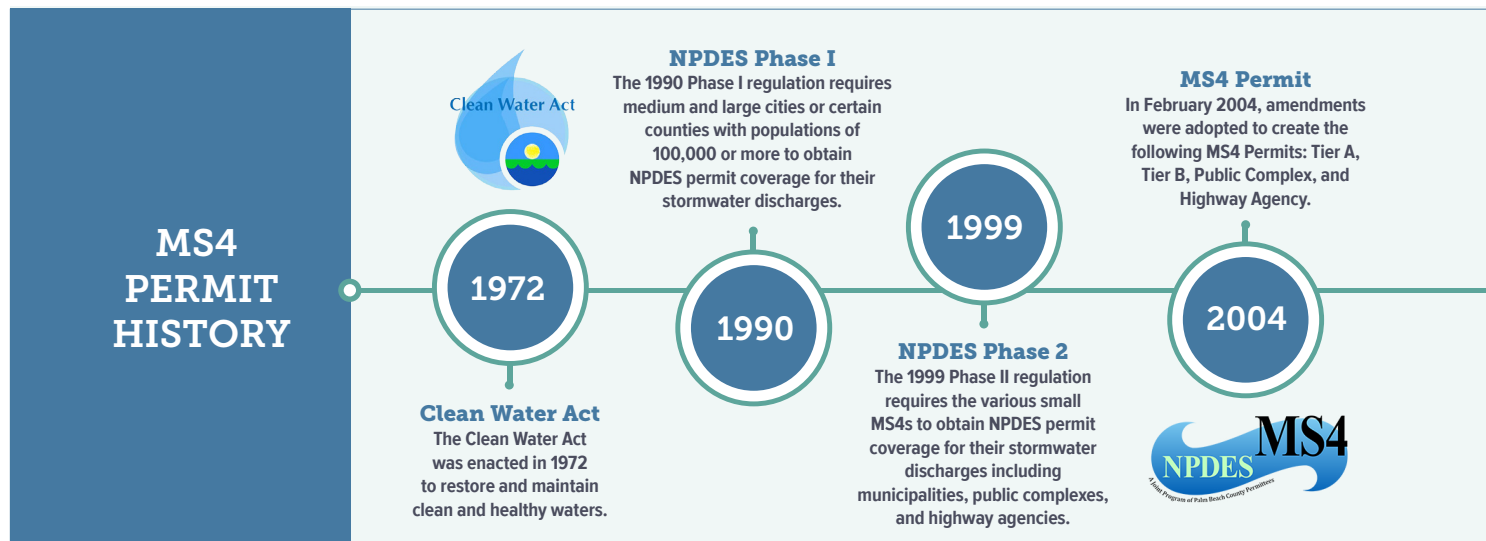
What is a Tier A MS4 Permit?

The Tier A MS4 permit² regulates municipal stormwater discharges that can cause water quality impairments. It also requires municipalities to map all stormwater infrastructure, including GI. The latest MS4 permit went into effect on January 1, 2023, requiring municipalities to engage in public education and outreach around stormwater management, among other requirements. As part of the 2023 renewal of the Tier A permit, NJDEP reassigned all former Tier B municipalities to Tier A to ensure compliance with federal regulations. As a result, all municipalities that fall under the MS4 permitting program are now regulated by the Tier A permit.

Another new requirement, a major change from the 2018 MS4 permit, is for municipalities to develop a Watershed Improvement Plan (WIP) within 5 years that identifies water quality improvement projects. Most of these water quality improvement projects will include GI. Additionally, the MS4



permit requires the municipality to update its Stormwater Management Plan to ensure its consistency with the local stormwater ordinance and elements of the Municipal Master Plan. While the WIP is not part of a municipal master plan, by integrating stormwater management into master plans,



² For the full details of NJ's Tier A permit requirements please visit https://dep.nj.gov/njpdcs-stormwater/municipal-stormwater-regulation-program/tier_a/.

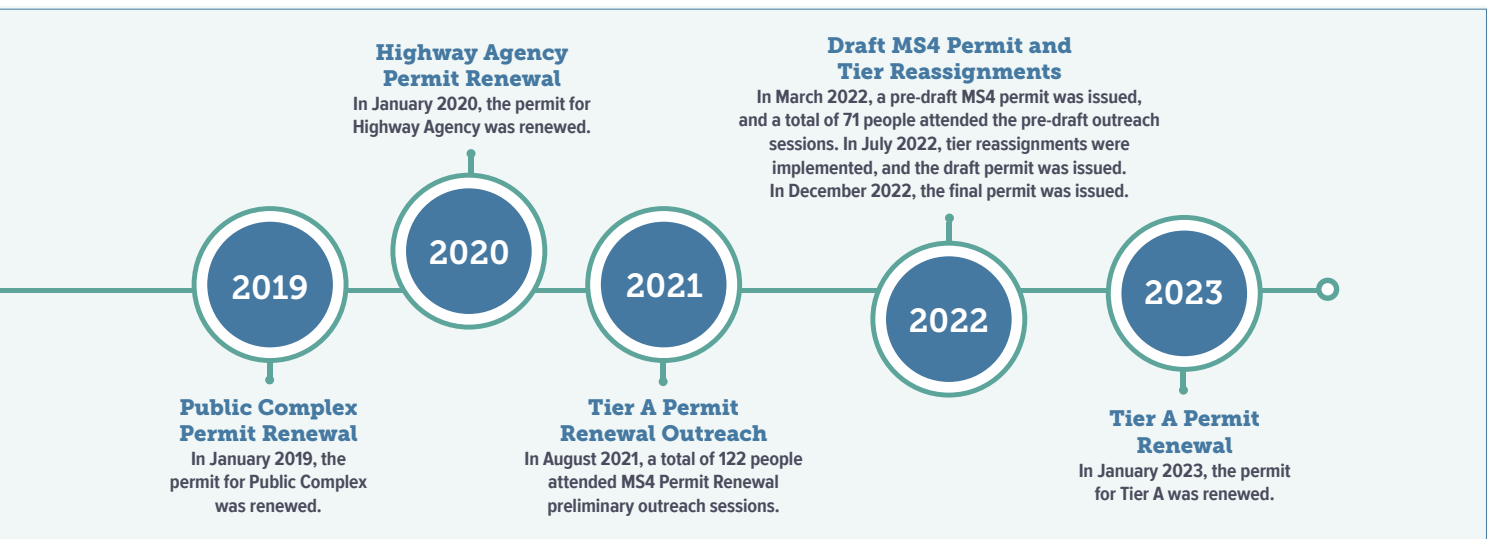
municipalities will chart a path to improve water quality, reduce flooding, and guide future growth. For resources on the MS4 permit, including primers to the changes made, review resources numbered 32-41. The timeline published by NJDEP for all MS4 permit deliverables, including the WIP, can be found at [final-deliverables-timeline-2023-ms4-tier-a-permit.pdf \(nj.gov\)](https://www.nj.gov/dep/water/MS4/MS4-permit-timeline-2023.pdf).

