



Town of Halifax Stormwater Requirements

March 26, 2019

Stormwater 101: The Basics



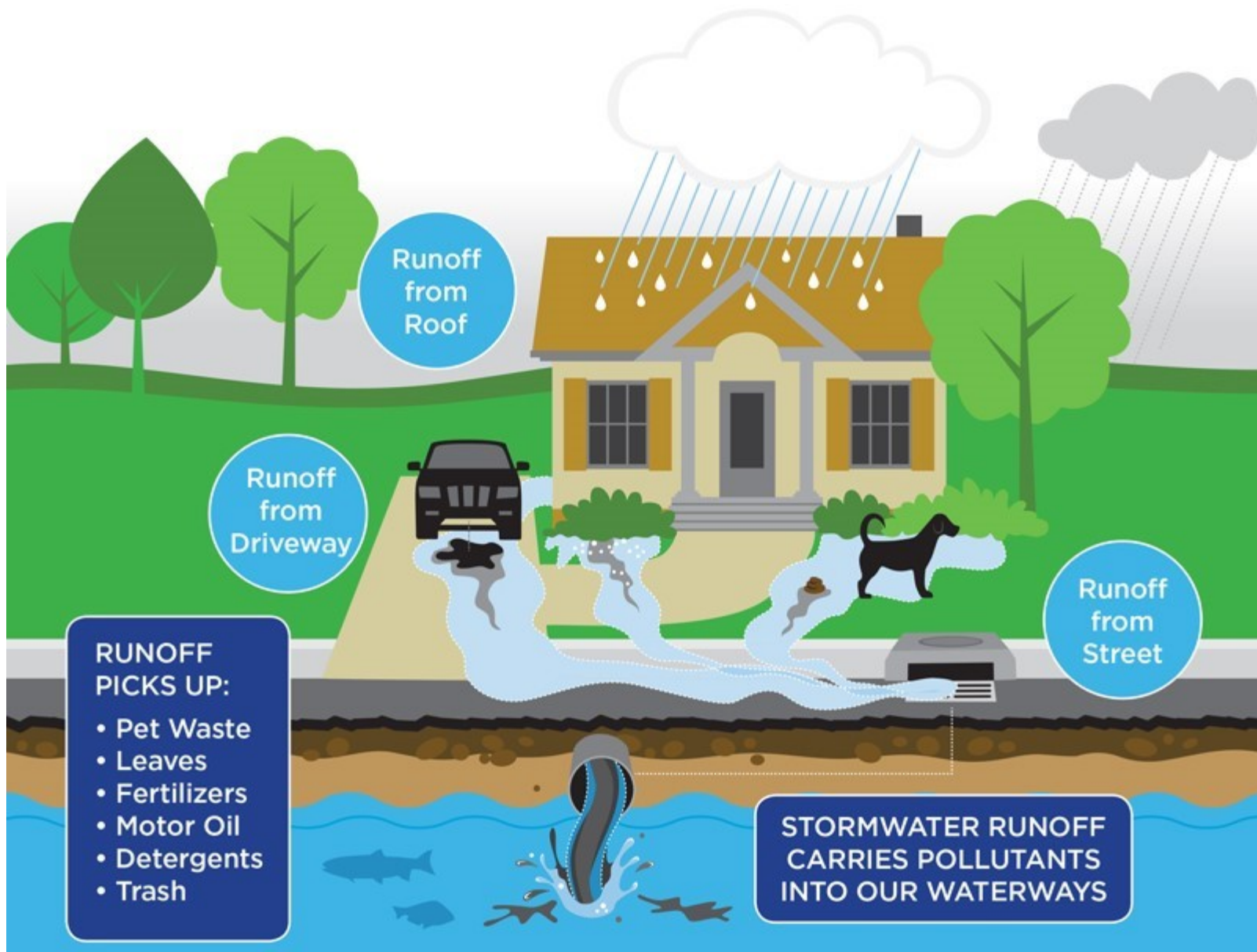
What is Stormwater?



