TIER A MUNICIPAL STORMWATER:

GUIDANCE DOCUMENT

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New Jersey Department of Environmental Protection
Division of Water Quality

Commissioner Catherine R. McCabe

Tier A Municipal Stormwater Guidance Document Table of Contents

1. INTRODUCTION

This guidance document has been prepared to assist Tier A municipalities in complying with the renewal of their NJPDES MS4 permit. This introductory chapter provides an overall history of the municipal permitting program, along with the following:

- Why Managing Stormwater Matters
- Stormwater Program and Permit Development
- Permits and Permit Requirements

Historical Overview

On February 2, 2004, the Department adopted amendments to the New Jersey Pollutant Discharge Elimination System (NJPDES) regulations for the development and implementation of the Municipal Stormwater Regulation Program. This program was developed in 2004 in response to U.S. Environmental Protection Agency's (USEPA) Phase II Rules published in December 1999 which require municipalities to develop and implement a program to reduce discharges of pollutants entering our waters from their stormwater systems, referred to as "municipal separate storm sewer systems" (MS4s), to the maximum extent practicable. Pursuant to USEPA's Phase II rules, the Department's Municipal Stormwater Regulation Program issues NJPDES developed pursuant to the state and federal rules noted above permits to municipalities throughout the state, as well as public complexes, and highway agencies. Public complexes include certain large public colleges, prisons, hospitals and military bases. Highway Agencies include county, state, interstate, or federal government agencies that operate highways and other thoroughfares, and include each of the 21 county highway departments, the New Jersey Department of Transportation, the Port Authority of N.Y. and N.J., the New Jersey Turnpike Authority, and the South Jersey Transportation Authority. The Tier A MS4 permit was originally issued in 2004, renewed in 2009, and then renewed again most recently on January 1, 2018. The MS4 permit renewal has been designed to comply with the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System General Permit Remand Rule, adopted December 9, 2016.

The Municipal Stormwater Regulation Program is part of the Clean and Plentiful Water initiative.

Why Managing Stormwater Matters

"Floatables," like the trash seen here, contribute to stormwater pollution, which is also known as nonpoint source pollution.

During and shortly after a precipitation event, some of the rain, hail or snow that reaches the ground is returned to the atmosphere through evapotranspiration. Some infiltrates into the ground below the root zone of the vegetation present to become groundwater and some becomes stormwater runoff which then flows from rooftops, over paved areas and bare soil, and through sloped vegetated areas while picking up a variety of sediments and pollutants on its way. The quantity and quality of stormwater runoff is affected by many factors including the season, local meteorology, geography, topography, land cover, and the activities which lie in the path of the flow. Impervious surfaces, such as rooftops and pavement, can increase the probability of downstream erosion and flooding. Although the amount of pollutants from a single site may seem unimportant, the combined concentrations of pollutants running off of many sites can negatively affect receiving waterbodies, and the quality of our surface water, as well as groundwater, which directly impacts the health of our ecosystems and the quality of our lives. For example, opportunities to engage in boating, swimming and fishing are diminished if water quality is impaired. Additionally, impaired water quality impacts shellfish production, tourism at beaches and coastal communities, and increases drinking water treatment costs.

Stormwater/nonpoint pollution can often be linked to our daily activities and lifestyles. The way we plan communities, build shopping centers, commute, and maintain lawns all impact stormwater quality. Many times, people do not know or understand that there are alternatives. For example, homeowners can have a green lawn without high doses of fertilizers and pesticides; pet owners should deposit pet waste in the trash or in the toilet and not leave it on the ground. Often there is a lack of public awareness. People are unaware that storm drains often discharge directly to water bodies. When people allow motor oil, trash, and their pet's waste to enter the storm sewer in their street, they don't realize that it may end up in the lake down the block or many miles away. Individually these acts may seem insignificant, but the cumulative impacts of these activities contribute to stormwater/nonpoint source pollution and reduce water quality.

USEPA and the State of New Jersey realize the critical importance of substantially reducing stormwater/nonpoint pollution entering into the waters of the State. The Municipal Stormwater Regulation Program is designed to do just that, through the implementation of Statewide Basic Requirements (SBRs) and best management practices, contained in the NJPDES Stormwater General Permits.

Program and Permit Development

The Department developed the Municipal Stormwater Regulation Program with input from members of the regulated community, affected governmental agencies, and the public. The Department established an advisory group that included representatives from municipalities and groups such as the New Jersey State League of Municipalities, New Jersey County Planners Association and the Association of New Jersey Environmental Commissions. A Best Management Practices Subcommittee was also formed to assist in the development of practical best management practices for general permits. This subcommittee included representatives of municipal and county public works departments, highway agencies, and New Jersey Department of Transportation.

Permits and Permit Requirements

The Department issued four general permits to implement the Municipal Stormwater Regulation Program:

- the Tier A Municipal Stormwater General Permit ("Tier A Permit");
- the Tier B Municipal Stormwater General Permit ("Tier B Permit");
- the Public Complex Stormwater General Permit ("Public Complex Permit"); and
- the Highway Agency Stormwater General Permit ("Highway Permit").

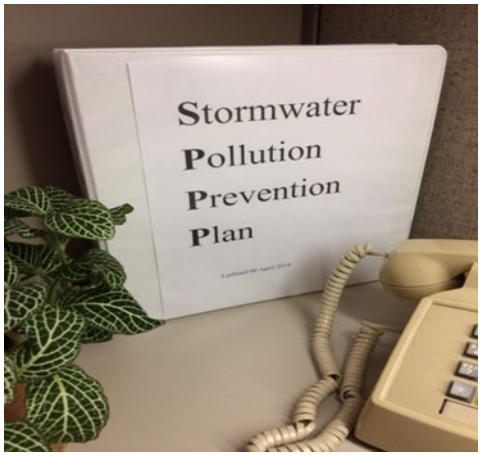
These permits address stormwater quality issues related to new development, redevelopment and existing developed areas by requiring the development of a stormwater program and implementation of specific permit requirements, referred to as Statewide Basic Requirements (SBRs). SBRs may also require the permittee to implement related best management practices (BMPs). All SBRs and related BMPs contain minimum standards, measurable goals, and implementation schedules. New development and redevelopment is addressed, in part, by requiring municipalities to adopt and enforce a stormwater management plan and ordinance in accordance with N.J.A.C. 7:8. Existing developed areas are addressed through broad topics including Local Public Education, and (for the Tier A, Public Complex, and Highway Permits) Improper Disposal of Waste Solids and Floatable Controls, Maintenance Yard Operations and Employee Training.

The Tier A Permit, Tier B Permit, Public Complex Permit, and Highway Permit may require the implementation of Additional Measures (AMs). AMs are measures (non-numeric or numeric effluent limitations) that may modify or be in addition to the SBRs required by the permits, and whose inclusion in a stormwater program may be required by a Water Quality Management Plan (WQM plan). AMs may be required by TMDLs approved or established by USEPA, regional stormwater management plans, or other elements of WQM plans. (See *Chapter 5: Additional Measures* for more details).

Wildlife management, an Optional Measure, may include geese population control techniques.

The permits also allow for the inclusion of Optional Measures. These are BMPs that are not specifically required by the permit but are recommended as ways to further enhance a stormwater program and improve water quality.

2. STORMWATER POLLUTION PREVENTION PLAN



The Tier A MS4 NJPDES permit requires that each Tier A Municipality develop, implement, update and maintain an MS4 stormwater program. The stormwater program is described in the municipality's written Stormwater Pollution Prevention Plan (SPPP), which is the primary plan required by the permit. The SPPP describes how the municipality will implement each permit requirement and provides a place for record keeping and documenting when permit requirements were met. For the existing Tier A Municipality, *Attachment A - Measurable Goals and Implementation Schedule* is a continuation and enhancement of ongoing program requirements. For the newly permitted Tier A Municipality, *Attachment A-1 – Measurable Goals and Implementation Schedule for New Permittees* provides a timetable for developing a comprehensive MS4 Stormwater Program. Below is a summary table of the permit requirements and the corresponding implementation schedule.

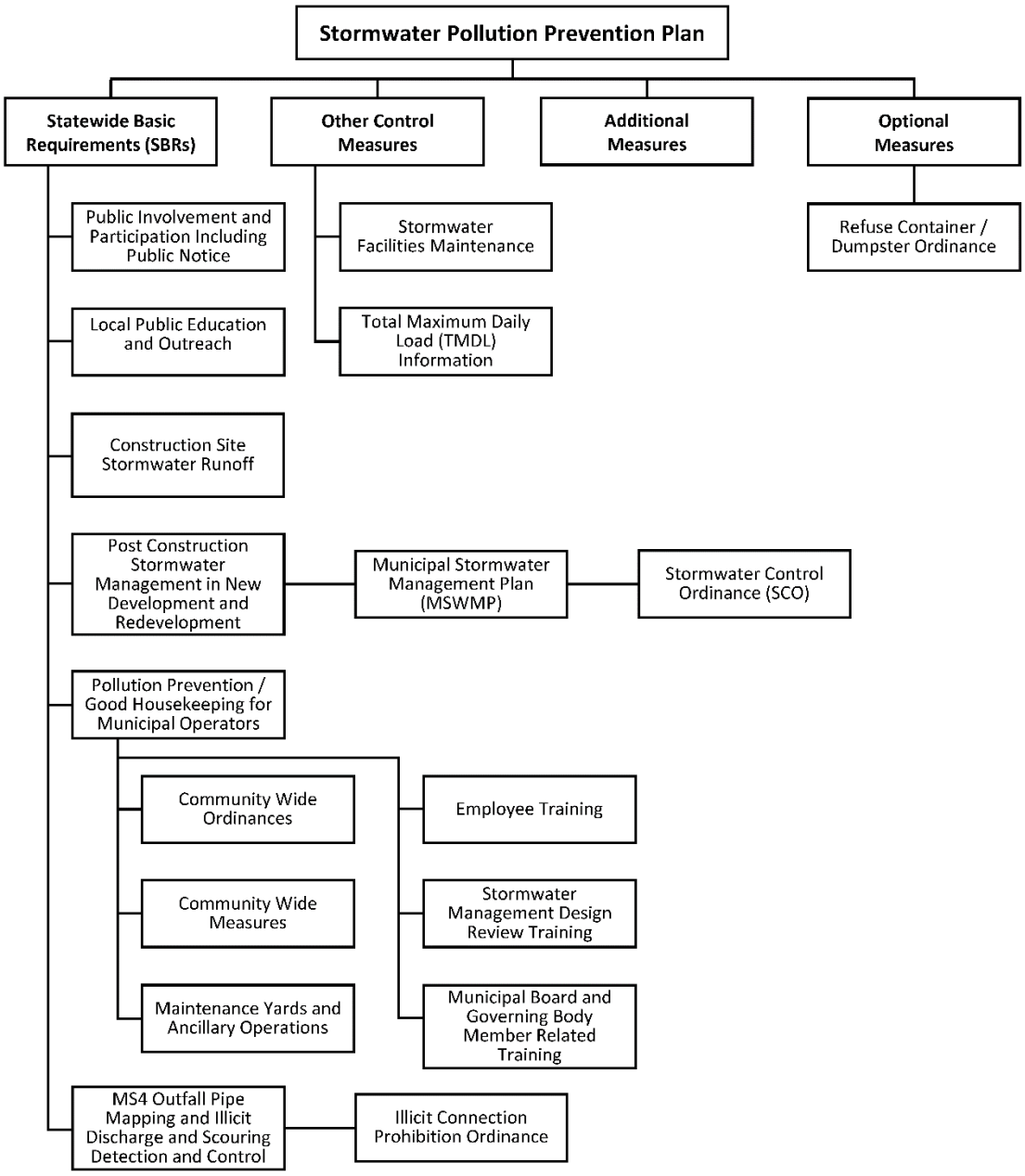
Stormwater Pollution Prevention Plan		
	Implementation Schedule	
Permit Requirements	**Existing Permittees**	**New Permittees**
Develop and implement a written Stormwater Pollution Prevention Plan (SPPP), signed and dated by the Stormwater Coordinator.	January 1, 2018	EDPA + 12 months
Maintain the SPPP by reviewing at least annually and updating as often as needed to reflect changes in the municipality's MS4 Stormwater Program.	January 1, 2018	EDPA + 12 months
Provide the current SPPP to the public upon request.	January 1, 2018	EDPA + 12 months
Post the current SPPP on the municipality's website.	April 1, 2018	EDPA + 12 months
Post the current Municipal Stormwater Management Plan (MSWMP) and related ordinances on the municipality's website.	April 1, 2018	EDPA + 90 days
Amend the SPPP within 30 days after receiving notification from the Department to address all deficiencies and submit written certification to the Department for the required retention period.	30 days from the date of receipt of notice	30 days from the date of receipt of notice

Note: EDPA means effective date of permit authorization.

Introduction

The chart below illustrates the organization of the Tier A MS4 NJPDES permit's MS4 stormwater program requirements. The Stormwater Pollution Prevention Plan (SPPP) is the master working document of the MS4 stormwater program, as it contains the descriptions, records and forms necessary for documenting how the municipality is meeting the conditions of the Statewide Basic Requirements (SBRs), Other Control Measures and any Additional Measures and Optional Measures.

Municipal MS4 Stormwater Program Organization Chart



SPPP forms are provided on the Department web site at http://www.nj.gov/dep/dwq/tier_a_forms.htm. The forms may be printed and completed by hand, or as fillable form documents, which can be completed and saved for updates and revisions at a later time. A Tier A Municipality may develop personalized forms. However, it is important that the SPPP fully describe the municipality's stormwater program, including items required by the permit and specifics on implementation and record keeping.

When developing or updating an SPPP and related forms, it is important to include as much detailed information about the municipality's stormwater program as possible. In addition, when implementing the SPPP, it is important to keep up with the record keeping requirements and documentation related to SPPP implementation. The Department did not include forms for record keeping, since it is more efficient to use database software for this purpose, which allows easy updates and tracking of SPPP related activities. The location of the record keeping database should be noted in the SPPP. If printed copies are kept in the SPPP, the printed copies should be updated after any updates are made to the database. The Tier A Municipality must handle all record keeping requirements in a similar fashion. It is also acceptable to keep handwritten records.

Maintaining detailed, up-to-date SPPP forms and updated record keeping spreadsheets will make it easier for the municipality to complete the Annual Report and Certification that must be submitted each year. Further, having updated forms and updated spreadsheet will help to ensure permit compliance and continuity of work regardless of personnel changes within a municipality. A well-written and detailed SPPP will also make the annual inspections conducted by the Department's Water Compliance and Enforcement easier for both the Department and the Tier A Municipality.

The Tier A Municipality is not required to submit the SPPP to the Department. The Department will review the completed SPPP as part of regular compliance assistance inspections and on-site audits, and the SPPP may be reviewed by Department Enforcement personnel as part of the inspection process; the Stormwater Program Coordinator must have access to the document at all times. In addition, the SPPP must be available for use by municipal employees. It may be a good idea to have copies made for each member of the Stormwater Pollution Prevention Team with one person responsible for making updates or compiling record keeping data. The Tier A Municipality must also make the SPPP available to the public at reasonable times during regular business hours, and post it to the municipal website for public access.

The SPPP is a dynamic document that is never "completed." It must not be filed away in a drawer. The SPPP needs to be continually updated and revised as people, tasks and best management practices change. The best time for evaluating your Stormwater Program and SPPP, as well as making appropriate changes, revisions and updates, is upon completion of the Annual Report and Certification.

Contents of the SPPP:
Municipal MS4 Stormwater Program Minimum Standards

The SPPP describes and documents how a Tier A Municipality is meeting the minimum standards contained within these four divisions of the Municipal MS4 Stormwater Program:

1. Statewide Basic Requirements (SBRs);
2. Other Control Measures;
3. Additional Measures; and
4. Optional Measures.

Statewide Basic Requirements (SBRs)

The Statewide Basic Requirements (SBRs) are the actions developed by the State to implement the Federal Six Minimum Measures. Detailed information on each of the following SBRs is found in Chapter 3 of this document. The SBRs include the following:

1. The *Public Involvement and Participation Including Public Notice* SBR requires compliance with all applicable State and local public notice requirements when providing for public participation in the development and implementation of a MS4 Stormwater Program;
2. The *Local Public Education and Outreach* SBR requires compliance with the established standards for implementing a public education and outreach program, for labeling storm drain inlets and for advertising public involvement programs pertaining to public education and outreach activities in the development and implementation of a MS4 Stormwater Program;
3. The *Construction Site Stormwater Runoff* SBR is not required in the SPPP because construction site stormwater runoff activities are authorized under a separate NJPDES permit;
4. The *Post Construction Stormwater Management in New Development and Redevelopment* SBR requires two key components be included in the SPPP:
    - The Municipal Stormwater Management Plan (MSWMP) is a significant component of the SPPP. The MSWMP is also a key element of the municipal master plan and it describes the Tier A Municipality's strategy, structure and process for addressing stormwater runoff from new development and redevelopment; and
    - The Stormwater Control Ordinance (SCO) is the means by which the minimum stormwater management requirements and controls for major development are established and the enforcement of the requirements are codified.
5. The *Pollution Prevention/Good Housekeeping for Municipal Operators* SBR for eliminating and/or minimizing stormwater pollution from public and municipal activities, and educating municipal employees and officials of their responsibilities includes a number of community-wide ordinances and measures to control solids and floatables:
    - Community Wide Ordinances for dealing with improper disposal of waste;

- Community Wide Measures for controlling solids and floatables;
- BMPs for Municipal Maintenance Yards and Other Ancillary Operations for stormwater discharges from municipal maintenance yards and activities;
- Employee Training for stormwater on topics applicable to title and duties;
- Stormwater Management Design Review Training for engineers and others that review stormwater management designs for development and redevelopment projects; and
- Municipal Board and Governing Body Member Related Training for board and council members that review and approve applications for development and redevelopment projects.

6. The *MS4 Outfall Pipe Mapping, and Illicit Discharge and Scouring Detection and Control* SBR for identifying and eliminating illicit discharges and stream channel erosion at municipal stormwater outfalls, which requires:

   - The development, updating and maintenance of an MS4 outfall pipe map;
   - The development, updating and implementation of a program for detecting, investigating, and controlling any localized stream scour at outfall pipes owned or operated by the Tier A Municipality; and
   - The development, updating, implementation and enforcement of a program for detecting and eliminating illicit discharges.

Other Control Measures

Other Control Measures are the actions needed to supplement certain Statewide Basic Requirements designed to achieve elements of the Federal Six Minimum Measures. There are two main groups, for which detailed information is included in Chapter 4 of this document:

1. Stormwater Facilities Maintenance, which requires adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities, and requires development and enforcement of a program to *ensure* long-term cleaning, operation and maintenance of privately owned or operated stormwater facilities built after February 7, 1984; and

2. Total Maximum Daily Load (TMDL) Information, which is incorporated into the SPPP to identify pollutants listed in TMDLs for impaired waterbodies to supplement the SBRs and other control measures, as well as to promote municipal strategies for reducing pollutant discharges from MS4s.

Additional Measures

Additional Measures are specified by the Department only if required by a TMDL, regional stormwater management plan, other elements of an adopted area-wide Water Quality Management Plan or the adopted Statewide Water Quality Management Plan.

Optional Measures

Optional Measures are BMPs or control measures developed by the municipality at its own discretion to further prevent or reduce pollutant discharges from its MS4. Options such as these may be included in the SPPP, if desired:

- Wildlife Management;
- TMDLs as an Optional Measure;
- Retrofit of Existing Stormwater Management Measures;
- Road De-icing;
- Adoption of Abandoned Stormwater Management Facilities;
- Planting of Native Vegetation in Existing Landscapes;
- Digital Mapping;
- Refuse Container/Dumpster Ordinance; and
- Road Erosion Control.

Minimum Standards

The Tier A Municipality must develop, implement, update and maintain a written Stormwater Pollution Prevention Plan (SPPP) that documents how the municipality is meeting the conditions of the Statewide Basic Requirements (SBRs) and Other Control Measures, plus any Additional Measures and Optional Measures.

Basic Requirements

Municipal Stormwater Program Coordinator (Stormwater Coordinator) and SPPP Team Members

The Tier A Municipality must designate a Stormwater Coordinator and assign individuals to serve as members of the SPPP Team. The Stormwater Coordinator and SPPP Team members are to be identified on the *Stormwater Pollution Prevention Team Members* form. They are responsible for ensuring that the SPPP is properly developed, implemented, updated and maintained.

To be qualified for the Stormwater Coordinator position, the individual must:

1. Be a principal executive officer or a ranking elected official; or
2. Have overall responsibility for the operation of municipal stormwater facilities or municipal environmental matters, and is assigned to the position as a duly authorized representative by a principal executive officer or a ranking elected official.

Duties of the Stormwater Coordinator include:

1. Coordinating the implementation of the SPPP and Tier A NJPDES MS4 permit conditions;
2. Signing and dating the SPPP;
3. Coordinating the completion and online submittal of the Annual Report and Certification;
4. Certifying, signing and dating the Annual Report; and
5. Serving as point contact for the Department for communication related to the MS4 stormwater program.

When a change of Stormwater Coordinator brings a new individual into the position, the Department must be sent the new information within 30 days of the change taking place. The change notification may be sent to the Department any time of the year by using the *Stormwater Program Coordinator Information Update Sheet* posted at www.nj.gov/dep/dwq/pdf/msrp_update_form.pdf. The information may also be updated online during the first half of the year through the Annual Report and Certification submittal process. Having the proper Stormwater Coordinator contact information in the Department database will ensure that the Department will be able to provide the necessary updates and correspondence to the proper contact person.

Documenting the MS4 Stormwater Program Including Shared or Contracted Services

Documenting the implementation of the MS4 stormwater program includes providing a description of any shared or contracted services utilized. When another entity, such as a governmental, private, or nonprofit entity, is used to satisfy any of the Tier A MS4 NJPDES permit conditions, the SPPP must describe which best management practices (BMPs) or control measures are being implemented, and identify the entity that is providing these services.

These are the conditions that must be met when utilizing another entity to provide shared or contracted services:

- The entity is responsible for implementing the services;
- The services, whether provided in full or as a distinct part, must meet or exceed the Tier A MS4 NJPDES permit requirements;
- The entity must have a written agreement with the municipality, or be bound by law, to provide the services required by the Tier A MS4 NJPDES permit in the best interests of the municipality; and
- In the SPPP, the municipality must provide the name of the entity and which of the Tier A MS4 NJPDES permit conditions the entity is responsible for implementing.

As a reminder, the municipality must ensure that any shared or contracted services provided by a private contractor are done in compliance with the Tier A MS4 NJPDES permit.

Describing SBRs, Other Control Measures, Additional Measures and Optional Measures in the SPPP

For each BMP and control measure implemented to fulfill the Statewide Basic Requirements (SBRs), Other Control Measures, Additional Measures and any Optional Measures the municipality chooses to include in its stormwater program, the following must be included in the SPPP:

- A description of the method of implementation;
- Detailed record keeping as appropriate;
- An implementation schedule consistent with permit requirements, including interim milestones;
- Any special diagrams required by the permit (i.e., Storm Drain Inlet Labeling, Illicit Connection Elimination and Outfall Pipe Mapping);
- Inspection and maintenance schedules, as appropriate; and
- For shared responsibilities, a description of the measure(s) implemented and the entity(ies) responsible for the implementation (Not required for Optional Measures).

Measurable Goals

To meet the minimum standards of this permit, the Tier A Municipality must comply with the following:

- Develop and implement a written Stormwater Pollution Prevention Plan (SPPP);
- Maintain the SPPP by reviewing the documents at least annually and update it as often as needed to reflect changes in the municipality's MS4 stormwater program;
- Provide the current SPPP to the public upon request;
- Post the current SPPP on the municipality's website; and
- Post the current Municipal Stormwater Management Plan (MSWMP) and related ordinances on the municipality's website.

The Tier A Municipality is also required to both certify annually that all conditions of the SPPP were followed, and to maintain the records necessary to demonstrate compliance with the permit.

Implementation Schedule

Refer to the table listing the Implementation Schedule found on Page 1 of this Chapter.

Stormwater Pollution Prevention Plan Forms

An SPPP template is available at http://www.nj.gov/dep/dwq/tier_a_forms.htm for Stormwater Coordinators to prepare thorough plans for their municipalities. Using this template is not required, however the same level of detail must be present in all plans. The Department recommends using the template to be certain all requirements are satisfied. The completed and most current SPPP must be posted on the municipal website. Related records must be available to the Department upon request.

SPPP Cover Sheet

The Department template includes this sheet to serve as the front page of the plan. There are spaces reserved for the SPC to enter the name of the municipality, county, NJPDES permit number, and the last revision date.

SPPP Table of Contents

The Department template includes this sheet to easily connect individual forms with the exact place in the permit where the requirement is cited. There are spaces reserved in the footer of this sheet for the SPC to enter the name of the municipality, county, NJPDES permit number, and the date it was last revised.

SPPP Form 1 – SPPP Team Members

This form is for the Stormwater Coordinator to sign and date as the person responsible for the SPPP, responsible for ensuring that the document is complete, updated when changes are made to the municipality's stormwater program, and reviewed annually. The Stormwater Coordinator is also responsible for posting the most updated SPPP on the municipal website along with the stormwater-related Ordinances and the Municipal Stormwater Management Plan. The names and titles of others involved in the SPPP are recorded on this form, including individual(s) who perform stormwater management reviews of major development projects and any others determined to be key contributors to the stormwater program and permit compliance.

SPPP Form 2 – Revision History

This form is for recording the date and nature of changes to the SPPP. It is necessary to record a revision whenever the approach to the stormwater program is modified or when there is a change to the individuals listed on the SPPP Team Members form (Form 1).

SPPP Form 3 – Public Involvement and Participation Including Public Notice

This form is for describing how the municipality provides public access to the SPPP, ordinances and MSWMP as well as how the public is notified about opportunities to participate in municipal stormwater program meetings, development, and implementation activities.

Form 4 – Public Education and Outreach

This form is for describing how the municipality advertises public education and outreach events and where online and hard copy materials are available to support stormwater education. It also is for

describing the approach to educating businesses and the general public about the hazards associated with illicit connections and improper disposal of waste.

Permit attachment B includes the following five categories with associated lists of activities and online resources: General Public Outreach, Targeted Audiences Outreach, School/Youth Education and Activities, Watershed/Regional Collaboration, and Community Involvement Activities. Municipalities must choose from at least three of these five categories to achieve a total of 12 points. At least one of these activities shall involve educating businesses and the general public of hazards associated with illicit connections and improper disposal of waste.

Form 5 – Post-Construction Stormwater Management in New Development and Redevelopment Program

This form is for describing the overall Post Construction Stormwater Management in New Development and Redevelopment Program. This includes how the municipality will, among other things, ensure that any residential development and redevelopment projects subject to the Residential Site Improvement Standards (RSIS) comply with the RSIS and how non-residential projects comply with the municipality's Stormwater Control Ordinance (SCO), ensure long-term operation and maintenance of BMPs, implement (through ordinance) the storm drain inlet design standard required by the permit and adopt a Municipal Stormwater Management Plan (MSWMP) and SCO.

Form 6 – Ordinances

This form is for listing the ordinances required by the permit, the municipal website address where they are posted, and details about adoption date and enforcement. The following ordinances are required by permit: Pet Waste, Wildlife Feeding, Litter Control, Improper Disposal of Waste, Containerized Yard Waste/Yard Waste Collection Program, Private Storm Drain Inlet Retrofitting, Stormwater Control Ordinance, and Illicit Connection Ordinance. It is optional to adopt and enforce a Refuse Container/Dumpster Ordinance.

Form 7 – Street Sweeping

This form is for describing the street sweeping plan, i.e., a written description or map to illustrate the areas swept, records of sweep dates, miles swept, and amounts of wet tons collected. The municipality will indicate which streets are required by permit to be swept, which streets they sweep that are NOT required by permit to be swept, and where sweeping was done by the municipality versus another entity through a shared service arrangement. If the municipality provides sweeping services for other municipalities, details of this arrangement shall be noted on this form.

Form 8 – Catch Basins and Storm Drain Inlets

This form is for describing the plan for catch basin and storm drain inlet inspection and maintenance. The municipality will include a list of locations where recurring problems, i.e., flooding, accumulated debris, etc. are identified. For each such area, the municipality will indicate what measures are taken to address the issues and how remediation projects are prioritized.

For inlets that do not have permanent wording cast into the structure of the inlet, municipalities will indicate if they use stencils, medallions, etc., and, during maintenance work, if labels are missing or not legible. The municipality may elect to combine this permit requirement with Public Education and

Outreach, earning points by organizing a youth group to do the 'Storm Drain Labeling' activity (see permit attachment B, category 3: School/Youth Education and Activities).

Form 9 – Storm Drain Inlet Retrofitting

This form is for describing how the municipality ensures that all storm drain inlets (municipal and private) are retrofitted to meet current requirements detailed in permit attachment C – Design Standards for Storm Drain Inlets. The municipality will describe the inspection process to verify that appropriate retrofits are completed as part of applicable repaving, repairing, and resurfacing projects or are in direct contact with any reconstruction or alteration of facilities.

Form 10 – Municipal Maintenance Yards and Other Ancillary Operations

This form is used to inventory equipment and materials present and exposed to stormwater at each municipal yard or ancillary operation location. The municipality will describe the Best Management Practices (BMPs), often known as Standard Operating Procedures (SOPs) in place at each location to ensure compliance with the requirements in permit Attachment E. The municipality will note the location of logs and documentation of issues and remedial action related to each of the following categories: Fueling Operations, Vehicle Maintenance, On-Site Equipment and Vehicle Washing (including Underground Storage Tank records, if applicable), Discharge of Stormwater from Secondary Containment, Salt and De-Icing Material Storage and Handling, Aggregate Material and Construction Debris Storage, Street Sweepings, Catch Basin Clean Out and Other Material Storage, Yard Trimmings and Wood Waste Management Sites, and Roadside Vegetation Management.

Form 11 – Employee Training

This form is for documenting the required training for 1) municipal employees, 2) municipal board and governing body members, and 3) stormwater management design reviewers. For each of the three groups, there are topics and/or courses required periodically to ensure the appropriate individuals are prepared to conduct their duties related to stormwater pollution prevention.

Form 12 – Outfall Pipes

This form includes four sections with topics related to municipally owned or operated outfall pipes as follows:

Mapping – Each year, an image or link to the most current outfall pipe map shall be included in this section of the SPPP. If the municipality currently uses paper maps, they may be scanned and attached electronically to satisfy the requirement. Note that all maps must be electronic by 21 Dec 2020 via the DEP's designated electronic submission service. For details, see http://www.nj.gov/dep/dwq/msrp_map_aid.htm.

Inspections – Describe the outfall pipe inspection schedule and indicate the location of associated records including dates, locations, and findings.

Stream Scouring – Describe the program in place to detect, investigate and control localized stream scouring from stormwater outfall pipes. For cases when localized stream scoring has been detected, indicate the location of records documenting the sources of stormwater that contribute to the affected

outfall pipes, recommended corrective action, and a prioritized list and schedule to remediate scouring cases.

Illicit Discharges – Describe the program in place for conducting visual dry weather inspections of municipal outfall pipes. When illicit discharges are found, record each case using the DEP's Illicit Connection Inspection Report Form found at www.nj.gov/dep/dwq/tier_a_forms.htm. These forms are also submitted to DEP with the annual report due May 1 of each year.

Form 13 – Stormwater Facilities Maintenance

This form is for documenting details about the program in place for the long-term cleaning, operation and maintenance of each stormwater facility owned or operated by the municipality. It shall also detail how the municipality ensures the same of each stormwater facility NOT owned or operated by the municipality.

The DEP offers helpful maintenance log templates to satisfy this permit requirement, found at http://www.nj.gov/dep/stormwater/maintenance_guidance.htm. Alternate logs are acceptable provided they include the type of stormwater facility inspected, geographic coordinates or other location details, date of inspection, name of inspector, findings, preventative and corrective maintenance performed.

The NJ Hydrologic Modeling Database contains information and maps of stormwater management basins. To view the database map, see https://hydro.rutgers.edu. To download data in an Excel format, see https://hydro.rutgers.edu/public_data/.

Form 14 – Total Maximum Daily Load Information

This form is for documenting the results of the Total Maximum Daily Load (TMDL) report that are specific to the municipality using the DEP tool available at https://www.nj.gov/dep/dwq/msrp-tmdl-rh.htm. The municipality will list adopted TMDLs, parameters addressed, and the names of affected water bodies that impact the MS4 program. This form shall also include a description of how TMDL information is used to prioritize stormwater facilities maintenance projects and to address specific sources of stormwater pollutants.

Form 15 – Optional Measures

This form is for describing any Best Management Practice(s) developed by the permittee that extend beyond the requirements of the permit to prevent or reduce water pollution. If the municipality adopts a Refuse Container/Dumpster Ordinance, it will be noted here as an Optional Measure and will also be listed among the ordinances on SPPP Form 6.

3.1 PUBLIC INVOLVEMENT AND PARTICIPATION INCLUDING PUBLIC NOTICE

The *Public Involvement and Participation Including Public Notice* Statewide Basic Requirement (SBR) requires compliance with all applicable State and local public notice requirements when providing for public participation in the development and implementation of a MS4 Stormwater Program. The purpose is to make the creation, operation and review of a municipal stormwater program more transparent. This chapter will focus on the importance of public involvement, how to engage the public, the minimum standards, measurable goals and implementation schedule of this SBR, and what additional resources are available. Below is a summary table of the minimum standards, measurable goals and implementation schedule of this SBR.

Public Involvement and Participation Including Public Notice SBR			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Provide for public notice under the Open Public Meetings Act, statutory procedures for enactment of ordinances, and Municipal Land Use Law when providing for public participation in the development and implementation of a stormwater program,and maintain records necessary to demonstrate compliance.	Certify annually	January 1, 2018	EDPA
Provide the current SPPP to the public upon request.	Certify annually	January 1, 2018	EDPA + 12 months
Post the current SPPP on the municipality's website.	Certify annually	April 1, 2018	EDPA + 12 months
Post the current Municipal Stormwater Management Plan (MSWMP) and related ordinances on the municipality's website.	Certify annually	April 1, 2018	EDPA + 90 days

Note: EDPA means effective date of permit authorization.

Historical Background

In 2004, this SBR was labeled "Public Notice," and required compliance with State and local public notice requirements. This SBR also appeared in the 2009 Tier A MS4 NJPDES permit under the heading of "Public Notice." The name has been changed to be consistent with the Federal Six Minimum Measures found in 40 CFR 122.34(2) and with N.J.A.C. 7:14A-25.6(b)1.

Why Public Participation and Involvement Matters

Public participation is a crucial step in the development, implementation and continuing upkeep of a successful MS4 Stormwater Program. The public can provide valuable input and assistance with the municipality's stormwater program when given opportunities to take an active part in both the development and implementation of the program. An active and involved community is important for the success of a MS4 Stormwater Program because:

- Citizen participation can provide a broader base of expertise and economic benefits, since the community can be a valuable intellectual resource at no cost to the municipality;
- Citizens actively engaged in the stormwater program development, implementation or updating process would be less likely to raise public challenges to the program, since they have been a part of that process and had opportunities to provide their own input while working with the municipality on developing, implementing and updating the program;
- Citizen volunteers can serve as the liaisons who provide important cross-connections to other local and regional programs they are involved with; and
- Interested citizen groups, such as watershed associations or environmental/conservation organizations, can volunteer to take on specific tasks in dealing with best management practices (BMPs) and/or stormwater control measures to meet any number of permit conditions.

How to Involve the Public

Provide Easy Access to Public Information

Making elements of the MS4 Stormwater Program available to the public is vital for public involvement and participation. Doing so also serves as an aid in building public consent. As required by Part IV.B.1 of the permit, the simplest means of providing public access to the key elements is to post the information on the municipal website. The key elements to be posted on a municipal stormwater program webpage are:

- Stormwater Pollution Prevention Plan (SPPP);
- Municipal Stormwater Management Plan (MSWMP);
- Stormwater Control Ordinance(s);
- Illicit Connection Ordinance; and

- Community Wide Ordinances for the following:
  - Pet Waste;
  - Wildlife Feeding;
  - Litter Control;
  - Improper Disposal of Waste;
  - Containerized Yard Waste/Yard Waste Collection Program; and
  - Private Storm Drain Inlet Retrofitting.

An example of a basic Municipal Stormwater Program webpage is found below. When a reader clicks on a particular subject, the reader is redirected to another page, or portion of a page, featuring information on the selected topic.

Example: A Municipal Stormwater Program Webpage

Additionally, providing printed copies and posting on bulletin boards will make this information accessible year-round to those in the community without internet access. Measures should be taken to make this information available to all residents, regardless of any physical or economic challenge.

Acknowledge Citizen Stakeholders and Volunteers

To keep citizen stakeholders and volunteers involved in the MS4 Stormwater Program, take steps to acknowledge them for their time and effort and provide incentives to keep them feeling valued and inspired. Here are a few suggestions:

- Take pictures of participants engaged in a stormwater related to create a pictorial record of their activities and publish them in local newspapers and/or post on electronic media;
- Distribute logo items such as t-shirts, hats, badges, water bottles, or other items to participants; and

- Provide each participant with a certificate of appreciation and/or a letter of thanks signed by the mayor.

When participants are made to feel that their contributions are worthwhile, enthusiasm spreads and encourages others to take a more active role in their community. When increasing numbers of members of the community are aware of and supportive of the MS4 Stormwater Program, the program has a higher likelihood of success. See the recommendations beginning on Page 7 of this Chapter.

Statewide Basic Requirements

There are four minimum standards for Public Involvement and Participation Including Public Notice. The Tier A municipality must demonstrate compliance with the minimum standards, as listed below, by meeting the measurable goals found in the next section. The implementation schedule to be followed is found in the schedule portion of the Table on Page 1 of this Chapter.

Minimum Standards

1. The Tier A Municipality must comply with all applicable State and local public notice requirements when a public involvement and participation program is being implemented in regard to its MS4 Stormwater Program. Examples of public notice requirements include, but are not limited to the following items:

    - The public notice requirements in the Open Public Meetings Act, also known as the "Sunshine Law" (N.J.S.A. 10:4-6 et seq.);
    - The statutory procedures for the passage of ordinances (N.J.S.A. 40:49-2);
    - The public notice requirements in the Municipal Land Use Law concerning the adoption or amendment of the Municipal Stormwater Management Plan (N.J.S.A. 40:55D-13, 28 and 94); and
    - The public notice requirements in the Municipal Land Use Law concerning the review of applications for development (N.J.S.A. 40:55D-12), with the Tier A Municipality ensuring that applicants for development also meet the notice requirements.