The goals of the new WIP requirement include improving water quality by reducing MS4 contribution of pollutants to water bodies with listed impairments and TMDLs, reducing or eliminating flooding with priority given based on human health and safety, environmental impacts, and frequency of occurrence, and developing plans with input from residents, businesses, neighboring towns, and other dischargers. The three phases of the new Watershed Improvement Plan requirement are:

1. **Watershed Inventory Report** that maps all public and privately owned stormwater infrastructure (due to the NJDEP by January 1, 2026).
2. **Watershed Assessment Report** that identifies and assesses potential water quality improvement projects and estimates funding needed for these projects (due to the NJDEP by January 1, 2027).
3. **Watershed Improvement Report** that summarizes locations and water quality improvement projects to be implemented (due to the NJDEP by December 31, 2027).

The MS4 Permit also requires municipalities to develop, update, implement, and maintain a Stormwater Pollution Prevention Plan (SPPP). The SPPP outlines the municipality’s stormwater program and steps for compliance with permit requirements. The SPPP includes the identification of a Stormwater Program Coordinator (SPC), who is responsible for ensuring compliance with the MS4 Permit. The SPC is typically an executive officer or a ranking elected official within the municipality. The SPC submits annual MS4 compliance reports that individuals can view by [creating an account³](https://dep.nj.gov/online/) with the NJDEP by visiting <https://dep.nj.gov/online/>. This will allow you to view public reports regarding MS4 Permit requirements, which include when the last SPPP was updated, and who the SPC for your municipality is.

Municipalities must also comply with the Inland Flood Protection rule, which amends the Stormwater Management rules, requiring changes to a municipality’s stormwater ordinance. Municipalities will have one year from the effective date (July 17, 2024) to modify their local floodplain and stormwater ordinances. The state requires that major development projects adhere to groundwater recharge, stormwater runoff quality, and quantity control standards through the use of GI. The updated rules require the use of updated precipitation data to ensure new stormwater BMPs (best management practices) are designed to manage today’s storms and future storms. Properly sizing BMPs will help ensure GI is resilient to climate change. For municipalities interested in going beyond minimum state requirements, enhanced stormwater ordinances have been developed and can be reviewed from the resource list 42-44.



³ NJDEP developed a step-by-step recording to help you register for an online service at NJDEP available on YouTube here: <https://youtu.be/ZJtCb31WAo?feature=shared>. While the video showcases an older version of the NJDEP website, the steps are the same.

Tier A MS4 Permit Requirements

The permit outlines specific requirements for municipalities that operate an MS4 permit. The outline below is the general structure of requirements included in the NJDEP's National Pollutant Discharge Elimination System (NPDES) MS4 permit. Highlighted in green are the sections of the permit

where GI practices can be considered or incorporated to meet permit requirements. These should be the areas of focus for you in your communication and engagement with your municipality. However, it is always recommended to consult the specific permit documentation and guidelines provided by the NJDEP for detailed and up-to-date information.

Tier A MS4 Permit Requirements Outline

I. INTRODUCTION AND GENERAL REQUIREMENTS

- A. Overview of the MS4 permit program
- B. Definitions of key terms
- C. Applicability and scope of the permit
- D. Compliance schedule and reporting obligations

II. STORMWATER MANAGEMENT PROGRAM (SWMP)

- A. Development and implementation of a SWMP
- B. Identification of responsible parties and coordination
- C. **Public education and outreach**
- D. **Public participation and involvement**
- E. Illicit discharge detection and elimination
- F. Construction site stormwater management
- G. Post-construction stormwater management
- H. Pollution prevention/good housekeeping measures
- I. Control of runoff from new development and redevelopment

III. STORMWATER QUALITY REQUIREMENTS

- A. Development and implementation of stormwater quality standards
- B. Identification of priority stormwater outfalls for monitoring and assessment
- C. Monitoring and assessment of stormwater outfalls
- D. **Development and implementation of stormwater quality improvement measures**
- E. **Implementation of structural and non-structural BMPs (Best Management Practices)**

IV. STORMWATER QUANTITY REQUIREMENTS

- A. **Development and implementation of stormwater quantity control standards**
- B. **Identification of priority areas for stormwater quantity management**

