

# UNDERSTANDING MS4

**Identifying the problems and tackling the solutions  
for Municipal Stormwater Management**



## **So many acronyms**

**CWA : Clean Water Act**

**NPDES : National Pollutant Discharge Elimination System**

**MS4 : Municipal Separate Storm Sewer System**

**PAG-13 : Pennsylvania General Permit**

**SWMP : Stormwater Management Plan**

**MCM : Minimum Control Measures**

**BMP : Best Management Practices**

**TMDL : Total Maximum Daily Load**

**WLA: Waste Load Allocation**



# What is MS4?

**Municipal Separate Storm Sewer System**



## What is MS4?

Municipal	Separate	Storm Sewer System
System owned or operated by a public agency, such as a city, town, county, flood control district, state, or federal agency	Does <i>not</i> connect to the sanitary sewer system and does <i>not</i> lead to a wastewater treatment plant	Drains, ditches, curbs, and gutters that move stormwater from one place to another

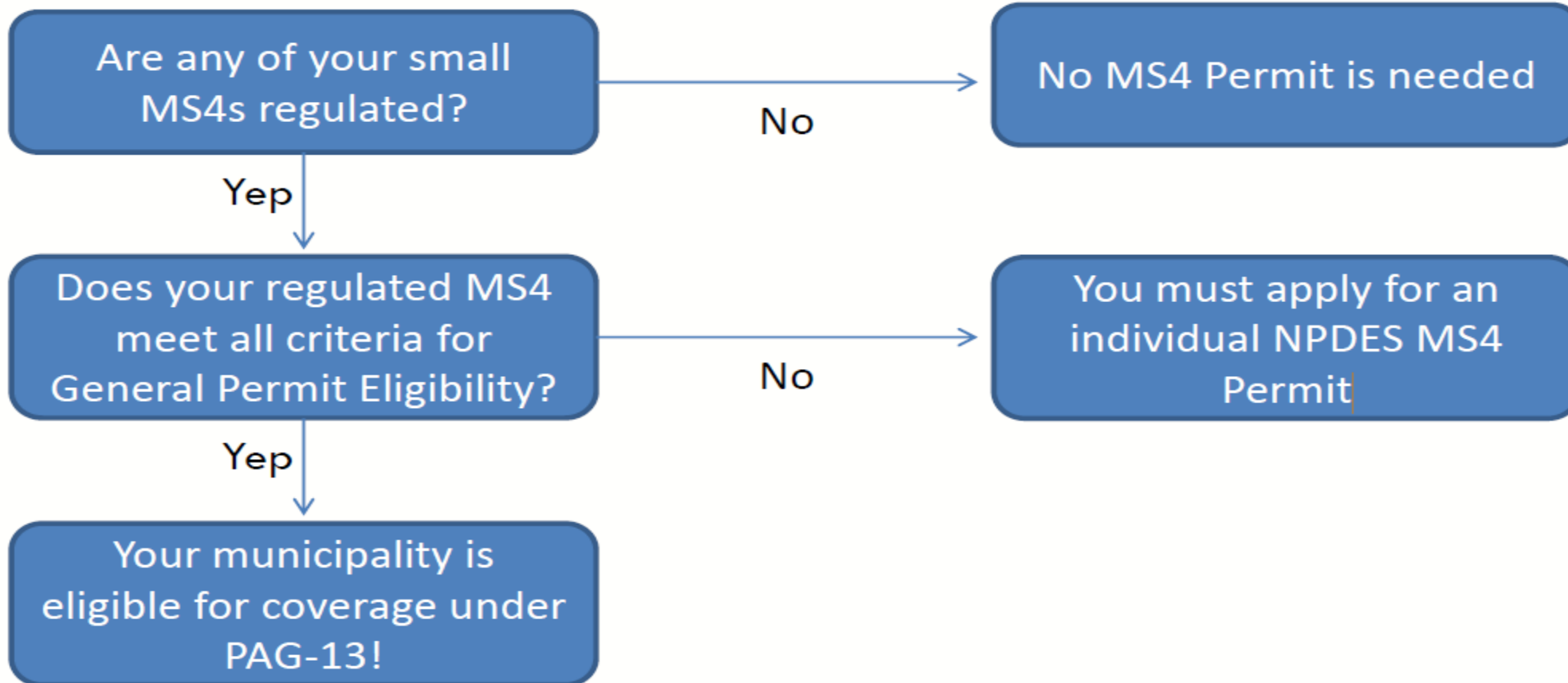


## Why Does My Municipality Need to Submit a Stormwater Permit?

- **Owns and operates a municipal separate storm sewer system**
- **Located within Urbanized Area defined by US Census Data**