2. The Tier A Municipality must make the following elements of its MS4 stormwater program available to the public.

    - The current Stormwater Pollution Prevention Plan (SPPP):
        - □ Must be made available, upon request pursuant to N.J.A.C. 7:14A-25.6(j)2, which requires a municipality make these records available to the public at reasonable times during regular business hours, subject to the confidentiality provisions of N.J.A.C. 7:14A-18;
        - □ Must be posted on a municipality's website no later than the implementation date provided in the table on Page 1 of this Chapter, subject to the allowed exclusions established in Part IV.F.1.f of the Tier A MS4 NJPDES permit; and
        - □ Additional guidance for the SPPP is found in *Chapter 2: Stormwater Pollution Prevention Plan*.
    - The current Municipal Stormwater Management Plan (MSWMP):

- □ Must be prepared, adopted and updated in accordance with N.J.A.C.7:8-4 and describe the framework of the municipality's strategy, structure and process for its post construction stormwater management program;
- □ Must be made available, upon request pursuant to N.J.A.C. 7:14A-25.6(j)2, which requires a municipality make these records available to the public at reasonable times during regular business hours, subject to the confidentiality provisions of N.J.A.C. 7:14A-18;
- □ Must be posted on a municipality's website no later than the implementation date provided in the table on Page 1 of this Chapter, subject to the allowed exclusions established in Part IV.F.1.f of the Tier A MS4 NJPDES permit; and
- □ Additional guidance for the MSWMP is found in *Chapter 3.4: Post Construction Program.*

- The municipal stormwater control ordinance (SCO):
  - □ Must be made available, upon request pursuant to N.J.A.C. 7:14A-25.6(j)2, which requires a municipality make these records available to the public at reasonable times during regular business hours, subject to the confidentiality provisions of N.J.A.C. 7:14A-18;
  - □ Must be posted on a municipality's website no later than the implementation date provided in the table on Page 1 of this Chapter, subject to the allowed exclusions established in Part IV.F.1.f of the Tier A MS4 NJPDES permit; and
  - □ Additional guidance for the municipal SCO is found in *Chapter 3.4: Post Construction Program*;

- All community-wide ordinances required by the Tier A MS4 NPDES permit:
  - □ Must be made available, upon request pursuant to N.J.A.C. 7:14A-25.6(j)2, which requires a municipality make these records available to the public at reasonable times during regular business hours, subject to the confidentiality provisions of N.J.A.C. 7:14A-18;
  - □ Must be posted on a municipality's website no later than the implementation date provided in the table on Page 1 of this Chapter, subject to the allowed exclusions established in Part IV.F.1.f of the Tier A MS4 NJPDES permit; and
  - □ Additional guidance for the community wide ordinances is found in *Chapter 3.5: Pollution Prevention/Good Housekeeping for Municipal Operators*;

- The Illicit Connection Ordinance:
  - □ Must be made available, upon request pursuant to N.J.A.C. 7:14A-25.6(j)2, which requires a municipality make these records available to the public at reasonable times during regular business hours, subject to the confidentiality provisions of N.J.A.C. 7:14A-18;
  - □ Must be posted on a municipality's website no later than the implementation date provided in the table on Page 1 of this Chapter, subject to the allowed exclusions established in Part IV.F.1.f of the Tier A MS4 NJPDES permit; and
  - □ Additional guidance for the Illicit Connection Ordinance is found in *Chapter 3.6: MS4 Outfall Pipe Mapping and Illicit Discharge and Scouring Detection and Control*.

3. The Tier A Municipality may involve another entity (e.g., a watershed association) to satisfy one or more of the Tier A Municipality's NJPDES permit condition(s) (or component thereof) through the implementation of one or more best management practices or control measures.

4. The Tier A Municipality must maintain records necessary to demonstrate compliance with the public participation requirements of 1. above.

Measurable Goals

To meet the minimum standards of this permit, the following information is needed for each of the measurable goals listed below. This information must be documented in the SPPP, which must also be updated in accordance with Part IV.F.1.c of the Tier A MS4 NJPDES Permit. This information is also found in Attachment A for existing Tier A permittees and A-1 for new Tier A permittees:

- Describe the method of implementation;
- Include detailed recordkeeping as appropriate;
- Include an implementation schedule, consistent with permit requirements, including interim milestones;
- Include any special diagrams required by the permit (e.g., stormwater facilities map); and
- Include inspection and maintenance schedules, as appropriate.

The measurable goals for Public Involvement and Participation including Public Notice are as follows:

- Certify in each annual report that all public notice requirements have been met and relevant records kept. Reference, in the SPPP, the location of associated municipal records;
- Certify in each annual report that the SPPP was made available to the public;
- Certify in each annual report that the current SPPP has been posted on the municipality's website (to the extent required by Part IV.F.1.f); and
- Certify in each annual report that the MSWMP and related ordinances have been posted on the municipality's website and that the posted documents are current.

Implementation Schedules

Refer to the table listing the Measurable Goals and Implementation Schedule found on Page 1 of this Chapter.

Brief overview of MLUL Public Notice

Public Notice – Development and Redevelopment

The Tier A Municipality must comply with both of the following:

- Meet the public notice requirements in the Municipal Land Use Law (N.J.S.A 40:55D) concerning the review of applications for development/redevelopment projects; and
- Ensure that applicants for development/redevelopment projects meet the notice requirements as well.

For consistency with N.J.S.A. 40:55D-12, the applicant for development and/or redevelopment is required to give public notice of an application unless a particular municipal officer is designated by ordinance to do so, as long as the applicant is not prevented from giving notice if wanting to do so. In summary, public notice:

- Must be given at least 10 days prior to the date of the hearing;
- Must be published in newspapers serving the municipality;
- Must be given to property owners within a certain range of the proposed project;
- May need to be given to an adjoining municipality;
- May need to be given to the County Planning Board;
- May need to be given to the Commissioner of Transportation;
- May need to be given to the State Planning Commission; and
- May need to be given to public utilities, cable television companies or local utilities which possess a right-of-way or easement within the municipality.

Recommendations – Public Involvement and Participation

The Tier A Municipality is advised to promote its MS4 Stormwater Program and actively recruit citizen stakeholders and volunteers. Opportunities for members of the public to participate in program development and implementation include attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other preexisting programs or participating in other volunteer efforts. Public involvement and participation also includes creating opportunities for direct action, including: educational and volunteer programs such as tree planting days, volunteer monitoring programs, storm drain marking activities and stream or beach clean-up events.

The best way to handle common notification and recruitment challenges is to know the audience and think creatively about how to gain its attention and interest. Traditional methods of soliciting public input are not always successful in generating interest and involvement throughout the community. For example, municipalities often rely solely on advertising in local newspapers to announce public meetings and other opportunities for public involvement. Since there may be large segments of the population

who do not read the local press, the audience reach may be limited. Alternative and creative advertising methods are best used whenever possible, such as:

- Posting volunteer recruitment notices on the main page of the municipal website;
- Posting announcements in local newsletters and e-newsletters;
- Posting announcements in social networking media (e.g., Facebook, Twitter, YouTube, LinkedIn);
- Making announcements at social club and civic organization meetings;
- Distributing flyers at municipal events and including flyers with annual mailings; and
- Broadcasting radio or television public service announcements.

These citizen stakeholder and volunteer recruitment efforts can be linked to the Local Public Education and Outreach SBR and may be counted toward the activity point requirements, as described in *Attachment B—Points System for Local Public Education and Outreach Activities*.

Citizen groups, such as watershed associations or environmental/conservation organizations, can be utilized to meet any number of permit conditions by carrying out specific tasks dealing with best management practices (BMPs) and/or stormwater control measures. Here are some examples using citizen organizations that could be incorporated into the MS4 Stormwater Program:

- **Public meetings/citizen panels** allow citizens to discuss various viewpoints and provide input concerning appropriate stormwater management policies and BMPs;
- **Volunteer water quality monitoring** gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means of collecting water quality data;
- **Volunteer educators/speakers** who can conduct workshops, encourage public participation, and staff special events;
- **Storm drain stenciling** is an important and simple activity that citizens, students and youth groups can perform for the municipality;
- **Community clean-ups** along local waterways, beaches, and around storm drains;
- **Citizen watch groups** can aid local enforcement authorities in the identification of polluters and DPW staff in identifying problems, such as clogged inlets or deteriorated outfalls;
- **Mapping** of stormwater facilities within the municipality using the NJDEP Mapping Application as noted on Page 13 of Chapter 6; and
- **"Adopt A Storm Drain" programs** encourage individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through storm drains.

Federal guidance from USEPA can be used to implement the Public Involvement and Participation Including Public Notice SBR:

- NPDES Stormwater Program: https://www.epa.gov/npdes/npdes-stormwater-program
- NPDES Stormwater Discharges from Municipal Sources: https://www.epa.gov/npdes/stormwater-discharges-municipal-sources
- Getting in Step: Engaging and involving Stakeholders in Your Watershed: https://www.epa.gov/sites/production/files/2015-11/documents/stakeholderguide_0.pdf
- Phase II Public Participation/Involvement Minimum Control Measure Fact Sheet: https://www.epa.gov/sites/production/files/2015-11/documents/fact2-4.pdf

Watershed Association and Environmental Organization Resources

Rutgers: New Jersey Water Resources Research Institute

- New Jersey Watershed Organizations: http://njwrri.rutgers.edu/watershed_orgs.htm

Rutgers: New Jersey Environmental Digital Library

- Environmental Organizations: http://njedl.rutgers.edu/environmental_organizations

New Jersey Environmental Lobby:

- Explore These Environmental Websites: http://njenvironment.org/environmentallinks.htm

New Jersey Statutes Resources

Open Public Meetings Act (N.J.S.A. 10:4-6 et seq.):

- Open Public Meetings Act: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_10_4-7
- A Guide to the New Jersey Sunshine Law: https://www.aclu-nj.org/files/7313/1793/0127/OPMA_Booklet.pdf

Procedure for the passage of ordinances:

- N.J.S.A. 40:49-2: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_40_49-2

Municipal Land Use Law concerning the adoption or amendment of the Municipal Stormwater Management Plan:

- N.J.S.A. 40:55D-13: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_40_55d-13
- N.J.S.A. 40:55D-28: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_40_55d-28

- N.J.S.A. 40:55D-94: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_40_55d-94

Municipal Land Use Law concerning the review of applications for development:

- N.J.S.A. 40:55D-12: https://www.lawserver.com/law/state/new-jersey/nj-laws/new_jersey_laws_40_55d-12

3.2 LOCAL PUBLIC EDUCATION AND OUTREACH

Tier A Municipalities are required to educate their residents and businesses on the impacts their day-to-day activities have on stormwater quality. Such day-to-day activities include proper use and disposal of fertilizers and pesticides, using native or well-adapted vegetation that requires little or no fertilization, and properly disposing of litter, pet waste, used motor oil, and household hazardous waste. In addition, the local public education program should aim to inform residents about how they can become involved in local stream and/or regional watershed activities, as well as activities coordinated by local youth service and conservation corps or other citizen groups. The Division of Water Quality, Bureau of Nonpoint Pollution Control, Municipal Stormwater Regulation Program offers numerous materials and programs that can assist municipalities in developing and implementing their local public education and outreach program. Information on these programs and educational materials can be found on the Department's Bureau of Nonpoint Pollution Control Web site at http://www.nj.gov/dep/dwq/msrp_suplment_ed.htm. The Department is also available to assist each municipality on expanding their local public education and outreach programs to fit their individual needs.

Local Public Education Program and Outreach SBR

Minimum Standard	Measurable Goal	Implementation Schedule	
		Existing Permittees	New Permittees
Implementation of a Public Education and Outreach Program by conducting activities that total a minimum of 12 points on an annual basis.	Certify Annually	January 1, 2018	EDPA
Label storm drain inlets, maintain the legibility of those labels, and replace labels that are missing or not legible along sidewalks that are adjacent to municipal streets and within plazas, parking areas or maintenance yards operated by the municipality.	Certify Annually	January 1, 2018	EDPA
Advertise public involvement program(s) pertaining to education and outreach activities.	Certify Annually	January 1, 2019	EDPA + 12 months

Note: EDPA means effective date of permit authorization.

Introduction

The goal of the public education program is to encourage volunteerism, engagement, and knowledge around environmental issues, specifically stormwater runoff and its various effects. A well-versed and informed community is vital to the success of all stormwater management related policies, projects, and programs. Municipalities may employ public education and outreach to bolster the community by forming partnerships and use educational materials and strategies to inform residents about everything going on within the municipality, not just stormwater related programs. This Chapter aims to provide municipalities with examples on how to meet their public education and outreach permit requirements, and ways to go above and beyond what is required.

Public Education and Outreach Program

Minimum Standards

The Tier A Municipality must implement a Public Education and Outreach Program that focuses on educating and involving the community through the use of pollution prevention activities related to the impacts of stormwater discharges on surface water and groundwater. The Tier A municipality must annually conduct activities that total at least 12 points and must include activities from at least three (3) of the five (5) categories set forth in *Attachment B - Points System for Public Education and Outreach Activities*. Attachment B is found online with the Tier A Municipal General Permit at http://www.nj.gov/dep/dwq/tier_a.htm.

Measurable Goal

Tier A Municipalities must certify in each annual report that the minimum point value has been met. Further, municipalities must maintain records of materials and activities related to Attachment B, including dates of activities and any other relevant documentation (e.g. brochures, pictures, sign-in sheets, press clippings).

Implementation Schedule

Although the point system for the implementation of a Public Education and Outreach Program has been modified to 12 points, all municipalities are required to currently have a Public Education and Outreach Program in place, consistent with the MS4 permit originally issued in 2004. Upon the effective date of permit authorization, Tier A Municipalities must continue to implement a local education program and follow the new local public education program point value minimum standard.

Attachment B: Points System for Public Education and Outreach Activities

The Public Education and Outreach Program must describe how the Tier A Municipality will distribute educational information and specify how educational activities, including the educational event, will be conducted to satisfy the minimum standard. Tier A Municipalities must provide stormwater related information to all residents and businesses within the municipality through advertisement on their website, mailings, newspapers, or other similar means. Municipalities may use stormwater educational information provided by the Department, the EPA, or environmental, public interest, or trade organizations instead of developing their own materials. The Department may periodically provide the

Tier A Municipality with updated information for duplication and distribution. Information distributed may include the various brochures and tip cards provided by the Department at www.cleanwaternj.org.

A Tier A Municipality must include activities from at least three of the five following categories in the Public Education and Outreach Program to satisfy the twelve (12) point minimum. A municipality may choose to go above and beyond what is required.

- **Category 1: General Public Outreach**

  The General Public outreach serves as a form of advertising to residents who are unaware of the impacts stormwater pollution has on surface and ground waters of the State and steps that can be taken to reduce pollutants in stormwater runoff. This outreach also provides a way to publicize and promote various stormwater projects and maintenance operations the municipality is consistently undertaking.

  □ Website and Social Media (1 Point):
  Maintain a stormwater related page on the municipal website or on a municipal social media site. The web page may include links to other stormwater related resources, including the NJDEP stormwater website at www.stormwater.org.

  □ Newspaper Ad (1 Point):
  Use Department created and approved stormwater education materials available on www.cleanwaternj.org to publish an ad in a newspaper or newsletter that serves the municipality.

  □ Radio/Television (1 Point):
  Broadcast a radio or television public service announcement from www.cleanwaternj.org on a local radio or municipal public service channel.

  □ Green Infrastructure Signage (5 Points-New Signs 0.5 each/Upgraded Signs 0.25 each):
  Post signs at a municipally-owned green infrastructure sites that describe the function and importance of the infrastructure, contact phone number, municipal identification number, and/or website for more information. New signs receive 0.5 credits per sign. Existing signs that are maintained or upgraded receive 0.25 credits per sign. A maximum of 5 credits are allowed.

  □ Billboard/Sign (2 Points):
  Produce and maintain (for credit in subsequent years) a billboard sign which can be displayed on a bus, bus stop shelter, recreation field (outfield sign), or other similar public venue.

  □ Mural (2 Points):
  Produce and maintain (for credit in subsequent years) the planning and painting of a stormwater pollution themed mural, storm drain art or other artwork at a local downtown/commercial area or other similar public venue.

□ Stormwater Facility Signage (5 Points-New Signs 0.5 each/Upgraded Signs 0.25 each):

Post signs at municipally-owned stormwater management basins or other structural stormwater related facilities that describe the function and importance of the facility, contact phone number, municipal identification number, and/or website for more information. New signs receive 0.5 credits per sign. Existing signs that are maintained or upgraded receive 0.25 credits per sign. A maximum of 5 credits are allowed.

- **Category 2: Targeted Audiences Outreach**

Targeted Audiences Outreach in comparison to General Public Outreach, narrows and better promotes measures residents can take in order to reduce stormwater pollution and overall litter. This audience is targeted through different actions or items such as promotional items, mailings, ordinance education, and discussion of proper maintenance. Teaching residents the important practice of proper maintenance of various stormwater facilities as well as spreading awareness of the various ordinances municipalities have in place will prove to be beneficial for both residents and the municipality as well as the long-term operation of these stormwater facilities.

□ Stormwater Display (1 Point):

Present a stormwater related display or materials at any municipal event (e.g., Earth Day, town picnic), at the municipal building or other similar public venue.

□ Promotional Item (2 Points):

Distribute an item or items with a stormwater related message (e.g., refrigerator magnets, temporary tattoos, key chains, bookmarks, pet waste bag dispensers, coloring books and pens or pencils). Municipality must initially have available a minimum number of the items equal to 10% of the municipal population.

□ Mailing or e-Mailing Campaign:

(3 Points): Provide information to all known owners of stormwater facilities not owned or operated by the municipality (i.e., privately owned) highlighting the importance of proper maintenance of stormwater measures. For assistance see information at www.nj.gov/dep/stormwater/maintenance_guidance.htm.

(2 Points): Distribute any of the Department's educational brochures, tip cards or municipally produced equivalent (e.g., community calendar, newsletter or recycling schedule) via a mailing to every resident and business in the municipality.

□ Ordinance Education (3 Points):

Distribute a letter or e-mail from the mayor or municipal official to every resident and business in the municipality highlighting the requirements and environmental benefits of the following ordinances:

a. Pet Waste;
b. Wildlife Feeding;
c. Litter Control;
d. Improper Disposal of Waste;
e. Containerized Waste/Yard Waste Collection;

f. Private Storm Drain Inlet Retrofitting; and
g. Illicit Connection.

Provide a link to the municipal website where the subject ordinances are posted.

- **Category 3: School/Youth Education and Activities**

The School/Youth Education and Activities category was designed to reach the younger generation and school children. In this outreach, educational information, items, events, and outside groups are utilized to teach the impacts of stormwater pollution on their local waterways and neighborhoods. Children can prove to be a valuable resource to both a municipality and the environment. School/Youth Education and Activities gives a great opportunity to sculpt the minds of the next generation ultimately leading to better informed residents in the future.

□ School Presentations (5 Points - 1 Point per Presentation):

Provide water-related educational presentation(s) and/or activities to local preschool, elementary, middle, and/or high school classes using municipal staff or local partner organizations. Topics could include stormwater, nonpoint source pollution, watersheds, water conservation and water quality. For ideas, see information at www.nj.gov/dep/seeds. Presentations receive 1 credit per presentation, with a maximum of 5 credits allowed.

□ Water Education Workshops (2 Points):

Provide water-related professional development workshops for local teachers from a Professional Development Provider.

□ Storm Drain Labeling (3 Points):

Organize a project to label and/or maintain storm drain labels (that are not already precast with a message) with a scout troop, local school district or faith-based group or other community youth group for a minimum of 40 labels. This project may also include stenciling over precast labels to improve legibility.

□ Educational Contest for Schools (3 Points):

Organize an educational contest with a local school district or a local community organization serving youth to design a poster, magnet, rain stick, rain barrel or other craft/art object. Contest themes must have an appropriate stormwater message. Winning entries are to be displayed at publicly accessible locations within the municipality such as at the town hall, library, post office or school. The winning design must be shown on the municipality's website or social media site, if practical.

□ AmeriCorps Event (4 Points):

Coordinate an event (e.g., volunteer stream monitoring, educational presentations, or stormwater awareness project) through AmeriCorps NJ Watershed Ambassador Program.

□ Clean-up (3 Points):

Sponsor or organize a litter clean up for a scout troop, local school district, faith-based group or other community youth group along a local waterway, public park or stormwater facility, or in an area with storm drains that discharge to a local lake or waterway.

- **Category 4: Watershed/Regional Collaboration**

  Watershed/Regional Collaboration must provide a wider field of information regarding stormwater related activities, not just within a municipality, but within the area surrounding the municipality as well. Stormwater runoff and local waterways do not follow municipal boundary lines and, at times, need to be looked at through a much larger lens. Watershed/Regional Collaboration may include efforts being done in other municipalities that will affect the Tier A municipality itself or with local partners establishing policies and procedures, ensuring that all municipalities within a region are working together to maximize their efforts in stormwater pollution prevention.

  □ Regional Stormwater Collaboration (3 Points):

  Participate in a regional stormwater, community collaborative or other watershed-based group on a regular basis to discuss impaired waterbodies, TMDLs, regional stormwater related issues or watershed restoration plans that address those waterbodies. Evaluate, develop and implement remedies that resolve stormwater-related issues within the affected waterbody or watershed.

  □ Green Infrastructure Workshop (3 Points):

  Organize or participate in a rain barrel, rain garden or other green infrastructure workshop on a regional or watershed basis. This may be a partnership exercise with a local watershed organization, utility, university, school, youth/faith-based group and/or other organization.

  □ Community Activity (3 Points):

  Organize or participate in the organization of a regional or watershed based event to carry out stormwater activities such as stormwater facility maintenance or litter clean-up. The Tier A municipality may identify and enter into a partnership agreement with a local group such as a watershed organization, utility, university, school, youth/faith based group and/or other organization to carry out these activities.

- **Category 5: Community Involvement Activities**

  The activities above focused on spreading information as well as some actions that can have a direct positive impact on the water quality of local waterways. Community Involvement Activities should also spread information and/or have a direct impact on the quality of local waterways, but also provide ways for communities to engage residents to actively go out and help improve stormwater pollution that may be affecting the municipality. Engaging residents in the forms of activities listed below is a great approach to piquing their interest in stormwater pollution prevention as well as potentially impacting their lives and making residents more environmentally aware of their surroundings. Similar to what the School/Youth Education and Activities outreach attempts to accomplish, Community Involvement Activities aim to have people create a connection between daily activities and how they may lead to stormwater pollution as well as methods to stormwater pollution prevention.

  □ Volunteer Stormwater Assessment or Stream Monitoring (3 Points):

  Establish a volunteer stormwater facility assessment (inspection, inventory and/or mapping) or stream monitoring program for a waterbody within the municipality in order to gauge the health of the waterway through chemical, biological or visual monitoring protocols. Contact NJDEP's AmeriCorps NJ Watershed Ambassador Program or review USEPA National Directory of Volunteer Monitoring Programs.

□ Rain Barrel Workshop (3 Points):

Organize or participate in a rain barrel workshop. This could be a partnership exercise with a local watershed organization, university, school, youth/faith-based group and/or other nonprofit.

□ Rain Garden Workshop (3 Points):

Organize or participate in a rain garden training or installation workshop. This could be partnership exercise with a local watershed organization, university, school, youth/faith-based group and/or other nonprofit.

□ Community Event (3 Points):

Organize or participate in the organization of a community event to carry out stormwater activities such as stormwater measure maintenance or a stream buffer restoration. The Tier A municipality may identify and enter into a partnership agreement with a local group such as a watershed organization, university, utility, school, youth/faith-based group and/or other nonprofit to carry out these activities.

□ Community Involvement (5 Points-New Signs 0.5 each/Upgraded Signs 0.25 each):

Organize a project with a local organization to create and post signs at either green and/or gray stormwater infrastructure sites or facilities that describe the function and importance of the facility, contact phone number, municipal identification number and/or website for more information. Signs receive 0.5 credits per sign and a maximum of 5 credits are allowed.

For more information regarding the categories listed above, refer to *Attachment B - Points Systems for Public Education and Outreach Activities* or contact the Bureau of Nonpoint Pollution Control for additional information.

Additional Information

It is estimated that up to 60 percent of our existing water pollution problems are attributable to stormwater/nonpoint pollution. This pollution can often be linked to our daily activities and lifestyles, such as walking pets, washing cars, changing motor oil, fertilizing the lawn and littering. When it rains, pollutants from these activities may be washed into storm drains and eventually flow into New Jersey's surface and ground waters. These pollutants contaminate our drinking water, as well as degrade aquatic populations, habitats and beaches.

Fertilizers and Pesticides

Previously, municipalities were required to enforce a fertilizer ordinance; however, in 2011, this was superseded by the New Jersey Fertilizer Law, which is one of the most restrictive fertilizer content standards in the nation for nitrogen and phosphorous. Many people and businesses use fertilizers and pesticides to enhance their lawns and gardens. However, if one is not careful, such use may contaminate stormwater through pesticide (including herbicide and insecticide) and fertilizer runoff and soil erosion. In many cases, this stormwater flows directly or indirectly into local rivers, lakes, reservoirs, streams and coastal water bodies. When introduced into an aquatic ecosystem, pesticides may harm or kill aquatic life, damage the food chain and decrease reproductive success. When used improperly, pesticides may also denude an area of vegetation and result in soil erosion.

Overfertilization may also have adverse effects on an ecosystem. When surface runoff carries excess fertilizer into the water, a rise in nutrients such as nitrogen and phosphorous may occur. High levels of nutrients such as nitrogen and phosphorous stimulate blooms of algae, plankton and other microorganisms which thrive under these conditions. A bloom such as that described above may block sunlight from reaching aquatic plants, thus preventing them from producing oxygen; furthermore, as the individual organisms in the bloom die off, microbes that help decompose the dead organisms consume oxygen. If the bloom is large enough, the oxygen level decreases to the point where fish and other aquatic organisms begin to die off. Just as with the individual organisms in the bloom, microbes break down the dead fish and other aquatic organisms, further depleting the oxygen level. This process may result in a water body that can no longer support life, and in this way, the improper use of fertilizer may result in the wiping out of an entire aquatic ecosystem.

One way to help prevent overfertilization and excessive pesticide use is to educate residents and businesses on how to properly store, handle and apply fertilizers and pesticides, as well as describe the need for soil testing and how to properly conduct this testing. Therefore, soil testing is an important step in responsible fertilizer application to determine what nutrients, if any, are needed.

Pursuant to the Fertilizer Law, homeowners must not apply fertilizer after November 15 and before March 1 in any calendar year.

- For more information regarding the New Jersey Fertilizer Law (P.L. 2010, c. 112 (C.58:10A-64), see http://www.nj.gov/dep/healthylawnshealthywater/.
- For more information on fertilizer use, pest identification and soil testing, contact the local agriculture extension service. Other information on pesticide control and use can be found on the New Jersey Department of Environmental Protection's Pesticide Compliance Resources Page at http://www.nj.gov/dep/enforcement/pcp/pesticide-resources.html.

Hazardous Waste

The improper disposal of hazardous waste can also impact stormwater, ground water, and surface water quality. Many of the products found in homes and businesses (including automotive waste) contain chemicals that are harmful to people and the environment. These can include things like oven cleaners, floor care products, drain cleaners, spot removers, paint, solvents, fluorescent lights, motor oil, battery acid, lead, engine cleaner, antifreeze, rust preventative, and degreasers. These products may contain petroleum hydrocarbons, lye, phenols, trichlorobenzene, and other toxic, flammable, or corrosive chemical components, all of which may be introduced into the environment if not properly disposed. When such wastes are deliberately or inadvertently discharged into the storm drain (e.g., dumping of used motor oil, flushing of radiator coolant) they can have a significant impact on stormwater quality. Disposing these wastes directly onto the ground or into a septic system can impact ground water quality, destroy helpful bacteria in the septic system, and potentially impact the health of residents in the area. When hazardous waste is discharged into the sewer system it may destroy bacteria used for treatment at the sewage treatment plant, potentially increasing costs to manage the plant that ultimately are passed on to users. Sewage treatment plants are not designed to treat hazardous wastes. Hazardous waste will pass through the plant untreated and consequently discharge to surface water. Additional information on household hazardous waste (including information on each county's hazardous waste collection programs) may be found at the Association of New Jersey Household Hazardous Waste Coordinators at https://njhazwaste.com/.

Recommendations

Municipalities should aim to develop and maintain their web page to contain the appropriate information regarding required public education aspects of the local public education program. Make all informational outreach materials available all year round at various municipal facilities. Conduct appropriate workshops, seminars and presentations at any events the municipality will be operating, such as school assemblies or town meetings. At these events, provide appropriate materials (magnets, bookmarks, pencils, buttons, T-shirts, etc.) that outline various stormwater pollution prevention information. Take the opportunity to utilize the local public education program to not only spread information regarding stormwater pollution prevention, but to also encourage residents of the municipality to become more involved with everything going on in the community. Use some of the activities and resources discussed below to help bolster the local public education program. A municipality is not required to utilize these resources, but may choose to use them, or encourage residents and businesses to use them.

Project WET

Project WET is a nationally renowned program that offers teachers a better understanding of the world's water resources through hands-on, multi-disciplinary lessons. Project WET teaches the importance and value of water in our every-day life with formal and non-formal educators while offering specialized programs about New Jersey's water resources and watersheds. NJ Project WET focuses on water supply, nonpoint source education, water conservation, watershed management, land use planning and wetlands. Project WET provides teachers with the necessary tools, resources and lessons to help teach students about the importance and value of water in everyday life. Additionally, the program offers a Water Festival Grant Program. The festivals offer participants a series of learning stations that examine water use over time, water's role in shaping our country, what a watershed is, how water is cleaned and used again, etc. The festivals involve both the community and schools. Finally, NJ Project WET offers a Watershed Stewards Program for high school students. This program prepares young people to initiate and implement a community watershed service project that will address an environmental concern.

Clean Water Raingers Program

The Clean Water Raingers Program offers educators a number of teaching materials for their students as well as background information on watersheds and nonpoint source pollution. Educators who participate in the Clean Water Raingers program are provided with free booklets and associated materials for their elementary school age students. *The Clean Water Rainger Coloring Book*, *How to be a Clean Water Rainger* booklet, and the Clean Water Rainger stickers are also popular giveaways at family oriented events and festivals. More information on NJ Project WET, Clean Water Raingers and educational opportunities similar to them can be found on the Department's State Environmental Education Directory webpage at http://www.nj.gov/dep/seeds/index.html. It is recommended that Stormwater Program Coordinators reach out to local schools to see if they already participate in some of these activities, as the municipality may be able to get credit towards compliance with the Local Public Education and Outreach requirements.

New Jersey Watershed Ambassadors Program

New Jersey Watershed Ambassadors Program is a community-oriented AmeriCorps environmental program designed to raise awareness about watershed issues in New Jersey. Through this program, Ambassadors are placed in watershed management areas across the State to serve their local communities, which can prove to be a valuable resource to any municipality that would like to work with them. The program works to improve water quality by exploring the relationship between people and the environment, nurturing community-based environmental activities and empowering residents to make responsible and informed decisions regarding their watershed. Ambassadors conduct water quality monitoring, initiate community-based nonpoint source service projects and conduct nonpoint source education programs using hands-on activities and models such as Enviroscape. NJ Watershed Ambassadors can help organize and implement:

1. Stream or Shoreline Cleanups

   To remove trash and debris from in and around a stream. These items are not only potential pollution sources, but they can also block the flow of the stream, which can increase flooding and erosion;

2. Stream or Shoreline Surveys

   That involve walking or boating the waterway to identify potential problems along the shoreline or stream channel. While surveying the stream or shoreline, personnel look for the type of fish and wildlife present, visible erosion, fish migration barriers, etc.; and

3. Volunteer Plantings

   Native or well-adapted trees and shrubs planted in a watershed can help to restore a healthy stream environment, namely by preventing erosion, slowing stormwater runoff and providing food and shelter for wildlife, which together ultimately result in improved local water quality.

More information on the NJ Watershed Ambassador program may be found at http://www.nj.gov/dep/wms/bears/americorps.htm.

Adopt-a-Storm Drain Program

Although residents may care about stormwater pollution that may exist in their municipality, this does not always lead to action or a positive behavioral change. Creating a program in which residents and homeowners can make a feasible, long lasting commitment and sharing this commitment publicly can lead to positive changes. A great program the Department recommends municipalities create to serve as direct method of engaging homeowners and their community with the topic of stormwater pollution prevention is an Adopt-a-Storm Drain Program. The creation of this program is not required by the Department; however, such a program can be potentially effective in improving water quality and successfully educating the public, as well as qualify as points towards completing local public education requirements. The concept of this program is as follows:

- A municipality allows participating residents to adopt a storm drain at little or no cost and in return the resident pledges to keep the storm drain free from litter and debris.
- The municipality would create a website for residents and homeowners to create a pledge and choose a storm drain from the available listing.

- The municipality may provide participating homeowners with items to help them maintain the storm drain, such as brochures listing tips on proper maintenance, brooms and dustpans.

- Another useful item the municipality may provide is a yard sign, which would both remind the participant of his commitment and advertise the program to the neighborhood.

Jersey City has recently launched a program, titled "Adopt-a-Catch Basin," that serves as a great example for municipalities to follow. The Jersey City website, found at the following link, https://www.water.innovatejerseycity.org/adopt-a-catch-basin, not only educates the public on stormwater pollution related topics but also allows residents to easily complete a form to adopt a storm drain and see it displayed on an interactive map. This map can also be used to view all of the currently adopted catch basins within Jersey City along with the responsible participants' name. Participants are promised a broom and dustpan, along with information on contacting the local utilities authority if the participant feels more assistance is needed with maintenance. Since social media plays a large role in our society's communication and can serve as a powerful tool to stimulate positive behavioral change, Jersey City's program should be recognized for encouraging participants to share their experiences through social media.

A similar program has been created, in Newark, and is titled "Adopt a Catch Basin." For further information regarding the Newark program, see https://www.newarknj.gov/card/adopt-a-catch-basin. For questions regarding the different measures that can be taken to commence or improve such program, contact the Bureau of Nonpoint Pollution Control at http://www.nj.gov/dep/dwq/bnpc_contacts.htm.

Other Recommendations

Municipalities should encourage residents to do their part in preventing stormwater pollution by taking the following actions on the subjects listed below:

1. Vehicles

    - Vehicles should be washed only when necessary. Should a resident insist, he or she should consider using a commercial car wash that recycles wash water.

    - In the event that vehicles are washed at home, residents should use a non-phosphate detergent and wash it on the lawn. This will help prevent detergents and car grime from entering the drain and ending up in the sewer system and waterways.

    - Vehicles should be serviced regularly to prevent oils and other fluids from leaking onto the pavement, which will end up washing into the storm drain inlets.

2. Storm Drains

    - Don't pour motor oil, antifreeze or other chemicals down the sink or on the ground – dispose of them on collection days or recycle them by taking them to a local public or private recycling center. One quart of motor oil dumped down a storm drain can create a two-acre oil slick.

3. Yard Waste

    - Compost leaves and grass clippings or leave these types of yard waste on the lawn. Doing so will return valuable nutrients to the soil and result in lower fertilization requirements (see the "*Containerized Yard Waste/Yard Waste Collection Program Ordinances*" section of *Chapter 3.5:*

Pollution Prevention/Good Housekeeping – Best Management Practices. Fact sheets and Bulletins on composting are available at the Rutgers Cooperative Extension Web site at https://njaes.rutgers.edu/pubs/subcategory.asp?cat=5&sub=36

Storm Drain Inlet Labeling

Years ago, when storm drain inlets were commonly installed without labels, newly created storm drain inlet labeling programs were of great use for municipalities to spread stormwater pollution prevention awareness. A storm drain inlet labeling program is a program generally undertaken by local volunteer groups in collaboration with the municipality and involves labeling storm drain inlets with a cautionary message about dumping pollutants. As per the Tier A Municipal Stormwater General Permit, Tier A Municipalities are responsible for placing a label with such a message on or adjacent to all of the storm drain inlets that are along municipally operated streets with sidewalks and all storm drains within plazas, parking areas or maintenance yards that are operated by the municipality. The message may be a short phrase such as "*The Drain is Just for Rain*," "*Drains to [Local Waterbody]*," "*No Dumping. Drains to River*," "*You Dump it, You Drink it. No Waste Here.*" or it may be a graphic such as a fish. Take note that although a stand-alone graphic is permissible, the Department strongly recommends that a short phrase accompany the graphic. Municipalities have the option to incorporate the general public through the use of a storm drain inlet labeling program as a way to both satisfy the storm drain labeling requirement as well as an educational activity for the community. These labels serve as a reminder to individuals that the storm sewer system connects to local surface and/or ground water bodies and that pollutants that enter via this pathway will ultimately end up in those water bodies. In situations where storm drain inlets are pre-cast with a similar logo or short phrase, the municipality must ensure that the logo is maintained.

Statewide Basic Requirements

Minimum Standards

The Tier A Municipality must label all storm drain inlets for those drains that do not have permanent wording cast into the structure of the inlet, maintain the legibility of those labels and replace any labels that are missing or not legible. This requirement applies to the following:

- All storm drain inlets along sidewalks that are adjacent to municipal streets; and
- All storm drain inlets within plazas, parking areas or maintenance yards that are operated by the municipality.

Measurable Goal

Tier A Municipalities must certify annually that storm drains have been properly labeled and maintained. Records tracking the status of storm drain inlet labels must be kept with the SPPP.

Implementation Schedule

Storm drain inlet labeling has been required since 2004; therefore, Tier A Municipalities must already have labeled all existing storm drains that are subject to this requirement. Upon the effective date of permit authorization, Tier A Municipalities must continue to implement the storm drain inlet labeling program minimum standard in accordance with the table found on Page 1 of this Chapter.

Additional Information

Often residents of a municipality drive and/or walk by storm drain inlets with no knowledge of what they are and how they can impact their neighborhood. The stormwater runoff that comes from roads, sidewalks and other land uses flows into these storm drain inlets and is discharged into a local waterway, frequently, without any treatment. Receiving waterways can be impacted heavily when residents view the inlets as trash receptacles for general trash, used oil, paint from home-improvement projects, leftover herbicides and other pollutants. In addition to polluting local waterways, when storm drain inlets are not used or maintained properly, localized flooding may occur and more intensive maintenance of pipes and inlets within the area may become necessary.

One way to ensure residents learn about the importance of storm drain inlets is to make the logos and phrases visible to everyone. In areas where the municipality has a large volume of foot traffic, the inlets may be more susceptible to litter and debris. Areas with a large volume of foot traffic are a great place to spread awareness of nonpoint source pollution prevention by both educating and engaging residents. Publicity can prove to be a valuable ally. As previously stated, a municipality may consider spreading awareness of inlet labeling and maintenance while also satisfying their local public education requirements. If attempting to propose a storm drain inlet labeling program that involves help from the community it is important to demonstrate how this program may benefit residents and their concerns.

