

# Stormwater Management - Basic Overview for Municipal Employees

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# What Is Stormwater?

Stormwater is rainwater or melting snow that doesn't soak into the ground but runs off into waterways.



# It all starts with Stormwater Runoff

Stormwater flows from rooftops, over paved areas, bare soil and lawns – it picks up litter, sediment, pesticides, fertilizers, chemicals from automobiles, bacteria from animal waste and other pollutants.



# Why is Stormwater a Concern?

Untreated stormwater runoff can create significant environmental and public health and safety problems.



Polluted runoff is one of the Nation's greatest threats to clean water

# NY's Water Impairments due to Stormwater

**1970** miles of impaired  
streams and rivers

**244** square miles of lakes and  
reservoirs

**725** square miles of estuaries

Source: 2008 NYS DEC 305(b) report



# Linking Stormwater Runoff to Construction:

1 acre of land cleared for development → 10 tons of eroded sediment per year

1 acre of impervious cover → 1 million gallons of runoff per year

The U.S. loses 600 million tons of sediment per year. That is enough to cover more than 400 football fields per day to a depth of 1 foot.



# Stormwater Impacts from Erosion and Sedimentation

Property Damage  
Damage to Roads, Bridges  
and Infrastructure  
Beach & Shellfishing  
Closures



Loss of Aquatic Habitat  
Drinking Water Contamination  
Streambank Erosion

# Benefits of Stormwater Management

- Protect drinking water supplies & recreational waterways
- Reduce impacts to aquatic resources
- Enhance property values
- Improve quality of life
- Infrastructure protection
- Savings from loss prevention





# Regulatory History: EPA Stormwater Program

- Mandated by the US Environmental Protection Agency (EPA)
  - Required by the 1987 Amendments to Clean Water Act
- Implemented in NYS by DEC and regulated municipalities
- NYS DEC issued “General Permits” to regulate stormwater discharges from construction sites and municipalities

# NY State Pollutant Discharge Elimination System (SPDES) General Stormwater Permits

## **GP-0-08-001**

SPDES General Permit for Stormwater Discharges from Construction Activity

**Regulates Construction Activities that disturb 1 acre or more of land**

## **GP-0-08-002**

SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (*MS4s*)