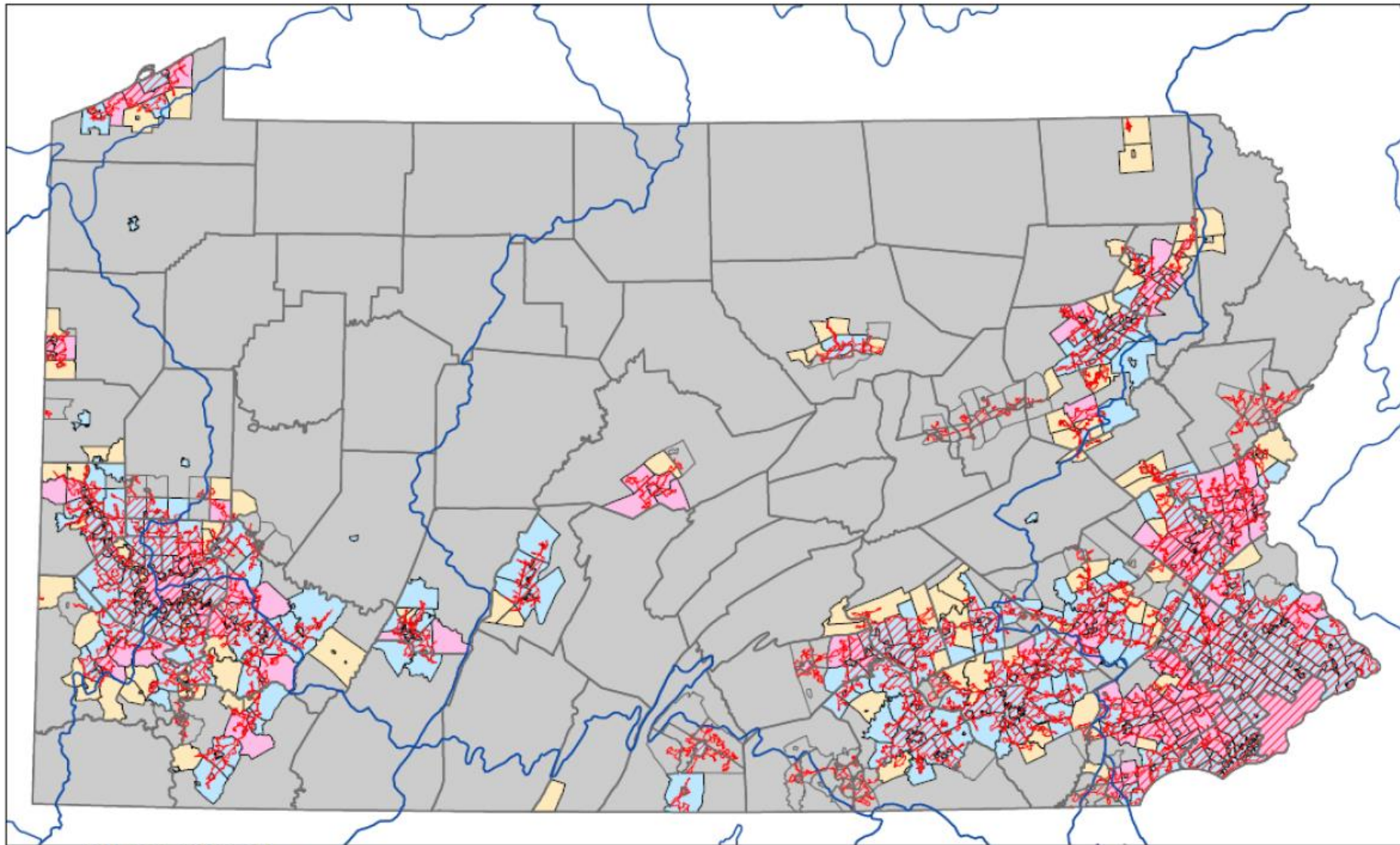
# The Permit Process

Is my municipality eligible for coverage under PAG-13?





# PA MS4 Communities



MS4 Municipalities / 2010 Urbanized Areas

Permit Status as of May 2012

General	Municipalities	2010 Urbanized Area
Individual	County Boundaries	Major Watershed Boundary
Waiver		

0 15 30 60 90 120 Miles



# Little Bit of History

## 1972 Clean Water Act

Regulate pollutants discharged into water

Implement pollution control programs

Fund sewage treatment plant construction under the construction grants program

Recognized the need for planning





# Pennsylvania Water Quality

- **86,000** Stream miles
  - **83,438**  
Assessed Aquatic Life
  - **16,000 (19%)**  
Impaired
  - **5,000**  
Assessed Recreation
  - **1,800 (36%)** –  
Impaired

## ALU Sources

- Agriculture
- AMD
- Urban Runoff

## Causes

- Siltation
- Metals
- pH
- Nutrients
- Water  
Flow/Variability

# Federal Regulation Time Line

**1972**

Clean Water Act

**1990**

NPDES Ph 1 – medium  
to large cities – CSO

**1987**

Section 319  
establishes National  
program to control  
NPS pollution and  
grants

