

# MS4 Stormwater Compliance Training

TOWN OF PLYMOUTH, MA  
IDDE PROGRAM

## Key Words

**Catch Basin** - A catch basin is a curbside drain with the sole function of collecting rainwater from properties and streets and transporting it to local waterways through a system of underground piping, culverts and/or drainage ditches. Catch basins can also be found in parking lots and serve the same purpose.



Example of a Catch Basin

Image source: [https://live.staticflickr.com/4319/35835256210\\_5476a106ac\\_b.jpg](https://live.staticflickr.com/4319/35835256210_5476a106ac_b.jpg)

**Best Management Practices (BMPs)** – schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants into bodies of water in the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Total Maximum Daily Loads (TMDLs)** - A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

## What is Stormwater Runoff?

Stormwater runoff is what is generated when precipitation from rain and snowmelt flows over land and does not soak into the ground. As runoff flows over impervious surfaces (paved streets, parking lots, and building rooftops), it accumulates debris, oil, pet waste, chemicals, sediment or other pollutants that could adversely affect the quality of nearby waterways if untreated.

Pollutants in stormwater is a major cause of :

1. Impairment of water quality and flow in local waters
2. Contamination of drinking water supplies
3. Alteration or destruction of aquatic and wildlife habitat

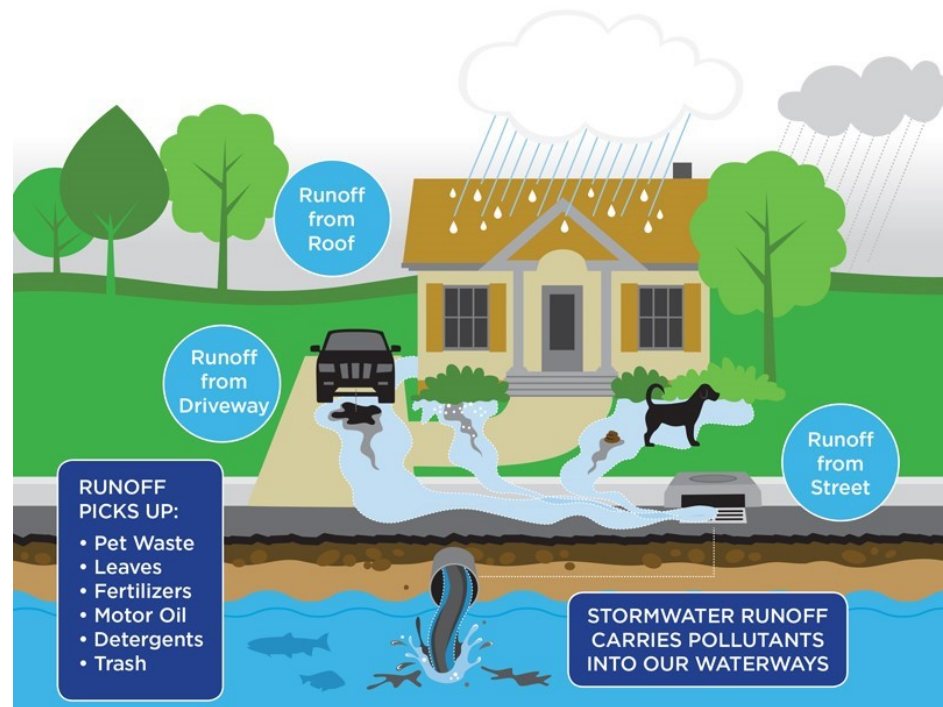


Image: <https://www.townofmaynard-ma.gov/wp-content/uploads/2018/06/stormwater-diagram.jpg>

## What is MS4?

Municipal Separate Storm Sewer System Regulation (**MS4**) is a conveyance or system of conveyances that is

- Owned by a state, city, town, village or other public entity
- Designed to collect and convey stormwater (e.g., storm drains, catch basins, pipes, outfalls, culverts)
- Not a combined sewer
- Not part of a sewage treatment plant, or publicly owned treatment works