**Regulates MS4s located in “urbanized areas”**

# Municipal Separate Storm Sewer System (“MS4”)

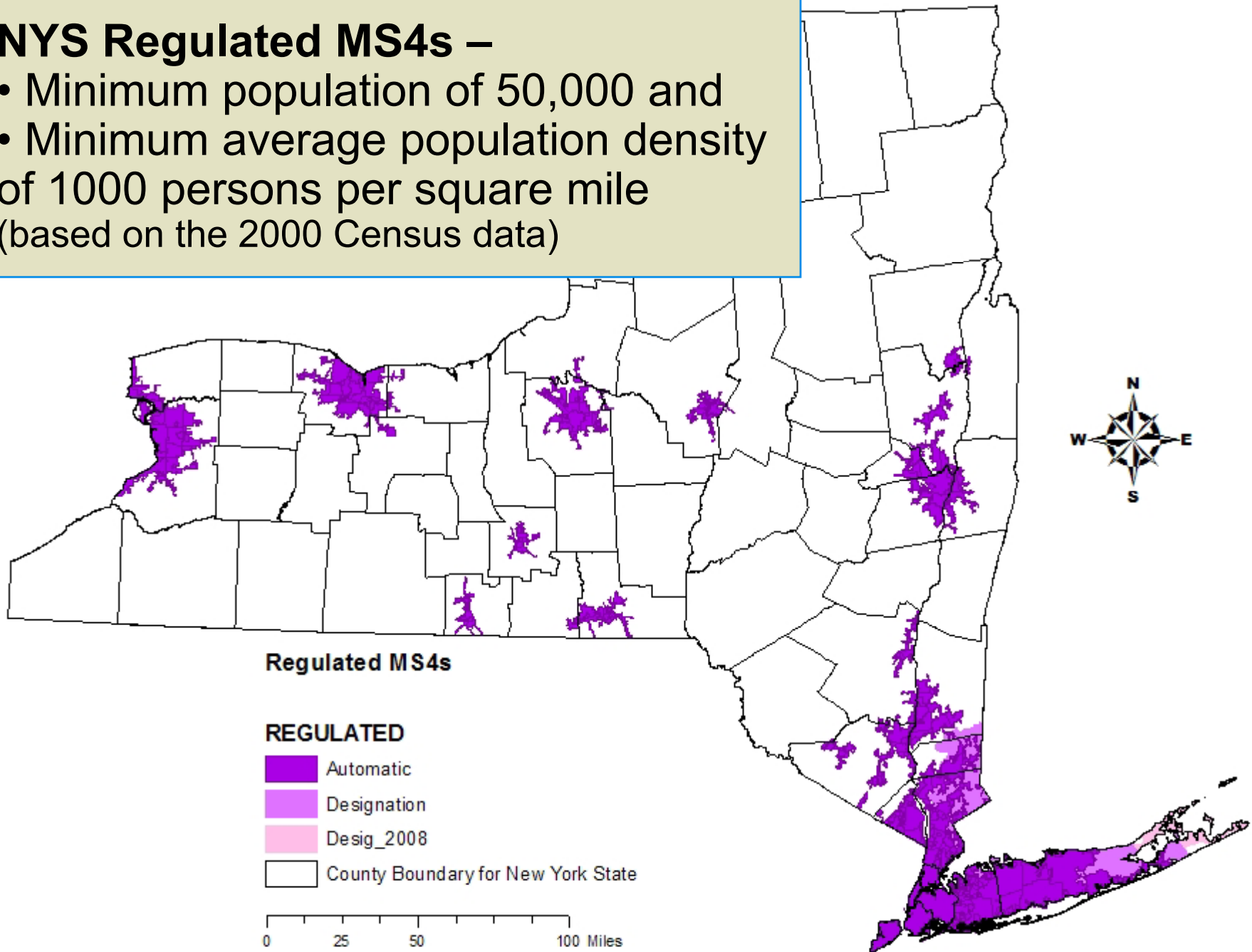
A conveyance or system of conveyances owned by a State, City, Town, Village, or other public entity that discharges to the Waters of the United States and is:

- designed or used to collect or convey stormwater (includes gutters, pipes, ditches)
- not a combined sewer
- not part of a Publicly Owned Treatment Works (i.e. sewage treatment plant)



## NYS Regulated MS4s –

- Minimum population of 50,000 and
- Minimum average population density of 1000 persons per square mile (based on the 2000 Census data)



# MS4 Program Requirements

MS4 operators must implement a Stormwater Management **Program** (SWMP) that:

- Contains the six Minimum Control Measures (MCM)
- Lists the approved Best Management Practices (BMPs)
- Sets measurable goals for each minimum control measure
- Provides for annual reporting (Annual Report and Municipal Compliance Certification due June 1)
- Covers the area draining to MS4 or “Waters of the United States” (*surface waters*)
- is developed, implemented and enforced to reduce stormwater pollutants to Maximum Extent Practicable (MEP)

# Regulated MS4 Stormwater Management Program

## 6 Minimum Control Measures

1. Public education and outreach
2. Public participation & involvement
3. Illicit discharge detection and elimination
4. **Construction site runoff control**
5. **Post-construction site runoff control**
6. *Pollution prevention & good housekeeping of municipal operations*