**1999**

NPDES Ph 2 – MS4  
(municipal separate  
storm sewer systems )  
– townships/boroughs



# Pennsylvania Regulation Time Line

**2002**

PA issues first Phase 2  
(Municipal Stormwater  
Separate Storm Sewer  
System) **permits**

**2012**

**946 Permits  
Submitted**

**2011**

PA updates Phase 2 General  
Permit (PAG-13)

**2013**

PA continues to  
review permits





# The Permit Process

**Municipalities are required to submit a Notice of Intent (NOI)**

- 1.) Multi-Municipal Joint Application
- 2.) MS4 Operator Information
- 3.) Urbanized Area Information
- 4.) Description of Receiving Waters
- 5.) **Stormwater Management Program Plan**

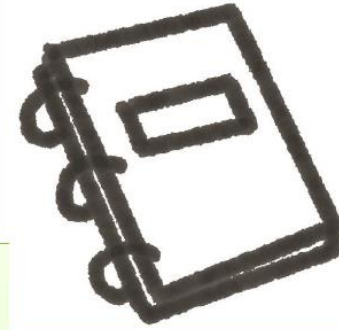


**NOIs have a timeline of 5 years**



## The Permit Process

### Stormwater Management Program Plans must:



- Contain measurable goals for the six Minimum Control Measures or MCMs
- Contain Specific Activities to meet goals for each MCM
- Enact or implement either:
  - An MS4 Stormwater Management Ordinance
  - An ordinance that satisfies an MS4 Stormwater Management Ordinance Checklist
- Submit a Total Maximum Daily Load Plan if applicable