Public participation, through volunteer groups such as environmental organizations or school groups are beneficial to the program and should be used whenever possible. However, since the municipality is the entity who is required to label storm drain inlets, if attempting to conduct storm drain inlet labeling activities with volunteers, municipalities should ensure the work conducted by volunteers is overseen by municipal staff to ensure adherence to permit and safety requirements. Again, a municipality can choose to satisfy the storm drain labeling requirement without public participation but would lose the element of education and the ability to garner points for the activity. A municipality may also choose to label while inspecting them for proper functionality.

Most residents who learn that storm water discharges to either surface or ground water and that litter can contribute to flooding in the neighborhood will choose not to use the storm sewer as a trash can. Education, especially education which targets young children, will continue to provide benefits in the future. A storm drain inlet labeling program can stimulate interest in the subject matter of stormwater quality and nonpoint pollution control. Once an interest is created, the rest of the message becomes easier to convey. Surveys continue to show that the environment, especially water quality, is a concern of New Jersey residents. Should you not have the adequate amount of information on implementing and properly utilizing a storm drain inlet labeling program, visit the Department's Storm Drain Labeling Guidelines for New Jersey at http://www.nj.gov/dep/dwq/pdf/Storm%20Drain%20Labeling%20Guidelines%20Manual.pdf. The Bureau of Nonpoint Pollution Control can always be contacted should a municipality require any additional information or assistance with their storm drain inlet labeling program.

Recommendations

Since storm drain inlet labeling is an effective education and maintenance tool, and due to the relatively low cost involved, it is required that all municipally operated storm drain inlets be labeled. It is recommended to municipalities to expand storm drain inlet labeling to include storm drain inlets that are in private residential and commercial areas. Ideal private commercial locations for expanded storm drain

inlet labeling are areas with significant pedestrian traffic, strip malls, and shopping centers with fast food restaurants and/or auto parts stores. If choosing to create a storm drain inlet labeling program, be sure to utilize this program to properly educate residents and, if the message of stormwater pollution prevention resonates with residents, it will help better the municipality's residents quality of life. Residents who are well-educated on topics related to proper storm drain inlet use, as well as storm water pollution prevention, can potentially assist the municipality with prioritizing and properly maintaining infrastructure. Education may also afford residents the opportunity to take ownership of their closest inlet, street or even block. Should an inlet become clogged, a resident who is properly educated on what the inlet does may be more inclined to remove any blockages to ensure that the neighborhood is not negatively impacted.

The Department is aware that many storm drains that are already installed have a cautionary message embossed in the material and additional storm drain labelling is not needed. A similar educational message can be disseminated using other storm drain related activities or programs, such as the adopt-a-storm drain program discussed above or storm drain mural contests or workshops. Any program that highlights the importance of keeping storm drains litter free as well as where pollutants in stormwater may end up may be used as an educational tool for the community and can be awarded points towards compliance. Keep in mind that any storm drain mural contest should utilize environmentally friendly paint and should not obscure the storm drain label. If there are further questions regarding the different measures that can be taken, be sure to contact the Bureau of Nonpoint Pollution Control.

Advertising Public Involvement

Statewide Basic Requirements

Minimum Standards

The Tier A Municipality must advertise public involvement program(s) pertaining to education and outreach activities conducted.

Measurable Goals

A Tier A Municipality must certify in each annual report that public involvement program(s) have been properly advertised on the website, through a mailing, through newspaper advertisement or other similar means. Public advertisement records must be kept with the SPPP.

Implementation Schedule

Advertising public involvement program(s) pertaining to education and outreach activities is a new requirement created in the 2018 permit renewal for the Tier A Municipal Stormwater General Permit. Within 12 months from the effective date of permit authorization, Tier A Municipalities must have developed and begun implementing the local public education proper advertisement minimum standard, as indicated in the table appearing on Page 1 of this Chapter.

Avenues for Public Involvement Advertising

There are several avenues a municipality may take to advertise any of the public involvement program(s) or activities that have been or are currently being conducted. As previously stated, the requirement of

advertising such activities is a new permit requirement in the 2018 renewal of the Tier A Municipal Stormwater General Permit. A municipality will have 12 months from the effective date of permit authorization to begin advertising. This requirement is not to be confused with activities described under Categories 1 and 2 of the *Attachment B - Points System for Public Education and Outreach Activities*. Although the activities listed under those categories are similar in that they also advertise stormwater pollution prevention material to the general public, they do not specifically advertise any of the stormwater pollution prevention activities that are being conducted by the municipality.

Examples of public involvement program(s) pertaining to education and outreach activities that a municipality should advertise may be found in Categories 3, 4, and 5 of the *Attachment B - Points System for Public Education and Outreach Activities*. For a full list of those activities, see the Public Education and Outreach section of this Chapter on Pages 2 through 7, or Attachment B, which can be found online attached to the Tier A Municipal Stormwater General Permit.

Advertising stormwater pollution prevention activities and programs may seem tedious or a nuisance for municipalities; however, there are great benefits from this requirement and many outlets available for advertising. As previously mentioned, social media is a fantastic outlet to relay information quickly and can reach a large range of people. Also, social media provides the opportunity for those participating in these programs and activities to share with others their experience and involvement and the work that has been done, as well as reinforces positive behavioral change. Using social media in this way will help create a positive social norm for water protection. Remember, the goal is for the general public to become more aware of what is going on in their community and what can impact their local water ways. If residents begin to see a rise in stormwater pollution prevention activities taking place, these activities may potentially become a social norm. The use of billboards, signs, radio, television and mailings are also great ways to advertise activities. For further information regarding public involvement advertising requirements, contact the Bureau of Nonpoint Pollution Control.

3.3 CONSTRUCTION SITE STORMWATER RUNOFF

The *Construction Site Stormwater Runoff* Statewide Basic Requirement (SBR) is intended to prevent polluted stormwater runoff from construction sites from flowing into MS4s and being discharged into local rivers and streams. According to the 2000 National Water Quality Inventory, sediment is one of the most widespread pollutants affecting assessed rivers and streams, second only to pathogens (bacteria). Nationwide, sediment impairs over 84,503 miles of rivers and streams. Although sources of sediment include agriculture, urban runoff, and forestry, sediment runoff from improperly managed construction sites offers the greatest impact. The amount of sediment present in construction site runoff is generally 10 to 20 times greater than runoff from agricultural lands and 1,000 to 2,000 times greater than runoff from forested land. The resulting siltation can cause physical, chemical, and biological harm to our nation's waters. Excess sediment can quickly fill rivers and lakes, requiring dredging and destroying aquatic habitats.

Historical Background

In 1992 the Department first issued the "construction" stormwater general permit for stormwater discharges from certain construction, mining, and quarrying activities in response to the publication of the USEPA Phase I stormwater regulations. The Department then revoked and reissued that general permit in 1997, to comply with new requirements of the NJPDES rules at N.J.A.C. 7:14A. While the general permit was issued by the Department, requests for authorization (RFAs) under the general permit are certified by individual Soil Conservation Districts within New Jersey or by the New Jersey Department of Transportation (DOT).

On December 8, 1999, EPA promulgated the "Phase II" stormwater regulations, which included a requirement that storm water discharges from "small construction activities" obtain National Pollutant Discharge Elimination System ("NPDES") permit coverage. Those Phase II NPDES regulations came into effect March 10, 2003 and extended coverage to construction sites that disturb one to five acres of land. Previously, only sites disturbing five acres or more were regulated. Also included were individual sites which disturb less than one acre that are part of a larger common plan of development or sale.

Municipal Responsibilities

While "construction site stormwater runoff control" is one of the Federal Minimum Control Measures under the Federal NPDES MS4 program and is Statewide Basic Requirement 3 in the Tier A MS4 NJPDES Permit, municipalities in New Jersey are not required to reference this Minimum Control Measure in its SPPP since construction site stormwater runoff activities are authorized under a separate NJPDES permit. 40 CFR 122.34(e) allows Minimum Control Measures to be addressed by "qualifying local programs," and the Department of Environmental Protection and Department of Agriculture jointly administer a construction site storm water runoff control program that meets the Federal Minimum Control Measure.

However, be aware that the municipality is responsible for seeking approval under this program for projects that they are undertaking.

Construction activities, including those undertaken by municipalities, which disturb more than 5,000 square feet fall under the jurisdiction of the local Soil Conservation District and must comply with the standards established by the Soil Erosion and Sediment Control Act, N.J.A.C. 4:24 et seq., under the Chapter 251 Program. Any proposed activity which exceeds one acre of disturbance, or disturbs less than one acre but is part of a larger plan of development or sale that ultimately disturbs more than one acre must also obtain a NJPDES permit from the Department for that construction activity.

In most cases, the New Jersey Department of Environmental Protection's Construction Activity Stormwater General Permit (NJPDES Permit No. NJ0088323), otherwise known as the 5G3 permit, is appropriate for construction projects. This general permit controls stormwater discharges to surface water (DST) from certain construction activities, including clearing, grading and excavation. Regulated entities are required to develop a soil erosion and sediment control plan aimed at eliminating the flow of contaminated rainwater into streams and rivers and to obtain certification of this plan from the appropriate Soil Conservation District Office.

On October 1, 2009, NJDEP launched the Stormwater Construction E-Permitting System. With the implementation of this system, the State Soil Conservation District offices no longer accept paper Stormwater Construction General Permit Request for Authorization (RFA) forms. All RFAs must be submitted electronically to the Department using the NJDEP Online Portal. To utilize this electronic application service, first, an application is made to the Soil Conservation District, which reviews and certifies the plan. Upon approval, they then issue the applicant a set of two codes (SCD certification code and 251 identification code). These codes are required to make the electronic submission for the Construction Activity Stormwater General Permit using the NJDEP Online Portal.

The application information for the Construction Activity Stormwater General Permit is found online at http://www.nj.gov/dep/dwq/5g3.htm. Guidance for the Statewide Stormwater Permitting Program for Construction Activities is also available online at http://www.nj.gov/dep/dwq/pdf/5g3_pis_sheet.pdf.

3.4 Post Construction Stormwater Management in New Development and Redevelopment

Post construction stormwater management in new development and redevelopment is a component of the minimum control measures at 40 CFR 122.34. The regulatory standards ensuring that the stormwater measures of such developments are properly designed, constructed and thereafter maintained lie largely in the Stormwater Management rules (N.J.A.C. 7:8), which are incorporated as part of the overall federal municipal stormwater program consistent with 40 CFR 122.34(c). The Post Construction Stormwater Management in New Development and Redevelopment Statewide Basic Requirement (SBR) states that the Tier A Municipality must develop, implement and enforce a program that addresses stormwater runoff from certain new development and redevelopment projects that discharge into the Tier A Municipality's MS4. Below is a summary table of the minimum standards, measurable goals and implementation schedule of this SBR. See Part IV of the Tier A MS4 NJPDES permit for specific requirements.

Post Construction in New Development and Redevelopment SBR			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Develop, update, implement and enforce its post construction stormwater management program in new development and redevelopment to ensure compliance with the Stormwater Management rules (N.J.A.C. 7:8).	Certify Annually. Keep records or reference their location in the SPPP.	January 1, 2018	January 1, 2018
For each structural and non-structural stormwater measure (basins), for which an application is made to the municipality after January 1, 2018, the municipality shall complete, update, finalize and maintain a Major Development Stormwater Summary form.	Certify Annually. Keep records or reference their location in the SPPP.	January 1, 2018	January 1, 2018

Note: EDPA means effective date of permit authorization.

Introduction

Land development can have severe adverse stormwater impacts, particularly if the land is converted from woods, meadow, or other natural condition to a highly disturbed area with large percentages of impervious and non-native vegetated covers. Such impacts typically include an increase in stormwater runoff volume, rate, velocity, and pollutants and a corresponding decrease in the quality of runoff and stream flow. Frequently, management of these impacts has focused on collecting and conveying the runoff from the entire site through a structural conveyance system to a centralized facility (e.g., detention basin, wet pond) where it is stored and treated prior to discharge downstream. In effect, such practices first allow the adverse runoff impacts to occur throughout the site and then provide remedial and/or restorative measures immediately prior to releasing the runoff downstream. However, a more effective approach to manage stormwater is to reduce the runoff source and manage the stormwater close to the source generating the runoff. This close-to-the-source approach often requires the implementation of nonstructural strategies, low impact development or green infrastructure on site, at a location close to the impervious surface that generates the runoff, before the stormwater runoff becomes concentrated. This approach of managing and retaining the stormwater from a development site will minimize the flow of stormwater and the pollutant loading into the Tier A Municipality's MS4 and the surface waters within the municipality's watershed.

The municipal post construction stormwater management program created to comply with this SBR is aimed to manage those issues caused by the stormwater runoff from new development and redevelopment. The post construction stormwater management program requires the Tier A Municipalities to manage the issue from an overall planning viewpoint with detailed implementation of effective measures, followed by enforcement to ensure the implementation of the stormwater control ordinances and maintenance of those measures.

Statewide Basic Requirements

Minimum standards for post construction stormwater management in new development and redevelopment are listed in Part IV.B.4 of the Tier A MS4 NJPDES permit. The Tier A municipality must demonstrate compliance with the minimum standards, as discussed below, by meeting the measurable goals found on Page 5. The implementation schedule to be followed is found in the attachment A and A-1 of the Tier A MS4 NJPDES permit and the implementation schedule portion of the Table on Page 1 of this Chapter.

Minimum Standards

Tier A Municipalities must refer to their Tier A MS4 NJPDES permit authorization for the exact language of the minimum standards. Explanations or examples are provided here to enable the Tier A Municipality gain a better understanding of the permit requirements.

Part IV.B.4.a of the Tier A MS4 NJPDES permit requires the Tier A Municipality develop, update, implement and enforce a stormwater management program to address post construction stormwater runoff in new development and redevelopment and to ensure compliance with the Stormwater Management rules at N.J.A.C. 7:8 et seq.

The Stormwater Management rules require developers for major development to minimize the impacts of development on water quality, flooding and groundwater recharge. The water quality, water quantity and groundwater recharge design and performance standards set forth in the Stormwater Management rules are intended to provide water quality treatment for total suspended solids (TSS) and nutrients, prevent increases in flooding and erosion, and prevent the depletion of aquifers and base flow of watercourses, respectively.

The Stormwater Management rules also set forth the required components of Municipal Stormwater Management Plans (MSWMP), regional stormwater management plans and stormwater control ordinances. Furthermore, the Stormwater Management rules provide information and procedures for the adoption and implementation of stormwater management plans and ordinances. As an integral part of a municipality's master plan, the MSWMP details the municipality's strategy, measures and process to manage post construction stormwater runoff from new development and redevelopment to ensure compliance with N.J.A.C. 7:8. The MSWMP is a significant component of the Stormwater Pollution Prevention Plan (SPPP), which is a requirement under the Tier A MS4 NJPDES permit and is consistent with the written stormwater management program document required by 40 CFR 122.34(b).

As required by Part IV.B.4.b of the Tier A MS4 NJPDES permit, major development projects subject to the post construction program are new development and redevelopment projects that disturb one acre or more, including projects that disturb less than one acre and are part of a larger common plan of development or sale (e.g., phased residential development) that ultimately disturbs more than one acre. Types of developments subject to the post-construction program include residential and nonresidential developments. Additionally, municipal developments, such as municipal complexes and municipal roadways that meet the definition of major development, are subject to the requirements of the post construction program.

Part IV.B.4.b of the Tier A MS4 NJPDES permit sets forth minimum requirements for the types and size of developments that are considered major development and thus are subject to the post construction program. However, the Tier A Municipality may adopt a stormwater control ordinance(s) that require(s) more projects to comply with the municipal post construction program; for example, a Tier A municipality may reduce the disturbance threshold from one acre to one-half acre or add a requirement that projects resulting in an increase in impervious surface more than one quarter-acre, regardless the size of disturbance, would be subject to the post construction program.

To comply with the minimum standards, each Tier A municipality must develop and adopt a municipal stormwater management plan (MSWMP) and a municipal stormwater control ordinance (SCO) in accordance with Part IV.B.4.c, e, f, and g of the Tier A MS4 NJPDES permit. For non-residential developments, at a minimum, the SCO must require compliance with design, performance, safety, and maintenance standards set forth at N.J.A.C. 7:8. For residential development, the SCO must also ensure that any residential development and redevelopment projects that are subject to the Residential Site Improvement Standards (RSIS) for stormwater management (N.J.A.C. 5:21-7) comply with those standards, including any exception, waiver, or special area standard that was approved under N.J.A.C. 5:21.

As stated in Part IV.B.4.l of the Tier A MS4 NJPDES permit, the Stormwater Management rules (N.J.A.C. 7:8) and the Residential Site Improvement Standards for stormwater management (N.J.A.C. 5:21-7), independently and as implemented in the permit, apply to all areas of the Tier A Municipality. Therefore,

the SCO must apply to all areas of the municipality. For example, a major development in an area of the municipality with no storm sewer system or with a combined storm sewer system still must comply with the stormwater control ordinance.

The stormwater control ordinance was originally required in the 2004 Tier A MS4 NJPDES permit, so it is likely that existing Tier A Municipalities have completed this requirement. In order to ensure that a municipality keeps its ordinances up-to-date (with this permit or with any legislative or regulatory changes that occur outside of this permit), this MS4 permit includes a requirement at Part IV.A.3.e requiring the permittee to modify its stormwater program within one year of any notification by the Department that such a change is necessary, which is consistent with the requirements at N.J.A.C. 7:8-4.3(c) and 4.5. Any such notification from the Department would be under separate cover from this permit. Also, the Tier A Municipality must review and adopt necessary changes to the MSWMP when the municipal master plan is under reexamination. Failure to reexamine and, if necessary, to update and readopt the MSWMP and SCO are violations of the permit conditions.

Required by Part IV.B.4.d of the Tier A MS4 NJPDES permit, the Tier A municipality must review and analyze development applications for compliance with the SCO even if a separate permit is required by the Department for the same or similar activity (e.g. a Land Use permit). A Tier A Municipality may not waive or skip any post construction program reviews, but may consult with the Department for consistency and efficiency purposes. To aid in these reviews, the Department developed the New Jersey Stormwater Best Management Practices (BMP) Manual, which is available at http://www.nj.gov/dep/stormwater/bmp_manual2.htm and online training programs, which are available at http://www.nj.gov/dep/stormwater/training.htm. There are mandatory training requirements for individuals that review stormwater management and governing body board members (see the stormwater training section of *Chapter 3.5: Pollution Prevention/Good Housekeeping For Municipal Operators*). Municipal planning board members, municipal engineers, and individuals reviewing stormwater management should also review the other available courses, New Jersey Stormwater BMP Manual, and the respective SCO to have a full understanding of the design, performance, safety and maintenance standards.

Part IV.B.4.h of the Tier A MS4 NJPDES permit and the Stormwater Management rules at N.J.A.C. 7:8-4.6 allow municipalities to grant a variance or exemption from the design and performance standards for stormwater management measures only if the municipality has a mitigation plan included in an approved MSWMP and SCO. The mitigation plan must ensure that mitigation is completed within the drainage area and for the performance standard for which the variance or exemption was granted. For this reason, it would be helpful for the Tier A municipality to have, in advance, an index of, or otherwise identified, mitigation projects for each drainage area within the municipality so that projects receiving exemptions or variances may take advantage of such mitigation projects to offset the deficits created by the granting of the variance or exemption, provided the projects are within the same drainage area. In the event that a variance or exemption is granted, the municipality is required to submit a written report to the county review agency, and the Department, describing the variance or exemption, as well as the required mitigation, within 30 days after the grant of a variance or exemption. Guidance for the development of municipal mitigation plans is available at http://www.nj.gov/dep/stormwater/pdf/munimitipplan030706.pdf.

In accordance with Part IV.B.4.k of the Tier A MS4 NJPDES permit, the Tier A municipality must complete, update, finalize and maintain a Major Development Stormwater Summary form for each of the major

development projects reviewed by the municipality The person completing Major Development Stormwater Summary form may include any individuals that review stormwater management designs for development and redevelopment projects on behalf of the municipality; this task is typically performed by a municipal engineer. The Major Development Stormwater Summary form is posted on the Department's website at www.nj.gov/dep/dwq/tier_a_forms.htm, as well as in the Attachment D of the permit.

Part IV.B.4.j of the Tier A MS4 NJPDES permit requires a Tier A Municipality to ensure adequate long-term cleaning, operation and maintenance of stormwater management measures owned or operated by the Tier A Municipality, as well as those not owned or operated by the Tier A Municipality. Proper operation and maintenance of stormwater facilities is inexorably tied to post construction stormwater management, as failure to maintain stormwater facilities will reduce their long-term benefits and undermine the goals of the post construction requirements. For example, stormwater detention basins that are not properly maintained as designed could exacerbate flooding, resulting in decreased water quality treatment and damage that can be difficult and costly to repair and clean up. To help promote long-term maintenance of BMPs, the Tier A MS4 NJPDES permit specifies and clarifies maintenance requirements related to municipally owned and operated stormwater facilities, as well as stormwater facilities not owned or operated by the municipality. These changes require the Tier A Municipality to maintain a log sufficient to demonstrate compliance with the Minimum Standards for Stormwater Facility Maintenance. For stormwater management facilities owned or operated by the Tier A Municipality, more specific standards are set forth in Part IV.C.1.a of the Tier A MS4 NJPDES permit, under which the Tier A Municipality is required to perform the maintenance and ensure proper function and operation of the stormwater facilities. For stormwater management facilities not owned or operated by the Tier A Municipality, (e.g. by private homeowner associations), the Tier A Municipality must develop, update, implement and enforce a program to ensure the adequate long-term cleaning, operation and maintenance of stormwater facilities is performed by those private entities, as required in Part IV.C.1.b of the Tier A MS4 NJPDES permit. Guidance on meeting the maintenance requirements of the Tier A MS4 NJPDES permit is available in *Chapter 4.1: Stormwater Facilities Maintenance* and at http://www.nj.gov/dep/stormwater/maintenance_guidance.htm.

Part IV.B.4.i of the Tier A MS4 NJPDES permit requires Tier A Municipalities to enforce the Design Standards for Storm Drain Inlets in Attachment C of the permit to control passage of solid and floatable materials through storm drain inlets publicly or privately installed. Guidance for Solids and Floatable Control is contained in Chapter 3.5 of this guidance document.

Part IV.B.4.m and Part IV.B.4.n of the Tier A MS4 NJPDES permit direct existing permittees and new permittees to implement the minimum standards in accordance with the schedules listed in Attachment A and Attachment A-1 of the permit, respectively, which may be found online with the Tier A Municipal General Permit at http://www.nj.gov/dep/dwq/tier_a.htm.

Measurable Goals

Tier A Municipality must certify in each annual report that it has developed and is implementing and enforcing a program to address stormwater runoff from new development and redevelopment projects. Additionally, the Tier A permittee must certify in each annual report that Major Development Stormwater Summary forms (Attachment D in the Tier A MS4 NJPDES permit) have been completed and records have been maintained by the Tier A municipality. Records demonstrating compliance with Part IV.B.4 of the Tier A MS4 NJPDES permit must be kept, or their location referenced, in the SPPP.

Implementation Schedule

Refer to the table listing the Measurable Goals and Implementation Schedule found on Page 1 of this Chapter.

Additional Information

Municipal Stormwater Management Plan (MSWMP)

As previously mentioned, the Tier A Municipality should already have developed and adopted a MSWMP in accordance with N.J.A.C. 7:8-4. The MSWMP must address groundwater recharge, stormwater quantity and stormwater quality impacts by incorporating stormwater design and performance standards for new major developments. While N.J.A.C. 7:8 has defined major development as projects that disturb one or more acre of land, any municipality that has lowered the threshold for major development must acknowledge that in their MSWMP. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity, as well as the loss of groundwater recharge that provides baseflow for receiving water bodies. The MSWMP describes long-term operation and maintenance measures for existing and future stormwater facilities. A "build-out" analysis based upon existing zoning and land available for developments must be part of the MSWMP. The MSWMP must also address the review and update of existing ordinances, the Township Master Plan and other planning documents to allow for project designs that include low impact development techniques. The final component of this MSWMP is a mitigation strategy (as discussed above) for those instances in which a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures and locations are identified to lessen the impact of existing development.

Goals

The goals of an MSWMP are to:

- Reduce flood damage, including damage to life and property;
- Minimize, to the extent practical, any increase in stormwater runoff from any new development;
- Reduce soil erosion from any development or construction project;
- Assure the adequacy of existing and proposed culverts and bridges and other instream structures;
- Maintain groundwater recharge;
- Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater runoff from new and existing development in order to restore, enhance and maintain the chemical, physical and biological integrity of the waters of the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values and to enhance the domestic, municipal, recreational, industrial and other uses of water; and
- Protect public safety through the proper design and operation of stormwater management basins.

To achieve these goals, an MSWMP must specify stormwater design and performance standards for new development and redevelopment. Additionally, a MSWMP must include stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies must be included in the MSWMP to ensure long-term effectiveness of stormwater management facilities. The MSWMP also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

Required Elements

According to the requirements in N.J.A.C. 7:8- 4.2, an MSWMP must do the following, at a minimum:

- Describe how the MSWMP will achieve the goals of stormwater management planning set forth at N.J.A.C. 7:8-2.3;
- Include maps showing water bodies based on Soil Surveys published by the U.S. Department of Agriculture; the U.S. Geological Survey Topographic Map, 7.5 minute quadrangle series or other sources of information depicting water bodies in similar or greater detail;
- Map groundwater recharge areas and well head protection areas based on maps prepared by the Department under N.J.S.A. 58:11A-13 or a municipal ordinance;
- Describe how the MSWMP incorporates design and performance standards in N.J.A.C. 7:8-5 or alternative design and performance standards adopted as a part of a regional stormwater management plan or water quality management plan;
- Describe how adequate long-term operation as well as preventative and corrective maintenance (including replacement) of the selected stormwater management measures will be ensured;
- Describe how the MSWMP will ensure compliance with Safety Standards for Stormwater Management Basins at N.J.A.C. 7:8-6;
- Describe how the MSWMP is coordinated with the appropriate Soil Conservation District and any other stormwater management plans, including any adopted regional stormwater management plan, prepared by any stormwater management planning agency related to the river basins or drainage areas to which the plans and/or ordinances apply;
- Evaluate the extent to which the municipality's entire master plan (including the land use plan element), official map and development regulations (including the zoning ordinance) implement the principles expressed in N.J.A.C. 7:8-5.3(b). This evaluation must also be included (with updating as appropriate) in the reexamination report adopted under N.J.S.A. 40:55D-89;
- Include a map of the municipality showing:
    - □ Projected land uses assuming full development under existing zoning; and
    - □ The hydrologic unit code 14 (HUC 14) drainage areas as defined by the United States Geological Survey and an estimate, for each HUC 14 drainage area, of the total acreage in the municipality of impervious surface and associated future nonpoint source pollutant load assuming full build out of the projected land uses;

- At the option of the municipality, document that it has a combined total of less than one square mile of vacant or agricultural lands rather than provide the evaluation of the master plan and the map described in the two bullets above;
    - □ Agricultural lands may be excluded if the development rights to these lands have been permanently purchased or restricted by covenant, easement or deed.
    - □ Vacant or agricultural lands in environmentally constrained areas may be excluded if the documentation also includes an overlay map of these areas at the same scale as the map described below.
    - □ Documentation must include an existing land use map at an appropriate scale to display the land uses of each parcel within the municipality. Such a map must display the following land uses: residential (which may be divided into single family, two-to-four family and other multi-family), commercial, industrial, agricultural, parkland, other public uses, semipublic uses and vacant land.
- In order to grant a variance or exemption from the design and performance standards in N.J.A.C. 7:8-5 et seq., include a mitigation plan that identifies what measures are necessary to offset the deficit created by granting the variance or exemption. The mitigation plan must ensure that mitigation is completed within the drainage area and for the performance standard for which the variance or exemption was granted;
- Include a copy of the recommended implementing stormwater control ordinance(s) requiring stormwater management measures; and
- The MSWMP may also include a stream corridor protection plan to address protection of areas adjacent to waterbodies.

The detailed requirements for a Municipality to prepare, adopt and effectuate a Stormwater Management Plan are found at N.J.A.C. 7:8-4.3 and 4.4. The Department also has prepared a sample MSWMP as Appendix C of the BMP Manual available at http://www.nj.gov/dep/stormwater/bmp_manual2.htm.

Municipal Stormwater Control Ordinance(s)

Municipal Stormwater Control Ordinances provide the legal foundation for implementing the MSWMP, including design standards, development review procedures, inspections, maintenance and enforcement. The Tier A Municipality is required to adopt a Municipal Stormwater Control Ordinance(s). As local regulation(s), the ordinance(s) must have political support, and this often involves garnering public support through education and outreach efforts.

The minimum requirements for major developments to be regulated under the Municipal Stormwater Control Ordinance(s) include:

- New development and redevelopment projects that disturb one acre or more and are not operated by the municipality (e.g., retail stores, residential complexes);
- New development and redevelopment projects that disturb one acre or more and are operated by the municipality itself (e.g., a town complex); and

- All new development and redevelopment projects that are less than one acre that are part of a larger common plan of development or sale.

Please note that municipalities can adopt definitions of major developments that include more projects than the minimums listed above.

For nonresidential developments, the Tier A Municipality must adopt a Municipal Stormwater Control Ordinance(s) incorporating the requirements set forth in N.J.A.C. 7:8 as a minimum. The Tier A Municipality is encouraged to adopt more stringent Municipal Stormwater Control Ordinance(s), such as incorporating 0.25 acre of new impervious surface into the definition of major development, or increasing the design and performance standards to address local conditions, such as a TMDL.

For residential developments, the Tier A Municipality must review the proposed development in accordance with the stormwater management subchapter of the Residential Site Improvement Standards at N.J.A.C. 5:21-7. However, the Residential Site Improvement Standards refer to N.J.A.C. 7:8-5 and 6 for the design and performance standards (water quality, water quantity and groundwater recharge) as well as the maintenance requirements. Therefore, projects subject to the Residential Site Improvement Standards should be reviewed for compliance with N.J.A.C. 7:8-5 and 6.

The Department has prepared a model Municipal Stormwater Control Ordinance as Appendix D of the New Jersey Stormwater BMP Manual available at http://www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_D.pdf. In addition, the Department also prepared a Municipal Regulations Checklist to assist municipalities in incorporating nonstructural stormwater management measures into the master plan, land use and zoning ordinances. The checklist is available at http://www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_B.pdf.

Review and Analyze Stormwater Management of a Development Application

The Tier A Municipality must review and analyze development applications for compliance with its SCO for nonresidential major developments and the Residential Site Improvement Standards (N.J.A.C. 5:21) for residential major developments. The Tier A Municipality must be cautious in granting exemptions and variances in its reviews. According to N.J.A.C. 7:8 et seq. only a few exemptions and variances can be granted under strict, limited conditions without a mitigation plan. Here is a list of the exemptions and variances:

- The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity and stormwater runoff quality requirements per N.J.A.C. 7:8-5.4 and 5.5:
    - The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;
    - The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and
    - The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

- The following discharge is exempt from the TSS removal requirement:

  - □ The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement.
  - □ This exemption does not apply to the discharge of stormwater into a combined sewer system where the overflow in wet weather conditions will cause discharge of untreated stormwater runoff into the waterbodies.
  - □ Therefore, a major development, new or redeveloped, that discharges stormwater runoff into the sewer system is still required to treat the stormwater runoff discharge to 80% TSS removal rate before discharging into the sewer.

- The exemption from the groundwater recharge requirement in Urban Redevelopment Area can be granted only to *previously developed* portions of the areas within:

  - □ delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
  - □ CAFRA Centers, Cores or Nodes; or
  - □ Urban Enterprise Zones and, or Urban Coordinating Council Empowerment Neighborhoods.

  Furthermore, if a development site has developed portions (such as building, gravel pavement, constantly mowed lawn) and undeveloped portions (such as wooded area or overgrown vegetated area), *only the developed portion qualifies* for the exemption. The undeveloped portion still must comply with the groundwater recharge standard if the proposed development or redevelopment will change the undeveloped portion to a different land cover.

- The exemption from the groundwater recharge requirement for areas of high pollutant loading or industrial stormwater exposed to "source material" is as follows:

  This exemption applies only to the portion of a development that will have stormwater runoff that is exposed to high pollutant loadings, including areas where groundwater recharge would be inconsistent with a remedial action or stormwater runoff would be exposed to industrial source material. This exemption applies only to the runoff from those areas; stormwater generated from other portions of the development are still be subject to groundwater recharge requirements.

- The exemption from the water quantity requirement is limited as follows:

  In tidal flood hazard areas, stormwater runoff quantity analyses are only required if the increased volume of stormwater runoff could increase flood damages below the point of discharge. This exemption applies only when the discharge of the stormwater runoff from the development is directly affected by the tidal effect. This exemption does not apply to the situation where the stormwater discharges into an upstream tributary or a sewer system in a tidal flood hazard area.

- The exemption from the safety standards is limited as follows:

  A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.

- Variances or exemptions from the design and performance standards in N.J.A.C. 7:8-5 may only be granted if all of the following requirements are met:

  - □ In order to grant variances or exemptions from its Municipal Stormwater Control Ordinance(s), other than those abovementioned exemptions by rules, the Tier A municipality must have adopted a mitigation plan that identifies what measures are necessary to offset the deficit created by granting the variance or exemption as part of its Municipal Stormwater Management Plan;
  - □ The Tier A municipality must require mitigation, in accordance with the mitigation plan, to offset the deficit created by granting the variance or exemption;
  - □ The Tier A municipality must ensure that mitigation is completed within the drainage area and for the performance standard for which the variance or exemption was granted; and
  - □ The municipality must submit a written report to the county review agency and the Department describing the variance or exemption and the required mitigation within 30 days of granting of a variance or exemption.

Effective Review Process

The Tier A Municipality must incorporate the Municipal Stormwater Control Ordinance(s) and MSWMP into the review of proposed new development and redevelopment projects seeking approval through process authorized by Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In order to conduct an effective review of the proposed stormwater management system at a development site, the municipal officials who participate in the approval process, including the planning board members and the municipal engineers, must familiarize themselves with the Municipal Stormwater Management Plan, Municipal Stormwater Control Ordinance(s), the Residential Site Improvement Standards, and the Stormwater Management rules.

A review of the stormwater management design involves the following steps at a minimum:

1. Examination of the existing and proposed site conditions to verify whether the development is subject to the Stormwater Control Ordinance(s).

2. Examination of the hydraulic, hydrologic, and geographic conditions of the development site, such as land use cover, topography, flooding history, and discharge point(s).

3. Examination of proposed stormwater management measures:

   - A determination is made as to whether the proposed stormwater management measures first incorporate nonstructural strategies to meet the design and performance standards to the maximum extent practicable. The nine nonstructural strategies must be adopted in the municipality's Stormwater Control Ordinance(s). They can be also found in N.J.A.C. 7:8-5.3. The Department has prepared a Low Impact Development Checklist that provides information to assist reviewers and designers in demonstrating that nonstructural stormwater management

measures have been implemented in a project. The checklist is available online from the Department at http://www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_A.pdf; and

- After incorporating the nonstructural strategies, a determination is made to ascertain whether the proposed development still requires structural measures in order to meet the design and performance standards for water quality, quantity and groundwater recharge.

4. Examination of whether the proposed structural measures follow the design and performance standards as well as the best management practices required in the Municipal Stormwater Control Ordinance(s), the Residential Site Improvement Standards and the Stormwater Management rules. The Department provides the New Jersey Stormwater BMP manual to guide the detailed designs of stormwater management measures. The municipality's review engineers must be familiar with the design guidelines in order to perform an effective review. The New Jersey Stormwater BMP Manual is available at http://www.nj.gov/dep/stormwater/bmp_manual2.htm.

5. Examination of whether a maintenance plan is proposed and meets the requirements in the Municipal Stormwater Control Ordinance(s). There are specific requirements to prepare a maintenance plan, provide the information of the party responsible for the maintenance and the legal step to record the maintenance plan on the deed.

Enforcement of the Municipal Stormwater Control Ordinance(s)

Enforcement of the Municipal Stormwater Control Ordinance(s) is critical to a successful post-construction program. The Municipal Stormwater Control Ordinance(s) should provide compliance and enforcement tools for different violation circumstances. Enforcement should be involved in all stages of the Post-construction Stormwater Management Program.

1. Enforcement of Stormwater Control Ordinances – Design and Approval Stage

   Enforcement of the Municipal Stormwater Control Ordinance(s) can start as early as the beginning of the approval process of the proposed development. It is solely the responsibility of the municipal officials and employees to know the municipality's Stormwater Control Ordinances and strictly follow the ordinances. The municipality should use the New Jersey Stormwater BMP manual to guide their review. In order to ensure municipal review of proposed development is in compliance with the Municipal Stormwater Control Ordinances, the Department has begun conducting compliance assistance audits of municipalities' stormwater programs.

2. Enforcement of Stormwater Control Ordinances – Operation and Maintenance Stage

   The ordinance should be clear about who is responsible for conducting inspections—the responsible party, such as a local government department—and the type and frequency of reporting that must be submitted by the applicant.

   Inspection language should establish authority for local program staff to access sites and carry out any enforcement actions. More sophisticated programs might provide for a system of private certified inspectors that receive training and certification from the municipality's stormwater program and inspect sites on behalf of responsible parties.

Various options to seek compliance should be established in the Municipal Stormwater Control Ordinances to allow flexibility for different circumstances. The Tier A Municipalities should have

ordinances that allow the municipality to put a stop to construction work if corrective actions are necessary and also allow the municipality to back charge the maintenance cost that the municipality has performed for the responsible parties that are delinquent of maintenance of their stormwater management measures.

Recommendations

Maintenance Guidance

The Department has developed maintenance guidance, available on line at http://www.nj.gov/dep/stormwater/maintenance_guidance.htm, which is intended to assist design engineers and responsible parties in complying with the maintenance requirements for stormwater management measures. The maintenance guidance includes a template of a maintenance plan, 14 templates of field manuals and checklists for various BMPs, and a template of an inspection and maintenance log. The inspection and maintenance logs are a tool for collection of the maintenance records. Moreover, the maintenance guidance may also be used in any of the following ways:

- Municipal officials reviewing the developer's maintenance plan may also use the available maintenance guide as a tool during their review;
- Municipal officials inspecting the operation and maintenance of the stormwater management measures may also use the maintenance guidance as a tool during inspection;
- The maintenance plan template can be utilized by the municipal officials as a reference to check whether the maintenance plan submitted by the developer meets the requirements;
- Municipal officials may also direct the design engineer of the stormwater management measures to use the maintenance template for easy compliance of the requirements; and
- The field manual and checklist may be used by the municipal inspector for field inspection as well as by the responsible party as a self-inspection tool.

Review Checklist

The Checklist found on the following pages provides municipal officials or persons reviewing stormwater management measures a checklist to conduct a systematic and organized review. The checklist is not meant to be all inclusive but is open to be edited to meet specific requirements set forth in the Stormwater Control Ordinances and the MSWMP.