# MS4 Permit GP-0-08-002 Requirements

## 6. Pollution Prevention/Good Housekeeping For Municipal Operations - SWMP Development / Implementation

At a minimum, all *permittees* must:

a. *Develop and implement a pollution prevention / good housekeeping program* for *municipal* operations and facilities that:

i. addresses *municipal* operations and facilities that contribute or potentially contribute *POCs* to the *small MS4* system. The operations and facilities may include, but are not limited to: *street and bridge maintenance; winter road maintenance; stormwater system maintenance; vehicle and fleet maintenance; park and open space maintenance; municipal building maintenance; solid waste management; new construction and land disturbances; right-of-way maintenance; marine operations; hydrologic habitat modification; or other;*

ii. at a minimum frequency of once every three years, *perform a self assessment* of all *municipal* operations addressed by the SWMP to:

- determine the sources of pollutants potentially generated by the *permittee's* operations and facilities; and
- identify the *municipal* operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it is not done already;

iii. determines *management practices*, policies, procedures, etc. that will be *developed* and *implemented* to reduce or prevent the discharge of (potential) pollutants. Refer to management practices identified in the “NYS Pollution Prevention and Good Housekeeping Assistance Document” and other guidance materials available from the EPA, *State*, or other organizations;

iv. prioritizes pollution prevention and good housekeeping efforts based on geographic area, potential to improve water quality, facilities or operations most in need of modification or improvement, and *permittee's* capabilities;

v. addresses pollution prevention and good housekeeping priorities;

vi. includes an employee pollution prevention and good housekeeping training program and ensures that staff receive and utilize training;

vii. requires third party entities performing contracted services, including but not limited to street sweeping, snow removal, lawn / grounds care, etc., to meet permit requirements as the requirements apply to the activity performed ; and

viii. requires *municipal* operations and facilities that would otherwise be subject to the NYS Multisector General Permit (MSGP, GP-0-06-002) for industrial stormwater discharges to prepare and *implement* provisions in the SWMP that comply with Parts III. A, C, D, J, K and L of the MSGP. The permittee must also perform monitoring and record keeping in accordance with Part IV. of the MSGP. Discharge monitoring reports must be attached to MS4 annual report. Those operations or facilities are not required to gain coverage under the MSGP. *Implementation* of the above noted provisions of the SWMP will ensure that MEP is met for discharges from those facilities;

b. *Develop*, record, periodically assess and modify as needed measurable goals; and

c. Select appropriate pollution prevention and good housekeeping *BMPs* and *measurable goals* to ensure the reduction of all *POCs* in *stormwater discharges* to the *MEP*.



## Required SWMP Reporting

d. **Program implementation reporting** for continuing *permittees* (authorized under GP-02-02). *Permittees* are required to report on all *municipal* operations and facilities within their jurisdiction (*urbanized area* and *additionally designated area*) that their program is addressing. The *permittee* shall report at a minimum on the items below:

i. indicate the *municipal* operations and facilities that the pollution prevention and good housekeeping program assessed;

ii. describe, if not done so already, the management practices, policies and procedures that have been developed, modified, and / or implemented and report, at a minimum, on the items below that the *permittee's* pollution prevention and good housekeeping program addressed during the reporting year:

- acres of parking lot swept;
- miles of street swept;
- number of catch basins inspected and, where necessary, cleaned;
- post-construction control stormwater management practices inspected and, where necessary, cleaned;
- pounds of phosphorus applied in chemical fertilizer
- pounds of nitrogen applied in chemical fertilizer; and
- pounds of pesticides / herbicides applied as pure product.

iii. **staff training events and number of staff trained**; and

iv. report on effectiveness of program, *BMP* and *measurable goal* assessment. If the pollution prevention and good housekeeping program addresses other operations than what is listed above in Part VII.A.6.a(ii), the *permittee* shall report on items that will demonstrate program effectiveness.