### **Massachusetts MS4 Permit:**

Regulates the discharges of stormwater to protect water resources. The MS4 Program is administered by the USEPA in Massachusetts

## History of Stormwater Regulation

- 1948 - Federal Water Pollution Act
- 1972 - Clean Water Act
- 2003 - EPA issued Final General Permit for Stormwater Discharges From Small MS4 to focus on water quality with the goal to reduce erosion, sedimentation, and scour as well as eliminate cross connections
  - Covers - “traditional” (cities and towns) and non-traditional (Federal and State agencies) MS4 Operators
- 2018 - EPA issues 2016 MS4 General Permit (Effective in 2018)



## Storm Water Management Plan (SWMP)

The SWMP details the activities and measures that will be implemented to meet the terms and conditions of the permit.

The main elements of the Storm Water Management Program are

1. 6 Minimum Control Measures (MCMs) -Specific actions to reduce pollutant loading

- i. MCM1: Public Education and Outreach
- ii. MCM2: Public Involvement and Participation
- iii. MCM3: Illicit Discharge Detection and Elimination
- iv. MCM4: Construction Site Runoff Control
- v. MCM5: Post Construction Stormwater Management
- vi. MCM6: Pollution Prevention and Good Housekeeping for Municipal Operations

2. Water Quality Based Effluent Limitations -Specifies the requirements to achieve approved Total Maximum Daily Loads (TMDL's)

- i. Nitrogen
- ii. Phosphorous
- iii. Metals
- iv. Solids
- v. Bacteria or pathogens
- vi. Chloride
- vii. Oil and Grease

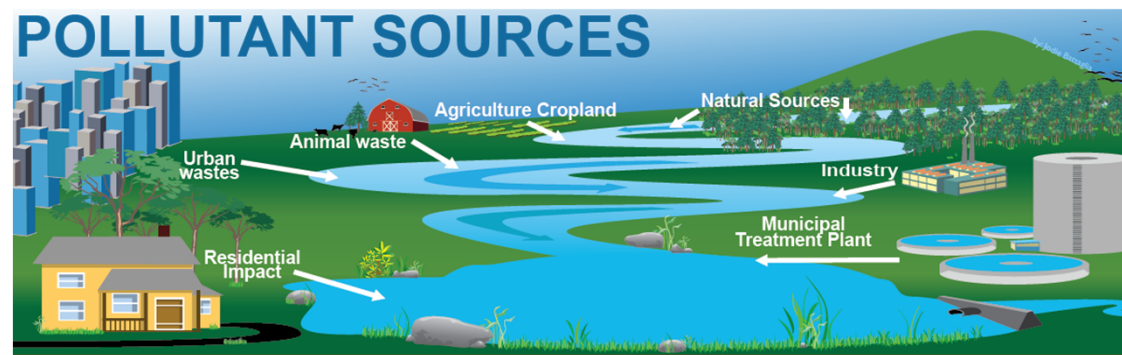


Image source: <https://www.state.nj.us/dep/wms/bears/images/tmdl-main.png>

## 1. MCM1 : Public Outreach

Focused messages aimed at different audiences.

### 1. Residential

- Do not dump oil in catch basins;
- Wash cars on grass and
- Pick up after your dog