Rain and snowmelt on natural landscapes soaks into the ground



Rain and snowmelt on paved surfaces runs off, carrying pollutants with it



Runoff
from
Roof

Runoff
from
Driveway

Runoff
from
Street

**RUNOFF
PICKS UP:**

- Pet Waste
- Leaves
- Fertilizers
- Motor Oil
- Detergents
- Trash

**STORMWATER RUNOFF
CARRIES POLLUTANTS
INTO OUR WATERWAYS**

Halifax's Drainage System (a.k.a. "MS4")

- Catch Basins
- Stormwater treatment systems
- Drain Pipes and Manholes
- Swales
- Culverts
- Outfalls



Common Stormwater Pollutants

- Sand
- Salt
- Gasoline
- Detergents
- Fertilizers
- Pesticides
- Animal waste
- **What else?**



Stormwater Impacts

- Localized street flooding
 - Stream sedimentation and erosion
 - Toxic algae
 - Bacteria
 - Invasive plants
- Unsafe for swimming, boating, and fishing



Water Quality Regulations

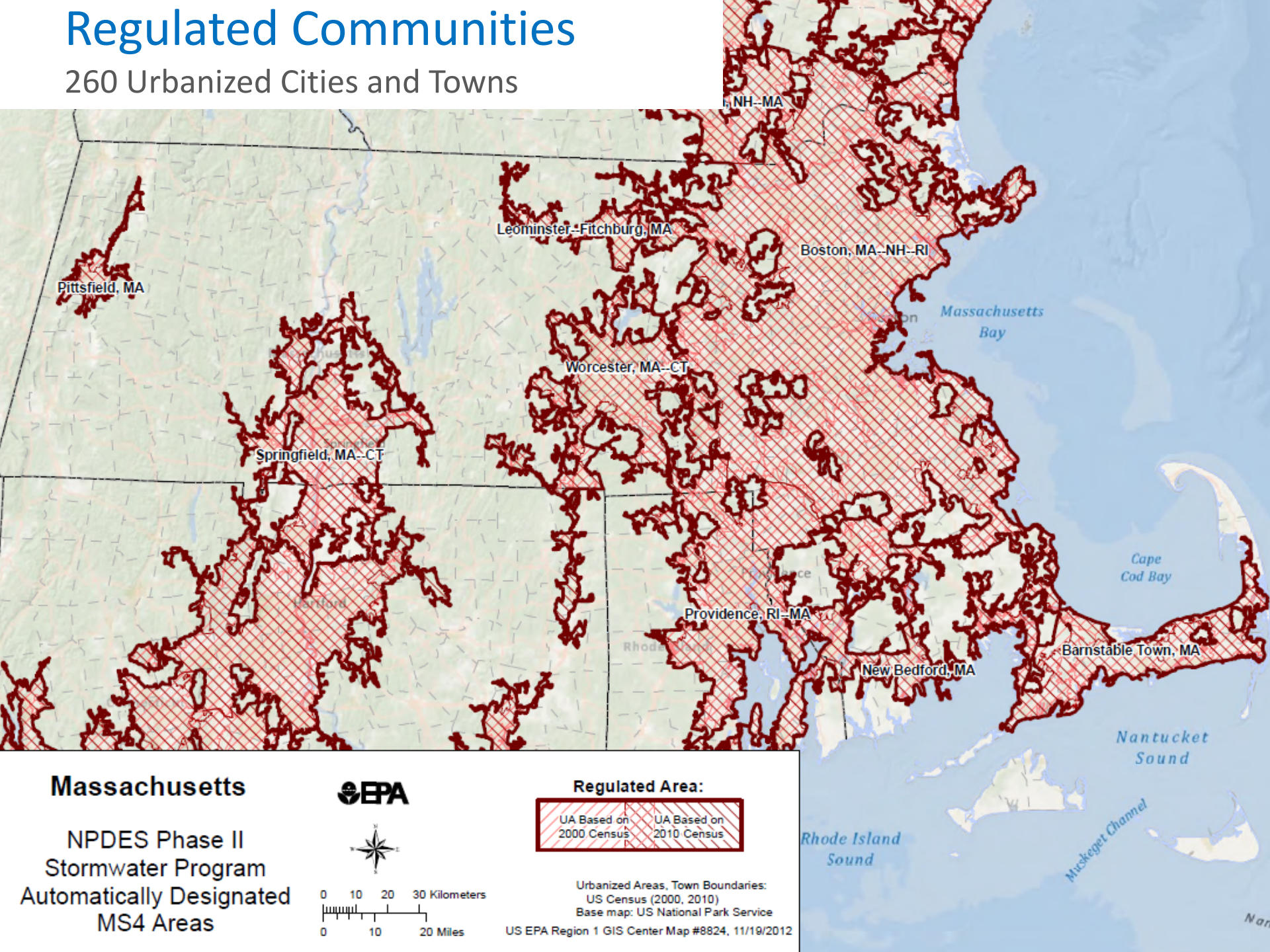


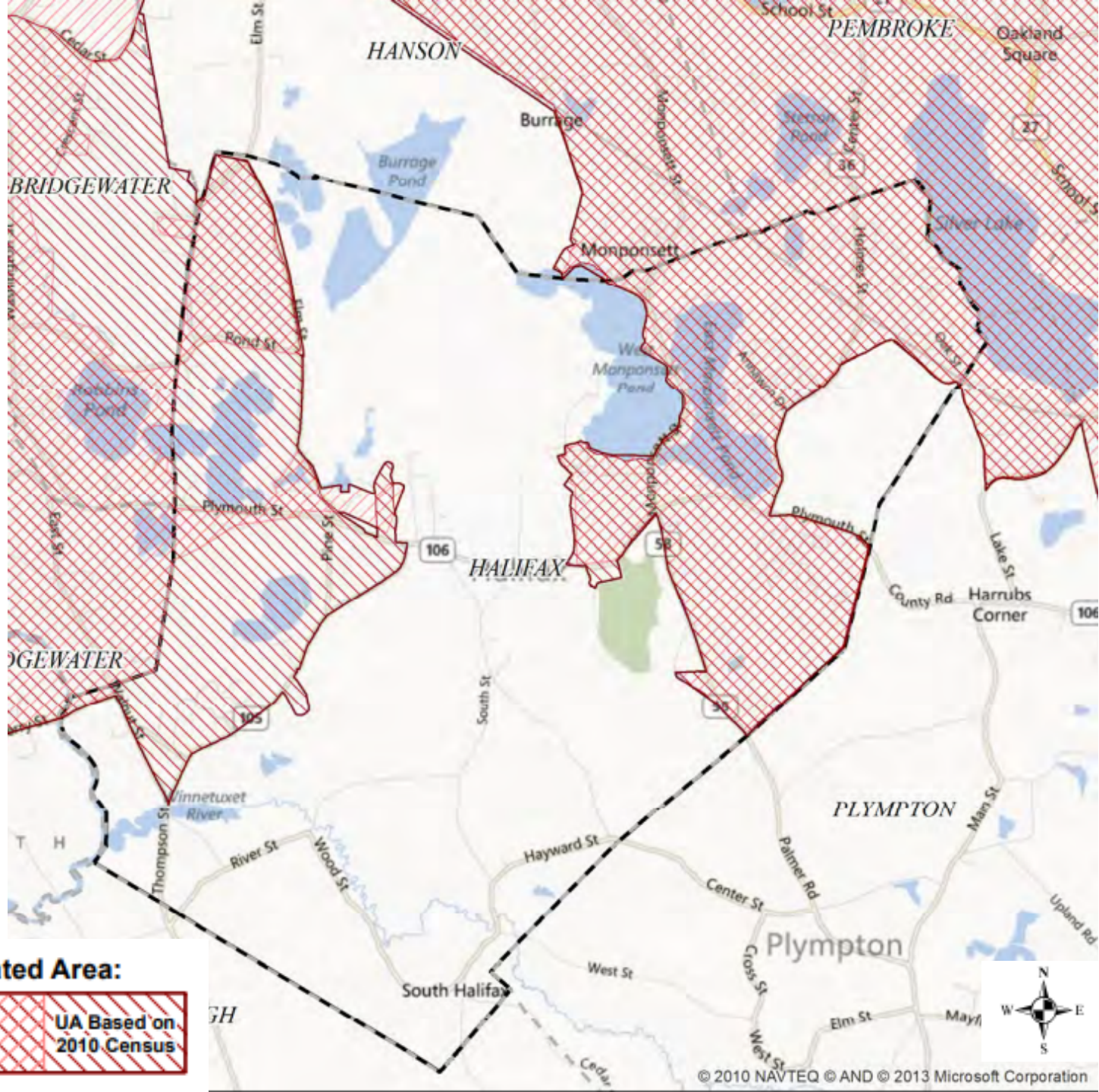
Municipal Separate Storm Sewer System (MS4) Permit