# What does MCM #6: Pollution Prevention/Good Housekeeping really mean?

- Develop and implement a program to reduce/eliminate pollutant runoff from municipal operations including:
  - Stormwater system maintenance and retrofits
  - Waste transfer facilities
  - Park and open space management
  - Building and fleet maintenance
  - Road construction and maintenance
  - Restoration/protection of stream buffers and wetlands
- Municipal program must consider :
  - Maintenance activities and schedules
  - Procedures for proper disposal of storm drain waste materials
  - Inspection procedures for controls to reduce floatables and other pollutants
  - Training for employees

# Measurable Goals

- Each *Minimum Control Measure* must be accompanied by at least one goal that is quantifiable in some way, for example:
  - Tons of soil removed from street sweeping
  - Reduce number of beach closures
  - Miles of stream buffer protected
  - Illicit discharges removed
  - Training sessions for employees
  - Adopt laws, ordinances and regulations
  - Review of construction permits and site plans
  - Reduce impervious surfaces in new development



Measurable Goals document annual progress toward full implementation of the SWMP

# Management Practices under each MCM

- Each MCM has a minimum list of MPs *required* by GP-02-02 and 40 CFR 122.34 (b)
- Required practices for each MCM are indicated by **bold-face type** on the NOI
- Additional practices *may be needed* to meet the MEP requirements for the MS4's SWMP

Note: Each MS4 (municipality) submitted an NOI to the DEC with the specific items identified

# Notice of Intent for Coverage Under an SPDES General Permit for Storm Water Discharges From MS4s

## Section C. Initial Identification of Management Practices

### 6. Pollution Prevention/Good Housekeeping for Municipal Operations

#### Program Requirements

- Prevent discharge of pollutants from municipal operations (required)**
- Follow DEC NPS Management Practices Catalog, or equivalent (required)**
- Conduct employee pollution prevention training (required)**

#### Management Practices

- Street cleaning
- Catch basin and storm drain system cleaning
- Alternative discharge options for chlorinated water
- Vehicle maintenance and washing
- Hazardous and waste materials management
- Landscaping and lawn care
- Integrated Pest Management (IPM)
- Marina Management
- Road salt storage
- Roadway and bridge maintenance
- Municipally-owned septic system management
- Spill response and prevention
- Others:

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# Additional Areas of Concern ?

- Salt and Sand Storage
- Floor Drains
- Vehicle Washing
- Vehicle Maintenance
- Other DEC Permits (Art. 15 & 24, PBS)
- Construction activities



# Phase II Construction Stormwater Permit GP-0-08-001

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# Phase II Stormwater Construction Permit

## Who Needs a Permit?

- Activities disturbing **1 acre or more of soil** (about **208' x 208'**)
- Even if the soil is not all exposed at the same time
- Including single-family homes in subdivisions
- Sometimes smaller projects, in protected watersheds or sensitive areas





# Soil Disturbing Activities Requiring Permit Coverage

- Grading
- Excavating
- Filling
- Soil Stockpiling
- Demolition\*
- Clear-cutting\*
- Grubbing and Stump Removal\*
- Construction



*\* If done in preparation for construction, these activities require a permit*

# Construction Permit Exemptions


- Road ditch cleaning and shaping to improve water quantity
- Stone road shoulder replacement
- Resurfacing of roadways and gravel road maintenance
- Road paving and routine maintenance without disturbing stone sub-base (bottom 6" of sub-base must remain undisturbed)
- Sediment removal to restore sheet flow drainage at the edge of highway
- Agricultural Field Activities
- Some Silvicultural Activities



# TMDL Watershed Improvement Strategies

- Specific Deadlines
- Other than Specific Deadlines – 3 year Compliance Schedule

# Onondaga Lake Watershed Improvement Strategy

- Local SWPPPs Prepared & Reviewed Using Enhanced Phosphorus Removal Standards (Chapter 10 of NYS Stormwater Design Manual) by 9/30/2008
  - Watershed Based Retrofit plan and schedule by 3/9/2011
    - Retrofits are treatment or other loading reductions implemented in the absence of site construction.
  - Targeted Education and Outreach
- 

# Onondaga Lake Watershed



\* All projects within the watershed will need more land for stormwater management!