C. **Evaluation and mapping of the existing stormwater infrastructure**

D. **Development and implementation of stormwater quantity improvement measures**

E. **Promotion of infiltration and green infrastructure practices**

V. CONSTRUCTION SITE RUNOFF CONTROL

- A. Development and implementation of erosion and sediment control measures
- B. Compliance with NJDEP NPDES Construction General Permit requirements
- C. Inspection and enforcement of erosion and sediment control measures
- D. Reporting and documentation of construction site activities

VI. REPORTING AND RECORDKEEPING

- A. Annual reporting requirements
- B. Monitoring and assessment reports
- C. Inspection and maintenance records
- D. Training and certification records
- E. Records of public education and outreach activities

VII. COMPLIANCE AND ENFORCEMENT

- A. Compliance evaluation and enforcement actions
- B. Penalties and corrective actions for non-compliance
- C. Administrative and judicial remedies

VIII. PUBLIC NOTICE AND COMMENT

- A. Procedures for public notice and comment on permit-related activities
- B. Public access to permit documents and records

IX. PERMIT MODIFICATIONS AND RENEWAL

- A. Procedures for permit modifications
- B. Permit renewal requirements and process

Roles and Responsibilities

ENGAGING YOUR ENVIRONMENTAL COMMISSION AND GREEN TEAM

Engaging your Environmental Commission or your Sustainable Jersey Green Team is a great place to start to help your municipality meet its MS4 permit requirements. It is important to note that the specific roles and responsibilities of environmental commissions and green teams may vary depending on local regulations, organizational structure, and available resources. In some municipalities, it is not unexpected to find the green team taking on extra projects to advance their certification while the environmental commissions typically act as more of a review process for development plans and other activities. Therefore, it's crucial for these groups to work closely with the municipality and relevant authorities to determine the exact involvement and responsibilities within the framework of the MS4 permit requirements. Below are seven different roles that can be explored to support environmental commissioners and green team members in the advancement of GI through the MS4 permit requirements.

1. Public Education and Outreach:

- a. The environmental commission or green team can take a lead role in developing and implementing public education and outreach programs related to stormwater management, pollution prevention, and environmental stewardship. They can organize workshops, seminars, and community events to raise awareness about the importance of stormwater management and engage the public in sustainable practices. These programs can also be regional; environmental commissions and green teams can work with neighboring municipalities to offer programming.
- b. For more information on specific activities and point requirements, review Attachment A of the 2023 Tier A MS4 Permit.

2. Public Participation and Involvement:

- a. The environmental commission or green team can facilitate public participation in the stormwater management program by conducting public meetings, soliciting input, and involving the community in decision-making processes. They can act as a liaison between the municipality and

the public, ensuring that community concerns and feedback are considered in stormwater management planning and implementation.

3. Illicit Discharge Detection and Elimination (IDDE):

- a. The environmental commission or green team can assist in the identification and elimination of illicit discharges by actively monitoring water bodies and stormwater outfalls, and by conducting regular inspections. They can collaborate with local enforcement agencies and volunteer groups to report and investigate suspected illicit discharges, helping to maintain the integrity of stormwater infrastructure. This is typically a difficult task for municipalities to inspect stormwater outfalls to ensure they are not causing erosion of the stream and that the outfall itself is not in disrepair. The inspection must identify outfalls that are flowing after three days of dry weather, which is an indicator of an illicit discharge. These potential illicit discharges need to be sampled to determine if there is an illegal connection to the outfall or if the discharge is just groundwater flow.

4. Pollution Prevention/Good Housekeeping Measures:

- a. The environmental commission or green team can promote pollution prevention practices and good housekeeping measures among municipal departments and facilities. They can develop guidelines and recommendations for proper management of hazardous materials, storage practices, and spill prevention to minimize pollutant discharges into stormwater systems.

5. Public Notice and Comment:

- a. The environmental commission or green team can assist in the public notice and comment process by providing information and facilitating public input on MS4 permit-related activities. They can help ensure that the community is informed about permit modifications, renewal processes, and other activities that may have environmental implications.

6. Compliance and Enforcement:

- a. While the primary responsibility for compliance and enforcement lies with the municipal authority,

the environmental commission or green team can support these efforts by monitoring compliance, conducting site inspections, and reporting non-compliance issues to the appropriate authorities. They can contribute to compliance evaluation and enforcement actions by providing expert advice and recommendations based on their environmental expertise.

7. Watershed Improvement Plan (WIP)

- a. Per the Minimum Standards for MS4 Mapping, all of the stormwater management facilities must be mapped including inlets, catch basins, stormwater outfalls, detention basins, retention basins, and other stormwater management facilities. While the stormwater piping network is explicitly required to be mapped, the drainage areas for each stormwater outfall must be delineated. This is difficult to do without having a detailed map of the stormwater piping network. Finally, the location and ownership of all stormwater outfalls and stormwater facilities (e.g., detention basins) not owned/operated by the municipality.
- b. Watershed improvement projects must be identified for the WIP. Municipalities will need help in identifying where existing development can be retrofitted with green infrastructure.



ENGAGING YOUR MUNICIPAL DEPARTMENTS OF PUBLIC WORKS OR BUILDINGS AND GROUNDS

The Buildings and Grounds department, or comparable department, within a municipality has specific responsibilities related to the MS4 permit requirements. Here are some responsibilities of the Department of Public Works or Buildings and Grounds in relation to stormwater management and where GI can play a role in supporting these activities:

1. Maintenance of Stormwater Infrastructure:

- a. The Buildings and Grounds Department is responsible for the inspection, maintenance, and repair of publicly owned stormwater management facilities, such as storm drains, catch basins, detention/retention basins, and infiltration systems.
- b. They ensure that these structures are functioning properly, free from blockages or obstructions, and are in compliance with the MS4 permit requirements.