Checklist for Conducting Stormwater Management Reviews	
Information	**Check/ Comments**
1. Existing Site Conditions	
a. Identify existing drainage areas with the flow paths and specific hydrologic features, such as depression areas or ponds that detain stormwater runoff.	
b. Identify existing discharge point(s) of the site.	
c. Identify existing land cover with the lowest runoff potential in the past five years.	
d. Use Soil Survey information to identify the Hydrologic Soil Groups of the soils on site (or on-site soil testing, if available).	
e. Identify impaired waters and TMDLs, and identify the parameters for which those waters are impaired or for which the TMDL was adopted.	
2. Proposed site conditions	
a. Identify proposed disturbance and impervious surfaces.	
b. Identify proposed drainage area, flow paths, grading, sewers and slopes.	
c. Determine if the proposed drainage areas converge on-site or are diverted to different discharge points.	
d. Identify water quantity requirements and the compliance method the design engineer chose.	
e. Identify water quality requirements: any increase of impervious surface, redeveloped impervious surface, lost water quality treatment or features.	

continued on next page

Checklist for Conducting Stormwater Management Reviews (*cont'd.*)	
Information	**Check/ Comments**
3. Review of Soil Testing Report	
a. Determine if the soil test was performed and reported in accordance with Appendix E, Soil Testing Criteria, of the New Jersey Stormwater BMP Manual.	
b. Identify if the seasonal high water table was determined by direct observation during the months of January through April or by mottling during any time of year.	
c. Determine if the soil borings and profile pits were conducted at the location of infiltration BMPs.	
d. Determine if the depth of the soil boring and permeability rate was conducted at the greater of 8 feet from the lowest point in the basin, or twice the maximum water depth in the basin.	
e. Determine if the method to determine permeability rate is permitted in the Appendix E Soil Testing Criteria.	
f. Verify whether the soil designation from the Soil Survey is consistent with the soil testing result. If not, the adjust the HSG soil designation used in calculation of the quantity of the runoff.	
4. Review of Calculation of Runoff Volume and Peak Flow	
a. Review the applicability of the selected modelling method.	
b. Review the modelling parameters for pre- and post-constructions, such as the runoff coefficient, curve number, time of concentration, and HSG soil designation.	
c. Identify if the runoff from impervious and pervious surfaces are calculated separately and not with a weighted average of the CN numbers for impervious surface and pervious surface.	
d. Determine if the curve number selection makes sense.	

continued on next page

Checklist for Conducting Stormwater Management Reviews (*cont'd.*)	
Information	**Check/ Comments**
4. Review of Calculation of Runoff Volume and Peak Flow (continued)	
e. Determine if the method to determine permeability rate is permitted in the Appendix E Soil Testing Criteria.	
f. Verify whether the soil designation from the Soil Survey is consistent with the soil testing result. If not, the adjust the HSG soil designation used in calculation of the quantity of the runoff.	
5. Review of Water Quality Requirement	
a. Determine if drainage areas having separate discharge points (identified in Step 2 above) are all proposed to be treated to 80% TSS removal.	
b. Determine if the untreated, clean, roof runoff is mixed with roadway/parking area runoff before flow into a BMP. If so, the volume of clean, roof runoff must be also considered with the volume of roadway/parking area runoff.	
c. Identify if any BMPs in series are in order of ascending TSS removal.	
d. If a BMP with extended detention is used, determine if the detention time is calculated properly.	
e. Identify the nonstructural strategies and BMPs that can reduce the nutrient load to the maximum extent feasible. Typical phosphorous and nitrogen removal rates for BMPs are available in Table 4.2 of Chapter 4 of the BMP Manual.	
6. Review of Water Quality Requirement	
a. Identify the extent of the site that has been previously developed, if the applicant claims the Urban Redevelopment Area exemption of groundwater recharge. The definition of "previously developed area is available at DEP's Stormwater Management Rule FAQs.	

continued on next page

Checklist for Conducting Stormwater Management Reviews (*cont'd.*)	
Information	**Check/ Comments**
6. Review of Water Quality Requirement (continued)	
b. Determine if the stormwater runoff is from the area of high pollutant loading or if the stormwater is exposed to industrial source material that must not be recharged.	
c. Apply the presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition unless the applicant can demonstrate other hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application.	
d. Determine if the design engineer has assessed the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts.	
7. Review of the BMP design	
a. Review the BMPs chosen with their respective chapters in the New Jersey Stormwater BMP Manual to ensure they match the design.	
b. Determine if the BMPs have adequate separation from the seasonal high water table and are proposed in areas with sufficient infiltration rates.	
c. Review the details of the proposed BMPs to ensure they match the submitted model, they match the design in the New Jersey Stormwater BMP Manual, and the safety requirements in the SCO, RSIS, and/or Stormwater Management rule.	
d. If infiltration BMPs are used, determine if a groundwater mounding analysis is provided. If not, it must be requested. This analysis must show that the BMP will drain in less than 72 hours and will not adversely affect any nearby structures.	
8. Maintenance Plan	
a. Identify if the maintenance plan includes the contact information of the responsible party including name, address and telephone number.	

continued on next page

Checklist for Conducting Stormwater Management Reviews (*cont'd.*)	
Information	**Check/ Comments**
8. Maintenance Plan (continued)	
b. Identify if the responsible party is an individual homeowner in a multiple-lot development. Assigning maintenance responsibilities to an individual homeowner shall not be permitted.	
c. Identify if the maintenance plan has the required specific preventive and corrective maintenance tasks and schedules, including: □ repairs or replacement to the structure; □ removal of sediment, debris or trash; □ restoration of eroded areas; □ snow and ice removal; □ fence repair or replacement; □ restoration of vegetation and repair or replacement of non-vegetated linings; and □ cost estimates, including estimated cost of sediment, debris, or trash removal.	
d. Determine if the developer has recorded the maintenance plan with the county clerk's office. If this is required as a condition of approval, follow-up is necessary.	
9. Complete Permit Attachment D – Major Development Stormwater Summary	
a. Document all structural and non-structural stormwater measures on the Major Development Stormwater Summary form (as posted on the Department's website www.nj.gov/dep/dwq/tier_a_forms.htm). b. Each form has space for up to four stormwater measures/BMPs. Please complete additional forms as needed to document all stormwater measures included in each major development project. c. Update this form during installation and finalize once the certificate of occupancy is issued. d. Maintain the completed form(s) and make available to the Department upon request.	

3.5 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATORS

This chapter focuses on the Statewide Basic Requirement (SBR) related to pollution prevention/good housekeeping. The Tier A permit requirements for this SBR have been carried forward from the previous Tier A permit with only minor changes. This SBR is categorized into the following sections: community-wide ordinances; community-wide measures; municipal maintenance yards and other ancillary operations; and employee training. The sections discussed below, when implemented together, may significantly reduce the addition of nutrients, disease causing microorganisms (pathogens), solids and other pollutants to receiving waters in a cost-effective manner.

This chapter contains more sections than most chapters in this guidance document and is therefore organized in a slightly different manner from the rest. Rather than have one master summary table appear immediately below the opening text, the summary tables are grouped with the subject material of each section, located as follows:

Community Wide Ordinances

There following six (6) community wide ordinances must be adopted and enforced by a Tier A Municipality:

- Pet Waste Ordinance;
- Wildlife Feeding Ordinance;
- Litter Control Ordinance;
- Improper Disposal of Waste Ordinance;
- Containerized Yard Waste/Yard Waste Collection Program Ordinance; and
- Private Storm Drain Inlet Retrofitting Ordinance.

The previous Tier A permit required the passing of one or more Community Wide Ordinances and those requirements are carried forward in the renewed Tier A permit in Part IV.B.5. The Department has provided sample model ordinances that may be downloaded at http://www.nj.gov/dep/dwq/tier_a_model_ord.htm, and are available for use by a Tier A municipality to

assist in developing local regulations. A municipality may change the sample ordinances to fit its individual needs, but must ensure that any changes do not prevent the ordinances from meeting the minimum standards of the permit. If a Tier A Municipality already has an ordinance in place that meets the requirements of the permit, a new or modified ordinance is not required. However, if an ordinance does not meet the minimum standards of the Tier A NJPDES MS4 permit, then the ordinance must be modified accordingly. The municipal attorney should review all ordinances.

Each of these ordinances is discussed individually, beginning on the following page. Table 2.5-1 below summarizes the minimum standards, measurable goals and implementation schedules of each ordinance.

Table 2.5-1

Pollution Prevention/Good Housekeeping for Municipal Operators SBR For Community Wide Ordinances

Minimum Standard	Measurable Goal	Implementation Schedule	
		Existing Permittees	New Permittees
Adopt and enforce a pet waste ordinance. Distribute pet waste ordinance information with pet licenses.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months
Adopt and enforce a wildlife feeding ordinance.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months
Adopt and enforce a litter control ordinance.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months
Adopt and enforce an improper disposal of waste ordinance.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months
Adopt and enforce a containerized yard waste / yard waste collection program ordinance.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months
Adopt and enforce a private storm drain inlet retrofitting ordinance.	Certify annually; SPPP records	January 1, 2018	EDPA + 12 months

Note: EDPA means effective date of permit authorization.

Minimum Standards

The Tier A Municipality must adopt and enforce each of the following six (6) community wide ordinances discussed below:

1. Pet Waste Ordinance

The Tier A Municipality must adopt and enforce an ordinance to ensure that pet owners and keepers (walkers or pet sitters) immediately and properly dispose of their pet's solid waste deposited on any property, public or private, not owned or possessed by that person. This means that someone walking a pet, on property not owned by that person, needs to immediately pick up after the pet and properly dispose of the pet's waste. The only place individuals are not required to clean up after their pets is in their own yard (or on other private property with that owner's permission). Additionally, information on the Pet Waste Ordinance and the benefits of proper disposal of pet solid waste shall be distributed with pet licenses. It is important to educate the public about the ordinance, the potential fines for non-compliance and the environmental benefit on water quality. To this end, the Tier A municipality must distribute informational handouts to individuals upon receipt of a pet license.

Additional Information

Pet waste can be a significant source of organic pollutants and pathogens. When pet waste is left on yards, sidewalks and streets and is not properly disposed of, organic pollutants and pathogens from the pet waste can be carried into storm drains by rain. Most storm drain inlets are connected to or drain directly to local water bodies. By controlling pet waste, pollutant loading entering these surface waters is reduced. Pollutants in pet waste include oxygen demanding substances, nitrogen, phosphorous and pathogens. Pet waste uses up oxygen in the decay process, which in turn can deplete available oxygen in the water body for other aquatic life and degrades overall water quality. Nitrogen and phosphorous are nutrients that can overstimulate weed and algal growth in slow moving water bodies and coastal waters, which in turn further reduces oxygen levels in the water body. Pathogens in pet waste include protozoa, parasites and bacteria. It is estimated that about 95 percent of the fecal coliform in urban stormwater are of non-human origin. In addition, it has been estimated that for watersheds of up to 20 square miles draining to a small coastal bay, 2 - 3 days of droppings from a population of about 100 dogs would contribute enough bacteria and nutrients to temporarily close the bay to swimming and shellfishing. Due to the impact of animal waste on water quality, ordinances requiring pet owners and keepers to immediately clean up after their pets, makes simple environmental sense.

References

Alderserio, K.D. Wait and M. Sobsey. 1996. "Detection and characterization of male-specific RNA coliphages in a New York City reservoir to distinguish between human and non-human sources of contamination." In *Proceedings of a Symposium on New York City Water Supply Studies*, ed. Mcdonnell et al. TPS-96-2. American Resources Association. Herndon, VA.

Trial, W. et al. 1993. *Bacterial source tracking: studies in an urban Seattle watershed*. Puget Sound Notes 30:1-3.

USEPA. 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.* U.S. Environmental Protection Agency, Office of Water. Washington, DC.

Recommendations

To make the Tier A Municipality's pet waste ordinance more effective, the following recommendations are provided by the Department. These recommendations may be beneficial but are not required by the permit.

- Provide pet waste stations with pet waste removal bags and dedicated trash cans for pet waste in municipal parks.
- Require, by ordinance, that high-density housing provide pet waste stations as described above.
- Place educational posters about pet waste in veterinary offices, pet licensing offices, pet stores, kennels, shelters and places where pet products are sold.

2. Wildlife Feeding Ordinance

The Tier A Municipality must adopt and enforce a wildlife feeding ordinance to prohibit the feeding of wildlife on municipally owned or operated property, including municipal parks. Exclusions include wildlife confined in zoos, parks, or rehabilitation centers as well the following unconfined animals: (1) wildlife at environmental education centers; (2) feral cats as part of an approved Trap-Neuter-Release program; and (3) other kinds of unconfined animals, if any, that the ordinance specifically lists and excludes for reasons set forth in the ordinance.

Additional Information

This prohibition helps prevent nutrients, organic pollutants and pathogens associated with wildlife fecal matter from entering local water bodies, as well as prevents overgrazing, which can lead to erosion. The sample ordinance does allow the feeding of any confined animal such as wildlife confined in zoos and petting zoos, parks or rehabilitation centers. People may have backyard bird feeders if they are located on private property. It is important to note that while most people understand "wildlife" to mean waterfowl, "wildlife" also includes other wild animals, such as bears, deer and pigeons. Baiting of wildlife for the purposes of hunting and fishing is permitted if done in accordance with New Jersey Fish and Game regulations.

Many people enjoy feeding waterfowl and other wildlife. It can give them a sense of pleasure and fulfillment to feed the animals, and enjoyment by bringing the wildlife closer so that they can see them. What people do not realize is that they are actually harming the very animals they are trying to help. Feeding wildlife can do more harm than good to both the animal and its habitat. Artificial feeding can, for example, result in poor nutrition, delayed migration, spread of disease, overcrowding, unnatural behavior, water pollution and aggressive behavior.

Feeding attracts wildlife in unnatural numbers, beyond natural food and water supplies, and frequently in numbers beyond which people will tolerate. This overcrowding often results in overgrazing, which can lead to erosion and in turn, result in excess amounts of sediment entering

water bodies. These feeding areas can quickly become unsanitary and unusable to people and become a breeding ground for wildlife disease. While these diseases are generally not transmissible in wild settings, they thrive in overcrowded and unsanitary conditions where the wildlife is eating in the same place where they defecate. For example, many beach closings have also been attributed to geese and other birds. When an excessive number of birds congregate near a beach or waterway, their fecal matter may sometimes overload the normal capacity of a beach to absorb natural wastes, thus degrading the water quality and requiring the area to be closed to the public. In addition, where birds congregate to feed, *E*. *coli* counts often swell to levels that make the water unsuitable for swimming.

Excess nutrients in ponds and other waterways caused by unnatural numbers of waterfowl and other wildlife droppings may result in water quality problems such as summer algal blooms. These problems may cause a loss of habitat and wildlife, including fish kills, as well as odor nuisances, taste and odor in drinking water and an interference with various forms of recreation (e.g., fishing, swimming, boating, etc.).

There are many other options and alternatives to feeding wildlife. Elimination of wildlife feeding will not result in a disappearance of wildlife. The public may still visit sites to enjoy viewing the animals. Children can still be encouraged to learn about wildlife and their natural habitats. Additionally, some zoos offer feeding of captive wildlife (petting zoos).

3. Litter Control Ordinance

The Tier A Municipality must either adopt and enforce its own litter ordinance or enforce the State litter statute at N.J.S.A 13:1E-99.3 to help prevent the discharge of litter such as fast food wrappers, soda cans and bottles, along with other trash, into MS4s.

Additional Information

Litter is a significant source of pollutants, especially in urban areas where large volumes of trash are generated. "Litter," as defined in N.J.S.A. 13:1E-215, "*means any used or unconsumed substance or waste material which has been discarded, whether made of aluminum, glass, plastic, rubber, paper, or other natural or synthetic material, or any combination thereof, including, but not limited to, any bottle, jar, or any top, cap or detachable tab of any bottle, jar or can, any unlighted cigarette, cigar, match or any flaming or glowing material or any garbage, trash, refuse, debris, rubbish, grass clippings, or other lawn or garden waste, newspapers, magazines, glass, metal, plastic or paper containers or other packaging or construction material, but does not include the waste of the primary processes of mining or other extraction processes, logging, sawmilling, farming or manufacturing*."

Litter is a serious problem in many states, but even more so in a state as densely populated and heavily traveled as New Jersey. It is the Department's duty to promote and encourage a clean and safe environment for future generations. Litter not only poses a threat to public health and safety, but also plays a large role in a municipality's aesthetic appearance, which in turn can play a part in the economics of that municipality. An attractive community creates an environment in which people will want to live, work and visit, and encourages companies considering relocation. Littering can significantly impact receiving waters. Litter, such as fast food wrappers, soda cans and bottles, and other trash, if not properly disposed, could eventually end up in our lakes, streams, and oceans. When

litter reaches these surface water bodies, it not only causes problems aesthetically, but it can also have a negative impact on marine and other wildlife. For example, birds can easily become stuck in plastic six-pack rings, marine mammals and sea turtles often choke on plastic bags that they mistake for jellyfish, and many sharks have been found with aluminum cans in their digestive systems. Issuing and actively enforcing litter ordinances or the State litter statute is a cost-effective means of preventing litter from reaching waters of the State.

New Jersey Clean Communities Council

The New Jersey Clean Communities Council is a 501(c)(3) corporation funded by the Clean Communities Act and private sector donations to implement a statewide program of public information and education that will change the attitudes that cause littering and the irresponsible handing of solid waste.

The Council works with the state Department of Environmental Protection and Department of Treasury to oversee the implementation of litter abatement programs in nearly every municipality and all counties in the state. The Council provides a clearinghouse for information about litter abatement, forums for the free exchange of ideas and a voice for its constituents.

For more information, call (609) 989-5900 or see http://www.njclean.org.

Recommendations

The following recommendations are provided by the Department to help make the municipal stormwater program more successful, but these actions are not required by the permit:

- Put additional "No Littering" signs and additional trash receptacles, recycling containers and cigarette butt containers at places where trash is likely to accumulate, such as parks and along busy streets, and empty such receptacles on a regular basis;
- Develop an Annual Litter March, or similar activity, where residents clean up the community. Target those areas where there is a lot of litter. These activities could be coordinated with other public education activities (e.g., storm drain inlet labeling); and
- Retrofit existing storm drain inlets to meet the standard, which is located in Attachment C of the Tier A NJPDES MS4 permit, earlier than required by the permit (rather than waiting until repaving or other projects).

4. Improper Disposal of Waste Ordinance

The Tier A Municipality must adopt and enforce an ordinance that prohibits the improper spilling, dumping or disposal of materials other than stormwater into the MS4 excluding the following discharges as allowable under Part II.C.2.b. of the Tier A permit:

- Water line flushing and discharges from potable water sources;
- Uncontaminated ground water (e.g., infiltration, crawl spaces or basement sump pumps, foundation or footing drains, rising ground waters);
- Air conditioning condensate (excluding contact and non-contact cooling water; and industrial refrigerant condensate);

- Irrigation water (including landscape and lawn watering runoff);
- Flows from springs, riparian habitats and wetlands, water reservoir discharges and diverted stream flows;
- Residential car washing water, and dechlorinated residential swimming pool discharges;
- Sidewalk, driveway and street wash water;
- Flows from firefighting activities including the washing of fire fighting vehicles; and
- Flows from rinsing of the following equipment with clean water, provided the rinsing of equipment in the following situations is limited to exterior, undercarriage and exposed parts and does not apply to engines or other enclosed machinery:
    - □ Beach maintenance equipment immediately following its use for its intended purpose; and
    - □ Equipment used in the application of salt and de-icing materials immediately following salt and de-icing material applications. Prior to rinsing with clean water, all residual salt and deicing materials must be removed from equipment and vehicles to the maximum extent practicable using dry cleaning methods (e.g., shoveling and sweeping). Recovered materials are to be returned to storage for reuse or properly discarded.

Additional Information

Materials such as automotive fluids, used motor oil, paints and solvents that can have a direct impact on receiving water bodies. Failure to properly dispose of materials, such as automotive fluids, motor oil, lawn and garden supplies, household cleaning supplies, paints and solvents, can have a direct impact on receiving waterbody quality. Each year, nearly 180 million gallons of used oil are disposed of improperly. It is estimated that a single quart of motor oil can pollute 250,000 gallons of drinking water.

Moreover, the average household contains three to 10 gallons of materials that are hazardous to human health and/or the environment. Uninformed residents and businesses may dump these materials onto streets, sidewalks, roadways, onto the ground or down storm sewers, unintentionally causing the pollutants to enter surface and/or ground waters. Most illegal disposal occurs because people are unaware that it causes an environmental problem or that it is actually illegal. A smaller percentage of these occurrences are deliberate acts. The proper disposal of these wastes may be as simple as disposing of it with other household trash. However, a better option may be to recycle or reuse these materials. Motor oil, oil filters and automotive batteries are just a few examples of hazardous materials that can be recycled and reused. The threat they pose to the environment, as well as human health, can be greatly reduced when these materials are recycled and reused instead of being dumped down storm sewers or onto the ground.

For more information on the improper disposal of wastes, see *Chapter 3.2: Local Public Education and Outreach* of this guidance manual, in particular, the information provided for Targeted Audiences Outreach on Page 4 and the Hazardous Waste information on Pages 8 and 9 of that Chapter.

Recommendations

The following recommendations may be beneficial but are not required:

- Establish a hotline or dedicated phone number for reporting the improper disposal of waste;
- Educate residents and businesses on how to properly dispose of materials like automotive fluids, used motor oil, paints and solvents; and
- Host a drop-off event where residents may bring these materials for proper disposal.

5. Containerized Yard Waste/Yard Waste Collection Program Ordinances

The Department defines "yard waste" as "*leaves and grass clippings*." The Tier A Municipality has the discretion as to whether any kind of brush or other vegetative waste will be considered to be "yard waste," and must adopt and enforce one of the following ordinances:

Option 1 – Containerized Yard Waste Ordinance

Adopt and enforce an ordinance that prohibits placing non-containerized yard wastes in the street. This means that property owners cannot pile leaves at the curb for collection; instead leaves and grass clippings placed in the street must be in bags or other containers. The municipality is not required to supply the containers. This permit requirement does not mean that the yard waste should be landfilled; municipalities are still required to comply with applicable solid waste disposal rules for yard waste and are encouraged to recycle and compost as much yard waste as possible.

Option 2 - Yard Waste Collection Program Ordinance

Adopt and enforce an ordinance that prohibits placing non-containerized yard waste at the curb or along the street within 10 feet of any storm drain inlet and at any time other than a set yard waste collection schedule. This option requires the Tier A Municipality to develop and implement a set yard waste collection schedule including the frequency of yard waste pickups which is noticed to all municipal residents and businesses. Any area, which the municipality determines to have no yard waste, can be exempt from the collections.

Additional Information

Regular yard waste collections and ordinances requiring yard waste to be containerized help to ensure that leaves and grass clippings do not end up in our storm sewers or water bodies. When leaves are placed at the curb and are carried away by stormwater, they can have several detrimental effects on the surrounding community and environment. Excess leaves and grass clippings can clog stormwater systems, causing flooding and requiring additional maintenance at the municipality's expense. If yard wastes enter local waterways, they remove oxygen from the water during the decomposition process and lead to increased nutrients, which cause excessive plant and algal growth.

However, yard wastes do not belong in landfills. During the summer, grass clippings can make up to 50 percent of municipal waste, and in the fall, leaves can account for 60 percent to 80 percent of municipal waste. To minimize the amount of yard waste in landfills, it is important that homeowners know proper alternatives to landfill disposal such as mulching and composting.

Leaves and grass clippings are a valuable resource. Yard wastes can be recycled by both the municipality and by the individual homeowner. On-site composting, as well as "grass cycling," treats organic materials as a valuable resource, thus diverting them from disposal and reducing the environmental problems associated with landfills. On-site composting and grass cycling produces valuable soil amendments that can be used on site. It can also inoculate the soil with beneficial microbes that can extract nutrients from the soil and pass them on to the plants, therefore reducing the need for chemical fertilization. Grass clippings and leaves can be recycled directly on the lawn or by composting or mulching. When grass clippings are left on the lawn they can act as fertilizer by breaking down quickly and releasing nutrients into the soil. Leaves can have a similar effect on lawns, but will take a longer time to decompose unless they are shredded first. If the leaves are composted, they can have several other benefits to the soil, such as adding organic matter, which improves the way in which water interacts with the soil. For instance, if composted leaves are mixed with a sandy soil, the organic matter will act as a sponge and retain water, and if mixed with a clay soil, the organic matter will improve porosity, which helps the soil drain more quickly.

Recommendations

The following are recommendations that may be beneficial, but are not required by the permit:

- Prohibit yard waste from being mixed with garbage;
- Consider locating municipal composting/mulching facilities at the municipal recycling center to make drop-offs easier; and
- Provide containers with lids to homeowners labeled for yard waste.

6. Private Storm Drain Inlet Retrofitting Ordinance

The Tier A municipality must adopt and enforce an ordinance requiring the retrofitting of existing storm drain inlets on private property to meet the standard in *Attachment C (Design Standards for Storm Drain Inlets)* of the Tier A MS4 Permit. Specifically, the ordinance shall:

- Apply to storm drain inlets, on property not owned or operated by the Tier A Municipality (e.g. condominium associates), that are in direct contact (i.e. contiguous) to:
  - □ repaving;
  - □ repairing (excluding individual pothole repair);
  - □ resurfacing (including top coat or chip sealing with asphalt emulsion or a thin base of hot bitumen); and
  - □ reconstruction or alteration of facilities; and
- Shall not apply to a residential lot with one single family house.

For specific information on the requirements contained within *Attachment C (Design Standards for Storm Drain Inlets)* and additional guidance please see the *Tier A Municipality Storm Drain Inlet Retrofit Measure* portion of this Chapter, which begins on page 14.

Measurable Goal

The Tier A Municipality must certify in each annual report the date that each of the Community Wide Ordinances were adopted and that they are being enforced. A log of enforcement actions must be kept in the SPPP, or the location of such records must be noted in the SPPP.

Implementation Schedule

See Table 2.5-1 for the implementation schedule. An existing Tier A Municipality should have already adopted and currently be enforcing all of the required Community Wide Ordinances. If one or more of the ordinances has not been adopted, the Tier A Municipality must do so as soon as possible. New permittees have 12 months from the effective date of permit authorization to adopt the Community Wide Ordinances.

Community Wide Measures

In accordance with Part IV.B.5.b of the Tier A NJPDES MS4 permit, the following three (3) community wide pollution prevention/good housekeeping measures must be developed and implemented by a Tier A Municipality:

- Street Sweeping;
- Catch Basin and Storm Drain Inlet Inspection and Cleaning; and
- Tier A Municipal Storm Drain Inlet Retrofit.

Table 2.5-2 below summarizes the minimum standards, measurable goals and implementation schedules for each of these measures for existing and new permittees, respectively, followed by an explanation of each measure.

Table 2.5-2

Pollution Prevention/Good Housekeeping for Municipal Operators SBR For Community Wide Measures			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Develop and continue to implement street sweeping measures as specified at Part IV.B.5.b.i.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 24 months
Develop and continue to implement catch basin and storm drain inlet inspection and cleaning measures as specified at Part IV.B.5.b.ii.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months
Develop and continue to implement storm drain inlet retrofit measures as specified at Part IV.B.5.b.iii.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months

Note: EDPA means effective date of permit authorization.

1. Street Sweeping Measure

Minimum Standards

The Tier A Municipality shall sweep, at a minimum of once per month (weather and street surface conditions permitting), all streets (including roads or highways) that meet all of the following criteria:

- The street is owned or operated by the municipality;
- The street is curbed and has storm drains;
- The street has a posted speed limit of 35 miles per hour or less;
- The street is not an entrance or exit ramp; and
- The street is in a predominantly commercial area.

An example of a street sweeper

Measurable Goal

The Tier A Municipality must certify in each annual report that a street sweeping schedule is being maintained and records are being kept, which include the date and areas swept, number of miles of streets swept and the total amount of materials collected in wet tons. Totals must be included in the Annual Report and Certification and records must be kept in the SPPP, or the location of such records must be noted in the SPPP.

Implementation Schedule

As indicated in Table 2.5-2, the Tier A Municipality must have fully implemented the Street Sweeping Measure on the effective date of permit authorization. New permittees must implement it within 24 months from the effective date of permit authorization.

Additional Information

Street sweeping removes silt, trash, total suspended solids (TSS), hydrocarbons, excessive nutrients, such as phosphorous and nitrogen, and other chemicals from the roadside before they are discharged from the storm drain system. Studies have revealed that the vast majority of toxic and conventional pollutants found in stormwater are associated with automobile maintenance and use. Studies have identified gasoline combustion, brake fluid, transmission oil, antifreeze, grease and undercoatings, as well as tire compounds and brake linings, both lost through wear, as the chief contributors. Since little can be done to prevent these pollutants from being deposited on street surfaces, attention must be focused on removing the accumulated materials. A regular street-sweeping program will help to clean and maintain the attractiveness of communities and enhance business viability and residential values.

It is also important to note there is a relationship between regular sweeping and maintenance of catch basins and other stormwater facilities. A regular sweeping program will reduce the amount of material accumulating in such facilities, reducing the need for frequent cleaning. More information on catch basin and storm drain inlet inspection and cleaning can be found beginning on Page 13, and storage of street sweepings and catch basin cleanout material is found beginning on Page 32.

For information on how to properly dispose of materials collected during street sweeping and catch basin cleaning see http://www.state.nj.us/dep/dshw/rrtp/sweeping.htm.

For information on the beneficial use program, see http://www.state.nj.us/dep/dshw/rrtp/bud.htm.

Recommendations

The following are recommendations that may be beneficial but are not required by the permit:

- Higher efficiency street sweepers should be considered when purchasing new equipment (e.g., regenerative air and vacuum filter street sweepers);
- By sharing staff and equipment, municipalities or other governmental entities may benefit by saving money and resources; and
- Parking should be regulated on predominately commercial streets to facilitate sweeper access.

2. Catch Basin and Storm Drain Inlet Inspection and Cleaning Measure

Minimum Standard

The Tier A Municipality shall inspect storm drain inlets and any associated catch basins that it owns or operates and remove sediment, trash or debris when present. Each catch basin and inlet shall be inspected at least once every five years. The Tier A Municipality shall clean any municipally owned or operated storm drain inlet or catch basin as frequently as necessary to eliminate recurring problems and maintain proper function.

Measurable Goal

The Tier A Municipality must certify in each annual report that a catch basin and storm drain inlet inspection and cleaning schedule is being maintained and a log documenting the following is being kept:

- The number of municipally owned and operated catch basins and inlets within the municipality;
- The number of catch basins and inlets inspected; and
- The number catch basins and inlets cleaned.

Records must be maintained documenting the amount of materials collected in wet tons during cleaning activities in the SPPP, or the location of such records must be noted in the SPPP. Totals must be included in the Annual Report and Certification.

Implementation Schedule

As indicated in Table 2.5-2, the Tier A Municipality must have fully implemented the catch basin and storm drain inlet inspection and cleaning measure on the effective date of permit authorization. New permittees shall implement it within 24 months from the effective date of permit authorization.

Additional Information

For information on the proper handling and disposal of the debris collected during catch basin cleaning, see http://www.state.nj.us/dep/dshw/rrtp/sweeping.htm. Take note that in accordance with this information, at a minimum, all potentially contaminated road cleanup material must be staged on an impervious surface and covered with a waterproof material (i.e., tarpaulin or 10-mil plastic sheeting). The containment must be maintained for the duration of the staging period to prevent contaminant volatilization, runoff, leaching or fugitive dust emissions. Refer to the link above for specific information.

Recommendations

The following are recommendations that may be beneficial but are not required by the permit:

- Increase the frequency of inspecting and cleaning catch basins in problem areas (e.g., those prone to blockages);
- Perform maintenance inspections after major storm events;
- Pass a municipal ordinance establishing requirements for private entities to properly maintain stormwater facilities under their ownership, or take over existing private stormwater facilities, and include them in the stormwater facility maintenance program (see the Abandoned Stormwater Detention Basin Adoption Optional Measure in *Chapter 6: Optional Measures* of this guidance document for more information);
- Increase street sweeping (above the minimum standard) to decrease the amount of materials entering the catch basins and other stormwater facilities; and
- Coordinate the timing of catch basin cleaning with the local mosquito control agency, where possible. So that when the mosquito control agency preforms their preventive measures, such as applying a larvicide to a catch basin to kill mosquitos in the larval stage, the process of cleaning the catch basins will not disrupt the effectiveness of the larvicide by removing the larvicide from the catch basin through the cleaning procedures.

3. Tier A Municipality Storm Drain Inlet Retrofit Measure

Minimum Standard

The Tier A Municipality shall retrofit existing Tier A Municipality owned or operated storm drain inlets that are:

- in direct contact with any repaving, repairing (excluding individual pothole repair), or resurfacing (including top coating or chip sealing with asphalt emulsion or a thin base of hot bitumen); or
- in direct contact with any reconstruction or alteration of facilities.

Storm drain inlet retrofits shall meet the standard in Attachment C (Design Standards for Storm Drain Inlets) of the Tier A MS4 NJPDES permit and found online at http://www.nj.gov/dep/dwq/tier_a.htm.

There are separate design standards for grates in pavement or other ground surfaces and for curb opening inlets. Each standard is described below.

- Grates that are used in pavement or other ground surface to collect stormwater into a storm drain or surface water body under the grate shall meet either of the following standards:
    - Use the New Jersey Department of Transportation (NJDOT) bicycle safe grate (especially for storm drain inlets along roads). This grate is described in Chapter 3.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines at http://www.state.nj.us/transportation/publicat/bike_guidelines.htm;

or

- □ Use a grate where each "clear space" in the grate (each individual opening) is no bigger than 7 square inches, or Is no bigger than 0.5 inches ($1/2$ inch) across the smallest dimension (length or width).

Examples of storm drain inlet grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels and stormwater basin floors.

- If the storm drain inlet has a curb opening inlets (including curb-opening inlets in combination inlets), the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) must be no bigger than 7 square inches, or no bigger than 2 inches across the smallest dimension (length or width).

It is important to note that Attachment C of the Tier A NJPDES MS4 permit also contains a number of exemptions to the storm drain inlet retrofitting requirement. These exemptions are:

- A "Hydraulic Performance Exemption" where the Tier A Municipality determines that this standard would cause inadequate hydraulic performance (flooding) that cannot be overcome by using additional or larger storm drain inlets;

- Either of two "Alternative Device Exemptions":

    1. Where flow from the Water Quality Design Storm (WQDS), as specified in N.J.A.C. 7:8-5.5(a), is conveyed through any device or combination of devices (e.g., end of pipe netting facility, manufactured treatment device or a catch basin hood) that is designed, at a minimum, to prevent the passage of all solid and floatable materials that could not fit through one of the following:

        a. A rectangular space that is four and five-eighths ($4\ 5/8$) inches long and one and one half ($1\ 1/2$) inches wide (this option does not apply for outfall netting facilities); or

        b. A bar screen that has a $1/2$ inch (0.5 inches) opening between each bar.

    2. Where flow is conveyed through a trash rack that has parallel bars with one-inch (1.0 inch) spacing between the bars, to the elevation of the WQDS as specified in N.J.A.C. 7:8;

- A "Historic Places Exemption" where the Department determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy a New Jersey Register listed historic property.

Measurable Goal

The Tier A Municipality must certify in each Annual Report and Certification that a record of the number and location of storm drain inlets retrofitted, as well as the number and location of storm drain inlets exempted, is being maintained. Totals must be included in the Annual Report and Certification and records must be kept in the SPPP, or the location of such records must be noted in the SPPP.

Implementation Schedule

As indicated in Table 2.5-2, the Tier A Municipality must have fully implemented the Tier A Municipality Storm Drain Inlet Retrofit measures on the effective date of permit authorization. New permittees must implement these measures within 12 months from the effective date of permit authorization.

Additional Information

Several studies have been conducted to determine what materials are most often discharged to storm sewers. Some of the most commonly found materials were polystyrene pieces, pieces of paper, candy and food wrappers, plastic bag fragments and metal foil, with the biggest offender being plastic products. Plastic needs ultraviolet light to decompose, and can take hundreds of years to decay. In the meantime, plastic continues to accumulate in our waterways, causing the deaths of many mammals, fish, birds and reptiles each year.

Every piece of solid or floatable material that is caught before it enters or leaves a storm drainage system will benefit the environment. Minimizing the size of spaces in storm drain inlet grates and curb openings will trap certain solid and floatable materials before they reach our waterways. However, these spaces must also be large enough to provide adequate hydraulic performance.

Any time the Tier A Municipality does any repaving, repairing, reconstruction or alterations of facilities owned or operated by the municipality, storm drain inlets in direct contact with the repaving, repairing, reconstruction or alterations must be retrofitted or replaced to meet the standard contained in Attachment C of the permit, which are also outlined above. Facilities include all municipal roads, all municipal parking lots and any other area that the municipality owns or operates that has storm drain inlets. Repairing does not include the filling of individual potholes.

In most situations, the grate will need to be replaced, since there is no practical way to retrofit a grate to meet the standard. In cases where the existing grate meets the standard, but the curb opening is too large, a low-cost option is to retrofit the curb opening inlet by dividing the existing opening into two or more smaller openings (each no bigger than two inches across the smallest dimension) with a bar, rod or other piece of metal, which is permanently bolted to the existing inlet. This retrofitting technique can be seen in the image to the right.

Recommendations

The following recommendations may be beneficial but are not required by the permit:

- Retrofit existing storm drain inlets to meet the standard contained in Attachment C earlier than required by the permit (rather than waiting until repaving or other projects);
- Increase street sweeping (above the minimum standard) to reduce clogging of storm drain inlets; and/or
- Use additional devices to remove solid and floatable materials including trash racks, mesh nets, bar screens and trash booms.

Municipal Maintenance Yards and Other Ancillary Operations

In accordance with Part IV.B.5.c of the Tier A NJPDES MS4 permit, the following nine (9) best management practices (BMPs) must be implemented by a Tier A Municipality at municipal maintenance yards and other ancillary operations:

- Fueling Operations;
- Discharge of Stormwater from Secondary Containment;
- Vehicle Maintenance;
- On-Site Equipment and Vehicle Washing and Wash Wastewater Containment;
- Salt and De-icing Material Storage and Handling;
- Aggregate Material and Construction Debris Storage;
- Street Sweepings, Catch Basin Clean out, and Other Material Storage;
- Yard Trimmings and Wood Waste Management Sites that are owned and operated by the Tier A Municipality; and
- Roadside Vegetation Management.

These BMPs are also found in *Attachment E – Best Management Practices for Municipal Maintenance Yards and Other Ancillary Operations*, which is attached to the Tier A permit and found online at http://www.nj.gov/dep/dwq/tier_a.htm. Each of these BMPs is discussed individually, beginning on page 19. Table 2.5-3 below summarizes the minimum standards, measurable goals and implementation schedules of each BMP for existing and new permittees.