# Enhanced Phosphorus Removal Standards (Chapter 10)

- Onondaga Lake Watershed in Region 7
  - SWPPPs must include post construction SMPs designed in conformance with the EPRS (Chapter 10)
  - Emphasize source controls such as Better Site Design
  - Runoff volume from 1 year-24 hour storm for WQ(v) – resulting in ponds that will be much larger than before!
- Effective 9/30/08
  - All NOIs received after 9/30/08 must include new design standard
  - Regulated MS4s must know the EPRS design standard when they review SWPPPs

# *Even if a project doesn't need any permits it can cause a water quality violation*

All site operators and contractors should:

- Take all reasonable steps to prevent unpermitted discharges
- Practice erosion and sediment control and “good housekeeping”



**Turbidity Violation:**  
A “substantial visible  
contrast to natural conditions”  
Subject to Penalties up to  
\$37,500 per violation per day

# DEC Guidance

## Municipal Pollution Prevention And Good Housekeeping Program Assistance

May 2006

[ftp://ftp.dec.state.ny.us/dow/stormdocuments/ms4/pollution\\_prevention\\_and\\_good\\_housekeeping/](ftp://ftp.dec.state.ny.us/dow/stormdocuments/ms4/pollution_prevention_and_good_housekeeping/)

**Municipal Pollution Prevention  
And  
Good Housekeeping Program Assistance**

May 2006



Denise M. Sheehan, Commissioner  
NYS Department of Environmental  
Conservation

George Pataki, Governor  
State of New York



# Technical Assistance

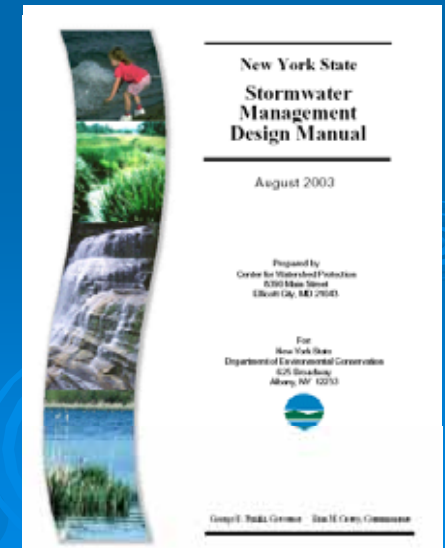
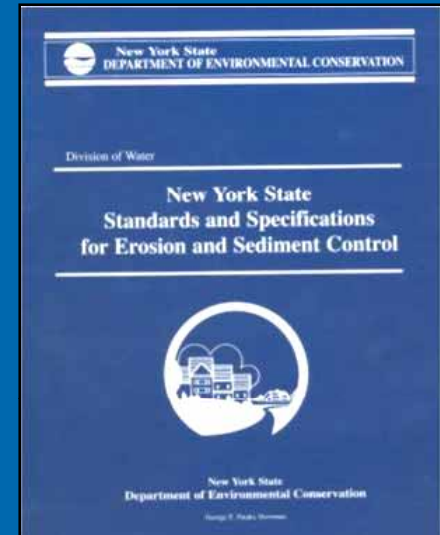
DEC and SWCD staff provide technical assistance on the Construction and MS4 Permits and the development and proper implementation of Stormwater Pollution Prevention Plans

- **DEC Division of Water Stormwater Web Page**  
<http://www.dec.ny.gov/chemical/8468.html>
- **County Soil and Water Conservation Districts**  
<http://www.nyacd.org/districts.html>
- **EPA Stormwater Homepage**  
[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6)

# Stormwater Management Design Standards

- ***New York State Standards and Specifications for Erosion and Sediment Control*** (“Blue Book”)  
Current Version: 2005
- ***New York State Stormwater Management Design Manual***  
Current Version: April 2008  
Includes Chapters 9 and 10

*Both documents available on DEC website*  
<http://www.dec.ny.gov/chemical/8694.html>



# Questions?



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