2. Street Sweeping and Leaf Collection:

- a. The department may be responsible for street sweeping activities to remove debris, leaves, and other pollutants from roadways, curbs, and gutters. Regular street sweeping helps prevent the accumulation of pollutants in storm drains, minimizing their impact on stormwater quality.

3. Snow and Ice Management:

- a. During winter months, the Buildings and Grounds Department is responsible for snow and ice management on municipal roadways, parking lots, and other surfaces. They ensure that snow removal practices consider the potential impacts on stormwater runoff and prevent the accumulation of deicing agents or sediment in storm drains.

4. Erosion and Sediment Control:

- a. The department may play a role in implementing erosion and sediment control measures during construction activities. They work to prevent sediment-laden runoff from construction sites, ensuring that proper erosion control practices are in place and maintained to protect stormwater quality.

5. Pollution Prevention and Good Housekeeping:

- a. The Buildings and Grounds Department implements pollution prevention practices within municipal buildings, facilities, and maintenance operations.
- b. They ensure proper storage, handling, and disposal of hazardous materials, prevent spills or leaks, and maintain equipment and vehicles in a manner that minimizes the potential for pollutant discharges.

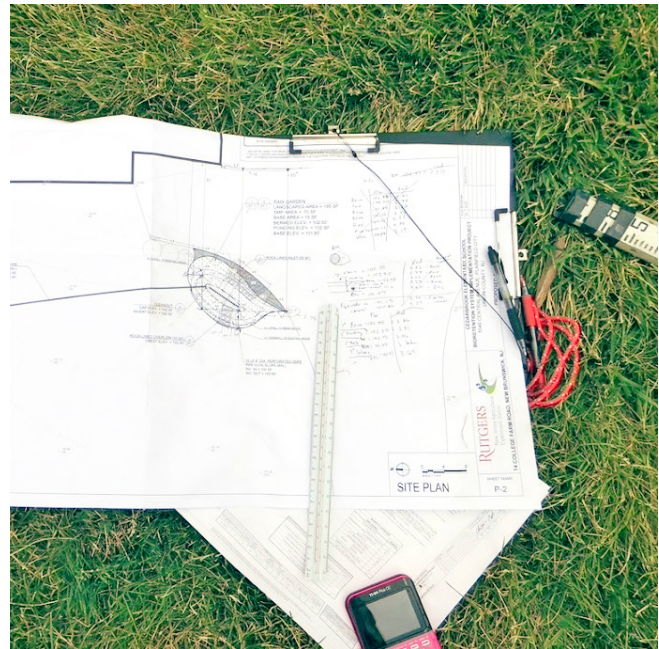
6. Reporting and Documentation:

- a. The department may be responsible for maintaining records related to stormwater management activities, such as inspection reports, maintenance schedules, and documentation of BMP implementation.
- b. They may assist in providing necessary information for compliance reporting to the NJDEP as required by the MS4 permit.

ENGAGING YOUR PLANNING AND ZONING BOARDS

Planning and zoning boards are pivotal when it comes to the incorporation and management of green infrastructure. The planning board is responsible for creating a vision for municipal development, which includes the integration of green infrastructure into the community's landscape. This involves updating and amending the Master Plan to guide land use and incorporate GI in public and private spaces. The planning board also offers guidance on proposed code and ordinance changes and reviews applications for site plans and subdivisions, ensuring that they align with the development goals set out in the Master Plan. This can include the adoption of low-impact development policies and principles to encourage or require the implementation of GI. The zoning board has the authority to grant variances and make decisions on disputes arising under zoning ordinances. The board plays a crucial role in enforcing local ordinances and ensuring that any variances granted for development projects do not compromise municipal GI goals.

Both boards work in tandem to assess needs, make strategic improvements to planning documents, and can update ordinances to facilitate the planning and implementation of green infrastructure projects. This collaborative effort is essential for addressing stormwater issues, ensuring new projects meet local stormwater management requirements, and improving the overall quality of life for residents.



ENGAGING YOUR STORMWATER PROGRAM COORDINATOR

A Municipal Stormwater Program Coordinator (SPC) must be appointed by the municipality under the Tier A MS4 regulations. SPCs oversee the implementation and compliance of the MS4 permit for your municipality. The SPC is responsible for ensuring the municipality meets the standards set by the NJDEP for stormwater management, managing the TMDLs as they relate to the MS4, reporting to the NJDEP, and providing outreach materials and tools to assist with public education and outreach requirements. Below is a list of education and outreach activities that can be offered to help the municipality and the SPC comply with NJ permit requirements:

1. Public Education and Outreach:

- a. Develop and implement a public education and outreach program that targets various audiences, such as residents, businesses, schools, and community organizations.
- b. Conduct educational campaigns to raise awareness about stormwater pollution, its impacts on water quality, and the importance of individual actions in preventing pollution.
- c. Provide information on stormwater management practices, like GI, including proper disposal of household chemicals, pet waste, and yard waste.



- d. Promote the use of GI and best management practices (BMPs) that can be adopted by the public to reduce stormwater runoff and improve water quality.
- e. Distribute educational materials, such as brochures, flyers, and newsletters, to disseminate information on stormwater management and pollution prevention.