Table 2.5-3

Pollution Prevention/Good Housekeeping for Municipal Operators SBR For Municipal Maintenance Yards and Other Ancillary Operations			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Implement the BMPs found in Attachment E, including the Inventory of Materials and Machinery, and Inspections and Good Housekeeping practices, at Municipal Maintenance Yards and Other Ancillary Operations.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months
BMPs must be implemented for fueling operations.	Certify annually	January 1, 2018	EDPA + 12 months
BMPs must be implemented for discharge of stormwater from secondary containment.	Certify annually	January 1, 2018	EDPA + 12 months
BMPs must be implemented for vehicle maintenance.	Certify annually	January 1, 2018	EDPA + 12 months
BMPs must be implemented for on-site equipment and vehicle washing and wash	Certify annually	January 1, 2018	EDPA + 60 months
BMPs must be implemented for salt and de-icing material storage and handling.	Certify annually	January 1, 2018	EDPA + 60 months
BMPs must be implemented for aggregate material and construction debris storage.	Certify annually	January 1, 2019	EDPA + 18 Months
BMPs must be implemented for street sweepings and catch basin clean-out material storage.	Certify annually	January 1, 2019	EDPA + 18 Months
BMPs must be implemented for yard trimmings and wood waste management sites.	Certify annually	January 1, 2019	EDPA + 18 Months
BMPs must be implemented for roadside vegetation management.	Certify annually	January 1, 2019	EDPA + 18 Months

Note: EDPA means effective date of permit authorization.

1. Fueling Operations

Minimum Standard

The Tier A Municipality shall develop and implement BMPs listed in Attachment E, to address:

- Vehicle fueling;
- Receipt of bulk fuel deliveries; and
- Inspection and maintenance of storage tanks, including the associated piping and fuel pumps.

Additional Requirements:

- Drip pans or absorbent pads must be placed under all hose and pipe connections and other area that are prone to leak during the transfer process;
- During bulk transfer, the Tier A Municipality must either block storm drain inlets, or contain tank trucks within a temporary berm or absorbent booms. If berms or booms are used, all hose connections must be within the bermed or boomed area;
- A properly trained employee from the facility must supervise the process of the bulk transfer of the fuel;
- Train staff in proper SOP's for fueling, spill prevention, and fuel cleanup practices;
- Provide spill kits and spill response equipment at the fueling sites;
- Cleanup any spills immediately using a dry, absorbent material (e.g., kitty litter and/or saw dust);
- Immediately repair or replace any equipment, tanks, pumps, piping and fuel dispensing equipment found to be leaking or in disrepair; and
- Clearly post, in a prominent area of the facility, instructions for safe operations for fueling equipment. Include all of the following:
  - □ "Topping off of vehicles, mobile fuel tanks, and storage tanks is strictly prohibited";
  - □ "Stay in view of fueling nozzle during dispensing"; and
  - □ Contact information for the person(s) responsible for spill response.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for fueling operations.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with posted implementation schedule.

Recommendations

The following recommendations may be beneficial but are not required:

- Equip fuel nozzles with automatic shut-off to control drips;
- When installing new tanks consider aboveground storage tanks rather than underground storage tanks;
- When practical, vehicle fueling should be done at designated fueling areas rather than on location (mobile fueling) where employees are less equipped to handle spills;
- All fuel storage tanks should be in secondary containment and the fueling area should be on impervious surface. Common techniques include the use of spill berms to contain oil-filled equipment, fuel tanks, or any other places or items that may leak hazardous liquids; and
- Fueling stations can be regional or shared with other municipalities or other public agencies to help to reduce costs of operation and upgrading.

2. Discharge of Stormwater from Secondary Containment

Minimum Standard

The Tier A Municipality shall develop and implement BMPs for discharge of stormwater from secondary containment at maintenance yard operations listed in Attachment E, and described below:

- The discharge pipe or outfall must be equipped with a valve (globe, gate or equivalent) or other means to control the discharge from all containment areas;
- Ensure that the valve remains closed at all times, except when discharging;
- Perform routine inspections of the tanks, drum, vats, other containers, valves, hoses, pipes, and other equipment in the containment area to maintain their integrity and proper function and keep a log of these routine inspection;
- Perform regular maintenance of tanks, drums and other containers including any valves, hoses, pipes and appurtenances within the containment area including painting, repair and replacement;

- Prior to discharging, perform a physical inspection of the tank within the secondary containment and a visual inspection of the accumulated stormwater to determine if the stormwater has been contaminated by the contents of the tank. Visual inspections are only effective when the contents or materials stored could discolor or give the stormwater an undesirable odor, or leave a visible sheen; and

- If it cannot be determined with reasonable certainty that the stormwater in the secondary containment is uncontaminated then the accumulated stormwater shall be hauled off-site for proper disposal.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for discharge of stormwater from secondary containment.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with posted implementation schedule.

Recommendations

It is the Tier A Municipality's responsibility to ensure that no contaminated stormwater is discharged into surface waters or an MS4. Therefore, while not specifically required, the following recommendations will help ensure and/or document that the municipality does not discharge any contaminated stormwater:

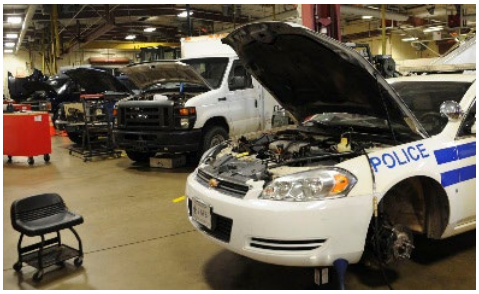
- Consider installing a lock on the discharge value that will prevents unauthorized discharge;

- Analytical testing of the stormwater may be necessary to ensure that the stormwater within the secondary containment area is uncontaminated when the tank within the secondary containment is used to store a material that cannot be detected visually; and

- Keep records of all discharges from the containment areas, include date, time, and approximate volume of the discharge. Furthermore, maintain any records of physical inspections, analytical testing, and any records of stormwater that is hauled for off-site disposal.

3. Vehicle Maintenance

Minimum Standard



The Tier A Municipality shall develop and implement BMPs for vehicle maintenance and repair activities that occur at municipal maintenance yard operations. The BMPs must include the required practices listed in Attachment E, and described below, including regular inspections of all maintenance areas and activities:

- The Tier A Municipality must maintain an inventory of materials and machinery, and must operate and maintain equipment to prevent the exposure of pollutants to stormwater;
- Whenever possible, the Tier A Municipality should perform maintenance activities indoors;
- If a vehicle maintenance activity must be performed outdoors, the following additional measures must be implemented:
  - The maintenance must be performed in a designated area away from any storm drains or the drains must be blocked by berms, sandbags, booms, or other barriers;
  - Drip pans must be used at all times; and
  - If the maintenance activity will last for more than one day, portable tents or covers shall be placed over the equipment when the equipment is not being worked on.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for Vehicle Maintenance operations.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with noted implementation schedule.

Recommendations

- In lieu of chlorinated organic solvents, such as methylene chloride, use non-chlorinated solvents, i.e., kerosene or mineral spirits instead.
- Use a non-toxic or less toxic cleaning material. For vehicles that use hydraulic equipment, consider using a vegetable-based hydraulic oil, which is biodegradable.
- Inspect incoming equipment and vehicles for leaks.
  - Keep records of discarded of parts and materials, including transfer information.
  - Drain all liquids completely from parts before disposal.
  - Recycle degreasers, used oil, oil filters, antifreeze, cleaning solutions and hydraulic fluid.

The following information applies to floor drains:

- Floor drains within municipal maintenance garages, if connected to the MS4, are illicit connections and must be eliminated in accordance with the Tier A Municipality's Illicit Connection Elimination Program (see *Chapter 3.6: MS4 Outfall Pipe Mapping, and Illicit Discharge and Scouring Detection and Control*;

- For all other discharges from floor drains within municipal maintenance garages to surface or ground waters, the State require a separate NJPDES permit in accordance with N.J.A.C. 7:14A. Any such discharge must cease until a final effective NJPDES permit is issued by the State; and

- The Department recommends, however, that all floor drains in municipal maintenance garages be permanently sealed, and that all discharges to "motor vehicle waste disposal wells" be closed in accordance with N.J.A.C. 7:14A-8.4. If there are any questions or concerns about a floor drain or about "motor vehicle waste disposal wells," contact the NJ DEP Bureau of Nonpoint Pollution Control at (609) 633-7021.

4. On-Site Equipment and Vehicle Washing and Wash Wastewater Containment

Minimum Standard

The Tier A Municipality shall develop and implement BMPs to manage any equipment and vehicle wash wastewater. The BMPs must incorporate the required practices listed in Attachment E and described below:

- Manage any equipment and vehicle washing activities so that there are no unpermitted discharges of wash wastewater to storm sewer inlets or to waters of the state;

- Tier A Municipalities which cannot discharge wash wastewater to a sanitary sewer may temporarily contain wash wastewater prior to proper disposal under the following conditions:

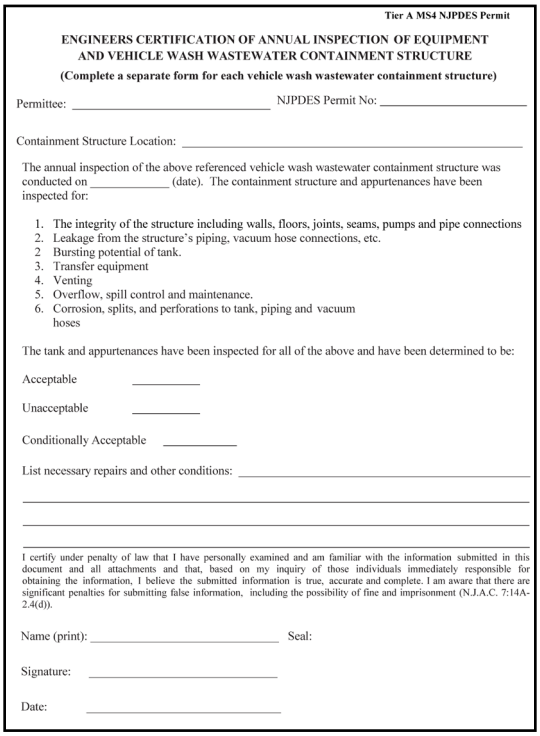
  - □ Containment structures shall not leak. Any underground tanks and associated piping shall be tested for integrity every 3 years using appropriate methods determined by "The List of Leak Detection Evaluations for Storage Tank Systems" created by the National Work Group on Leak Detection Evaluations (NWGLDE) or as determined appropriate and certified by a professional engineer for the site-specific containment structure(s);
  - □ For any cathodically protected containment system, provide a passing cathodic protection survey every three years;
  - □ Operate containment structures to prevent overfilling resulting from normal or abnormal operations, overfilling, malfunctions of equipment, and human error. Overfill prevention shall include manual sticking/gauging of the tank before each use unless system design prevents such measurement. Tank shall no longer accept wash wastewater when determined to be at 95% capacity. Record each measurement to the nearest ½ inch;
  - □ Before each use, perform inspections of all visible portions of containment structures to ensure that they are structurally sound, and to detect deterioration of the wash pad, catch basin, sump, tank, piping, risers, walls, floors, joints, seams, pumps and pipe connections or other containment devices. The wash pad, catch basin, sump and

associated drains should be kept free of debris before each use. Log dates of inspection; inspector's name, and conditions. This inspection is not required if system design prevents such inspection; and

- □ Containment structures shall be inspected annually by a NJ licensed professional engineer. The engineer shall certify the condition of all structures including: wash pad, catch basin, sump, tank, piping, risers to detect deterioration in the, walls, floors, joints, seams, pumps and pipe connections or other containment devices using the attached Engineer's Certification of Annual Inspection of Equipment and Vehicle Wash Wastewater Containment Structure. This certification may be waived for self-contained systems on a case-by-case basis. Any such waiver would be issued in writing by the Department.

Additional Requirements

Attachment E also includes sample forms for use by the Tier A Municipality. The annual inspection certification, tank use documentation and pump out logs discussed below must be retained by the municipality at the public works facility. The municipality must submit the containment structure records upon request by the Department as part of the municipality's compliance of the permit and duty to provide information pursuant to N.J.A.C. 7:14A-2.11. All completed forms and logs must be retained for a minimum of five years.



Tier A MS4 NJPDES Permit

ENGINEERS CERTIFICATION OF ANNUAL INSPECTION OF EQUIPMENT AND VEHICLE WASH WASTEWATER CONTAINMENT STRUCTURE

(Complete a separate form for each vehicle wash wastewater containment structure)

Permittee: _____ NJPDES Permit No: _____

Containment Structure Location: _____

The annual inspection of the above referenced vehicle wash wastewater containment structure was conducted on _____ (date). The containment structure and appurtenances have been inspected for:

1. The integrity of the structure including walls, floors, joints, seams, pumps and pipe connections
2. Leakage from the structure's piping, vacuum hose connections, etc.
2 Bursting potential of tank.
3. Transfer equipment
4. Venting
5. Overflow, spill control and maintenance.
6. Corrosion, splits, and perforations to tank, piping and vacuum hoses

The tank and appurtenances have been inspected for all of the above and have been determined to be:

Acceptable _____

Unacceptable _____

Conditionally Acceptable _____

List necessary repairs and other conditions: _____

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (N.J.A.C. 7:14A-2.4(d)).

Name (print): _____ Seal:

Signature: _____

Date: _____

Engineers Certification of Annual Inspection of Equipment and Vehicle Wash Wastewater Containment Structure

1. Engineers Certification of Annual Inspection of Equipment and Vehicle Wash Wastewater Containment Structure

   For any municipality that performs in-house washing of equipment and/or vehicles, the discharge of wash wastewater to the surface or ground waters of the State is prohibited. Containment structures that temporarily store wash wastewater prior to proper disposal are permitted for a municipality that has one or more public work facilities not connected to a sanitary sewer system. All such containment structures must be inspected annually and maintained and serviced by the Tier A Municipality, which must document, through a record-keeping process, the annual inspection, maintenance, usage and servicing of the containment structure(s). A model record-keeping form for the certification, usage and service of such a containment structure is shown below and is found in Attachment E of the Tier A MS4 NJPDES permit, which is available from the Department's website at http://www.nj.gov/dep/dwq/tier_a.htm. The annual inspection for the containment structure must be certified by a New Jersey Licensed Professional Engineer.

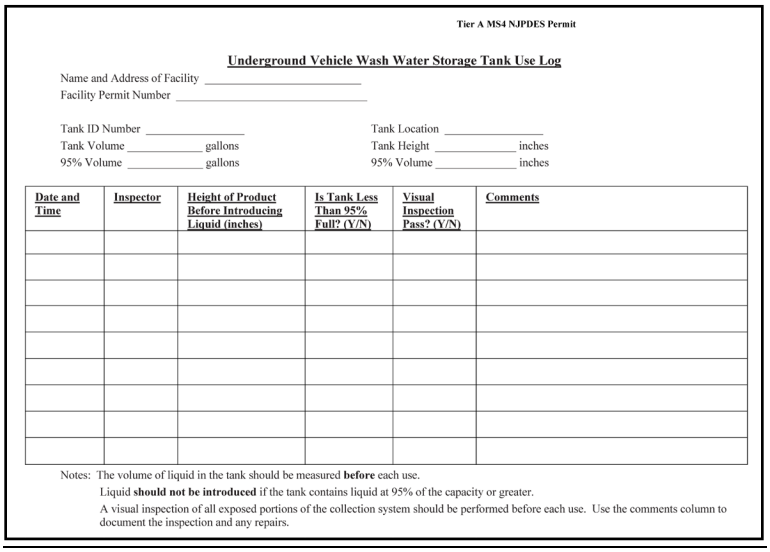
   The municipality may use its own record-keeping format, provided it includes the information noted in the Department's model. The vehicle wash wastewater containment structure

document must include information that the professional engineer would need to fill out to verify the condition of the structure, and it must be certified by a New Jersey Licensed Professional Engineer.

2. Underground Vehicle Wash Water Storage Tank Use and Pump Out Logs

   A Tier A Municipality must document the usage of underground storage tank(s) for the storage of vehicle wash water. The tank use log includes the basic information that the municipality must record for each use of a tank. If more than one tank is used, each requires a separate form

Underground Vehicle Wash Water Storage Tank Use Log



Tier A MS4 NJPDES Permit

Underground Vehicle Wash Water Storage Tank Use Log

Name and Address of Facility _____
Facility Permit Number _____

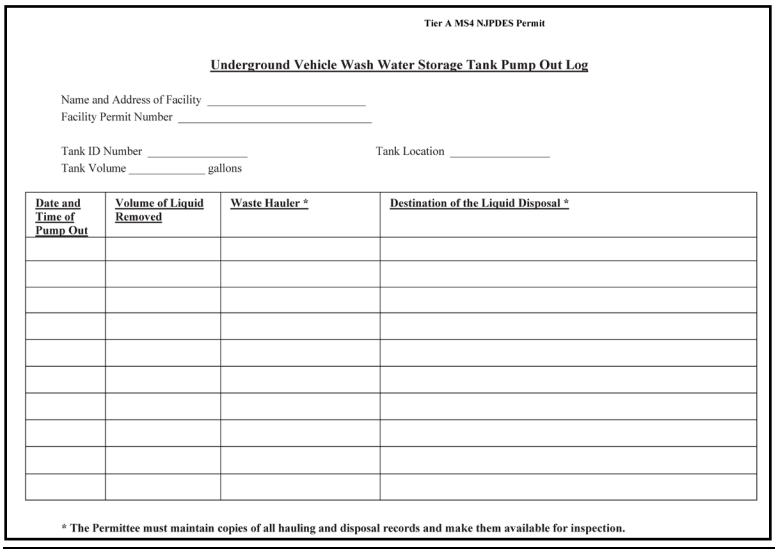
Tank ID Number _____ Tank Location _____
Tank Volume _____ gallons Tank Height _____ inches
95% Volume _____ gallons 95% Volume _____ inches

Date and Time	Inspector	Height of Product Before Introducing Liquid (inches)	Is Tank Less Than 95% Full? (Y/N)	Visual Inspection Pass? (Y/N)	Comments

Notes: The volume of liquid in the tank should be measured **before** each use.
Liquid **should not be introduced** if the tank contains liquid at 95% of the capacity or greater.
A visual inspection of all exposed portions of the collection system should be performed before each use. Use the comments column to document the inspection and any repairs.

3. If the tank is to be pumped out, the municipality must record the information noted in tank pump out log. The image of this form provided below is found in Attachment E of the Tier A MS4 NJPDES permit, which is available from the Department's website at http://www.nj.gov/dep/dwq/tier_a.htm.

Underground Vehicle Wash Water Storage Tank Pump Out Log



Tier A MS4 NJPDES Permit

Underground Vehicle Wash Water Storage Tank Pump Out Log

Name and Address of Facility _____
Facility Permit Number _____

Tank ID Number _____ Tank Location _____
Tank Volume _____ gallons

Date and Time of Pump Out	Volume of Liquid Removed	Waste Hauler *	Destination of the Liquid Disposal *

* The Permittee must maintain copies of all hauling and disposal records and make them available for inspection.

Measurable Goal

The Tier A Municipality must certify in each annual report that BMPs in Attachment E have been implemented for On-site Equipment and Vehicle Washing and Wash Wastewater Containment.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with posted implementation schedule. Existing permittees should have already implemented this BMP and new permittees have a maximum of 60 months from the effective date of the permit authorization to finalize implementation.

Recommendations

The following are two methods that can be used to comply with the above requirements but are not specifically permit requirements.

1. Install a wastewater reclamation system

   There are many wastewater reclamation systems, available commercially, that recycle and treat wash wastewater for reuse and can be sized for a wide range of flows. A wastewater reclamation system usually includes a sump, or some other mechanism to collect the water, a treatment system using one or more treatment technologies to remove contaminants and a tank to store the treated water that is then reused. The Department has found that these systems offer many advantages including flexibility of design, relatively low initial capital costs, low operational costs, low disposal costs (when compared to discharges to sanitary sewer), significant reduction in water usage and no requirement for a NJPDES discharge permit, since there is no discharge to surface or ground water. Below is a list of five treatment technologies that may be used individually or in combination as part of a wastewater reclaim system:

- Electrocoagulation

  As wastewater travels through a series of cells, an electrical current is applied to the stream providing an electromotive force that allows certain compounds to approach a more stable state. Typically, the more stable state for an element or compound results in a solid form that is removed by settling or filtration. The pollutant removal efficiency of electrocoagulation systems can be maintained throughout a range of influent pollutant concentrations. This process effectively removes emulsified oils and hydrocarbons, suspended solids and heavy metals.

- Filtration

  Filters can mechanically separate various components of a waste stream. Filter selection is an important part of a facility's assessment of this technology. The different filter media used by various manufacturers are designed to remove a wide range of pollutants, but certain media are only appropriate for particular compounds. For instance, activated carbon filter media are efficient at removing sediment and volatile organic compounds, but not necessarily inorganic compounds, such as metals. Typical maintenance of these systems is the replacement of filter cartridges after a specified period of use.

- Chemical Treatment

  Certain chemicals may be added to a waste stream to remove particular pollutants of concern. Various chemicals achieve pollutant removal through a number of chemical or mechanical processes. Examples include a pH adjustment to neutralize wastewater and a pH adjustment to facilitate the precipitation of metals or the addition of flocculants to improve settling of solids. The quantity of chemicals fed into the treatment process may change depending on the strength of pollutants entering the treatment system. Chemical treatment is generally effective; however, it can be cost prohibitive and requires properly trained operators.

- Settling

  Settling is the process by which particulates, aided by gravity, settle to the bottom of a liquid and form sediment. The settling efficiency is dependent on the particle properties and the time given to the wastewater volume to remain at a low flow. Some pollutants, such as metals, may be chemically trapped in solution, and the act of settling will not reduce the concentration of these pollutants.

- Biological Treatment

  Biological treatment utilizes bacteria that feed on organic materials, reducing pollutant load, specifically nutrients, biochemical oxygen demanding (BOD) substances, oil and grease. Biological treatment is generally used to treat sanitary waste streams and requires a constant source of organic matter; therefore, it may not be suitable for treatment of wash wastewater.

2. Capture and transport the wastewater for proper disposal.

   - The Tier A Municipality may construct or use an existing impervious area with berms or other methods to facilitate the collection of wastewater and then have the wastewater hauled for proper disposal. The wastewater would need to be characterized, and based on that characterization, may be either accepted at a sewage treatment plant or disposed of as hazardous waste.

     If this option is selected, the municipality should perform routine inspections of the berms or other methods to facilitate the collection of wastewater to ensure the integrity of the structures and that there is no runoff or run through.

   - If approved by the local authorities, it may be acceptable in some areas to connect to and discharge the wastewater directly to a sanitary sewer, if available. However, facilities will need prior approval from the local sewerage authority prior to connection. The sewerage authority may require characterization of the wastewater prior to discharging and based on that characterization, it may require pretreatment of the wastewater. In addition, the sewerage authority or the Department may both require that the wastewater meet pretreatment standards, as well as, regular monitoring of the discharge to ensure the discharge meets these standards. Lastly, most sewerage authorities will require a connection fee and will charge a monthly sewerage fee.

Considerations

The following alternatives may prove to be more cost effective than the recommendations listed above.

- Cease the activity

  As an alternative, the Tier A municipality may find that ceasing the discharge of wastewater to be the easiest and most cost-effective option. If a municipality is simply washing a fleet of cars, trucks or buses, it may be more cost efficient to take them to a commercial car or truck wash facility rather than install a treatment system.

- Apply for a NJPDES permit

  The municipality does have the choice to apply for a separate NJPDES permit that will specifically authorize the wastewater discharge. NJPDES permits limit the mass and/or concentration of pollutants discharged to surface or ground water of the State. Discharges must meet effluent limitations set in the permit designed to protect surface and ground water quality. To meet the effluent limitation in the NJPDES permit, a facility would need to design and build a treatment unit. Permit holders are required to monitor the discharges, likely on a monthly basis, and submit discharge monitoring reports (DMRs). Facilities that exceed their permitted discharge limits and/or fail to submit the DMR are subject to significant mandatory penalties. In addition, NJPDES permits have an annual fee based on pollutant load. The minimum fee during fiscal year 2017 for an individual discharge to surface water (DSW) permit was $4, 200.

5. Salt and De-icing Material Storage and Handling

Minimum Standard

The Tier A Municipality shall develop and implement BMPs for Salt and De-icing Material Storage and Handling. The BMPs must incorporate the required practices listed in Attachment E, and described below. Note that these requirements do not apply to the storage of sand, which must meet the requirements for Aggregate Material and Construction Debris Storage. The required practices include the following:

- Store Salt and De-Icing Material in a permanent structure;
- Perform regular inspections and maintenance of storage structure and surrounding area;
- Minimize tracking of material from loading and unloading operations;
- During loading and unloading:
  - Conduct during dry weather, if possible;
  - Prevent and/or minimize spillage; and
  - Minimize loader travel distance between storage area and spreading vehicle;
- Sweep (or clean using other dry cleaning methods):
  - Storage areas on a regular basis;
  - Material tracked away from storage areas; and
  - Immediately after loading and unloading is complete;
- Reuse or properly discard materials collected during cleanup; and
- Temporary outdoor storage is permitted only under the following conditions:
  - A permanent structure is under construction, repair or replacement;
  - Stormwater run-on and de-icing material run-off is minimized;
  - Materials in temporary storage are tarped when not in use;
  - All of the requirements above are met; and
  - Temporary outdoor storage shall not exceed 30 days unless otherwise approved in writing by the Department.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for Salt and De-icing Material Storage and Handling.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with posted implementation schedule. For this BMP, new permittees have a maximum of 60 months from the effective date of the permit authorization to finalize implementation.

Additional Information

The application of salt and sand on roads to improve conditions in winter weather has been a preferred practice since the 1930s. Sand is widely used in colder climates where temperatures drop below 0° F. In New Jersey, where the climate is warmer, salt is mostly used to reduce ice bonding to road surfaces. The Department understands that during the winter, the application of sand and salt is a public safety issue that outweighs the possible environmental impacts of the application. However, the proper storage and handling of these materials is something that, when done using BMPs, should have no adverse impacts to the environment. During winter weather, salt and de-icing materials are spread over large areas, but at municipal storage facilities the discharges are concentrated year-round. The Department's goal is to ensure that these materials are properly handled, stored or covered, so that they are not transported by stormwater and discharged to surface and ground waters of the State. Improper salt and de-icing material storage may result in stormwater runoff containing high amounts of sodium and other pollutants. Sodium chloride (road salt) is an effective de-icer but can be highly corrosive to stormwater facilities. Smaller waterways, such as small streams, rivers and ponds, are at a higher risk to increases in salinity. Indoor storage of salt and de-icing materials is an effective pollution prevention technique which helps to eliminate pollutant loadings to surface and groundwaters. BMPs for salt and de-icing material storage and handling have been required for Tier A Municipalities since the 2004 Tier A MS4 NJPDES Permit; therefore, for an existing permittee, the implementation schedule for this BMP is the effective date of permit authorization (EDPA). For a new permittee, EDPA + 60 months is the maximum timeframe for implementation of this BMP.

Recommendations

The following recommendations are not required by the permit, but should be taken into account when siting a new permanent structure:

- Locate the site at least 200 hundred feet away from nearby streams, wells, reservoirs and drinking water sources;
- Do not build a storage structure in designated well head protection area;
- Ensure that the top elevation of the pad for the permanent structure, as well as the access way, is higher than the 100-year flood elevation;
- Control site drainage by diverting stormwater away from storage areas (e.g., by installing curbing, berms, etc.);
- Place wind barriers at strategic areas where shipments of salt and sand are being loaded. This can help to reduce the possibility of windblown particles entering nearby areas;
- When constructing a de-icing material storage structure, include a paved, impermeable access way; and

- Work with neighboring municipalities, public complexes and/or highway agencies (such as NJ Turnpike Authority, South Jersey Transportation Authority, NJDOT, etc.) to construct joint use de-icing material storage facilities.

6. Aggregate Material and Construction Debris Storage

Minimum Standard

The Tier A Municipality shall develop and implement BMPs for Aggregate Material and Construction Debris Storage at maintenance yard operations. The BMPs must incorporate the required practices listed in Attachment E, and described below. The BMPs must include regular inspections and maintenance of all Aggregate Material and Construction Debris Storage areas.

- Store materials such as sand, gravel, stone, top soil, road millings, waste concrete, asphalt, brick, block and asphalt based roofing scrap and processed aggregate in such a manner as to minimize stormwater run-on and aggregate run-off via surface grading, dikes and/or berms (which may include sand bags, hay bales and curbing, among others) or three-sided storage bays. Where possible the open side of storage bays shall be situated on the upslope. The area in front of storage bays and adjacent to storage areas must be swept clean after loading/unloading.

- Sand, top soil, road millings and processed aggregate may only be stored outside and uncovered if in compliance with the bullet above and if a 50-foot setback is maintained from surface water bodies, storm sewer inlets and/or ditches or other stormwater conveyance channels.

- Road millings must be managed in conformance with the "*Recycled Asphalt Pavement and Asphalt Millings (RAP) Reuse Guidance*" (see www.nj.gov/dep/dshw/rrtp/asphaltguidance.pdf) or properly disposed of as solid waste pursuant to N.J.A.C. 7:26-1 et seq.

- The stockpiling of materials and construction of storage bays on certain land (including but not limited to coastal areas, wetlands and floodplains) may be subject to regulation by the Division of Land Use Regulation (see www.nj.gov/dep/landuse/ for more information).

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for Aggregate Material and Construction Debris Storage in order to eliminate and/or minimize the amount of pollutants entering surface and ground water from Aggregate Material and Construction Debris Storage activities.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with posted implementation schedule. A new permittee must implement this BMP within 18 months from the effective date of permit authorization.

7. Street Sweepings and Catch Basin Cleanout Material Storage

Minimum Standard

The Tier A Municipality shall develop and implement BMPs for Street Sweeping and Catch Basin Cleanout Material Storage at maintenance yard operations. The BMPs must incorporate the required practices listed in Attachment E of the Tier A NJPDES MS4 permit, and described below and include regular inspections and maintenance of all Street Sweepings and Catch Basin Cleanout Material Storage areas.

- This BMP is intended for road cleanup materials as well as other similar materials. Road cleanup materials may include but are not limited to street sweepings, storm sewer clean out materials, stormwater basin clean out materials, and other similar materials that may be collected during road cleanup operations. These BMPs do not cover materials such as liquids, wastes which are removed from municipal sanitary sewer systems or material which constitutes hazardous waste in accordance with N.J.A.C. 7:26G-1.1 et seq.
- Road cleanup materials must be ultimately disposed of in accordance with N.J.A.C. 7:26-1.1 et seq. See the "*Guidance Document for the Management of Street Sweepings and Other Road Cleanup Materials*" which may be found online at www.nj.gov/dep/dshw/rrtp/sweeping.htm.
- Road cleanup materials placed into storage must be, at a minimum:
  - □ Stored in leak-proof containers or on an impervious surface that is contained (e.g., bermed) to control leachate and litter; and
  - □ Removed for disposal (as above) within six (6) months of placement into storage.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for Street Sweepings and Catch Basin Cleanout Material Storage.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with noted implementation schedule. A new permittee must implement this BMP within 18 months from the effective date of permit authorization.

8. Yard Trimmings and Wood Waste Management Sites

Minimum Standard

The Tier A Municipality shall develop and implement BMPs for Yard Trimmings and Wood Waste Management Sites at maintenance yard operations. The BMP must incorporate the required practices listed in Attachment E and described below, and include regular inspections and maintenance of all Yard Trimmings and Wood Waste Management Sites.

1. These practices are applicable to any yard trimmings or wood waste management site:

   - Owned and operated by the Tier A Municipality,

     - □ For staging, storing, composting or otherwise managing yard trimmings or
     - □ For staging, storing or otherwise managing wood waste, and

   - Operated in compliance with the Recycling Rules found at N.J.A.C. 7:26A.

   Note that any yard trimming or wood waste management site that does not meet both of the criteria above cannot be permitted through the Tier A MS4 NJPDES Permit and must obtain separate authorization.

2. Yard trimmings or wood waste management sites must be operated in a manner that:

   - Diverts stormwater away from yard trimmings and wood waste management operations and

   - Minimizes or eliminates the exposure of yard trimmings, wood waste and related materials to stormwater.

3. Yard trimmings and wood waste management site specific practices include:

   - Constructing windrows, staging and storage piles:

     - □ In such a manner that materials contained in the windrows, staging and storage piles (processed and unprocessed) do not enter waterways of the State,
     - □ On ground which is not susceptible to seasonal flooding and
     - □ In such a manner that prevents stormwater run-on and leachate run-off (e.g., use of covered areas, diversion swales, ditches or other designs to divert stormwater from contacting yard trimmings and wood waste).

   - Maintaining perimeter controls such as curbs, berms, hay bales, silt fences, jersey barriers or setbacks, to eliminate the discharge of stormwater runoff carrying leachate or litter from the site to storm sewer inlets or to surface waters of the State.

   - Preventing on-site storm drain inlets from siltation using controls such as hay bales, silt fences or filter fabric inlet protection.

   - Preventing dry weather run-off from reaching a municipal stormwater sewer system, which is an

illicit discharge. Possible sources of dry weather run-off include wetting of piles by the site operator and uncontrolled pile leachate or uncontrolled leachate from other materials stored at the site.

- Removing trash from yard trimmings and wood waste upon receipt.
- Monitoring the site for trash on a routine basis.
- Storing trash in leak-proof containers or on an impervious surface that is contained (e.g., bermed) to control leachate and litter.
- Disposing of collected trash at a permitted solid waste facility.
- Employing preventative tracking measures, such as gravel, quarry blend or rumble strips at exits.

Measurable Goal

The Tier A Municipality must certify in each annual report that BMPs in Attachment E have been implemented for Yard Trimmings and Wood Waste Management Sites.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with noted implementation schedule. Existing permittees have until January 1, 2019 to implement this BMP and a new permittee must implement this BMP within 18 months from the effective date of permit authorization.

9. Roadside Vegetation Management

Minimum Standard

The Tier A Municipality shall develop and implement standard operating procedures for Roadside Vegetation Management. The BMPs must incorporate the required practices listed in Attachment E, and described below.

- Tier A Municipalities must restrict the application of herbicides along roadsides in order to prevent it from being washed by stormwater into the waters of the State and to prevent erosion caused by de-vegetation, as follows:
    - □ The Tier A Municipality shall not apply herbicides on or adjacent to storm drain inlets, on steeply sloping ground, along curb lines or along unobstructed shoulders; and
    - □ The Tier A Municipality may only apply herbicides within a 2-foot radius around structures where overgrowth presents a safety hazard and where it is unsafe to mow.

Measurable Goal

The Tier A Municipality must certify in each annual report that the BMPs in Attachment E have been implemented for Roadside Vegetation Management.

Implementation Schedule

As indicated in Table 2.5-3, the Tier A Municipality must implement the Tier A Municipal Maintenance Yards and Other Ancillary Operations SBRs in accordance with noted implementation schedule. A new permittee must implement this BMP within 18 months from the effective date of permit authorization.

Additional Information

Tier A Municipalities are required to restrict the application of herbicides along roadsides for two reasons. First, herbicide use must be restricted to prevent direct runoff of herbicide into storm drains, and thus into waters of the State. Second, herbicide use must be restricted to prevent erosion caused by elimination of the vegetation along roadways. Erosion along roadways can result in significant quantities of sediment being discharged into waters of the State. Vegetation helps to protect areas against erosion, and thus the elimination of the vegetation, by overuse of herbicides, must be avoided. Municipalities may only apply herbicides where mowing or trimming of the vegetation is not possible for safety reasons.

Stormwater Training

Stormwater training is one of the most important aspects of the permit. All the time and effort undertaken to develop a stormwater program and to write an SPPP is wasted if employees are not properly trained and do not clearly understand what is expected of them. Emphasizing training shows that the Tier A municipality is serious about its stormwater program and protecting the environment. The following three (3) stormwater training program components must be developed, implemented and monitored:

- Municipal Employee Training;
- Stormwater Management Design Review Training; and
- Municipal Board and Governing Body Member Training.

Each of these programs is discussed individually, beginning on the next page.

Table 2.5-4 below summarize the minimum standards, measurable goals and implementation schedules of each stormwater training program for existing and new permittees.

Table 2.5-4

Pollution Prevention/Good Housekeeping for Municipal Operators SBR For Stormwater Training			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
The Tier A Municipality shall develop, update and implement an employee training program to address Tier A MS4 NJPDES permit components at Part IV.B.5.d and SPPP requirements.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months
Provide training to municipal employees within 3 months of commencement of duties, and at least once every two years thereafter, to address all required components. The exceptions are Part IV.B.5.d.v, viii, and x which require annual training instead of once every two years.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months
Ensure that individuals that review development and redevelopment projects for compliance with N.J.A.C. 7:8 on behalf of the municipality complete Department approved training once every five years.	Certify annually; SPPP records retention	January 1, 2019	EDPA + 12 months
Ensure that current Municipal Board and Governing Body Members that review and approve applications for development and redevelopment projects complete the "Training Tool" on or before EDPA + 6 months, and by new members within 6 months of commencement of duties. Once per term of service thereafter, Municipal Board and Governing Body Members must review at least one of the tools offered under the Post-Construction Stormwater Management website.	Certify annually; SPPP records retention	July 1, 2018	EDPA + 6 months

Note: EDPA means effective date of permit authorization.

1. Municipal Employee Training Program

Minimum Standards

The Tier A Municipality shall develop and implement an employee training program for all employees on those topics applicable to their title and duties within three months of commencement of duties.

Training must occur at least once every two years, unless otherwise specified below, and must include the following topics, as well as the subjects specified under the topic name:

1. Yard Waste Collection Program (if applicable):
    - Frequency of yard waste pickups and schedule; and
    - Policy for how and when yard waste can be placed curbside.
2. Monthly Sweeping of Certain Streets in Predominantly Commercial Areas:
    - Sweeping schedules; and
    - Proper management of materials collected.
3. Illicit Connection Elimination and Outfall Pipe Mapping:
    - The impacts associated with illicit connections; and
    - Details of the program including investigation techniques, physical observations, field sampling, and mapping procedures.
4. Outfall Pipe Stream Scouring Detection and Control:
    - How to identify outfall pipe stream scouring; and
    - Contributing factors.
5. Maintenance Yard Operations (including Ancillary Operations) – Annually:
    - Inventory of materials and machinery;
    - Inspections and good housekeeping;
    - Fueling operations;
    - Discharge of stormwater from secondary containment;
    - Vehicle maintenance;
    - On-site equipment and vehicle washing and wash wastewater containment;
    - Salt and de-icing material storage and handling;
    - Aggregate material and construction debris storage;
    - Street sweeping, catch basin clean out, and other material storage; and

- Yard trimmings and wood waste management sites.