- Clean Water Act
 - Authorizes U.S. Environmental Protection Agency (EPA) to regulate discharge of pollutants to rivers, streams, lakes, ponds, and wetlands
- MS4 Permit
 - Roadmap for Massachusetts towns and cities to reduce pollution carried by drainage systems into waterbodies
 - First issued for Massachusetts in 2003
 - New permit became effective July 1, 2018
 - 5-year permit cycle (in theory)

Regulated Communities

260 Urbanized Cities and Towns





Regulated Area:

UA Based on
2000 Census

UA Based on
2010 Census

Minimum Control Measures





MCM 1. Public Education and Outreach

Increase knowledge and influence public's behavior to reduce pollutants in stormwater

Distribute a minimum of 2 educational message to each target audience over permit term:

- Residents
- Businesses, institutions, and commercial facilities
- Developers and construction
- Industrial facilities

Science Shorts *by Cathleen Drinan*

Stormwater Sleuth

See that pretty pond in the background? It is the West Monponsett Pond. In Massachusetts, it is considered a Great Pond. And we want to keep it great!

The water in that pond is supposed to flow to the southwest, down Stump Brook. And it does sometimes. However, in 1964, it was decided that a dam could be built and that the water of both Monponsett Ponds could, from October to May, be diverted over to Silver Lake in Kingston.

That change made Silver Lake a Surface Water Supply and the Monponsett Ponds became Tributaries to a Surface Water Supply.

- Drinking water needs to be protected.
- We cannot live without water.

Whatever ends up in the street, arrives in the catch-basins, enters our stormwater system and then pollutes our once great ponds.

This trash was all inside one catch-basin in Halifax.

- ✓ Don't litter.
- ✓ Clean up after your dog.
- ✓ Don't allow chemicals to enter the street or catch-basin.
- ✓ Respect the earth.
- ✓ Keep our Great Ponds great!
- ✓ Stormwater Sleuths look for Stormwater Solutions!