2. Schools and Educational Institutions:

- a. Collaborate with schools and educational institutions to incorporate stormwater management and environmental education into their curricula.
- b. Provide resources, presentations, and workshops for teachers and students on topics such as water conservation, pollution prevention, and the importance of protecting water resources.
- c. Encourage schools to implement GI practices, such as rain gardens or permeable pavement, as educational tools and to mitigate stormwater runoff on their campuses.

3. Training for Municipal Staff and Contractors:

- a. Provide training sessions and workshops for municipal staff involved in stormwater management activities, including inspectors, maintenance personnel, and construction site inspectors.
- b. Ensure that municipal staff is knowledgeable about the requirements of the MS4 permit, stormwater regulations, and proper implementation of BMPs.

- c. Require training for contractors working on municipal projects to ensure compliance with stormwater management regulations and best practices.

4. Demonstration Projects and Tours:

- a. Implement demonstration projects to showcase effective stormwater management practices and BMPs.
- b. Organize site visits and tours for municipal officials, community members, and other interested parties to highlight successful stormwater management projects, such as rain gardens, green roofs, or constructed wetlands.
- c. Use demonstration projects as educational tools to promote understanding and adoption of sustainable stormwater management practices.

5. Public Outreach Events:

- a. Participate in community events, fairs, and festivals to engage with the public and provide information on stormwater management, pollution prevention, and water conservation.
- b. Conduct presentations and workshops at public meetings, homeowner associations, and other community gatherings to raise awareness about stormwater management issues and promote community involvement.

6. Websites and Online Resources:

- a. Develop and maintain a dedicated section on the municipal website or a separate stormwater management website to provide educational resources, guidance documents, and information on stormwater regulations.
- b. Include links to relevant online resources, such as videos, fact sheets, and interactive tools, to support public education and understanding of stormwater management practices.

These education and outreach activities aim to increase public awareness, knowledge, and engagement in stormwater management and pollution prevention efforts. By providing educational resources and promoting sustainable practices, municipalities can empower individuals and communities to take active roles in protecting water resources and improving stormwater quality.

PUBLIC EDUCATION AND OUTREACH EXAMPLES

Public education and outreach programs can help raise awareness, promote behavior change, and foster a sense of environmental stewardship within the community. By engaging residents, businesses, schools, and community organizations, municipalities can work towards achieving the goals of the NJDEP MS4 permit and improving overall stormwater quality. Municipalities are required to implement a stormwater education and outreach program that involves the public in actions that reduce water pollution and flooding. The following are examples in which you can work with your municipality, SPC, environmental commission and/or green team to engage the community with GI while complying with the MS4 permit:

1. Stormwater Awareness Campaign:

- a. Develop a comprehensive campaign to raise public awareness about stormwater pollution and its impact on water quality.
- b. Use various media platforms, such as social media, websites, posters, and brochures, to disseminate information on stormwater management practices, including the proper disposal of household chemicals, pet waste, and yard waste.
- c. Example: Storm Drain Murals (<https://www.hobokennj.gov/news/hoboken-unveils-new-storm-drain-art-to-promote-clean-waterways>)



2. Residential Outreach:

- a. Conduct workshops and informational sessions for residents on topics such as rain barrel usage, native landscaping, and proper lawn care practices to reduce stormwater runoff.
- b. Provide resources and guides on sustainable gardening, rain garden installation, and the benefits of utilizing rainwater harvesting techniques.
- c. Examples: Jersey Friendly Yards (<https://www.jerseyyards.org/create-a-jersey-friendly-yard/the-interactive-yard/>)

and Stormwater Management in Your Backyard (<https://njaes.rutgers.edu/environment/rain-garden-manual.php>)

3. Business and Commercial Outreach:

- a. Collaborate with local businesses and commercial establishments to promote pollution prevention measures and sustainable practices.
- b. Offer guidance and training on appropriate storage and disposal of hazardous materials, implementation of best management practices (BMPs), and adoption of GI techniques.
- c. Example: WaterSense (<https://www.epa.gov/watersense/commercial-buildings>)

4. School Programs:

- a. Work with local schools to integrate stormwater management and environmental education into their curriculum.
- b. Conduct interactive presentations, workshops, and field trips to teach students about stormwater pollution, water conservation, and the importance of protecting water resources.
- c. Support the implementation of rain gardens or other GI projects on school grounds as educational tools.
- d. Examples: Stormwater Management in Your Schoolyard (<http://water.rutgers.edu/Projects/SWMIYSchoolyard/SWMIYSchoolyard.html>), Stormwater Camp (<https://www.njfuture.org/2018/09/25/stormwater-camp/>), Green Infrastructure Education Module (<https://www.nyc.gov/site/dep/environment/green-infrastructure-education-module.page>).

5. Community Clean-up Events:

- a. Organize community-wide clean-up events to remove litter and debris from neighborhoods, parks, and water bodies.
- b. Use these events as opportunities to educate participants about the connection between litter, stormwater runoff, and water pollution.



- c. Provide information on proper waste disposal and recycling practices to prevent trash from entering storm drains.
- d. Examples: Clean Up Our Shores (<https://www.nj.gov/pvsc/protect/volunteers/>) and Riverkeeper Sweeps (<https://www.riverkeeper.org/news-events/events/rvk-events/13th-annual-riverkeeper-sweep/>)

6. Volunteer Programs:

- a. Establish a stormwater stewardship volunteer program that engages community members in monitoring and maintaining stormwater management structures.
- b. Train volunteers to identify and report illicit discharges, conduct stream clean-ups, and assist in implementing stormwater improvement projects.