6. Waste Disposal Education:
   - The impacts associated with improper waste disposal;
   - How to respond to inquiries regarding improper waste disposal; and
   - Appropriate enforcement authority.
7. Municipal Ordinances:
   - An overview of the following:
     - □ Pet Waste Ordinance;
     - □ Wildlife Feeding Ordinance;
     - □ Litter Control Ordinance;
     - □ Improper Disposal of Waste Ordinance;
     - □ Containerized Yard Waste/Yard Waste Collection Ordinance; and
     - □ The Private Storm Drain Inlet Ordinance.
   - Enforcement policies for each of the ordinances listed above; and
   - The repercussions of non-compliance with these ordinances.
8. Stormwater Facility Maintenance – Annually
   - Maintenance of stormwater facilities; and
   - Catch basin and inlet cleaning methods.
9. Construction Activity/Post-Construction Stormwater Management in New Development and Redevelopment
   - Permitting requirements for construction activity and Post-Construction Stormwater Management in New Development and Redevelopment.
10. Annual training must be provided on the general requirements of the SPPP, including
    - Applicable recordkeeping requirements; and
    - Detailed training on any component applicable to an employee's title and duties.
11. Training may also be conducted on stormwater-related topics that serve an educational purpose for employees.

Measurable Goal

The Tier A Municipality must certify in each annual report that employee training has been conducted and maintain records including sign-in sheets, dates of training, and the training agenda. These records must be kept in the SPPP.

Implementation Schedule

As indicated in Table 2.5-4, the Tier A Municipality must implement the Tier A Employee Training SBRs in accordance with noted implementation schedule. A new permittee must implement this training program within 12 months from the effective date of permit authorization. Training seminars must begin within 12 months from the effective date of permit authorization.

Additional Information

Employee training is intended to increase employee awareness of the stormwater program and its importance, as well as their role in its implementation. It is believed that if the employees understand what is required of them and why it is being required, they will be more likely to comply with the conditions of the permit. Employees must be trained about the various topics listed above, but the education program need not be limited to those topics. All employees should be involved in the training program, but the permit requires training only on those particular topics that are relevant to their job descriptions. For example, police officers must be trained on the above listed municipal ordinances (and on fueling BMPs if officers fuel their own patrol cars at a municipal maintenance yard), but they do not need to be trained on local public education.

Overall, this training program is very important to the success of the SPPP required by this permit. Since the goal of this training is to emphasize the importance of the permit and the required practices, the training must be designed to encourage employees to take an active and environmentally responsible role in the SPPP.

In many ways, education and training may be considered the most important aspect of this program. It is widely recognized that education is the key to providing people with the knowledge, awareness, attitudes and values that will help them play their part in sustaining the environment, not only while they are at work but also throughout life. While many Statewide Basic Requirements focus on educating the public on the importance of this program, this requirement specifically targets the employees that work for Tier A Municipalities.

2. Stormwater Management Design Review Training Program

Minimum Standards

The Tier A Municipality shall ensure that all design engineers, municipal engineers, and other individuals that review the stormwater management design for development and redevelopment projects on behalf of the municipality, complete the Department approved Stormwater Management Design Review Course once every five (5) years.

Measurable Goal

The Tier A Municipality must certify in each annual report that individuals that review stormwater management designs on behalf of the municipality complete the Department approved Stormwater Management Design Review Course once every five years. The Tier municipality must maintain a list of the names of course participants and the respective dates of their course attendance in the SPPP.

Implementation Schedule

As indicated in Table 2.5-4, the Tier A Municipality must implement the Tier A Employee Training SBRs in accordance with noted implementation schedule. A new permittee must implement this training program within 12 months from the effective date of permit authorization.

Additional Information

This permit contains a new training requirement for stormwater management design review. Specifically, the Tier A Municipality must ensure that all design engineers, municipal engineers and other individuals that review stormwater management designs for development and redevelopment projects on behalf of the municipality, complete the Department approved Stormwater Management Design Review Course (see www.njstormwater.org/training.htm) once every five years. This two-day course covers the Stormwater Management rule criteria and the NJ Stormwater BMP Manual. For both designers of land use proposals and the public officials who review them, implementing the Stormwater Management rule requires an understanding of both the municipal planning requirements and the technical standards. The class is intended for those involved in the technical review process for compliance with the Stormwater Management rule. The Tier A MS4 NJPDES permit establishes an implementation schedule of 12 months from the effective date of permit authorization (EDPA) for new and existing permittees to meet this requirement. On January 1, 2019 for existing permittees (or EDPA + 12 months for new permittees), individuals that will review stormwater management designs and have not received this training within the past five years must attend the next scheduled course offering. Department led training obtained within five calendar years prior to EDPA qualifies towards this requirement. If unable to attend a scheduled course offering, the Tier A Municipality must notify the Department in writing, no later than thirty days after the missed course offering, explaining why attendance was not possible and what alternate arrangements are being made. The Department will offer this course free of charge, twice per year. This course is eligible for credits and continuing education units.

3. Municipal Board and Governing Body Member Related Training Program

Minimum Standards

The Tier A Municipality shall ensure that municipal board and governing body members that review and approve applications for development and redevelopment projects complete the "Asking the Right Questions in Stormwater Review Training Tool" within six (6) months from the effective date of permit authorization and by new members within six months of commencement of duties. Once per term of service thereafter, they must review at least one of the tools offered under the Post Construction Stormwater Management website.

Measurable Goal

The Tier A Municipality must certify in each annual report that municipal board and governing body members have completed the necessary training and maintain a list of the names and dates of completed training for each participant in the SPPP.

Implementation Schedule

As indicated in Table 2.5-4, the Tier A Municipality must implement the Tier A Employee Training SBRs in accordance with noted implementation schedule. A new permittee must implement this training

program within 6 months from the effective date of permit authorization. Training must be completed within 6 months from the effective date of permit authorization.

Additional Information

The Tier A Municipality must ensure that municipal board and governing body members that review and approve applications for development and redevelopment projects, complete the "Asking the Right Questions in Stormwater Review Training Tool" posted at www.njstormwater.org/training.htm. This free on-line interactive training tool is designed for Municipal Board and Governing Body members to provide a general understanding of post construction requirements. This training must be completed by those individuals that review any projects for compliance with Part IV.B.4 of this permit. Training must be completed by current municipal board and governing body members within six (6) months of effective date of permit authorization and by new members within six (6) months of commencing duties. Once per term of service thereafter, municipal board and governing body members must review at least of one of the tools offered under Post-Construction Stormwater Management found at the website above. As specified in Attachment A (Measurable Goals and Implementation Schedule) for existing permittees, the Tier A Municipality is required to maintain a list of the dates and names of training program participants in its SPPP. Refer to *Attachment A-1 - Measurable Goals and Implementation Schedule for New Permittees*, which is found online, appended to the Tier A MS4 permit at http://www.nj.gov/dep/dwq/tier_a.htm, for new permittees.

3.6 MS4 Outfall Pipe mapping, Illicit Discharge Detection and Elimination, and Stream Scouring

This permit condition has three components: Outfall Pipe Mapping, Illicit Discharge Detection and Elimination, and Stream Scouring Detection and Control. The Tier A Municipality is required to develop, update and maintain an outfall pipe map showing the location of the end of all MS4 outfall pipes (tidal and non-tidal) owned or operated by the Tier A Municipality that discharge to a surface water body. The Tier A Municipality is required to develop, update and implement a program to detect, investigate and control any localized stream scouring from stormwater outfall pipes owned or operated the municipality. In addition, the Tier A Municipality must develop, update and implement an ongoing Illicit Discharge Detection and Elimination Program. Along with the program to detect and eliminate illicit discharges, the municipality must adopt and enforce an ordinance that prohibits illicit discharges to the Tier A Municipality's MS4.

Below, and on the following page, is a summary table of the minimum standards, measurable goals and implementation schedule of this SBR

MS4 Outfall Pipe Mapping, Illicit Discharge Detection and Elimination, and Stream Scouring SBR			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Develop, update and maintain an MS4 Outfall Pipe Map showing the location of the end of all outfall pipes which discharge to a surface water body.	Certify annually	January 1, 2018	EDPA + 36 months
Show the location (and name where known) of all surface water bodies receiving discharges from those outfall pipes.	Certify annually	January 1, 2018	EDPA + 36 months
Include Outfall Pipe map in the SPPP.	Certify annually	January 1, 2019	EDPA + 36 months

Note: EDPA means effective date of permit authorization.

MS4 Outfall Pipe Mapping, Illicit Discharge Detection and Elimination, and Stream Scouring SBR (*cont'd.*)			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Provide Outfall Map to the Department.	Certify annually	January 1, 2019	EDPA + 36 months
Submit the Outfall Pipe Map information to the Department electronically by December 21, 2020.	Submit the Outfall Pipe Map on or before the deadline	December 21, 2020	EDPA + 36 months
Develop, update and implement a program to detect, investigate and control localized stream scouring from stormwater outfall pipes.	Certify annually	January 1, 2019	EDPA + 60 months
Develop, update, implement and enforce an ongoing Illicit Discharge Detection and Elimination Program.	Certify annually	January 1, 2018	EDPA + 60 months
Adopt and enforce an ordinance that prohibits illicit connections to the MS4 operated by the Tier A Municipality.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 12 months

Note: EDPA means effective date of permit authorization.

Historical Background

One of the Six Minimum Control Measures required in the USEPA Phase II stormwater rule is Illicit Discharge Detection and Elimination. The 2004 Tier A MS4 NJPDES permit implemented these regulations as an SBR named "Illicit Connection Elimination and MS4 Outfall Pipe Mapping." This permit condition required the Tier A Municipality to adopt an ordinance prohibiting illicit connections to the Tier A Municipality's small MS4, map the location of the end of small MS4 outfall pipes, train employees on illicit connections, outfall pipe mapping and outfall pipe stream scouring, and create and maintain a program to inspect outfall pipe maps.

MS4s are designed to convey stormwater only. Unlike discharges into sanitary sewers, discharges into MS4s receive no treatment before entering surface waters. EPA recognized that non-stormwater discharges to MS4s can be significant sources of pollutants to surface water bodies. These discharges can be the result of direct connections (physical connections to the MS4 pipes) or other means, such as overland flow that eventually reaches a storm drain. Illicit discharges can result from either outside sources (private entities or other MS4s) or from the municipality itself (floor drains, vehicle or equipment washwater). Examples of other illicit discharges include washwater from commercial car washes or illegal dumping of oil into storm drain inlets.

When the Department issued the Tier A MS4 NJPDES permit in 2004, it addressed EPA's concerns by requiring municipalities to:

- adopt an ordinance prohibiting non-stormwater discharges into the MS4;
- train their employees on illicit discharges, outfall pipe mapping and outfall pipe stream scouring; and
- create and maintain a program to inspect outfall pipes for illicit discharges and outfall pipe stream scouring.

These requirements were carried forward through the 2009 and 2018 renewals of the Tier A MS4 NJPDES permit. The 2018 Tier A MS4 NJPDES permit renewal also requires the municipality to inspect each of the outfall pipes owned or operated by the municipality. Inspections of each outfall pipe must be completed every five years, evaluating each outfall for illicit discharges and for outfall pipe stream scouring. Adequate documentation of each inspection should be completed, as further indicated below. The 2018 renewal also requires that the municipality keep the outfall pipe map up-to-date and that the map be electronically transmitted to the Department by December 21, 2020.

Introduction

MS4s are designed to convey stormwater from streets, roofs, parking lots and other surfaces directly to surface water bodies. Because stormwater discharges usually don't receive any treatment, it is very important that other pollutant sources do not discharge into the MS4. The Tier A MS4 NJPDES permit authorizes stormwater discharges from small MS4s owned or operated by Tier A Municipalities, municipal maintenance yards and other ancillary operations and specific non-stormwater discharges. The complete list of eligible non-stormwater discharges includes:

- Potable water line flushing and discharges from potable water sources, excluding the discharge of filter backwash and first flush water from potable well development/redevelopment activities utilizing chemicals in accordance with N.J.A.C. 7:9D. The volume of first flush water, which is a minimum of three times the volume of the well water column, must be handled and disposed of properly;
- Uncontaminated ground water (e.g., infiltration, crawl space or basement sump pumps, foundation or footing drains, rising ground waters);
- Air conditioning condensate (excluding contact and non-contact cooling water and industrial refrigerant condensate);
- Irrigation water (including landscape and lawn watering runoff);
- Flows from springs, riparian habitats, wetlands, water reservoir discharges and diverted stream flows;
- Residential car washing water and dechlorinated swimming pool discharges from single family residential homes;
- Sidewalk, driveway and street wash water;
- Flows from firefighting activities including the washing of fire fighting vehicles;

- Flows from clean water rinsing of beach maintenance equipment immediately following use and only if the equipment is used for its intended purpose;
- Flows from clean water rinsing of equipment and vehicles used in the application of salt and de-icing materials. Prior to rinsing, all equipment shall be cleaned using dry methods such as shoveling and sweeping. Recovered materials are to be returned to storage or properly discarded; and
- Rinsing of equipment above is limited to exterior, undercarriage and exposed parts and does not apply to engines or other enclosed machinery.

All discharges that do not fall under one of the categories described above are considered illicit discharges. Examples of illicit discharges include sanitary sewer connections to the MS4, or improper disposal of waste, such as discharges of non-contact cooling water. Illicit discharges to MS4s can result in the discharge of significant pollutant loads to surface water bodies. Therefore, the Tier A Municipality is required to develop, update, implement and enforce an ongoing Illicit Discharge Detection and Elimination Program. As part of this SBR, the Tier A Municipality is required to develop, update and maintain an outfall pipe map showing the location of the end of all MS4 outfall pipes owned or operated by the Tier A Municipality. In addition, the Tier A Municipality must develop, update and implement a program to detect, investigate and control any localized stream scouring from outfall pipes owned or operated by the municipality. Stream scouring results in increased sediment loading to water bodies and can reduce stream bank and outfall pipe stability and contribute to the degradation of water quality.

MS4 Outfall Pipe Mapping

The first step in developing effective stream scouring and Illicit Discharge Detection and Elimination programs is to develop an outfall pipe map showing the location of the end of all MS4 outfall pipes owned or operated by the Tier A municipality that discharge to surface water. The map must also show the location of all surface water bodies receiving discharges from those outfall pipes. The map must be kept up to date and any newly constructed, or newly discovered, outfall pipes must be added to the map as the Tier A Municipality becomes aware of their existence. The map can be maintained in hardcopy or GIS form; however, in accordance with federal rules, the Tier A Municipality is required to submit the maps to the Department electronically by December 21, 2020.

To assist the Tier A Municipality with the required collection of location information of MS4 Outfall Pipes and other inspected facilities, the Department has developed a voluntary, free to use application, or "app." This application allows a permittee to inventory and map stormwater facilities at its convenience, with the data automatically uploaded to the Department's servers. After review, the data will be made available for both NJDEP and public viewing. A permittee will need to possess an ArcGIS Online license to access this application. A permittee who currently possesses an ArcGIS Desktop License will have an ArcGIS Online license as part of that software package. For those without a license, the Department will be providing ArcGIS Online seats (licenses) at no cost to permittees to help offset the cost of utilizing modern methods of collecting location information if a municipality chooses to use such methods. Additionally, the Department will be conducting free regional training sessions centered on how to use the provided mapping and inventory tools. The Department is also willing to conduct one on one training sessions with permittees, if requested.

The Department anticipates that the app will be expanded in future versions to allow the user to

document additional information, including records of maintenance actions. When the expanded app is available, a permittee may be able to use the app to demonstrate compliance with the maintenance requirement in the Tier A MS4 NJPDES permit.

For more information on mapping, see http://www.nj.gov/dep/dwq/msrp_map_aid.htm and *Chapter 6: Optional Measures*.

Outfall Pipe Stream Scouring Detection and Control

Outfall pipe stream scouring is the localized scouring of the stream bank or bottom caused by the discharge from the outfall pipe. This type of erosion to the stream bed and stream banks can cause sedimentation in waterbodies. While sedimentation is a natural process, the accelerated accumulation of sediments in aquatic ecosystems leads to a decline in surface water quality and biodiversity.

Scouring occurs when the velocity of stormwater leaving an outfall pipe erodes the stream bottom or the stream bank. To prevent scouring from occurring, the exit velocity of the water from the outfall pipes must be dissipated and/or reduced. Stream bank stabilization is needed when vegetative stabilization practices are not practical and where the stream banks are subject to heavy erosion. One way to prevent scouring from occurring is to install or retrofit stormwater management facilities to reduce the flow rate leaving the outfall.

Another solution to stream and stream bank scouring is to implement one or more of the engineering standards approved by the State Soil Conservation Committee. The New Jersey Department of Agriculture's *Standards for Soil Erosion and Sediment and Control in New Jersey* are available at http://www.nj.gov/agriculture/divisions/anr/nrc/njerosion.html. The Tier A Municipality can also contact the local Soil Conservation District for further guidance. See http://www.nj.gov/agriculture/divisions/anr/pdf/soilconservationdistricts2017.pdf for a listing of the Districts.

The Tier A Municipality must develop, update and implement a program, to detect, investigate and control any localized stream scouring from stormwater outfall pipes owned or operated by the municipality. This program must identify all areas where localized stream and bank scouring occurs as a result of stormwater discharges from a municipality's MS4 system. The program does not apply to outfall pipes that discharge into the ocean or any other waterways that are not streams. For purposes of this permit, a stream may be perennial or intermittent, may be tidal or non-tidal and may be named or unnamed. Any areas that are found to have scouring must be prioritized based on the severity of the erosion and any approved or adopted TMDLS. For more information on TMDLs, see *Chapter 4.2: TMDLs.* Repairs of scouring must be scheduled and completed. All stream scouring restoration must be conducted in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey* (N.J.A.C. 2:90-1) and the requirements for bank stabilization and channel restoration found in the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-12.14 All associated maintenance or repairs for stormwater facilities must be made in accordance with the design performance standards and maintenance requirements set forth in the New Jersey Stormwater Best Management Practices Manual, which is located at http://www.njstormwater.org/bmp_manual2.htm.

The Tier A Municipality must consider any required permits and issues related to accessing areas with stream scouring when prioritizing and scheduling repairs. Prior to conducting any repairs or remediation, the municipality should communicate with the Department's Division of Land Use Regulation (www.nj.gov/dep/landuse), who may require permits under The Freshwater Wetlands Protection Act Rules, The Flood Hazard Area Control Act Rules, The Coastal Zone Management Rules, and/or The Highlands Water Protection and Planning Rules.

Illicit Discharge Detection and Elimination

The Tier A Municipality is required by the Tier A MS4 NJPDES permit to adopt and enforce an ordinance to prohibit illicit connections to the MS4. In addition, the Tier A Municipality is required to develop, update, implement and enforce an ongoing Illicit Discharge Detection and Elimination Program. As part of this program, the Tier A Municipality is required to, at a minimum, do the following:

- conduct visual dry weather inspection of all outfall pipes owned or operated by the municipality at least once every five years;
- investigate the source if evidence of illicit discharge is found;
- eliminate non-stormwater discharges that are traced to their source and found to result from illicit connections;
- document investigations and actions taken;
- inspect any newly identified outfall pipes for illicit discharges;
- investigate dry weather flows discovered during routine inspection and maintenance; and
- investigate all complaints and reports of illicit discharges within three months of receipt.

Because MS4s are specifically designed to carry stormwater, the outfall pipes generally should not be discharging during substantial dry periods. Flow that occurs 72 hours or more after a rain event is referred to as dry weather flow. Dry weather flow can originate from various non-stormwater sources, including those eligible non-stormwater discharges discussed above. However, dry weather flow can also be an indication of an illicit discharge. Therefore, the first step in inspecting an outfall pipe for an illicit discharge is to look for dry weather flow. Some illicit discharges, such as those from a connected sanitary sewer, can cause continuous dry weather flow. Others, such as discharges of cooling water from industrial sites, can be intermittent. Therefore, it is important that the Tier A Municipality regularly inspect the outfalls for dry weather flow. Other potential indicators of dry weather flow include staining of the outfall pipes, odors or deterioration of the outfall structure. If these or other indicators of illicit discharges are found, follow up investigations are required to identify whether or not they are being caused by an illicit discharge. If the Tier A Municipality finds dry weather flows, they should collect information that will allow them to identify the source of the flow. Specifically, the Tier A MS4 NJPDES permit requires the Tier A Municipality to complete the Department's Illicit Discharge Inspection Report Form, which can be found online at http://www.nj.gov/dep/dwq/tier_a_forms.htm, to document investigations and actions taken. This form is a useful tool and contains all of the information that the Tier A Municipality must collect when there is evidence of dry weather flows or illicit discharges. The information to be collected includes an estimate of the discharge flow rate, for which there are various methods of estimation, including timing

(i.e., how long it takes to fill a container of a known size), odor, color, turbidity, floatable matter, temperature, deposits and stains, vegetation and algal growth and condition of the outfall structure. Information compiled from physical observations and field monitoring are to be used to help identify potential sources. These observations are very important since they are the simplest method of identifying potential sources of dry weather flows.

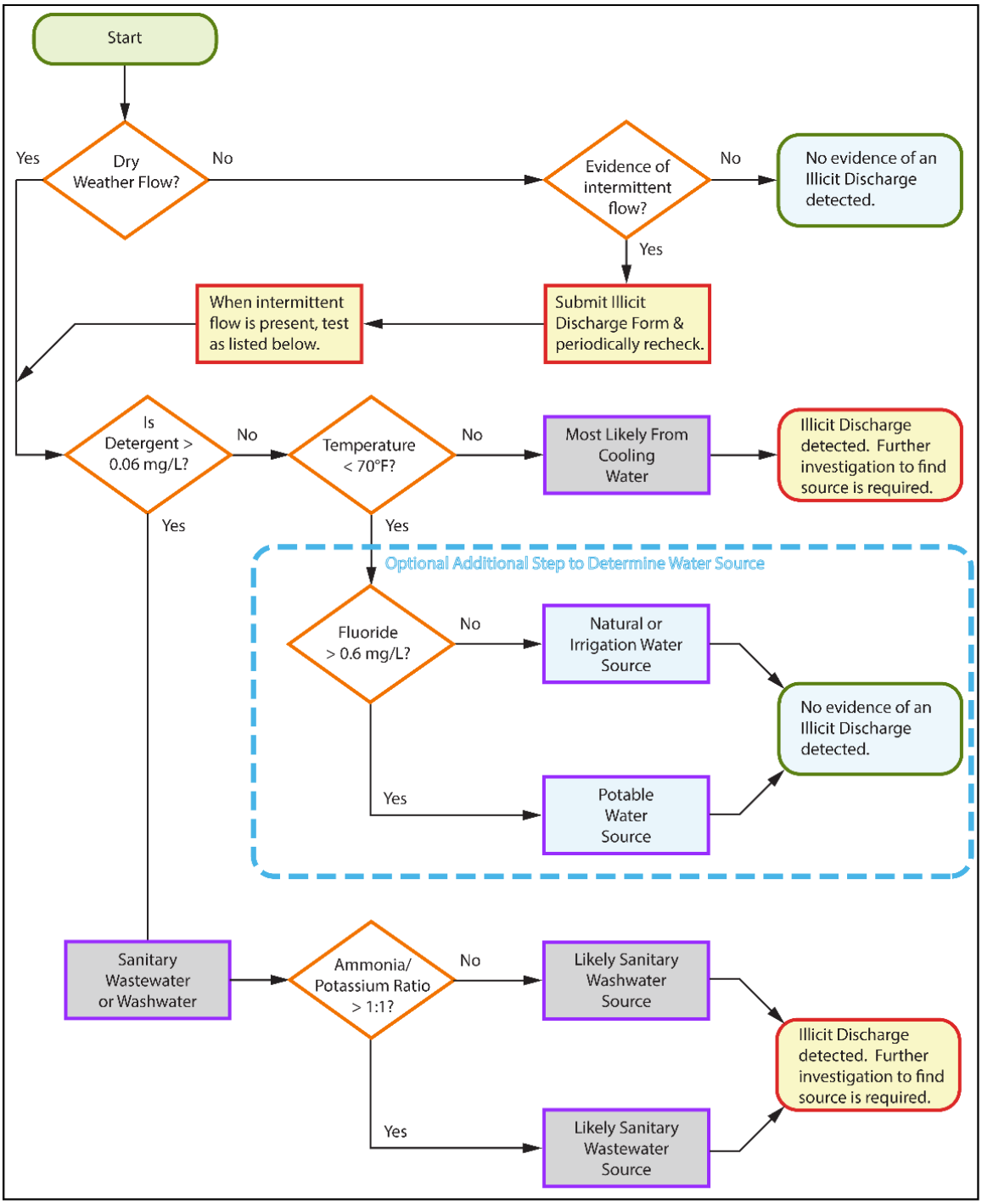
If a dry weather flow exists, after making all physical observations, the flow must be tested for detergents, i.e., surfactants, such as methylene blue active substances (MBAS). Monitoring for detergents, using a testing procedure with a detection limit of 0.06 mg/L, can accurately distinguish between discharges that are contaminated by sanitary wastewater and those that are not. Dry weather flows that contain detergents in excess of the detection limit require further investigation and are to be given the highest priority. Dry weather flows that do not test positive for detergents and do not show physical characteristics of sanitary wastewater (e.g., odor, floatables, and/or color) are unlikely to be from sanitary wastewater sources, yet they may still be illicit discharges of industrial wastewater, rinse water, backwash or cooling water.

Non-stormwater discharges that are detergent-free, and therefore not sanitary, should be tested for fluoride. Fluoride concentration is a reliable indicator of whether the non-stormwater flow is from a potable or non-potable water source. Fluoride concentrations greater than 0.6 mg/L indicate that potable water is the most likely source. Non-stormwater discharges that test below the detection limit for fluoride are likely to be groundwater infiltration, springs or streams. In some instances, a Tier A Municipality may find a non-stormwater discharge that originates from an on-site well used for industrial cooling water which will test non-detect for both detergents and fluoride. The Tier A Municipality will have to rely on temperature to differentiate between these cooling water discharges and ground water infiltration and other natural flows. Fluoride testing won't be able to pinpoint the source of the illicit discharge but is a helpful tool in further narrowing the search.

The ratio of ammonia (as N) to potassium can be used to help distinguish a sanitary wastewater source from a washwater source. Detergents will be present in both sanitary sewage and washwater. Generally, the ammonia/potassium ratio of sanitary sewage will be greater than 1.0. Non-stormwater flows with an ammonia/potassium ratio less than 1.0 are likely to be a washwater source.

All of the tests recommended for the tracing of illicit discharges may be performed in the field by employees of the Tier A Municipality or may be contracted out. Lab certification for those parameters is not required. It is advised that the person taking the field sample be familiar and trained in appropriate field testing protocol and be familiar with the equipment to be used. Analysis for detergents (MBAS), fluoride, ammonia and potassium may be conducted by using a field spectrophotometer produced by various lab instrument manufacturers. The spectrophotometers are accurate, easy to use with limited training and are designed to be used in the field. The flow chart on the following page illustrates the recommended steps to use when identifying an illicit discharge.

Illicit Discharge Identification Flow Chart



Investigation

Any storm sewer outfall pipe found during the initial inspection, or on any subsequent inspection, to have a non-stormwater discharge, or indications of an intermittent non-stormwater discharge, requires further investigation by the Tier A Municipality to identify and locate the specific source. Non-stormwater discharges suspected of being sanitary sewage and/or significantly contaminated must be prioritized and investigated first. Dry weather flows believed to be an immediate threat to human health or the environment must be reported immediately to the NJDEP Hotline at 1-877-WARNDEP (1-877-927-6337). Investigations of non-stormwater discharges suspected of being cooling water, washwater or natural flows may be delayed until after all suspected sanitary sewage and/or significantly contaminated discharges have been investigated, eliminated and/or resolved.

The use of field testing further narrows the potential sources of the non-stormwater discharge. However, it is unlikely that either the physical observations or the field testing alone will pinpoint the exact source of the dry weather discharge. As a result, the Tier A Municipality will need to perform upstream investigations to identify potential illicit discharges. Common approaches to identifying potential sources of illicit discharges include drainage system surveys (field testing at upstream manholes, visual inspections, video/televised, smoke and dye testing) and industrial and commercial site assessments.

A drainage system survey may require the Tier A Municipality to inspect storm sewer lines that lead to the outfall pipe where evidence of an illicit discharge was found. Physical observations and additional field testing will help the Tier A Municipality locate the dry weather flow while tracing the source of the discharge. Depending on the size and complexity of the storm drain system, it may be possible to isolate smaller portions of the system for more intensive investigations including smoke tests, dye testing and televised inspections.

The Tier A Municipality may be able to work with industrial or commercial facilities to try to locate the source of the illicit discharge. The Tier A Municipality can perform inspections of industrial or commercial sites or request the owners or operators of the sites to perform inspections of likely sources of illicit discharges, such as floor drains, wash bays and cooling water systems. NJDEP Compliance and Enforcement can also aid the municipality in performing inspections when the suspected source of an illicit discharge is a site covered under a NJPDES permit. To help narrow the list of potential sources, the Tier A Municipality can distribute questionnaires or use another method to collect information. Facilities may not be aware that these connections are illicit discharges and may be able to find and eliminate the sources on their own. However, it is important to note that illicit discharges may also sometimes originate from residential properties or other interconnected MS4 systems.

Elimination

Non-stormwater discharges traced to their source and found to be the Tier A Municipality's own illicit discharges must be eliminated. The Tier A Municipality may apply for a NJPDES permit for the discharge, but the discharge must be ceased until a valid NJPDES permit has been issued by the Department. Otherwise, the Tier A Municipality is required to verify that the illicit discharge was eliminated and ensure that measures taken to cease the discharge are permanent and are not done in such a manner that would allow easy reconnection to the MS4.

If the source of an illicit discharge cannot be located or is found to emanate from an entity other than the Tier A Municipality, then the Tier A Municipality must submit to the Department a written explanation detailing the results of the investigation. If the illicit discharge is found to be from another public entity, the Tier A Municipality must also notify that entity.

Below and on the following page is a guide for use in identifying illicit connections.

MS4 Outfall Pipe Mapping and Illicit Discharge Guide	
Characteristic	**Indicators**
Odor	*Sewage:* smell associated with stale/septic sanitary wastewater *Sulfur ("rotten eggs"):* industries that discharge sulfide compounds or organics (meat packers, canneries, dairies, etc.) *Oil and gas:* petroleum refineries or many facilities associated with vehicle maintenance or petroleum product storage *Rancid-sour:* food preparation facilities (restaurants, hotels, etc.)
Color	Important indicator of inappropriate industrial sources. Industrial dry weather discharges may be of any color, but dark colors, such as brown, gray, or black, are most common. *Yellow:* chemical plants, textile and tanning plants *Brown:* meat packers, printing plants, metal works, stone and concrete, fertilizers, and petroleum refining facilities *Red:* meat packers *Gray:* dairies, sewage
Turbidity	Often affected by the degree of gross contamination. Dry weather industrial flows with moderate turbidity can be cloudy, while highly turbid flows can be opaque. High turbidity is often a characteristic of undiluted dry weather industrial discharges. Cloudy: sanitary wastewater, concrete or stone operations, fertilizer facilities, and automotive dealers Opaque: food processors, lumber mills, metal operations, pigment plants
Floatable Matter	A contaminated flow may contain floating solids or liquids directly related to industrial or sanitary wastewater pollution. Floatables of industrial origin may include animal fats, spoiled foods, solvents, sawdust, foams, packing materials, or fuel. Floatables in sanitary wastewater include fecal matter, toilet paper, sanitary napkins and condoms.

MS4 Outfall Pipe Mapping and Illicit Connection Guide (*cont'd.*)	
Characteristic	**Indicators**
Deposits and Stains	Deposits and stains on outfall structures may be evidence of intermittent non-stormwater discharges. Deposits and stains include coatings, residues or fragments of materials. Grayish- black deposits that contain animal flesh or hair may be from leather tanneries. White crystalline powder is usually due to nitrogenous fertilizer wastes. Excessive sediment deposits may be attributed to construction site erosion. Sources of oily residues may include petroleum refineries, storage facilities, and/or vehicle service facilities.
Vegetation	Vegetation surrounding an outfall may show the effects of industrial pollutants. Decaying organic materials coming from food processors may cause increased vegetation growth. Other toxic materials from industrial discharges may decrease or kill vegetation. Non-stormwater discharges that contain excessive nutrients from concentrated animal feeding activities may also kill vegetation.
Damage to Outfall Structures	Cracking, deterioration, and scouring of concrete or peeling of paint at an outfall pipe may be caused by severely contaminated industrial discharges that are extremely acid or basic. Primary metal industries may discharge highly acidic batch dumps. Food processors with discharges that become "septic" produce hydrogen sulfide gas, which quickly deteriorates metal surfaces.
Temperature	Both sanitary wastewater and cooling water may substantially increase the outfall discharge temperature. Elevated temperature measurements in discharges that test negative for detergents are likely to be cooling water discharges. Sources of cooling water discharges would be industrial facilities in the drainage area.

Recommendations

The following recommendations may be beneficial, but are not required by the permit:

- To help reduce costs, look for signs of illicit discharges and outfall pipe stream scouring every time the municipality maps or inspects outfalls. This will reduce the need for multiple visits to the same outfall pipes;
- Map your entire MS4 system in addition to the required maps. An accurate map of the entire storm sewer system will aid in the investigation and elimination of illicit discharges and allow for better stormwater facilities management and better planning of new development. Consider a coordinated effort with any local watershed association, environmental group, or civic group that may assist with mapping using the NJDEP's mapping app;
- If the entire storm sewer system is mapped, indicate on the map primary uses and development in areas within the system (e.g., residential, industrial, commercial, farm/agriculture);
- Use the most accurate methods feasible for locating the end of the outfall pipe, such as GPS technology;
- In tidal areas, mapping field work should coincide with low tide to help ensure that outfall pipes are visible;
- Aerial, infrared and thermal photography may be helpful in identifying suspect discharges;
- Support and sponsor stream or shoreline walks by environmental groups, watershed associations and civic groups to assist in identifying suspect discharges; and/or
- Conduct routine dye testing of industries and commercial establishments that have a greater probability of illicit connections (automobile-related businesses, restaurants).

4.1 STORMWATER FACILITIES MAINTENANCE

A Tier A Municipality is required to develop, update, implement and enforce a stormwater program to ensure compliance with the Other Control Measures outlined in Part IV.C of the Tier A NJPDES MS4 permit, in addition to the Statewide Basic Requirements (SBRs) covered in the previous chapter. One such Other Control Measure is called Stormwater Facilities Maintenance. The Tier A Municipality must develop such a program to ensure adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities. The Tier A Municipality must also develop, update, implement and enforce a program to ensure adequate long-term cleaning, operation and maintenance of stormwater facilities not owned or operated by the Tier A Municipality and not subject to the conditions of another NJPDES stormwater permit. Below, and continued on the following page, is a summary table of the eight minimum standards, measurable goals and implementation schedule of these minimum standards, for which the permit requires a Tier A municipality demonstrate compliance.

Stormwater Facilities Maintenance Requirements

Minimum Standard	Measurable Goal	Implementation Schedule	
		Existing Permittees	New Permittees
Develop, update and implement a program to ensure adequate long-term cleaning, operation and maintenance of all stormwater facilities owned or operated by the Tier A Municipality.	Certify annually; SPPP records retention	January 1, 2018	EDPA + 18 Months
Inspect and maintain stormwater facilities pursuant to any maintenance plans, or more frequently as needed, to ensure proper function and operation of each stormwater facility.	Certify annually	January 1, 2018	EDPA + 18 Months
Maintain a log sufficient to demonstrate compliance with this section; including but not limited to a list of inspections and preventative and corrective maintenance performed, and a schedule for repairs to be made.	Certify annually	January 1, 2018	EDPA + 18 Months

Note: EDPA means effective date of permit authorization.

Stormwater Facilities Maintenance Requirements (*cont'd.*)			
		Implementation Schedule	
Minimum Standard	**Measurable Goal**	**Existing Permittees**	**New Permittees**
Certify annually that municipally owned or operated stormwater facilities are properly functioning.	Certify annually	January 1, 2018	EDPA + 18 Months
If stormwater facilities were found not to be functioning properly and repairs not made, then necessary preventative and corrective maintenance shall be documented and prioritized and a schedule for maintenance shall be maintained.	Certify annually	January 1, 2018	EDPA + 18 Months
Develop, update, implement and enforce a program to ensure adequate long-term cleaning, operation and maintenance of stormwater facilities not owned or operated by the Tier A Municipality, not subject to the conditions of another NJPDES stormwater permit and constructed after February 7, 1984.	Certify annually; SPPP records retention	January 1, 2019	EDPA + 18 Months
Ensure that stormwater facility inspection and maintenance is performed pursuant to any maintenance plans, or more frequently as needed to ensure proper function and operation of each stormwater facility.	Certify annually	January 1, 2019	EDPA + 18 Months
Maintain a log sufficient to demonstrate compliance with this section; including but not limited actions taken by the municipality to enforce compliance with the long-term cleaning, operation and maintenance program.	Certify annually	January 1, 2019	EDPA + 18 Months
Maintain copies of all maintenance plans for stormwater facilities approved by the municipality, and make them available to the Department upon request.	Certify annually	January 1, 2019	EDPA + 12 Months

Note: EDPA means effective date of permit authorization.

Introduction

Research and experience have demonstrated that regular and thorough maintenance is necessary for stormwater management measures to perform effectively and reliably. They have also demonstrated that failure to perform such maintenance can lead to diminished performance, deterioration and failure, in addition to a range of health and safety problems including mosquito breeding, vermin and the potential for drowning. The potential for such problems to develop is accentuated by many of the very features and characteristics that allow stormwater management measures to do their job, including standing or slowing moving water, dense vegetation, forebays, trash racks, dams, catch basins and the

need to continually function in all types of weather. Stormwater management measures are also expected to become the repositories for sediment, nutrients, trash, debris and other pollutants. For this reason, stormwater management measures share some maintenance requirements with more mundane items as vacuum cleaner bags, car motor filters and floor mats, all of which require regular inspection and cleaning, sediment and debris removal, along with periodic replacement.

The Tier A MS4 NJPDES permit requires that the municipality maintain all municipally owned and operated stormwater facilities to ensure that they are properly functioning. The permit also requires that municipally-owned catch basins be inspected at least once every five years, and that catch basins be cleaned as frequently as necessary. If, during the inspection of the catch basin, no sediment, trash or debris are observed, then the catch basin does not have to be cleaned at that time. Proper maintenance, including preventative maintenance, of stormwater facilities ensures they operate as designed. Stormwater facilities vary due to the environmental effect desired, from simple conveyance to designed wetland ecosystems that mimic nature. Many stormwater facilities like wet ponds, filter strips and manmade wetlands provide pollutant removal. Additional stormwater facilities like infiltration basins, infiltration trenches and porous paving systems are designed to recharge groundwater. All must be maintained to operate at the designed efficiency.