### 2. Commercial

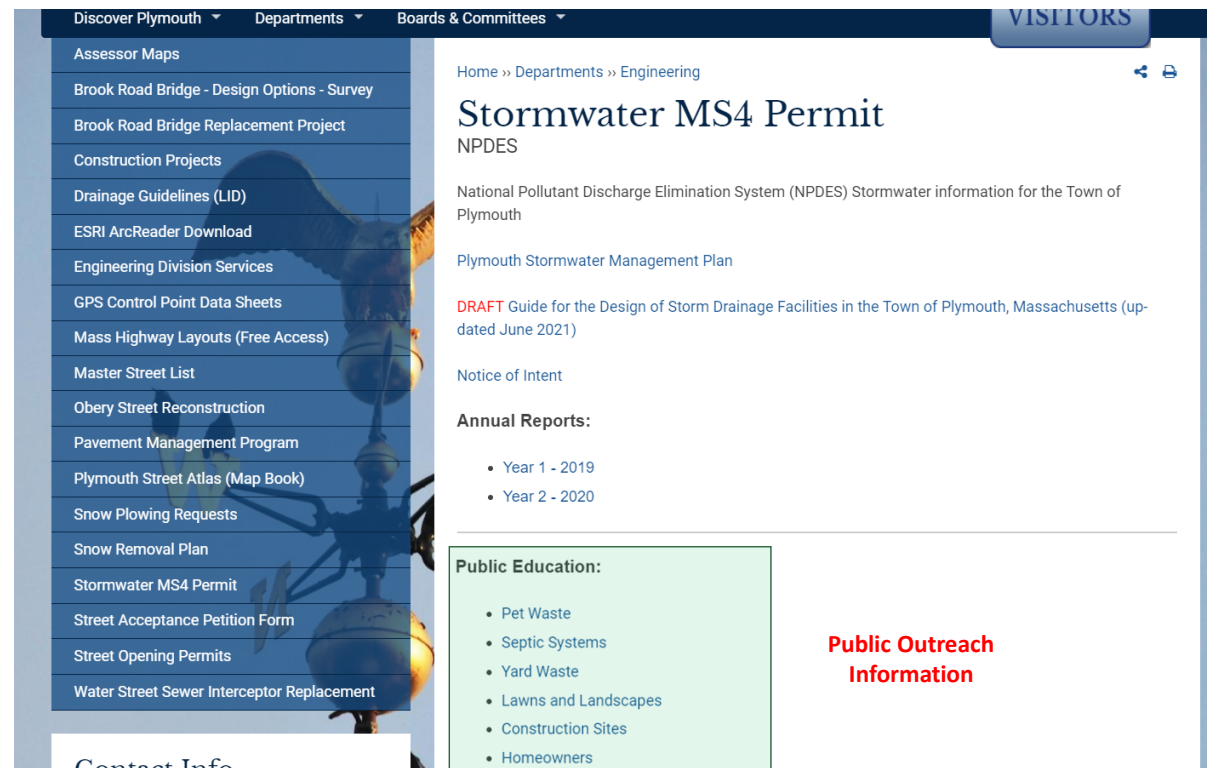
- Salt Application
- Catch Basin Maintenance
- Materials Storage

### 3. Construction

- Parking Lot Maintenance
- IDDE
- Materials Storage

### 4. Industrial

- Regulated under MS General Permit
- Materials storage



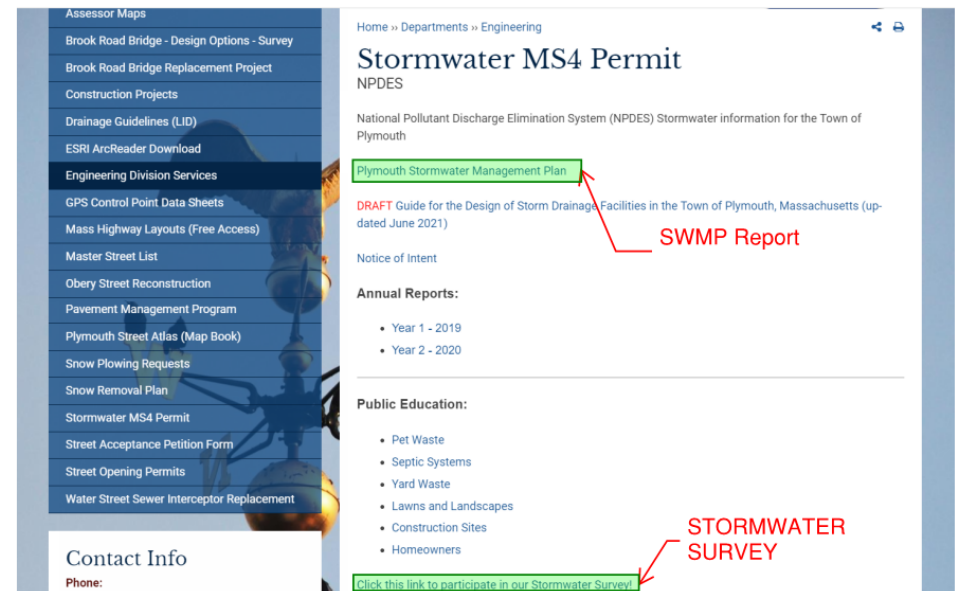
## 2. MCM2 : Public Improvement/Participation