7. Demonstration Projects and Tours:

- a. Create demonstration projects showcasing various stormwater management practices, such as rain gardens, permeable pavement, or green roofs.
- b. Conduct guided tours and open houses to educate the public about the benefits and implementation of these practices.
- c. Provide resources and information for homeowners interested in adopting similar stormwater management techniques.

8. Public Meetings and Workshops:

- a. Hold public meetings and workshops to provide updates on stormwater management initiatives, permit compliance, and new regulations.
- b. Seek public input and involvement in decision-making processes related to stormwater management and pollution prevention.
- c. Example: Rain Barrel Train the Trainer (<https://njaes.rutgers.edu/environment/rain-barrel-trainer-program.php>)

9. Online Resources and Interactive Tools:

- a. Develop a dedicated website or online portal with resources, fact sheets, videos, and interactive tools related to stormwater management and pollution prevention.
- b. Provide information on local stormwater management regulations, permit requirements,



and resources for homeowners, businesses, and community organizations.

10. Collaboration with Community Organizations:

- a. Partner with local environmental and community organizations to leverage their networks and outreach capabilities.
- b. Collaborate on joint educational programs, workshops, and events to reach a broader audience and maximize the impact of outreach efforts.

HELPING WITH WATERSHED IMPROVEMENT PLANS

You can also help your municipality with its Watershed Improvement Plan as part of the MS4 permit. Here are three things you can do:

1. **Offer to conduct outfall inspections.** The Rutgers Cooperative Extension (RCE) Water Resources Program can provide training on how to inspect a stormwater outfall including the inspection forms to be completed and how to sample an outfall for an illicit connection.
2. **Offer to help the municipality identify stormwater outfalls and stormwater basins not owned by the municipality.** The RCE Water Resources Program offers training on how to inspect stormwater basins.

Many municipalities require private stormwater basin owners to complete annual reports but the municipality does not have adequate staff to conduct spot inspections of the basins to ensure that the information submitted by the private property owner is accurate.

3. **Offer to identify potential stormwater improvement projects and to facilitate public engagement to discuss possible improvement projects.** The Green Infrastructure Champions Program offered by the RCE Water Resources Program has classes on how to identify existing development sites where green infrastructure could be incorporated or retrofitted to better manage stormwater runoff. Potential stormwater improvement projects should form the foundation of the Watershed Improvement Plan. It can be time consuming to identify potential project sites and conduct a site visit of these sites. Helping the municipality with this task could result in significant savings to the community.

Lastly, there are several organizations that have a depth of information that can strengthen your knowledge about GI, stormwater management, and ways to further engage your municipality. See resource [Items 45-54](#).

RESOURCES

In this section, you will find resources and references to websites, manuals, brochures/fact sheets, and presentations that will support your education on green infrastructure and references that you can utilize in framing your message. The following resources are numbered and referenced throughout the guide and organized in general themes.

Green Infrastructure Fact Sheets, Guidance, and Manuals

The following resources will cover the basics of the different GI practices from manuals, fact sheets, and guidance documents to specific GI practices. Each list is organized in alphabetical order by title of the document and/or webpage followed by the publishing organization and hyperlink.

GENERAL GREEN INFRASTRUCTURE

1. Exploring Green Infrastructure: Addressing Polluted Runoff developed by The Watershed Institute - <https://thewatershed.org/green-infrastructure-2/>
2. Green Infrastructure and Climate Change Fact Sheets developed by Jersey Water Works - <https://cms.jerseywaterworks.org/wp-content/uploads/2023/02/JWW-GI-Climate-Change-Fact-Sheets.pdf>
3. Green Infrastructure Guidance Manual for New Jersey developed by Rutgers Cooperative Extension Water Resources Program - http://water.rutgers.edu/Green_Infrastructure_Guidance_Manual/2015-03-31_Manual.compressed.pdf
4. Green Infrastructure Toolkit developed by Georgetown's Climate Center - <https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/introduction.html>
5. New Jersey Green Infrastructure Municipal Toolkit: What is Green Infrastructure? Developed by New Jersey Future - <https://gitoolkit.njfuture.org/what-is-gi/>
6. PRESENTATION: Green Infrastructure and Rain Gardens, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta, March 21, 2023 - http://water.rutgers.edu/Recent_Presentations/2023/CamdenCoTraining-3-21-2023.pdf
7. PRESENTATION: Green Stormwater Infrastructure Overview, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta and Richard Kelly, June 23, 2022 - http://water.rutgers.edu/Recent_Presentations/2022/GSI_Overview_Coffee_House_Talk_6-23-2022.pdf
8. PRESENTATION: Paraprofessional Training for Watershed Restoration, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta and Hollie DiMuro, November 30, 2022 - http://water.rutgers.edu/Recent_Presentations/Americorps_Training_11-30-2022.pdf
9. PRESENTATION: Using Green Infrastructure to Prevent Flooding from Intensified Storms in New York and New Jersey, presented by US Environmental Protection Agency featuring Dr. Pinar Balci, NYC Department of

Environmental Protection, Dr. Chris Obropta, Rutgers Cooperative Extension, and Lindsey Sigmund, PP, AICP, New Jersey Future, March 2, 2023 - <https://www.epa.gov/green-infrastructure/using-green-infrastructure-prevent-flooding-intensified-storms-new-york-and>

10. Soak up the Rain: Build, Learn, and Partner for Green Infrastructure developed by US Environmental Protection Agency - <https://www.epa.gov/green-infrastructure>
11. What is green infrastructure? Developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/dwq/green-infrastructure/>
12. Wow Your Town: Four Fact Sheets for GI Champions developed by Jersey Water Works - <https://cms.jerseywaterworks.org/wp-content/uploads/2022/05/Fact-Sheet-Intro.pdf>