In addition to the maintenance of municipally owned and operated stormwater facilities, the Tier A MS4 NJPDES permit also requires that a municipality develop, update, implement and enforce a program to ensure adequate long-term cleaning, operation and maintenance of stormwater facilities not owned or operated by the Tier A Municipality and not subject to the conditions of another NJPDES stormwater permit. Under this requirement, the maintenance of privately owned and operated stormwater management facilities, such as a detention basin located in a commercial development or in a residential development, are the responsibility of the private entity owning or managing the development. However, the municipality, as the permittee, must adopt ordinances requiring the private entity maintain the basin, and the municipality must also inspect the basin regularly. If the municipality finds improper maintenance of the basin, the municipality must require the private entity to maintain the basin. The municipality may also adopt ordinances that allow the municipality to perform the maintenance of the stormwater management facilities, when the private entity is delinquent, and then back charge the cost of maintenance on such private entity.

The 1983 Stormwater Management rules require that the "[r]esponsibility for operation and maintenance of storm water management facilities...shall remain with the property owner and shall pass to any successor or owner." However, it also mandates that "the approving agency [of the development] shall be made to insure continued performance of these obligations." N.J.A.C. 7:8-3.4(a)5 (1983). The 1983 Stormwater Management rules further imposes on the municipality a duty to incorporate a "schedule of maintenance inspections" into the municipality's ordinance. When a private entity neglects the maintenance duty, the 1983 Stormwater Management rules authorize the municipality to perform the maintenance work for the private entity and charge the private entity for the cost of such work. Although the Stormwater Management rules were revised effective February 2, 2004, the Stormwater Management rules in effect on February 1, 2004 remain applicable to older major development as specified at N.J.A.C. 7:8-1.6(b). Proposed Part IV.C.1.b establishes the date frame "constructed after February 7, 1984" to accommodate the time needed for municipalities to adopt stormwater ordinances following the February 7, 1983 adoption of first adopted Stormwater Management rules.

Minimum Standards for Stormwater Facilities Maintenance

Tier A Municipalities shall refer to the Tier A MS4 NJPDES permit for the exact language of the minimum standards. Explanations or examples are provided here to enable the Tier A Municipality to gain a better understanding of the permit requirements.

Tier A Municipalities must develop and implement a Stormwater Facility Maintenance Program that includes all of the minimum standards to ensure adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities.

1. The Tier A Municipality must develop, update and implement a program to ensure adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities.

   - Stormwater facility maintenance must be performed pursuant to any maintenance plans, or more frequently as needed, to ensure the proper function and operation of the stormwater facility.

   - The Tier A Municipality must maintain a log sufficient to demonstrate compliance with this section; including, but not limited to, a list of all inspections performed, name of inspector, date of inspection, findings and any preventative and corrective maintenance performed. Example Maintenance Logs and Inspection Records forms are available at http://www.njstormwater.org/maintenance_guidance.htm. Tier A Municipalities often conduct maintenance work of stormwater facilities at the same time as other routine tasks performed by the Department of Public Works, but often do not keep logs of stormwater facility maintenance and other routine tasks separately. Under such circumstances, the Tier A Municipality may not have a log sufficient to demonstrate the tasks performed for maintenance of stormwater facilities. Therefore, The Tier A Municipality should maintain separate entries of the tasks for stormwater maintenance when a common work log is used.

   - The Tier A Municipality must certify annually that municipally owned and operated stormwater facilities are properly functioning.

   - If stormwater facilities were found not to be functioning properly and repairs were not made, then necessary preventive and corrective maintenance must be documented and prioritized, and a schedule for such repairs shall be maintained. The Tier A Municipality must prioritize this schedule based upon, but not limited to the following factors:

     □ environmental, health and safety concerns;
     □ the findings of catch basin and storm drain inlet inspections performed pursuant to Part IV.B.5.b.ii, above;
     □ the findings of stream scouring inspections performed pursuant Part IV.B.6.b, above; and
     □ to address any specific sources of stormwater related pollutants identified pursuant to Part IV.C.2 (TMDL Information).

2. The Tier A Municipality must develop, update, implement and enforce a program to ensure adequate long-term cleaning, operation and maintenance of the following stormwater facilities:

   □ not owned or operated by the Tier A Municipality;

- □ not subject to the conditions of another NJPDES stormwater permit; and
- □ constructed after February 7, 1984.

- The Tier A Municipality shall ensure that stormwater facility maintenance is performed pursuant to any maintenance plans, or more frequently as needed, to ensure the proper function and operation of the stormwater facility.

- The Tier A Municipality must maintain a log sufficient to demonstrate compliance with this section; including but not limited to the following:

  - □ a list of all actions taken by the municipality to enforce compliance with the long-term cleaning, operation and maintenance program;
  - □ the stormwater facility that was the subject of the action;
  - □ location information of the facility that was the subject of the action (location information must be specific enough to locate and identify the stormwater facility in the field; e.g. geographic coordinates);
  - □ the name of person taking the action;
  - □ the date of the action; and
  - □ the findings of the action.

- The Tier A Municipality should take proactive actions to ensure the private parties' maintenance of stormwater facilities, rather than passive enforcements of maintenance ordinances only in response to resident's complaints of stormwater facilities that have not been properly maintained.

3. The Tier A Municipality must maintain copies of all maintenance plans for stormwater facilities approved after the effective date of the Tier A municipality's stormwater control ordinance. The Tier A municipality must make copies of these maintenance plans available to the Department upon request.

4. The Tier A Municipality must meet the minimum standards of the Tier A MS4 NJPDES permit, the measurable goals (including any recordkeeping) and implementation schedules for Stormwater Facilities Maintenance specified in *Attachment A (Measurable Goals and Implementation Schedule) for existing Permittees and Attachment A-1 for new Permittees.*

Measurable Goals

Tier A Municipality must certify annually as explained in Chapter 7 that it meets each of the requirements listed above. Furthermore, recordkeeping is essential in order to demonstrate compliance, and those records must be kept with the SPPP or their location noted in the SPPP.

Implementation Schedules

Refer to the table listing the Measurable Goals and Implementation Schedule found on Pages 1 and 2 of this Chapter.

Additional Information for Stormwater Facilities Maintenance

The Tier A MS4 NJPDES permit is applicable to all stormwater facilities approved by the municipality under its stormwater program that are not otherwise covered by another NJPDES permit. It is important that a municipality performs the maintenance of municipal stormwater facilities and ensures that private stormwater facilities are maintained by their owner or responsible party. The statutes directing the Department to require municipalities to oversee these matters did so in order to protect water quality from the negative impacts of stormwater runoff.

Stormwater facilities may be categorized as those owned or operated by the municipalities and those owned and operated by private entities. Stormwater facilities owned by a private entity can be dedicated to the municipality if the municipal ordinances permit such dedication or a special agreement has been entered between the municipality and the private entity. Once a stormwater facility is dedicated to and accepted by the municipality, the municipality assumes the responsibility to ensure adequate long-term cleaning, operation and maintenance of the stormwater facility in accordance with Part IV.C.3.a of the Tier A MS4 NJPDES permit, even if the basin is still owned by the private entity. Regardless, the stormwater management facilities are subject to Part IV.C.3.a of the Tier A MS4 NJPDES permit (for municipally owned or operated facilities) or Part IV.C.3.b (for privately owned and operated facilities).

Maintenance of stormwater management facilities involves, essentially, five elements:

- establishment of a maintenance plan;
- regular inspection of stormwater management facilities;
- preventive and corrective maintenance work;
- record keeping of maintenance log(s); and
- annual reevaluation of the effectiveness of the maintenance.

Maintenance Plan

A maintenance plan must identify the following:

- the stormwater management facilities to be maintained;
- the frequency and details of the inspections;
- the frequency and details of the preventive tasks;
- corrective tasks to perform when there is a need to repair or rectify the issues found during inspection and/or preventive maintenance;
- the arrangement of the resources to perform maintenance; and
- the cost estimation of the maintenance.

For all stormwater management facilities, the design engineer must prepare a maintenance plan. Furthermore, if the person identified in the maintenance plan as being responsible for the maintenance is not a public agency, the maintenance plan, and any future revision, must be recorded upon the deed of record for each property on which the maintenance must be undertaken.

Responsible Party

The maintenance plan must contain the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation. Pursuant to N.J.A.C. 7:8-5.8(c), responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.

The Tier A Municipality must ensure that the responsible parties named on the maintenance plans and/or in the municipal records remain up to date. It is common that a developer transfers the ownership and/or the administrative responsibilities to a homeowner association or other similar organization, but neglects to reflect that transfer of responsibility in an updated maintenance plan. The outdated information of responsible parties may indicate a lack of enforcement of the program to ensure adequate long-term cleaning, operation and maintenance of stormwater facilities by the Tier A Municipality. Therefore, the Tier A Municipality should have a program or procedure in place to update the information of the responsible parties when a transfer of the responsibilities for stormwater facility maintenance occurs.

Inspection

Regular inspection is the key to proper maintenance. In most instances, quarterly inspection of the stormwater management facilities is needed, but more frequent inspections may be required for the stormwater management facilities located in an area prone to high pollutant loading, such as roadside catch basins or grass swales. Additionally, before and/or after large storms, it is prudent to conduct inspection and maintenance of stormwater management facilities in order to prevent clogged inlets or outlet structures, which can cause flooding problems. Each inspection must be recorded, with the log showing the dates, inspector, the weather condition, the inspection points, other issues and any future actions required.

The Tier A Municipality must have a program to ensure adequate long-term cleaning, operation and maintenance of stormwater facilities beyond just a review of maintenance plans submitted by the developers and/or applicants. Periodic inspection of stormwater facilities not owned or operated by the municipality is one way to ensure proper operation and function. However, the Tier A MS4 NJPDES permit does not specifically require the municipality to conduct such inspections or to conduct maintenance on stormwater facilities not owned or operated by the municipality. The municipality is required to have a program in place to ensure that inspections, maintenance, and record keeping is being conducted by the owner or operator of the stormwater facility. Municipalities should adopt stormwater control ordinances to enforce the private stormwater facility owners' and operators' responsibility to conduct long-term operation and maintenance of their stormwater facilities. Stormwater control ordinances could include provisions to enforce citations or fines on private stormwater facility owners if they do not meet their obligations.

Preventative and Corrective Maintenance

Preventive maintenance includes tasks to keep the stormwater management facilities clear of obstacles that prevent the stormwater management facilities to perform its function. The preventive tasks may include, but not limited to:

- removal of sediment, trash and debris;
- mowing, pruning and restoration of vegetation;
- restoration of eroded areas;
- elimination of mosquito breeding habitats;
- control of aquatic vegetation; and
- repair or replacement of damaged or deteriorated components.

A corrective maintenance task is a response to various emergency conditions that cause the stormwater management facilities to fail its function, or even its structural integrity. Corrective maintenance tasks may include those preventive maintenance tasks that should have been performed regularly and the repair or replacement of the damaged components of the stormwater management facilities, such as damaged trash racks, riprap apron, eroded embankment or pipes.

Maintenance Log

A detailed log of all preventative and corrective maintenance for the stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders, must be maintained by the entity responsible for the maintenance. If the stormwater management measure is privately owned, the municipality has the authority to access the maintenance log, and should request that they be submitted either periodically or during an audit procedure to ensure maintenance is occurring.

Collection of Location Information

Regardless of the ownership of a stormwater management facility, the Tier A MS4 NJPDES permit requires the Tier A municipality to keep a log that includes location information for the stormwater facilities inspected. Since this is included in the maintenance logs, it allows permittees to collect location information over time while performing, or ensuring the responsible parties are performing, the maintenance activities that have been required by MS4 NJPDES permits since 2004. The Tier A MS4 NJPDES permit requires location information to be specific enough to locate and identify stormwater facilities in the field, but does not specify a method of collecting this information. The Department encourages municipalities to use modern data collection techniques and the Department has developed a number of tools including a template for use with handheld GPS data collection devices. These are provided in several formats including Microsoft Excel, ArcGIS Desktop, Trimble Handheld GPS, and ArcGIS Online. ArcGIS Online is an easy tool to learn and is a cell phone or tablet based tool that can be accessed at any time using a mobile data connection or by downloading the tool over a Wi-Fi connection prior to conducting field data collection. See http://www.nj.gov/dep/dwq/msrp_map_aid.htm for more information.

Because the Department understands that not all permittees have experience with handheld GPS units or have access to such units, the Department is offering a variety of tools to satisfy the wide range of experience and capability of permittees. The Department will be conducting free regional training sessions centered on how to use the provided mapping and inventory tools. The Department is also willing to conduct one-on-one training sessions with permittees, if requested.

The Tier A Municipality may also be able to obtain stormwater facility locational information already collected by other organizations. For example, the New Jersey Hydrologic Modeling Database (or H&H Database) is posted on line and encompasses several decades of data collection by NJ Soil Conservation Districts and the New Jersey Department of Agriculture. This database contains a wealth of information regarding stormwater management basins and data can be downloaded based on location. See https://hydro.rutgers.edu/ to view the database map or https://hydro.rutgers.edu/public_data/ to download data in an Excel format. The information in this database may help municipalities to identify stormwater basins within their municipality. This will help to identify basins that may require maintenance, and can help the municipality to develop a more robust inventory as a result.

Recommendations for Stormwater Facilities Maintenance

Listed below are practices that are not required by the Tier A MS4 NJPDES permit, but are included here as recommendations to help maintain stormwater facilities.

- Increase the frequency of inspection and cleaning in problem areas (e.g., those areas prone to flooding, those areas that accumulate a lot of trash and debris).
- Perform maintenance inspections after major storm events.
- Include specific measures in the Stormwater Control Ordinance to ensure private entities perform maintenance of existing stormwater facility maintenance, such as required annual submission of maintenance logs, or take over existing private stormwater facilities, for an appropriate fee, and include them in the municipal stormwater facility maintenance program.
- Increase the frequency and area of street sweeping (above the minimum standard) to decrease the amount of materials entering the catch basins and other stormwater facilities.
- Work with local community groups to have them report any stormwater management facilities that are not properly maintained.
- Increase communication and public education to enhance awareness of proper maintenance of stormwater management facilities in order to prevent mosquito breeding, stream pollution and downstream flooding hazards.

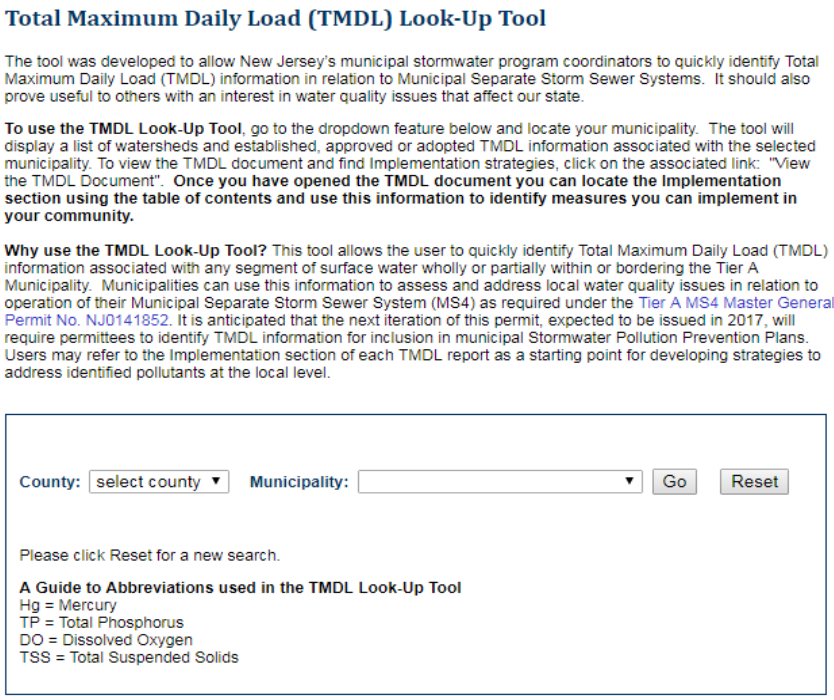
Additional Resources

In addition to general maintenance, such as care of vegetation and soil erosion controls, each type of stormwater management facility has specific maintenance requirements. For example, a sand filter requires periodic replacement of the sand bed, but BMPs without sand beds, such as detention basins, would not. Chapter 9 of NJDEP's *NJ Stormwater Best Management Practices Manual* details the specific maintenance requirements for each stormwater management facility. The BMP Manual is available at http://www.nj.gov/dep/stormwater/bmp_manual2.htm.

NJDEP also prepared maintenance guidance that includes template for maintenance plans, inspection checklists, maintenance logs, and technical information for the maintenance of stormwater management facilities facility. The maintenance guidance is available at http://www.nj.gov/dep/stormwater/maintenance_guidance.htm.

NJDEP also prepared a series of online training videos regarding the stormwater management rules, the technical overview of the stormwater management facilities, and maintenance. The videos are available at http://www.nj.gov/dep/stormwater/training.htm.

4.2 TOTAL MAXIMUM DAILY LOADS (TMDLS)



Total Maximum Daily Load (TMDL) Look-Up Tool

The tool was developed to allow New Jersey's municipal stormwater program coordinators to quickly identify Total Maximum Daily Load (TMDL) information in relation to Municipal Separate Storm Sewer Systems. It should also prove useful to others with an interest in water quality issues that affect our state.

To use the TMDL Look-Up Tool, go to the dropdown feature below and locate your municipality. The tool will display a list of watersheds and established, approved or adopted TMDL information associated with the selected municipality. To view the TMDL document and find Implementation strategies, click on the associated link: "View the TMDL Document". **Once you have opened the TMDL document you can locate the Implementation section using the table of contents and use this information to identify measures you can implement in your community.**

Why use the TMDL Look-Up Tool? This tool allows the user to quickly identify Total Maximum Daily Load (TMDL) information associated with any segment of surface water wholly or partially within or bordering the Tier A Municipality. Municipalities can use this information to assess and address local water quality issues in relation to operation of their Municipal Separate Storm Sewer System (MS4) as required under the Tier A MS4 Master General Permit No. NJ0141852. It is anticipated that the next iteration of this permit, expected to be issued in 2017, will require permittees to identify TMDL information for inclusion in municipal Stormwater Pollution Prevention Plans. Users may refer to the Implementation section of each TMDL report as a starting point for developing strategies to address identified pollutants at the local level.

County: select county ▼ Municipality: ▼ Go Reset

Please click Reset for a new search.

A Guide to Abbreviations used in the TMDL Look-Up Tool
Hg = Mercury
TP = Total Phosphorus
DO = Dissolved Oxygen
TSS = Total Suspended Solids

A Tier A Municipality is required to develop, update, implement and enforce a stormwater program to ensure compliance with the Other Control Measures outlined in Part IV.C of the Tier A NJPDES MS4 permit, in addition to the Statewide Basic Requirements (SBRs) covered in the previous Chapter. One such Other Control Measure is called a Total Maximum Daily Load (TMDL), which represents the assimilative or carrying capacity of a waterbody taking into consideration point and nonpoint sources of pollutants of concern, the natural background and surface water withdrawals. A TMDL can be thought of as a "budget" for the total amount of a pollutant that can enter a waterbody while still maintaining surface water quality standards. TMDLs have been developed for various pollutants in various waterbodies throughout the state. Because many Tier A Municipalities own or operate MS4s that discharge pollutants to waterbodies with adopted or approved TMDLs, implementing measures to reduce stormwater-related pollutants from MS4s is extremely important in ensuring the effectiveness of TMDLs. On the following page is a summary table of the four Minimum Standards, along with the measurable goals and implementation schedule for these Minimum Standards, for which the permit requires a Tier A municipality demonstrate compliance.

TMDL Requirements			
		Implementation Schedule	
Minimum Standard	Measurable Goal	Existing Permittees	New Permittees
Annually review approved or adopted TMDL reports to identify stormwater related pollutants listed therein and associated with any segment of surface water wholly or partially within or bordering the Tier A Municipality.	Certify annually; SPPP records retention	January 1, 2019	EDPA + 12 months
Use TMDL information identified in compliance with Part IV.C.2.a.i to: (1) assist in the prioritization of stormwater facility maintenance and (2) identify and develop strategies to address specific sources of stormwater related pollutants contributing to discharges.	Certify annually; SPPP records retention	January 1, 2019	EDPA + 12 months
Update SPPP to list information identified in Part VI.C.2.a.i and ii.	Certify annually	January 1, 2019	EDPA + 12 months
Incorporate any strategies identified in Part VI.C.2.a.ii(2) as an Optional Measure	Certify annually	January 1, 2019	EDPA + 12 months

Note: EDPA means effective date of permit authorization.

Introduction

In accordance with Section 305(b) and 303(d) of the Federal Clean Water Act, the State of New Jersey is required to assess the overall water quality of the State's waters and identify those waterbodies with a water quality impairment for which TMDLs may be necessary. The Department fulfills its assessment obligation under the Clean Water Act through the Integrated Water Quality Monitoring and Assessment Report (Integrated Report), which includes the Integrated List of Waterbodies, issued biennially. The Integrated Report can be found from the Bureau of Environmental Analysis, Restoration and Standards at this link: http://www.nj.gov/dep/wms/bears/assessment.htm.

Based on the Integrated Report, the Department identifies waterbodies for which a TMDL may be necessary. A TMDL is the sum of individual wasteload allocations for point sources, load allocations for nonpoint sources, other sources, such as tributaries or adjacent segments, and allocations to a reserve or margin of safety for an individual pollutant. Tier A MS4 discharges are considered point sources under the Clean Water Act; Tier B MS4 discharges are considered nonpoint sources. For MS4 discharges, best management practices (BMPs) are generally considered the most appropriate form of effluent limitations when designed to satisfy technology-based requirements and to protect water quality. For this reason, the Tier A MS4 Permit contains a number of minimum requirements in the form of BMPs.

The BMPs required under the Tier A MS4 permit are aimed at reducing the pollutant loading of many common pollutants, such as solids and floatables, total suspended solids, nutrients, and pathogens. For

example, regular street sweeping will reduce solids and floatables, as well as suspended solids, which have been deposited on streets and are available for transport in stormwater runoff. Wildlife feeding ordinances and pet waste ordinance are aimed at reducing pathogens and nutrients in stormwater runoff. Public education can be especially important in teaching the local population ways to lessen their impact on the local environment, such as properly disposing of waste materials.

The minimum required elements of the Tier A MS4 permit are generally expected to achieve a substantial portion of the required load reductions required by each TMDL, when implemented properly. However, there may be instances where the municipality must refine their implementation of the MS4 program to further reduce pollutant loadings. For example, public education programs may need to be targeted to specific audiences, stricter enforcement of ordinances may be needed, or more conservative post-construction stormwater management standards may be required. Therefore, it is important for stormwater coordinators to be aware of each approved or adopted TMDL associated with a waterbody wholly or partially within or bordering the municipality and the associated pollutant of concern, as well as to be aware of ways to further reduce pollutant loadings. For this reason, the Tier A Permit includes the following requirements for TMDLs.

Minimum Standards for TMDLs

Tier A Municipalities must incorporate TMDL information into the Stormwater Pollution Prevention Plan. At a minimum, the Tier A Municipality must:

- Identify stormwater related pollutants listed in approved or adopted TMDL reports associated with any segment of surface water wholly or partially within or bordering the Tier A municipality;
- Annually review the approved or adopted TMDL reports identified above;
- Use TMDL information to prioritize stormwater facility maintenance, including schedules for repairs, as required in Part IV.B.6.b.iv and C.3.a.iv of the Tier A permit; and
- Identify and develop opportunities to address specific sources of stormwater related pollutants contributing to discharges authorized under the Tier A permit.

Measurable Goals

Tier A Municipalities must certify annually that approved or adopted TMDLs have been identified and reviewed, required maintenance and repairs have been prioritized using TMDL information, and opportunities to address specific pollutant sources have been developed and incorporated into the SPPP as Optional Measures.

Implementation Schedules

Refer to the table listing the Measurable Goals and Implementation Schedule found on Page 2 of this Chapter.

Additional Information for TMDLs

A number of tools have been developed to aid municipalities in meeting the TMDL requirement of the Tier A permit. In addition to the documents available for each TMDL, the following information is available.

TMDL Look-Up Tool

To aid municipalities in identifying TMDLs applicable to their municipality, the Department has developed the TMDL Look-Up Tool. The TMDL Look-Up Tool is an on-line resource that allows municipal Stormwater Coordinators to search for TMDLs applicable to their municipality using a drop-down menu to select the county and municipality. After selecting the municipality, the tool will automatically search for all applicable TMDLs within the municipality. The TMDLs will be separated into three categories:

- "Applicable Stream TMDL(s)";
- "Applicable Lake TMDL(s)"; and
- "Applicable Shellfish TMDL(s)."

The name, pollutant of concern, and waterbody(ies) will be shown for each TMDL, as well as a link to the TMDL document. Each TMDL document contains information including the basis for development of the TMDL, descriptions of pollutant sources, and implementation information including potential actions to reduce pollutant loading. Once applicable TMDLs have been identified, the municipality must review the TMDL reports annually to maintain awareness and ensure that any newly developed TMDLs will be identified. The TMDL Look-Up Tool is available at http://www.nj.gov/dep/dwq/msrp-tmdl-rh.htm.

Stormwater Facility Maintenance

Tier A Municipalities are required to use TMDL information to prioritize stormwater facility maintenance, including schedules for repairs, as required in Part IV.B.6.b.iv and C.3.a.iv of the Tier A NJPDES MS4 Permit.

Part IV.B.6.b of the Tier A permit requires Tier A Municipalities to develop, update and implement a program to detect, investigate and control any localized stream scouring from stormwater outfall pipes owned or operated by the municipality. One component of this requirement is to identify upstream stressors contributing to stream scouring and to take corrective action where stressors are located on property owned or operated by the Tier A Municipality or to ensure proper operation and maintenance of stormwater facilities where stressors are located on property not owned or operated by the Tier A Municipality. Any maintenance, repairs or enforcement required must be prioritized, scheduled and completed. In doing so, municipalities must take into consideration any waterbodies with applicable TMDLs that may be affected by corrective actions and seek to prioritize and schedule actions within those watersheds first. For more information on stream scouring, see Chapter 3.6: *Illicit Connections*.

Part IV.C.3.a of the Tier A permit requires Tier A Municipalities to develop, update, and implement a program to ensure adequate long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities. If the Tier A Municipality identifies stormwater facilities that are not functioning properly, they must be repaired immediately. If this is not possible, the necessary preventative and corrective maintenance tasks must be documented, as well as prioritized, and a schedule for repairs must be developed. Prioritization is based upon a number of factors, one of which is applicable TMDLs. Facilities which are identified as potential sources of a pollutant of concern for a TMDL waterbody must be prioritized for maintenance. For more information on stormwater facility maintenance requirements, see Chapter 4.3: *Stormwater Facilities Maintenance*.

Identifying and Developing Optional Measures

Tier A municipalities are required to identify and develop opportunities to address specific sources of pollutants to waterbodies with adopted or approved TMDLs. To do this, it is important to review each TMDL document and understand the pollutant of concern and potential sources. Many TMDL documents include tables with specific potential sources of the pollutant of concern and potential actions to reduce the pollutant loading to the waterbody. In addition, the Department has developed a "tool-box" of potential pollutant sources and potential responses for many common stormwater pollutants. This "tool-box" can be found at http://www.nj.gov/dep/dwq/pdf/10-21-16-tmdl-tool-box.pdf. Once potential opportunities for reducing pollutant loading have been identified, they must be incorporated in the SPPP as Optional Measures. Optional Measures are BMPs that are not required to be implemented to meet the SBRs or AMs, but are used to prevent or reduce pollution. Failure to implement Optional Measures identified in the SPPP will not be considered a violation of the Tier A permit.

To illustrate how a municipality may identify optional measures for reducing pollutant loadings to a TMDL-affected waterbody, consider a municipality that has identified an applicable TMDL for total phosphorus. The municipality would first identify potential sources of phosphorus, which may include pet and wildlife waste or illicit discharges, among many other possibilities. If pet and wildlife waste are identified as a potential problem, the municipality may choose to reduce the input of pollutants through public education and ordinance enforcement. This could include installing signs in parks and residential areas informing the public of the importance of cleaning up pet waste and not feeding wildlife. In addition, local police or another municipal authority may occasionally patrol parks to enforce the ordinances. If illicit discharges are identified as a potential pollutant source, the municipality could develop more thorough measures for tracing and eliminating discharges or opt to increase fines and penalties for illegally connecting to the storm sewer system. If, for example, a waterbody in the municipality had an adopted or approved TMDL for total suspended solids, the municipality may be able to identify old stormwater management basins and retrofit them to increase pollutant removal.

Recommendations

Listed below are some activities that may be used to aid the municipality in identifying pollutant sources and potential responses to reduce the impact of the MS4 on TMDL waterbodies.

- Delineate the drainage area of the MS4 contributing to each waterbody or storm sewer outfall to help identify what areas of the municipality will be effective for implementing stormwater management projects.
- Develop a robust inventory and map of existing stormwater management facilities and evaluate their functionality to identify potential repairs or retrofits. Identify waterbodies with approved or adopted TMDLs on the map and identify in the inventory which stormwater management facilities discharge to TMDL waterbodies.
- Target areas of concern for frequent inspections and maintenance, such as areas with aging infrastructure, areas with high amounts of impervious surfaces, areas served mainly by on-site wastewater systems or areas with a history of illicit connections.
- Identify stormwater management basins that were constructed before 2004 as potential opportunities for retrofits targeted toward increasing runoff treatment and reducing peak flows.
- Identify opportunities to reduce impervious coverage or to implement green infrastructure.
- Restore riparian buffers along waterbodies to provide an opportunity for stormwater runoff to be filtered prior to entering waterways.
- Target enforcement of wildlife feeding and pet waste ordinances to areas with adopted TMDLs.

5. ADDITIONAL MEASURES

Additional Measures (AMs) are numeric or non-numeric effluent limitations that are expressly required to be included in the stormwater program by an areawide or Statewide water quality management plan (WQM plan), which is a plan that is prepared pursuant to Sections 208 and 303 of the Federal Clean Water Act and the New Jersey Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq. Department rules governing WQM plans are found at N.J.A.C. 7:15 *Water Quality Management Planning*. AMs are found in Part IV.D. of the Tier A MS4 NJPDES Permit. AMs may modify, or be in addition to, the Statewide Basic Requirements and will be expressed as either:

- Numeric effluent limitations that are expressly required to be included in the stormwater program by an areawide or Statewide water quality management plan; or
- Non-numeric standards, such as Best Management Measures (BMPs), which will specify the measures that must be implemented, the measurable goals, and an implementation schedule.

Additional Measures may be required by any of the following:

- A Total Maximum Daily Load (TMDL) approved or established by US Environmental Protection Agency
  - A TMDL is the sum of individual wasteload allocations for point sources, load allocations for nonpoint sources of pollution, other sources such as tributaries or adjacent segments and allocations to reserve or margin of safety for an individual pollutant
  - More information on TMDLs can be found in Chapter 4.2: *Total Maximum Daily Loads*
- A regional stormwater management plan adopted under N.J.A.C. 7:8
  - Regional stormwater management planning is a water resource management strategy that identifies and develops solutions to problems that can be managed most effectively on a regional basis. The product of this planning process, the regional stormwater management plan, spans the boundaries of individual properties, neighborhoods, municipalities and even county borders. A plan may address any or all of the following:
    1. An existing water quantity issue, such as localized flooding;
    2. An existing water quality issue, such as excess pollutant loading; and/or
    3. Issues of water quantity and quality that may be generated by future development.
  - Regional stormwater planning creates a combination of regulations and actions tailored to the specific needs of a drainage area, but it does not reduce environmental protection. Rather, it allows regulations more flexibility to match the concerns, conditions and features of regions that are connected by a common drainage area. More information on regional stormwater management plans can be found in the Stormwater Management rules at N.J.A.C. 7:8-3 and in Chapter 3 of the New Jersey Stormwater Best Management Practices Manual at http://www.njstormwater.org/bmp_manual2.htm.
- Other elements of adopted areawide or Statewide WQM plans

The Department will provide written notice of the adoption of any AMs to any affected Tier A Municipality and will list each adopted AM in a minor modification to the Tier A MS4 NJPDES permit. As of the Effective Date of Permit Authorization, the Tier A MS4 NJPDES permit does not contain any AMs. More information on WQM plans, as well as the most recent updates concerning TMDLs can be found at http://www.state.nj.us/dep/wms/bears/tmdls.html.

6. Optional Measures

At the Tier A Municipality's discretion, the stormwater program may also include Optional Measures, which are best management practices that are not implemented for Statewide Basic Requirements or Additional Measures, but that prevent or reduce the pollution of the waters of the State. These Optional Measures (OMs) are voluntary best management practices (BMPs) that may further enhance a Tier A Municipality's stormwater program and may target a specific pollutant of concern or problem affecting the municipality. The SPPP should include any Optional Measures that the Municipality plans on implementing, along with an implementation schedule. If a municipality does not implement an Optional measure identified in its SPPP, the municipality will not be considered in violation of the permit.

Suggested Optional Measures

A Tier A Municipality may elect to implement one or more of the following Optional Measures, for which additional information may be found on the following pages:

- Wildlife Management (see pages 2 – 7);
- Total Maximum Daily Load (TMDL)- As an Optional Measure (see page 7);
- Retrofit of Existing Stormwater Management Measures (see pages 7 – 8);
- Road De-icing (see pages 8 – 11);
- Adoption of Abandoned Stormwater Management Facilities (see page 11);
- Planting of Native Vegetation in Existing Landscapes (see page 11);
- Road Erosion Control (see pages 11 - 12);
- Refuse Container/ Dumpster Ordinance (see page 12 – 13); and
- Digital Mapping (see pages 13 – 15).

A Tier A Municipality is not limited to these topics noted and may develop an OM on its own if the municipality believes that the OM will help to reduce or prevent the pollution of the waters of the State. Whenever an OM is implemented, it should be reviewed periodically to check its effectiveness. If the desired results are not being accomplished, the OM should either be improved, modified or abandoned.

Wildlife Management

A Wildlife Management OM focuses on the effects of a particular species. For example, the Canada goose (*Branta canadensis)* is probably the most commonly recognized bird in New Jersey, which currently is home to approximately 85,000 geese. When this population is viewed as an average number of Canada geese per unit area, New Jersey is the state with the highest density, namely 12 birds per square kilometer.

Today, the Canada geese population is broken down into two distinct groups: the migratory population and the resident population. Currently, the migratory population is below management objectives and thus, is still strictly protected by the U.S. Fish and Wildlife Service and the 1916 Migratory Bird Treaty. The resident population increased rapidly during the 1990's and peaked during 2000. After 2000, with the expansion of hunting opportunities, increases in nest and egg treatment, as well as round-up and cull operations, the resident population has decreased and remained stable the past few years. Population growth is not the major issue. It is not what geese take from their environs, but rather what they leave behind. The average Canada goose produces two to four pounds of droppings a day. These droppings can contain salmonella bacteria that persist (in wet droppings) for up to one month. Pathogens from goose droppings can cause water quality problems, including noxious algal blooms, beach closings and the spread of fowl-related diseases. When geese droppings enter the water, the nutrient level increases. This can lead to excessive plant and algal growth, which is directly related to a loss of habitat and wildlife, including eutrophication and fish kills. Eutrophication can permanently change the character of a lake by increasing the organic content, eventually converting it into marsh and land areas.

Many beach closings have also been attributed to geese. When an excessive number of geese congregate near a beach or waterway, their fecal matter can sometimes overload the normal capacity of that land area to absorb natural wastes, and thus degrade the water quality and require the area to be closed to the public.

Finally, geese can be responsible for the spread of some fowl-related diseases. Among these are as viral, bacteria and parasitic diseases to which only waterfowl are susceptible.

A Canada Geese Wildlife Management OM would, therefore, address the concerns triggered by the Canada geese in New Jersey and the impacts they have on the environment. The OM would consider their dietary needs, habitat and breeding activity:

- Canada geese are grazers; their diet consisting mainly of grasses and other green vegetation.
- Canada geese tend to be attracted to urban sites with short lawns and they will almost always choose fertilized lawns over unfertilized lawns. For these reasons, geese are often found congregating on golf courses, school grounds, playgrounds, sports fields and any other well-manicured lawn.
- Canada geese nest in the spring and nesting sites are usually surrounded by, or very close to, water.
    - □ Water provides the geese with access to food, drink and an escape from predators.
    - □ Nesting females also tend to use the same nesting site year after year, which makes it difficult to remove them once they breed in an area.
    - □ Once a year the geese begin a complete molt of their flight feathers. During this period, the geese will be unable to fly, thus making it necessary for them to be in areas near water with a close food source.

Management of problems associated with Canada geese requires development of an integrated damage management program that includes a variety of safe, practical, effective and legal techniques. Depending on the severity of the problem, non-lethal or lethal methods may be chosen. The management control methods listed below are only recommendations and may be implemented as needed. However, using two or more of the following techniques will provide better results than relying on just one method.

Non-Lethal Control Measures

1. Barriers

   Barriers can be effective in small areas where the geese tend to walk from their feeding source to the water. A low fence or other barrier, such as high vegetation, that prevents the geese from easily moving from grassy areas to the water may be all that is needed to solve the problem. Fencing works best during the summer molt when the birds cannot fly into the water, should be 3-5 feet tall and installed during February-March to deter geese from the area prior to nesting and molting. The barriers may either be permanent or temporary.

2. Mylar Tape

   Mylar is a thin reflective tape that is usually silver on one side and red on the other. It is available in various widths, but is most commonly applied in suburban goose management situations as a perimeter fence using ½'' inch width tape stapled to stakes around the boundary of the protected area. Tape should be twisted and somewhat slack to permit movement. Tape is stapled to wooden stakes, which are pushed into the ground so the tape is approximately 2' above the surface of the ground. Wider widths (6 inches) are more typically used on farms, golf courses and other large acreage areas. With both widths, reinforce the ends and attachment points with strapping tape to reduce shredding and tearing. The effectiveness of mylar tape varies greatly and may be most effective when it is strung as a single line fence to guide geese towards alternate loafing areas. If no such areas exist nearby, mylar tape may be ineffective in deterring geese.

3. Scare Decoys

   Scare decoys, such as the Dead Canadian Goose, will discourage geese from nesting or feeding near a body of water. This method is typically most effective where the problem area is small in size.

4. Repellants

   Repellants are substances that can be sprayed on the lawn to deter the geese by making the grass taste bad to them. There are two chemical formulations registered with the USEPA as Canada goose taste repellents: anthraquinone and methyl anthranilate (MA).

   - Anthraquinone is an active ingredient in the product Flight Control®. Flight Control PLUS is a spray applied to the grass that is offensive to geese, thus denying them their food source (www.flightcontrol.com).