The public are stakeholders in the community's water quality, this measure facilitates a forum for the public to participate in the review and implementation of the SWMP

You can find the information on the Town Of Plymouth Webpage under **Engineering** → **Stormwater MS4 Permit**  
<https://www.plymouth-ma.gov/engineering/pages/stormwater-ms4-permit>

Public Involvement includes:

- Public Review of SWMP
- All reports made available for public for **review** and **comment**





### 3. MCM 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

An **illicit discharge** is any discharge to a municipal separate sewer that is not composed entirely of stormwater, except discharges pursuant to a NPDES Permit and discharges resulting from firefighting activities

- Direct:- Sewage, Industrial, Commercial cross-connection, Direct pipe
- Indirect:- Groundwater seepage, Spills, Dumping, Outdoor washing activities

Municipalities are required to find and eliminate sources of non-stormwater from their storm sewer system.



#### **Illicit Discharges are:**

- Sand, Salt, and soils
- Garbage, litter and floatable
- Sewage, fecal coliform, pathogens
- Animal waste
- Paints, varnishes, and solvents
- Oil and automotive fluids
- Nonhazardous liquid, solid waste and yard waste
- Pesticides, herbicides and fertilizers
- Hazardous materials and waste
- Dissolved and particulate metals
- Noxious or offensive matter or any kind

#### **What is not an Illicit Discharge:**

- Diverted stream flows
- Air conditioning condensation
- Individual resident car washing
- De-chlorinated swimming pool water
- Uncontaminated ground water infiltration
- Residential building wash centers without detergents
- Water line flushing
- Fire fighting
- Landscape irrigation
- Foundation drains
- Irrigation water
- Lawn watering
- Street wash centers