BIORETENTION SYSTEMS/RAIN GARDENS

13. PRESENTATION: Rain Garden Rebate Educational Program, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta - http://water.rutgers.edu/Recent_Presentations/2022/RainGardenEducationalSeminar_MoorestownLibrary_7-20-2022.pdf and http://water.rutgers.edu/Recent_Presentations/2022/RainGardenEducationalSeminar_MercerCoMasterGardeners_5-19-2022.pdf
14. Rain Gardens: A Simple Way to Do Your Part – Facilitator's Guide developed by Jersey Water Works - <https://cms.jerseywaterworks.org/wp-content/uploads/2023/02/Rain-Gardens-A-Simple-Way-to-do-Your-Part-%E2%80%93-Facilitators-Guide.pdf>
15. Rain Garden Manual of New Jersey developed by Rutgers Cooperative Extension Water Resources Program – http://water.rutgers.edu/Rain_Gardens/RGWebsite/RainGardenManualofNJ.html

GREEN STREETS AND PARKS

16. Complete & Green Streets for All: Model Complete Streets Policy and Guide developed by New Jersey Department of Transportation - https://www.state.nj.us/transportation/eng/completestreets/pdf/CS_Model_Policy_2019.pdf
17. Green Infrastructure Recommendations for Parks and Public Spaces developed by Jersey Water Works - https://cms.jerseywaterworks.org/wp-content/uploads/2016/12/Memo-GI-Design-Recos-for-Parks-2016_11_29.pdf
18. Green Streets: A Conceptual Guide to Effective Green Streets Design Solutions developed by US Environmental Protection Agency - https://nacto.org/docs/usdg/2000_green_streets_epa.pdf
19. Learn About Green Streets develop by US Environmental Protection Agency - <https://www.epa.gov/G3/learn-about-green-streets>
20. New Jersey Green Streets Case Studies developed by Jersey Water Works - https://cms.jerseywaterworks.org/wp-content/uploads/2020/08/NJ-Green-Streets-Case-Studies_Aug-2020_FINAL.pdf
21. Urban Street Stormwater Guide developed by the National Association of City Transportation Officials - <https://nacto.org/publication/urban-street-stormwater-guide/>

RAINWATER HARVESTING SYSTEMS

22. Rain Barrels developed by Rutgers Cooperative Extension Water Resources Program – http://water.rutgers.edu/Stormwater_Management/rainbarrels.html

DESIGN SPECIFICATIONS AND MAINTENANCE

23. Green Infrastructure Design and Implementation developed by US Environmental Protection Agency – <https://www.epa.gov/green-infrastructure/green-infrastructure-design-and-implementation>
24. Green Infrastructure Standards and Specifications developed by the New York City Department of Environmental Protection - <https://www1.nyc.gov/site/dep/water/green-infrastructure.page>
25. Green Streets Design Manual developed by the Philadelphia Water Department - http://www.mapc.org/wp-content/uploads/2017/10/GSDM_FINAL_20140211.pdf
26. How to Develop and Implement Green Infrastructure Maintenance Strategy developed by Jersey Water Works - <https://cms.jerseywaterworks.org/wp-content/uploads/2022/10/Copy-of-Develop-Implement-GI-Brochure-2.pdf>
27. New Jersey Stormwater Best Management Practices (BMP) Manual developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/stormwater/bmp-manual/>
28. PRESENTATION: Detention Basin Maintenance Guidelines, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta - http://water.rutgers.edu/Recent_Presentations/Hamilton2022/DetentionBasinMaintenanceGuidelines.pdf
29. PRESENTATION: Inspection of Stormwater Management Facilities (Detention/Retention/Infiltration Basins and Catch Basins), presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta - http://water.rutgers.edu/Recent_Presentations/Hamilton2022/HamiltonDPW_BasinInspectionsTraining-8-31-2022.pdf
30. PRESENTATION: Stormwater Basin Inspection Checklist, presented by Rutgers Cooperative Extension featuring Dr. Chris Obropta - http://water.rutgers.edu/Recent_Presentations/Hamilton2022/DetentionBasinAssessmentForm.pdf
31. Stormwater Skills: Training Resources for Green Infrastructure Construction and Maintenance developed by Jersey Water Works - https://cms.jerseywaterworks.org/wp-content/uploads/2022/05/Stormwater-Skills_Training-Resources-for-GI-5_23_22.pdf

MS4 Permit

32. Understanding the New MS4 Permit: A Primer for New Jersey Municipalities developed by New Jersey Future - https://www.njfuture.org/wp-content/uploads/2023/09/NJF_MS4PermitPrimer.pdf
33. Green Infrastructure Policy Guides for Municipalities developed by US Environmental Protection Agency - <https://www.epa.gov/green-infrastructure/policy-guides>
34. Municipal Stormwater Management 101: New MS4 Requirements developed by New Jersey Future - <https://www.njfuture.org/wp-content/uploads/2023/02/Municipal-Stormwater-Management-101-New-MS4-Requirements-.pdf>
35. Municipal Stormwater Regulation Program developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/njdpes-stormwater/municipal-stormwater-regulation-program/>
36. New Jersey Developers Green Infrastructure Guide 2.0 - <https://developersguide.njfuture.org/>
37. PRESENTATION: A Conversation with New Jersey's Flood Experts, presented by the New Jersey Climate Change Resource Center and the Rutgers University Bloustein School of Planning and Public Policy featuring Vincent J. Mazzei, Jr., P.E. and Kunal Patel, Ph.D., P. E. CFM from NJDEP, September 15, 2023 - https://njclimateresourcecenter.rutgers.edu/past_events/a-conversation-with-new-jerseys-flood-experts/
38. PRESENTATION: MS4 Permit Requirements and Inspection/Maintenance of Stormwater Management Facilities - http://water.rutgers.edu/Recent_Presentations/2023/HamiltonDPW_BasinInspections-3-13-2023.pdf
39. PRESENTATION: New Jersey's Stormwater Management Regulations - http://water.rutgers.edu/Recent_Presentations/2022/StormwaterManagementRegulation6-23-2022_PerthAmboy.pdf
40. Stormwater Management Program and Training developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/stormwater/stormwater-training/>
41. Post-Construction Stormwater Management developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/stormwater/>