# Permit Responsibilities

## Every MCM has its actions

### 1. Public education and outreach

Educate the community on the pollution potential of common activities

Increase awareness of links between land activities, and local water resources

Give the public specific actions that reduce stormwater pollution-potential



**Create a plan**

**ID audiences (business, homeowners, schools)**

**Newsletter**

**Distribute educational materials**



# Permit Responsibilities

**Every MCM has its actions**

## **2. Public involvement and participation**

Facilitate opportunities for direct action and volunteer programs

Establish watershed groups and conservation corps teams

Develop citizen positions on a local stormwater management panel



**Develop written program**

**Public review of ordinances**

**Involve target audiences**



# Responsibilities

**Every MCM has its actions**

## **3. Illicit discharge detection**

Develop a storm sewer system map

Develop an ordinance prohibiting illicit discharges

Create a plan to detect and address these illicit discharges

Start an education program on the hazards associated with illicit discharges





# Responsibilities

**Every MCM has its actions**

## **4. Construction site runoff control**

Develop requirements to implement erosion and sediment control BMPs

Establish ordinances and procedures for reviewing construction site plans

Establish procedures for inspections and enforcement of stormwater requirements at construction sites.





# Responsibilities

**Every MCM has its BMPs**

## **5. Post-construction SWM**

Create strategies to implement a combination of structural and non-structural BMPs

Develop an ordinance to address post-construction runoff at new developments

Establish a program to ensure adequate long-term operation and maintenance





# Responsibilities

Every MCM has its actions

## 6. Pollution Prevention

Develop inspection and maintenance procedures and schedules for SWM BMPs

Treat pollutants from transportation infrastructure, waste transfer stations, etc.

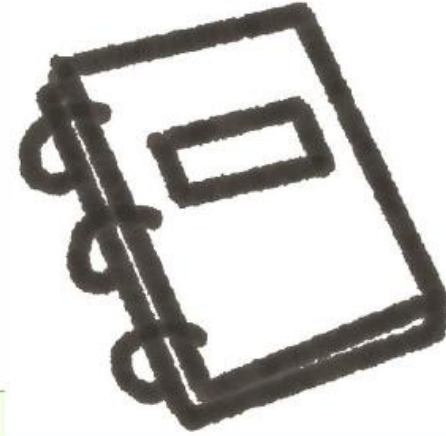
Establish procedures for properly disposing of pollutants removed from the MS4

Identify ways to incorporate water quality controls into flood management projects.



# The Permit Process

## Stormwater Management Program Plans must:



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- Contain actions for each MCM
- Enact or implement either:
  - An MS4 Stormwater Management Ordinance
  - An ordinance that satisfies an MS4 Stormwater Management Ordinance Checklist
- **Submit a Total Maximum Daily Load Plan if applicable**





# Total Maximum Daily Loads

- Maximum amount of pollution that a water body can receive and still meet water quality standards

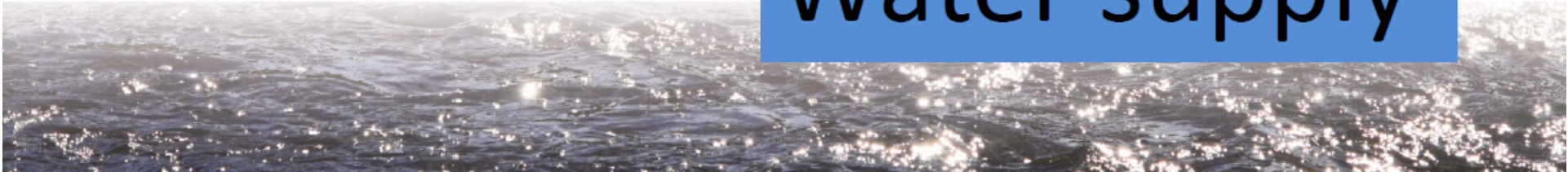
## Designated Uses

Agriculture

Aquatic life

Recreation

Water supply



# Total Maximum Daily Load

- Municipalities with impaired streams are required to reduce pollution to meet a TMDL standard
- Tool to address past impacts



Wissahickon has sediment TMDL:

- Munics submit **TMDL Plan** with MS4 permit
- Show measureable progress (i.e. lbs. sediment/year reductions)
- Control measures: riparian forest buffers, tree planting, stormwater basin retrofits, restored stream bank....



Questions?