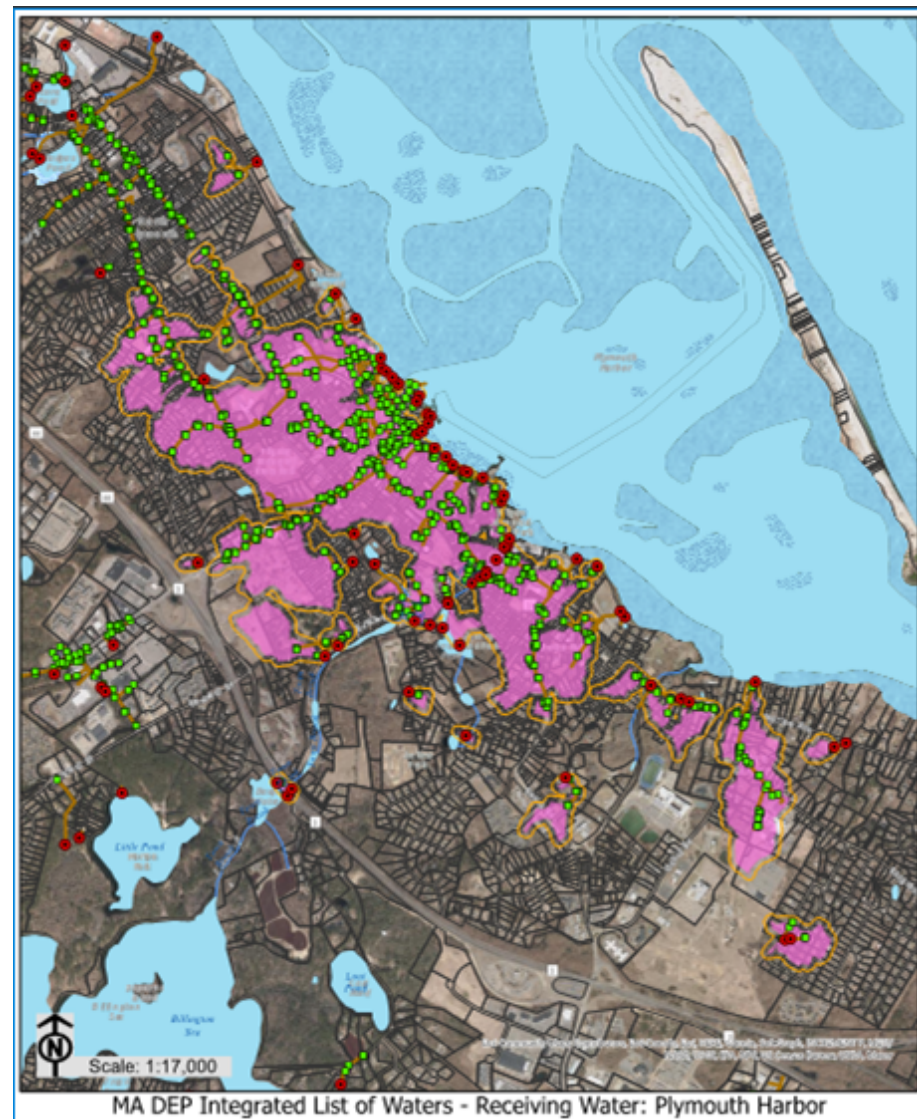


## Plymouth Receiving Waters

### PLYMOUTH WATERSHED'S

South Coastal, Buzzards Bay and Taunton River

Waterway	Impairment
Plymouth Harbor And Tributaries	Nitrogen, Fecal Coliform, Non-native aquatics (Smelt Pond)
Cape Cod Bay and Tributaries	Fecal Coliform
Beaver Dam Brook and Tributaries	Non-native aquatics Brigs Reservoir & Long Island Pond
Billington Sea and Tributaries	Turbidity



## ILLICIT DISCHARGES INDICATORS



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- Dog waste bags
- Staining
- Soap suds
- Grease
- Suspicious connections
- Odors at manholes
- Broken sewer pipes



This Photo by <https://www.treehugger.com>

**IF YOU SEE IT, REPORT IT!** 



#### 4. MCM 4 : Construction Site Stormwater Runoff

- Measures or actions taken to minimize/eliminate erosion and maintain sediment on construction sites that disturb one or more acres of land.
- Updated bylaws/rule and regulations to include:
  - Requirements for Erosion and Sediment Control BMPs
  - Requirements for Waste Control on Construction Sites
- Created written procedures for:
  - Site Plan Review
  - Site Inspection And Enforcement



## 5. MCM 5 : Post Construction Site Stormwater Management

- This program addresses stormwater runoff from new development and redevelopments in order to reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater on site after construction is completed.
- This was addressed by creating updates to bylaws/rules and regulations to include:
  - Requirements for Low-Impact Development (LID) practices
  - Pollutant removal requirements for stormwater treatment BMPs
  - Requirements for long-term operation and maintenance of stormwater
  - Requirements for the submission of as-built plans



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## 6. MCM 6: Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Implement good housekeeping practices in municipal operation such as vehicle maintenance, open space, buildings and infrastructure. The permit requires at least annual street sweeping and optimization of catch basin cleaning with the goal of preventing or reducing pollutant runoff and protecting water quality

### Requirements

- O&M Procedures
- Catch Basin Cleaning
- Street Sweeping
- SWPPP (Storm Water Pollution Prevention Plan)



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