STORMWATER CONTROL ORDINANCES

42. Enhanced Model Stormwater Ordinance for Municipalities developed by New Jersey Future - https://gitoolkit.njfuture.org/wp-content/uploads/2021/02/NJF-Enhanced-Model-Stormwater-Ordinance-FINAL_Feb-2021.pdf
43. New Jersey Stormwater Best Management Practices Manual – Appendix D Model Stormwater Control Ordinance for Municipalities developed by New Jersey Department of Environmental Protection - <https://dep.nj.gov/stormwater/bmp-manual/>
44. The Watershed Institute Enhanced Model Stormwater Ordinance - <https://thewatershed.org/wp-content/uploads/2020/07/TWI-Enhanced-Ordinance-highlights-final.pdf>

RESOURCES

General Education on Stormwater Management & Green Infrastructure

45. Association of New Jersey Environmental Commissions (<https://anjec.org/stormwater-overview-water-2/>): Provides resources for environmental commissions on stormwater and wetlands.
46. Green Infrastructure Leadership Exchange (<https://giexchange.org/>): Provides a GI resource library that contains case studies, details and specifications, policies, decision tools and guidance, research and assessment, education and outreach, and a photo library.
47. Jersey Water Works (<https://jerseywaterworks.org/>): Offers educational resources, reports, and publications related to water infrastructure, stormwater management, and water quality. For GI-specific resources, please refer to the Green Infrastructure Committee resources.
48. New Jersey Future (<https://njfuture.org/>): Provides resources and information for New Jersey residents and municipalities on stormwater management, GI, MS4, stormwater utilities, and more.
49. NJ Chapter of the American Water Works Association (<https://www.njawwa.org/>): Provides training programs and workshops on stormwater management, water conservation, and water quality. Offers resources and educational materials on regulatory compliance, BMP implementation, and stormwater best practices.
50. NJDEP's Stormwater Management Program (<https://dep.nj.gov/stormwater/>): Provides a range of resources, guidelines, and educational materials. Offers technical manuals, guidance documents, fact sheets, and permit-related information.
51. NJDEP's Stormwater Permitting and Water Quality Management (<https://dep.nj.gov/njpdcs-stormwater/municipal-stormwater-regulation-program/>): Focus on the MS4 Tier A Permit, TMDL Look-Up Tool, municipal stormwater ordinances, and outreach materials.
52. Rutgers Cooperative Extension Water Resources Program (<https://water.rutgers.edu/>): Offers a range of educational materials, fact sheets, and publications on various aspects of stormwater management and water resources. Provides training workshops and webinars on topics related to stormwater management, best management practices (BMPs), and permit compliance, including the GI Champions Program.
53. Sustainable Jersey (<https://www.sustainablejersey.com/>): Provides information about best practices for what municipalities, schools, and school districts could and should do to contribute to a sustainable future. Specifically, several actions such as Green Infrastructure Planning, Green Infrastructure Implementation, and Enhanced Stormwater Management Control Ordinance.
54. US Environmental Protection Agency's Watershed Academy (<https://www.epa.gov/watershedacademy/>): Offers online training courses and webinars on various aspects of watershed management, including stormwater management. It also provides resources and case studies on stormwater practices, GI, and pollution prevention.



ABOUT JERSEY WATER WORKS AND THE GREEN INFRASTRUCTURE COMMITTEE

Jersey Water Works is working to transform New Jersey's inadequate water infrastructure through sustainable, cost-effective solutions that provide communities with clean water and waterways; healthier, safer neighborhoods; local jobs; flood and climate resilience; and economic growth. The Green Infrastructure Committee's goal is to increase the number of communities that employ green infrastructure to maximize benefits including reduced flooding and improved water quality, local economies, community health, and long-term resiliency. For more information visit jerseywaterworks.org or contact info@jerseywaterworks.org.

ACKNOWLEDGMENTS

The Jersey Water Works Green Infrastructure Committee's Municipal Engagement Subcommittee spearheaded this project. Thank you to the GI Committee co-chairs: Dr. Chris Obropta, Rutgers University Cooperative Extension; Rosana Pedra Nobre, New York-New Jersey Harbor & Estuary Program and the Hudson River Foundation; and William Cesanek, CDM Smith. Thank you to Ellen Silverman and Rachel Dawn Davis for leading this project, and to the full Municipal Engagement Subcommittee for contributing their time in reviewing, commenting, and editing of this final document. And thank you to New Jersey Future's Mainstreaming Green Infrastructure program for supporting the final design of the resource.



**JERSEY WATER
WORKS**
Smart infrastructure. Strong communities.



**MAINSTREAMING
GREEN INFRASTRUCTURE**
A program of New Jersey Future



New Jersey Future

16 W. Lafayette St. | Trenton, NJ 08608

609-393-0008 | njfuture.org



@newjerseyfuture