   - MA is a non-toxic taste aversion agent that renders food (grass) unpalatable to geese. Prior to using MA products, confer with the manufacturer to determine appropriate mowing, watering, and application scheduling (www.rejexit.com). Before this method is used, however, local regulations must be checked to ensure use near ponds or wetlands is permissible.

5. Sound Deterrents

   Sound deterrents must be in place early in the season to be effective. Sound deterrents may be as simple as banging on ordinary pots and pans, or as a complex as postil-launched pyrotechnics, firecrackers or liquid propane gas cannons. To be most effective, the sound deterrents should go off under the birds as they land. Sound deterrents are the best option for large-scale geese problems but may not be suitable for residential or public areas. Additionally, a permit to discharge a firearm may be required.

6. Visual Deterrents

   Visual deterrents include items such as balloons, streamers, flags, scarecrows, lasers and beacon lighting. Large red, white, yellow or mylar balloons have been proven to be most effective. The balloons should be filled with helium and tethered on a monofilament line to scare the geese. To increase the balloons' effectiveness, large eyespots may be drawn on them. Any visual deterrent used should be moved periodically to make sure that the geese don't become accustomed to them.

7. Hazing

   Hazing the geese includes chasing the geese from any area where they are not welcome. People or livestock herding dogs that are trained to chase geese can be used for hazing. Although no Federal/State permit is required to use dogs to harass geese, the dog's handler is responsible for maintaining control of the dog. If the dog inadvertently harms or kills a goose, the handler is liable for violations of Federal and State laws. This method provides effective control in areas where noise and appearance are important considerations.

8. Education

   Educating the public is a very important part of wild geese management. Many times, people attract large number of these birds to an area by feeding them, which then encourages the geese to stay. An educational program should cover the following topics:

   - The harmful effects of feeding geese (e.g., geese should not eat bread);
   - The ideal habitat of the Canada goose; and
   - What the public can do to make their properties less attractive to the geese:
     - □ Access to these ponds should be limited.
       a. In the springtime, the ponds may be fenced off, or high vegetation may be allowed to grow around the pond.
       b. If the pond has an aerator, it should be turned off in the wintertime to allow the pond to freeze over.
     - □ Old goose nests or old goose nest platforms should be removed. No permit is required to remove these.

Lethal Control Measures

1. Hunting

   Sport hunting may reduce overall resident Canada goose populations and may reduce goose damage to tolerable levels in some site-specific areas. Several states, including New Jersey, currently have a hunting season for Canada geese.

   There are presently three hunting seasons for Canada geese in New Jersey:

   - September Season, open statewide during the entire month (15 daily*, 30 possessions**), where

     * "Daily bag limit" means the maximum number of migratory game birds of a single species or combination (aggregate) of species permitted to be taken by one person in any one day during the open season in any one specified geographic area for which a daily bag limit is prescribed; and

     ** "Possession limit" means the maximum number migratory game birds of a single species or a combination of species permitted to be possessed by any one person when lawfully taken in the United States in any one specified geographic area for which a possession limit is prescribed;

   - Regular Season, open in three statewide zones with differing dates (generally 1 week in late November and 1 or 2 weeks in late December-early January) (3 daily, 6 possessions); and

   - Special Winter Season, open in two separate zones during mid-January through mid-February (5 daily, 10 possessions).

   More information can be found on this topic by visiting the New Jersey Fish and Wildlife webpage (www.njfishandwildlife.com) or by contacting the NJDFW (Bureau of Wildlife) office in Trenton (609-292-6685).

   Waterfowl hunters must consult and comply with all regulations contained in the current NJ Fish and Game Digest which is currently available online at http://www.njfishandwildlife.com/als/websalesintro.htm. The current rules require waterfowl hunters to possess a NJ Waterfowl Stamp, a NJ Firearms Purchaser Identification Card and an HIP (Harvest Information Program) number which can be obtained online at http://www.njfishandwildlife.com/als/websalesintro.htm or from a licensing agent using the new Integrated Electronic Licensing System (IELS) or by calling the toll-free New Jersey telephone sales line at 888-277-2015. Additionally, the hunters must check and comply with State laws and county and municipal ordinances that control possession and use of firearms, hunting and creation of noise, and access onto private lands (if applicable).

2. Reproductive Control

   Reproductive control can be accomplished through other activities authorized in a Federal/State permit. The permit registration process for conducting Canada goose nest and egg destruction and treatment can be accessed through USFWS at https://epermits.fws.gov/eRCGR/geSI.aspx. Landowners, public land managers and local governments may register at the above website to obtain federal authorization to destroy the eggs. Registration is annual and takes place between January 1 and June 30 of the year for which an entity is registered. All employees or agents who may conduct

the work on the behalf of a landowner, public manager or local government must also be registered. All listed registrants must be 18 years or older to conduct work. Active nests and eggs can only be taken between March 1 and June 30 of the year for which an entity is registered. All registered entities must return to the website by October 31 to report the number of nests with eggs that were destroyed for that year. The date (month) and location (county) for each nest must also be reported. It is required that all registrants report, even if there is "no activity" (no nest/eggs destroyed). Registrants with outstanding reports will not be able to register for future seasons.

Depending on the exact problem situations, goose nests and eggs are either removed, destroyed (buried) or treated and returned to the nest. Removal of nests is intended to deter the geese from nesting in the same area again. Treatment of eggs is typically done where the current number of geese is tolerable; however, additional birds would not be. Treatment or removal of eggs will not reduce the overall goose population but may slow its growth and make adult geese (not attached to goslings) more responsive to harassment. Additionally, fewer geese will be associated with a given property throughout the spring/summer. Approved treatment of eggs to arrest their development and eliminate hatching and production of goslings consists of shaking, puncturing or oiling the eggs. Treated eggs are returned to the nest and the adult geese remain attached to the nest site.

- Egg addling means that the eggs are shaken to mix up the contents, or a small hole is poked in the shell so that the inside can be stirred up. Both methods will destroy the egg, making sure it does not hatch.

- Egg oiling involved rubbing a thin layer of oil on the outside of the entire shell. This prevents the egg from "breathing" and suffocates it.

- Replacing the real eggs with wooden or other artificial eggs may also be effective. Remember, if the eggs are simply removed, the geese will just lay more. If the eggs are replaced with artificial eggs, though, the geese will continue to incubate them as if they were real.

The costs associated with implementing this Optional Measure can be highly variable, depending on the method(s) chosen and the frequency at which they must be repeated. Additionally, some of the options are more time consuming or require special permits, which may add to the pre-existing cost of the actual control measure.

While it is difficult to quantify the benefits an area will receive through managing geese population, it is reasonable to assume that any reductions will have a positive effect on the environment. The amount of benefits received will depend on the severity of the problem, the method(s) chosen to control the goose populations and how frequently the control methods are repeated. For more information on any of the methods listed above or other methods that are available visit, http://www.nj.gov/agriculture/pdf/managingcanadagoosedamage.pdf.

Geese Management Resources

More information on this topic can be found at:

http://www.state.nj.us/agriculture/pdf/managingcanadagoosedamage.pdf
http://www.state.nj.us/agriculture/pdf/nestandeggpamphlet.pdf
http://www.state.nj.us/agriculture/pdf/pyrotechnicsforbirdmanagement.pdf
http://www.nj.gov/dep/dsr/trends/pdfs/wildlife-canada.pdf

http://www.njfishandwildlife.com/waterfowl_info.htm
http://www.njfishandwildlife.com/artmigratory17.htm

If a Total Maximum Daily Load (TMDL) has identified fecal matter in the receiving waters in or around a Tier A municipality, the Department suggests creating stronger measures. For further information and guidance regarding TMDLs, a "TMDL Look-Up Tool" is currently available at http://www.nj.gov/dep/dwq/msrp-tmdl-rh.htm.

Total Maximum Daily Loads (TMDLs) - As an Optional Measure

The Tier A Municipality is required to identify and develop opportunities to address specific sources of pollutants to waterbodies with adopted or approved TMDLs. To do this, it is important to review each TMDL document and understand the pollutant of concern and potential sources. Many TMDL documents include tables with specific potential sources of the pollutant of concern and potential actions to reduce the pollutant loading to the waterbody. In addition, the Department has developed a "tool-box" of potential pollutant sources and potential responses for many common stormwater pollutants. This "tool-box" can be found at http://www.nj.gov/dep/dwq/pdf/10-21-16-tmdl-tool-box.pdf. Strategies to address specific sources of stormwater related pollutants found in the implementation section of an approved or adopted TMDL or those identified by the Tier A Municipality must be incorporated in the SPPP as an Optional Measure as per Part IV.C.2.a.iv of the Tier A Municipal Stormwater General Permit.

To illustrate how a municipality may identify optional measures for reducing pollutant loadings to a TMDL-affected waterbody, consider a municipality that has identified an applicable TMDL for total phosphorus. The municipality would first refer to the implementation section of the TMDL for any specific strageies listed therein. Next, the Tier A Municipality would identify potential sources of phosphorus, which may include pet and wildlife waste or illicit discharges, among many other possibilities. If pet and wildlife waste are identified as a potential problem, the municipality may choose to reduce the input of pollutants through public education and ordinance enforcement. This could include installing signs in parks and residential areas informing the public of the importance of cleaning up pet waste and not feeding wildlife. In addition, local police or another municipal authority may occasionally patrol parks to enforce the ordinances. After identifying potential strategies to address the pollutant of concern in the TMDL, the Tier A Municipality must incorporate those strategies as an optional measure. As another example, if illicit discharges are identified as a potential pollutant source, the municipality must develop more thorough measures for tracing and eliminating discharges or opt to increase fines and penalties for illegally connecting to the storm sewer system. Additionally, if, for example, a waterbody in the municipality had an adopted or approved TMDL for total suspended solids, the municipality may be able to identify old stormwater management basins and retrofit them to increase pollutant removal.

For further information and assistance regarding TMDL permit requirements, see "*Chapter 4.2: Total Maximum Daily Loads (TMDLs)*" of this guidance document.

Retrofit of Existing Stormwater Management Measures

Historically, developments were constructed with stormwater management facilities that were either intended to convey stormwater from the development site as fast as possible, or were only designed to provide detention to reduce flooding from large storm events. As a result, many existing developments discharge stormwater to MS4s without providing sufficient water quality treatment or groundwater recharge to meet current requirements or standards. In many cases, these existing BMPs can be retrofitted to provide immediate water quality benefits.

Retrofitting can be defined as expanding, modifying, or otherwise upgrading existing stormwater management measures. Examples of retrofitting include soil amendments to promote infiltration, modification of outlet structures to reduce peak flow rates and installation of trash racks to reduce the discharge of solids and floatables. As such, retrofitting stormwater management measures can increase groundwater recharge and reduce some of the adverse stormwater quantity and quality impacts caused by existing land developments. Another important benefit of retrofitting stormwater management facilities is the opportunity to correct site nuisances, maintenance problems, and aesthetic concerns. It can help a community address a particular stormwater quantity or quality problem that has developed or to resolve a problem that has been identified or required in a regional plan or TMDL.

Three important factors must be considered, aside from basic considerations such as need and cost, when evaluating retrofit possibilities: health and safety; effectiveness; and maintenance. For more information on this topic, refer to Chapter 8 of the New Jersey *Stormwater Best Management Practices Manual* available online at http://www.njstormwater.org/bmp_manual2.htm or contact the Bureau of Nonpoint Pollution Control. See http://www.nj.gov/dep/dwq/msrp_managers.htm for a list of specific points of contact for each Tier A Municipality.

Road De-icing

Road de-icing is a common practice during and after winter storms. It involves applying rock salt (NaCl) or other types of de-icing materials to lower the freezing temperature of precipitation, thereby allowing the frozen precipitation to melt and make roadways safer for travel during inclement weather. Excessive use of de-icers can be environmentally detrimental due to increasing sediment loads and soluble materials entering surface and ground water. The excessive use of de-icers may adversely affect roadside vegetation, pollute waterways and/or groundwater, as well as adversely affect aquatic life or cause corrosion.

The use of road salt is a public safety issue as well as a water quality issue None of the recommendations here are to be construed as advocating the reduction of de-icing efforts to the point of jeopardizing public safety. Rather, most are simple techniques that can be easily integrated into existing de-icing practices that can reduce the impact on surface and ground water quality, as well as other environmental impacts.

Road salts were identified in the early 1970's as a pollutant source after high levels of sodium, calcium and chloride were found in public water supply wells. Aside from contaminating portable surface ground water, high levels of sodium chloride can kill roadside vegetation, impair aquatic ecosystems and corrode infrastructure such as bridges, roads and stormwater management devices. Application of typical de-icers and alternative de-icers should be considered when formulating a de-icing policy. New, safer alternatives are being developed that may lessen our dependence on traditional de-icers. Alternative de-icing materials and techniques should be considered whenever possible.

Application of De-icing Materials

In general, the DEP promotes the smart use of salt and other de-icing materials. This concept encourages municipalities, commercial facilities and others to consider a wide range of options when formulating a management policy on the application of de-icing materials. These de-icing policies should take into consideration storm characteristics, roadway conditions, road characteristics, the type and availability of equipment and the availability and need of alternative de-icing practices. Salt application should be reduced and alternative de-icing practices should be incorporated in environmentally sensitive areas,

areas that drain to surface drinking water sources (reservoirs) and groundwater recharge areas (e.g., ground water supply wells and wellhead protection areas). Reduced application rates may also be considered on secondary roads or on other low traffic density roads. Another environmental concern is when excess de-icing materials are inadvertently deposited on the ground. If possible at the time, the operator should shovel the material back in the truck. If that is not possible at that time, the operator or permittee should return as soon as conditions allow and collect that material so that it does not enter the surface or ground waters of the state.

One of the most effective means in preventing over-application is the use of calibrated spreaders, which ensure delivering de-icing materials at a predetermined optimal application rate. Automated controls on spreaders are recommended to ensure a consistent and correct application. The spreader should be calibrated prior to a snow storm event and periodically during the snow seasons, regardless of whether automatic or manual controls are used. A regular schedule of maintenance for snow removal equipment (including salt spreaders) should be incorporated into a snow management policy. Poor maintenance of the snow removal equipment is often responsible for excessive salt use. Guidelines for the calibration of spreaders and determination of application rates are given in the EPA document *Manual for De-icing Chemicals Application Practices*.

Salt application is recommended for snowfalls of less than two inches and for road surfaces with packed snow already on the road surfaces. A management policy of salting of roadways should consider factors such as length and duration of the snowfall and initial conditions of the roadways that will be salted. The salting of road surfaces after the snow has accumulated will only result in the applied rock salt being removed with the snow when the roadway is plowed.

De-icing Materials and Alternatives

In most instances, winter de-icing materials consist of rock salt (NaCl) or a combination of rock salt and sand. The effectiveness of this mixture is significantly reduced at temperatures below 25 degrees Fahrenheit. As a result, it is not practical to increase the amount of rock salt when spreading below this minimum temperature limit. At temperatures lower than 25 degrees Fahrenheit, rock salt can be applied with calcium chloride (CaCl), which increases the effectiveness of the de-icer at temperatures down to -25 degrees Fahrenheit.

Various mixtures of sodium chloride, calcium chloride and sand can be used depending on the sensitivity of the area. Pre-mix is 3.5 parts sodium chloride and 1-part calcium chloride by weight. Use of higher ratios of calcium salts is recommended environmentally since calcium poses fewer problems than sodium.

New de-icing materials are periodically developed which are more environmentally friendly and can be used in sensitive areas or as an alternative to traditional de-icers. In some instances, the costs of these new materials are prohibitive on a large-scale basis, but they could be used in smaller target areas. A list of common de-icing materials and comments regarding their use is provided below.

One of the best alternative to de-icing materials is sand. Sand has no de-icing properties, but when used as a mix with rock salt, it can be helpful in areas where increased traction is needed and a reduction of rock salt is desired. Ash and cinders are another low-tech alternative to calcium chloride. While using sand, gravel, ash and cinders reduce the amount of sodium, these materials have their own environmental problems; specifically, they cause sedimentation and increased suspended solids in receiving waters.

NOTE: Although a list of de-icing materials is provided below, this is for informational purposes only and the New Jersey Department of Environmental Protection does not specifically promote the use of any specific de-icing products.

- Calcium Chloride:
  - □ Has a lower freezing point than rock salt;
  - □ Absorbs moisture readily and stays on the pavement longer than rock salt; and
  - □ Is used in "wetting" of roadways prior to snowfall.

- Calcium Magnesium Acetate:
  - □ Is less effective than rock salt; and
  - □ Is better environmentally than rock salt.

- Magnesium Chloride:
  - □ Is as effective as calcium chloride in adhering to the road surface; and
  - □ Has a freezing temperature comparable to calcium chloride.

- Potassium Acetate:
  - □ Does not contain chloride, which can be toxic to plants and aquatic life;
  - □ Does not cause corrosion; and
  - □ Has a low environmental impact.

- Potassium Chloride:
  - □ Is similar in performance and cost to calcium chloride and magnesium chloride; and
  - □ Contains chloride, which can be toxic to plants and aquatic life.

- Urea:
  - □ Is less corrosive than rock salt; and
  - □ Has little to no effect on roadside vegetation.

Reduction of the Application of De-icing Materials

Remote sensors along roadways can be used to determine which parts of roadways have ice on them. Some sensors can detect ice as thin as 0.005 inches. Using this technology could enable the effective delivery of de-icing material to sections of roadway that need it most rather than spreading on the entire roadway.

Structural controls are another way to reduce over-application of de-icing materials. Snow fences are used to keep snow from being blown into drifts on roadways. Studies show that fences minimize costs associated with snow clearing, reduce the formation of compacted snow and reduce the need for de-icing chemicals. Mechanical snow removal costs approximately 100 times more than trapping snow with fences.

Adoption of Abandoned Stormwater Management Facilities

Stormwater management facilities, such as stormwater management basins, grass swales and dry wells, are stormwater BMPs that are used to reduce flooding, improve stormwater runoff quality, promote

groundwater recharge or convey stormwater runoff. Stormwater management facilities are frequently used to comply with municipal, county or state design and performance standards.

After construction, ownership of stormwater management facilities is often transferred from the developer to a private owner such as a homeowner's association, a retail management company or a commercial facility. Often, private owners lack the knowledge, desire or funds to maintain stormwater runoff control facilities. Subsequently, the lack of maintenance results in decreased efficiency and other problems. This Optional Measure encourages the Tier A Municipality to take over the operation and maintenance of unmaintained stormwater management facilities.

Planting of Native Vegetation in Existing Landscapes

For new development and redevelopment projects, the Stormwater Management rules require low maintenance landscaping that encourages the retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides. The Department recommends that, as an Optional Measure, the Tier A Municipality incorporates these same concepts into its own existing developed areas and open space and provides incentives for other property owners to do the same. Planting native (or well-adapted) trees and shrubs in a watershed can help restore a healthy stream environment. Plantings help to improve local water quality by preventing erosion, slowing stormwater runoff and provide food and shelter for wildlife. New Jersey Watershed Ambassadors can help organize and implement volunteer plantings. Information on the New Jersey Watershed Ambassadors program may be found at http://www.nj.gov/dep/wms/bears/americorps.htm. For more information on landscaping and native species, see Chapter 7 of the New Jersey *Stormwater Best Management Practices Manual* available online at http://www.njstormwater.org/bmp_manual2.htm.

Road Erosion Control

New Jersey has approximately 35,600 miles of roads and more highways, per square mile, than any other state. Erosion along these streets, highways and other roads contributes suspended solids, sediment and other materials and pollutants to storm sewer systems and waterways.

Vegetative cover (including the root system) plays an important role in preventing erosion by:

- Shielding the soil surface from the impact of falling rain drops and flowing water;
- Reducing the velocity of runoff;
- Maintaining the soil's capacity to absorb water; and
- Holding soil particles in place.

In addition, vegetative cover may also be effective at removing heavy metals from runoff. However, relying upon vegetation to control erosion may require frequent monitoring, especially in the early stages when new vegetation is being established. Standards for vegetative cover, as well as other stabilization practices are found in the *Standards for Soil Erosion and Sediment Control in New Jersey* (N.J.A.C. 2:90-1), which can be found online at http://www.nj.gov/agriculture/divisions/anr/pdf/2014NJSoilErosionControlStandardsComplete.pdf.

Sedimentation or deposition of material eroded by runoff from roads and roadsides may have significant impacts on water quality, and when not maintained, roadside erosion can significantly contribute to the

pollutant loading of stormwater runoff. Sedimentation not only causes an increase of municipal costs for ditch, culvert and catch basin cleaning, it is also one of the major contributors of pollution to our nation's waters. Sedimentation can be lead to a decrease in water carrying and storage capacities of streams and reservoirs, as well as destroy fish and other aquatic habitats. For example, sedimentation can fill the pores between gravel and cobble stream bottoms, greatly decreasing the spawning areas for many fish species (including native trout) and the habitat for benthic macroinvertebrates, which serve as food for many fish species.

The Department is recommending that, as an Optional Measure, the Tier A Municipality develops a program to detect and repair erosion along the streets (including roads and highways) operated by the municipality and to regularly inspect and maintain the stability of shoulders, embankments, ditches and soils along these streets to ensure that they are not eroding and contributing to the sedimentation of receiving waters. This recommendation for road erosion control is limited to streets, shoulders, embankments, ditches and soils for which the Tier A Municipality has, alone or in conjunction with other persons or entities, primary management and operational decision-making authority. In some instances, these areas may not include the entire municipally owned right-of-way. Any repairs should be made in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey,* as referenced above.

Refuse Container/ Dumpster Ordinance

The way we design and maintain our dumpsters can have a direct effect on our storm sewers. During a rain storm, dumpsters with missing drain plugs, or rusted out areas, that have no lid or cover above, can discharge liquid onto the ground and into our storm sewers and waterways. The Department recommends that, as an Optional Measure, all refuse containers and dumpsters that are owned and operated by the Tier A Municipality be in good shape (no rusted-out bottoms) and have lids to ensure both that wind does not blow the contents out of the dumpsters onto the ground and that rain does not saturate the contents. It is essential to have working lids on dumpsters to keep stormwater from coming into contact with the source material, in this case, garbage, thereby adding to the pollutant loading to waters of the State.

Through an employee training program, employees responsible for the removal of garbage or other refuse can be trained to ensure that dumpsters owned, or in most cases leased by the Tier A Municipality, have the lids properly closed after the removal of garbage. In addition, the municipality can also implement a system where employees and/or civilians can report dumpsters that are not in working condition (missing or non-functioning lids), rusted (leaking) and overflowing (improperly sized dumpsters).

Digital Mapping

The Tier A MS4 NJPDES permit requires the Tier A Municipality to complete and maintain an outfall pipe map showing the location of the end of all MS4 outfall pipes, owned and operated by the Tier A Municipality, that discharge to a surface water body (e.g., a lake, ocean or stream, including an intermittent stream), as well as the location and name of the surface water bodies receiving discharges from MS4 outfall pipes.

To assist the Tier A Municipality with the required collection of location information of inspected facilities, the Department has developed a voluntary, free to use application, or "app." This application allows a permittee to inventory and map stormwater facilities at its convenience. The Department anticipates that the app will be expanded in future versions to allow the user to document additional information, including records of maintenance actions. When the expanded app is available, a permittee may be able

to use the app to demonstrate compliance with the maintenance requirement in the Tier A MS4 NJPDES permit. A permittee will need to possess an ArcGIS Online license to access this application. A permittee who currently possesses an ArcGIS Desktop License will have an ArcGIS Online license as part of that software package. The Department will provide complimentary licenses for use by each permittee, as well as training sessions for any permittee who requests.

The following is an example of the user interface that has been designed for this application.

1. The user can locate the required stormwater facilities ("features") through any of the following methods where one must be selected:

   - desktop collection;
   - mapping grade global positioning system (GPS);
   - mobile device;
   - mobile device GPS paired;
   - recreational grade GPS; and
   - survey grade GPS.

2. A description of the main features and basic attributes to be collected during the inventory process is as follows:

   - Outfall Pipes

     To collect outfall pipe information, the user must choose "outfall pipe" as the feature class so that the necessary attributes can be selected. The user can then choose the outfall pipe type, owner type and method of data collection. An example of how the attributes and domains for the outfall pipe feature class will appear are as follows in the table below:

Feature Class	Attribute	Domains
Outfall Pipe	Outfall Pipe ID	*DEP Generated*
	County	*DEP Generated*
	Municipality	*DEP Generated*
	Road Name	*DEP Generated*
	Owner Type	County
		Federal Government
		Municipality
		Private
		School District
		State
		Other

		Unknown
	Discharge Code	R9
		R10
		R11
		R12
	NJPDES No.	*DEP Generated*
	Outfall Type	Channelized flow
		Concrete headwall
		Ditch
		Flared end section
		Grass swale
		Pipe
		Pipe in headwall
		Other

- Stormwater Management Basin

To collect stormwater management basin information, the user must choose "stormwater management basin" as the feature class so that the necessary attributes can be selected. The user can then choose the stormwater management basin type, owner type and method of data collection.

- Subsurface Infiltration / Detention System

To collect subsurface infiltration/detention system information, the user must choose "subsurface infiltration/detention system" as the feature class so that the necessary attributes can be selected. The user can then choose the subsurface infiltration/detention system type, owner type and method of data collection.

- Manufactured Treatment Device

To collect manufactured treatment device information, the user must choose "manufactured treatment device" as the feature class so that the necessary attributes can be selected. The user can then choose the manufactured treatment device type, owner type and method of data collection.

- Green Infrastructure

To collect green infrastructure information, the user must choose "green infrastructure" as the feature class so that the necessary attributes can be selected. The user can then choose the green infrastructure type, owner type, and method of data collection.

- Storm Drain Inlet

To collect storm drain inlet information, the user must choose “storm drain inlet” as the feature class so that the necessary attributes can be selected. The user can then choose the inlet type, owner type and method of data collection.

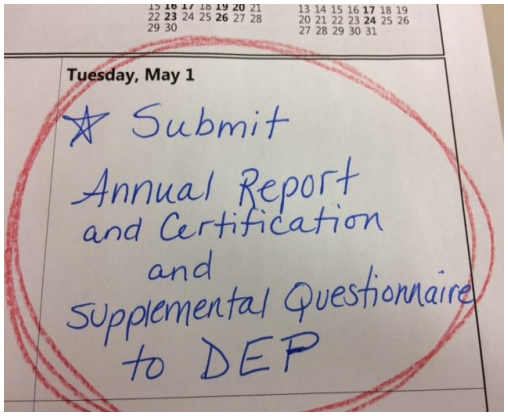
- Other Components

While creating an inventory using this application, the Tier A Municipality is strongly encouraged to capture additional information about components of the MS4 system in order to optimize operation and maintenance activities. This information is best managed using an electronic database; and, as previously noted, it is anticipated that future versions of this app will be expanded to accept more detailed information collection. Also, inspection notes, such as facility condition, maintenance activity, date of inspection, evidence of flooding and photographs can be tracked in a municipal stormwater database. This would be useful to the municipality and its Stormwater Coordinator for:

- overseeing and prioritizing operation and maintenance of its own infrastructure;
- ensuring proper operation and maintenance of infrastructure not owned or operated by the municipality; and
- collecting and reporting statistical information necessary to complete the Annual Report required by this Tier A MS4 NJPDES permit.

The Department is currently in the process of creating an in-depth guidance document for this MS4 mapping and inventory application that will help teach permittees how to use this application to its full potential. Please see http://www.nj.gov/dep/dwq/msrp_map_aid.htm for more information.

7 ANNUAL REPORT AND CERTIFICATION AND SUPPLEMENTAL QUESTIONNAIRE



The Tier A MS4 permit (Part IV, G) requires the municipality to submit an Annual Report and Certification summarizing the status of compliance with the permit. This Chapter includes updated instructions regarding the submission of the Annual Report and Certification and the Supplemental Questionnaire. Blank forms, a sample SPPP and other guidance documents may be downloaded from the Department's website for the Tier A permit located at http://www.nj.gov/dep/dwq/tier_a_guidance_other.htm.

The following items are addressed in this Chapter:

1. The Annual Report and Certification;
2. The Supplemental Questionnaire; and
3. Special instructions for illicit discharge investigations and close-outs.

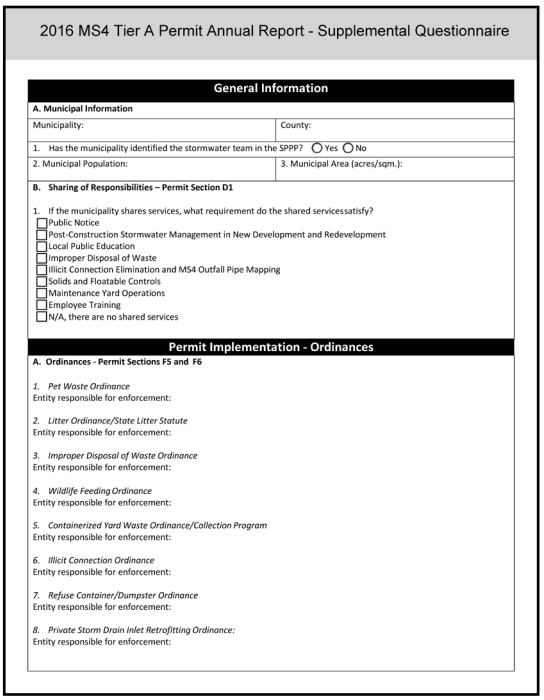
Annual Report and Certification			
Document Submittal Information			
Reports and Record-Keeping Forms	**Frequency**	**Deadline**	**Submission Method**
Annual Report and Certification	Every year	May 1st	On-line through http://www.njdeponline.com/
Supplemental Questionnaire	Every year	May 1st	Upload as attachment to Annual Report and Certification
Illicit Discharge Investigation Form	If investigation was conducted in prior year	May 1st	Upload as attachment to Annual Report and Certification
Illicit Discharge Close-out Form	If close-out was conducted in prior year	May 1st	Upload as attachment to Annual Report and Certification

Annual Report and Certification

The Tier A Municipality is required to submit an Annual Report and Certification and the Supplemental Questionnaire summarizing the status of compliance with its permit. These documents must be submitted using an electronic format provided by the Department via the MSRP Annual Report service that is accessed through the Regulatory Services Portal located at http://www.njdeponline.com/. The Department is not accepting hardcopies of the Annual Report and Certification and Supplemental Questionnaire. As noted in the table above, the Annual Report must be submitted electronically by May 1st of each year.

Supplemental Questionnaire

The Supplemental Questionnaire is a separate report that is required to be filled out by the municipality in conjunction with the Annual Report and submitted by May 1st of each year, as also stated in the above table. The information required in the Questionnaire asks for more details regarding the municipality's implementation of its stormwater program that includes but is not limited to its shared responsibilities, its ordinances and stormwater facilities. The Questionnaire cannot be accessed through the portal; however, it must be downloaded, completed and submitted in accordance with the instructions found at http://www.nj.gov/dep/dwq/pdf/ms4-2016-tiera-supp-quest.pdf. Below is an image of the Supplemental Questionnaire.



2016 MS4 Tier A Permit Annual Report - Supplemental Questionnaire

General Information

A. Municipal Information

Municipality:	County:
1. Has the municipality identified the stormwater team in the SPPP? ○ Yes ○ No	
2. Municipal Population:	3. Municipal Area (acres/sqm.):

B. Sharing of Responsibilities – Permit Section D1

1. If the municipality shares services, what requirement do the shared services satisfy?
- ☐ Public Notice
- ☐ Post-Construction Stormwater Management in New Development and Redevelopment
- ☐ Local Public Education
- ☐ Improper Disposal of Waste
- ☐ Illicit Connection Elimination and MS4 Outfall Pipe Mapping
- ☐ Solids and Floatable Controls
- ☐ Maintenance Yard Operations
- ☐ Employee Training
- ☐ N/A, there are no shared services

Permit Implementation - Ordinances

A. Ordinances - Permit Sections F5 and F6

1. *Pet Waste Ordinance*
Entity responsible for enforcement:

2. *Litter Ordinance/State Litter Statute*
Entity responsible for enforcement:

3. *Improper Disposal of Waste Ordinance*
Entity responsible for enforcement:

4. *Wildlife Feeding Ordinance*
Entity responsible for enforcement:

5. *Containerized Yard Waste Ordinance/Collection Program*
Entity responsible for enforcement:

6. *Illicit Connection Ordinance*
Entity responsible for enforcement:

7. *Refuse Container/Dumpster Ordinance*
Entity responsible for enforcement:

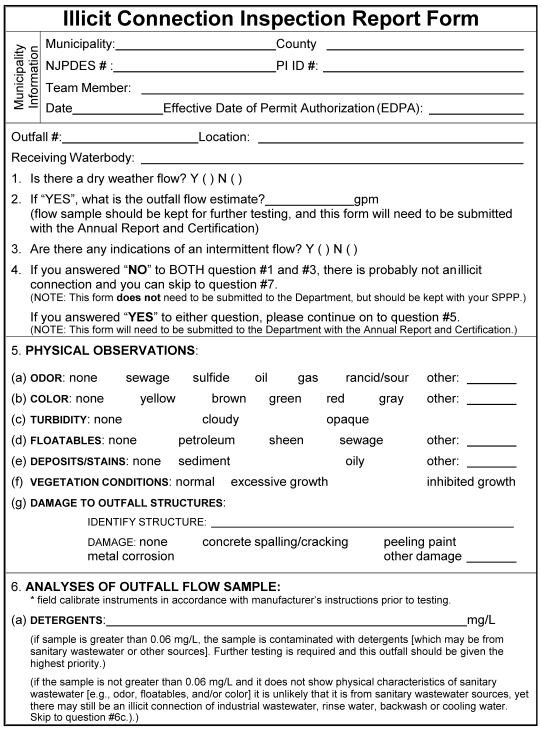
8. *Private Storm Drain Inlet Retrofitting Ordinance:*
Entity responsible for enforcement:

The Department is currently working on merging the Supplemental Questionnaire with the Annual Report. Refer to the Tier A website at http://www.nj.gov/dep/dwq/tier_a.htm for further details. The Municipal Stormwater Program Coordinator must complete and submit the Annual Report and Certification and Supplemental Questionnaire. The Coordinator is required to certify, sign and date the Annual Report on-line. Tutorials and Links to the Annual Report and Supplemental Questionnaire are posted at the website listed above.

Special Instructions for Illicit Connection Investigations and Close-Outs

If an investigation for an illicit connection was conducted, the submission of the Annual Report and Certification must include any illicit connection inspection forms. If an investigation was concluded, the close-out investigation form must also be submitted with the Annual Report and Certification. These forms may be downloaded from the Department website at http://www.nj.gov/dep/dwq/tier_a_forms.htm. These forms are shown, in part, below.

Illicit Connection Inspection Report and Close-out Investigation Forms



Illicit Connection Inspection Report Form

Municipality Information

Municipality:_____County _____

NJPDES # :_____PI ID #: _____

Team Member: _____

Date_____Effective Date of Permit Authorization (EDPA): _____

Outfall #:_____Location: _____

Receiving Waterbody: _____

1. Is there a dry weather flow? Y ( ) N ( )
2. If "YES", what is the outfall flow estimate?_____gpm
   (flow sample should be kept for further testing, and this form will need to be submitted with the Annual Report and Certification)
3. Are there any indications of an intermittent flow? Y ( ) N ( )
4. If you answered "**NO**" to BOTH question #1 and #3, there is probably not an illicit connection and you can skip to question #7.
   (NOTE: This form **does not** need to be submitted to the Department, but should be kept with your SPPP.)
   If you answered "**YES**" to either question, please continue on to question #5.
   (NOTE: This form will need to be submitted to the Department with the Annual Report and Certification.)

5. **PHYSICAL OBSERVATIONS**:

(a) **ODOR**: none sewage sulfide oil gas rancid/sour other: _____

(b) **COLOR**: none yellow brown green red gray other: _____

(c) **TURBIDITY**: none cloudy opaque

(d) **FLOATABLES**: none petroleum sheen sewage other: _____

(e) **DEPOSITS/STAINS**: none sediment oily other: _____

(f) **VEGETATION CONDITIONS**: normal excessive growth inhibited growth

(g) **DAMAGE TO OUTFALL STRUCTURES**:

IDENTIFY STRUCTURE: _____

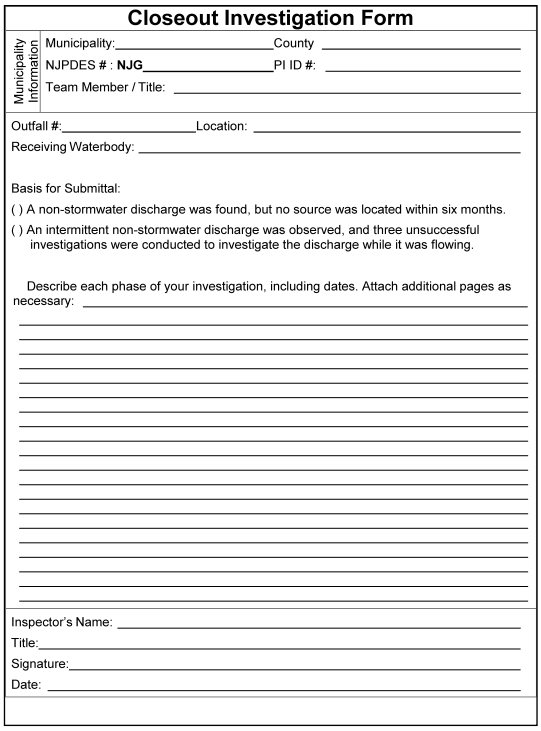
DAMAGE: none concrete spalling/cracking peeling paint
metal corrosion other damage _____

6. **ANALYSES OF OUTFALL FLOW SAMPLE:**
   * field calibrate instruments in accordance with manufacturer's instructions prior to testing.

(a) **DETERGENTS**:_____mg/L

(if sample is greater than 0.06 mg/L, the sample is contaminated with detergents [which may be from sanitary wastewater or other sources]. Further testing is required and this outfall should be given the highest priority.)

(if the sample is not greater than 0.06 mg/L and it does not show physical characteristics of sanitary wastewater [e.g., odor, floatables, and/or color] it is unlikely that it is from sanitary wastewater sources, yet there may still be an illicit connection of industrial wastewater, rinse water, backwash or cooling water. Skip to question #6c.).)



Closeout Investigation Form

Municipality Information

Municipality:_____County _____

NJPDES # : **NJG**_____PI ID #: _____

Team Member / Title: _____

Outfall #:_____Location: _____

Receiving Waterbody: _____

Basis for Submittal:

( ) A non-stormwater discharge was found, but no source was located within six months.

( ) An intermittent non-stormwater discharge was observed, and three unsuccessful investigations were conducted to investigate the discharge while it was flowing.

Describe each phase of your investigation, including dates. Attach additional pages as necessary: _____

Inspector's Name: _____

Title:_____

Signature:_____

Date: _____