MCM 2. Public Involvement

Provide opportunities to engage the public in review and implementation of the Stormwater Management Program

- Make SWMP and annual reports available to the public for review
- Annually provide opportunities for public to participate in SWMP implementation





MCM 3. Illicit Discharge Detection & Elimination (IDDE)

Prevent, find & eliminate sources of non-stormwater discharges

- Bylaw prohibiting illicit discharges
- Written IDDE Program & procedures
- Drainage system map
- Document Sanitary Sewer Overflows (SSOs)
- Dry & wet-weather screening
- Catchment investigations





MCM 4. Construction Site Stormwater Runoff Control

Minimize or eliminate erosion & maintain sediment on site so that sediment is not transported through the MS4 to a receiving water

- Bylaw requiring:
 - Erosion & sediment control
 - Construction waste management
- Applicable to construction activities discharging to MS4 that result in land disturbance ≥ 1 acre
- Written procedures for site plan review and inspections and enforcement
 - Must include evaluation of LID and green infrastructure opportunities
 - Inspections during & after construction
 - Track number of site reviews, inspections and enforcement actions. Report annually





MCM 5. Stormwater Management in New Development and Redevelopment

Reduce discharge of pollutants through post-construction stormwater retention and treatment on new or redevelopment sites

- Bylaw requiring
 - post-construction stormwater management
 - Submission of as-built plans
 - O&M of structural BMPs
- Assess street design & parking lot guidelines affecting creation of impervious cover
- Evaluate whether local regulations allow green infrastructure
- Identify 5 properties for stormwater retrofits
- Track and report on retrofits





Stormwater Treatment Requirements for New and Redevelopment Projects

New Development

Retain the first **1 inch** of runoff from impervious area on site

AND/OR

Design treatment to remove **90% TSS and 60% TP** average annual load generated from the impervious area on site

TSS = Total Suspended Solids
TP = Total Phosphorus

Redevelopment

Retain the first **0.8 inch** of runoff from impervious area on site

AND/OR

Design treatment to remove **80% TSS and 50% TP** average annual load from the impervious area on site

Can use offsite mitigation to meet above within the same USGS HUC10 watershed



MCM 6. Good Housekeeping & Pollution Prevention

Prevent or reduce pollutant runoff from Town facilities and operations

- Inventory and develop O&M procedures for Town-owned facilities
- Clean catch basins
- Sweep Town-owned streets and parking lots at least 2x per year
- Inspect and maintain Town-owned stormwater treatment systems
- Create Stormwater Pollution Prevention Plan (SWPPP) for DPW Highway Yard and Recycling Center



New Bylaws



Required Bylaws under MS4 Permit

1. Prohibit Illicit Discharges
2. Construction Site Runoff Control
3. Post Construction Stormwater Management



Prohibit Illicit Discharges



What is an Illicit Discharge?

Any discharge to an MS4 that is not composed entirely of stormwater or clean water

Illicit discharges enter the drainage system due to:

- Incorrect connection of sewer lateral to drain pipe
- Cracked sanitary sewer pipe
- Spills
- Illegal dumping
- Outdoor cleaning/maintenance activities

Prohibit Illicit Discharges Bylaw

- Prohibit illicit discharges and sanitary sewer overflows
- Investigate suspected illicit discharges
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system
- Implement appropriate enforcement procedures and actions

Construction Site Runoff Control



Construction Site Runoff Control Bylaw

- Applicable to all construction activities that result in a land disturbance ≥ 1 acre
- Require the use of sediment and erosion control practices at construction sites
- Require controls for other wastes on construction sites such as demolition debris, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes. These wastes may not be discharged to the MS4.
- Program shall provide that the permittee may, to the extent authorized by law, impose sanctions to ensure compliance with the local program.

Construction Site Runoff Control Bylaw

- Written procedures for **site inspections and enforcement of sediment and erosion control measures**. Who is responsible for site inspections, who has authority to implement enforcement procedures.
- Written procedures for **site plan review and inspection and enforcement..**
- Incorporate procedures for consideration of potential water quality impacts.
- Include evaluation of opportunities for use of Low Impact Development (LID)/Green Infrastructure (GI).
- Inspections during construction of BMPs as well as after construction of BMPs

Post Construction Stormwater Management



Post Construction Stormwater Management Bylaw

- Applicable to all new and redevelopment sites that disturb 1 or more acres and discharge into the permittees MS4 at a minimum.
- LID site planning and design strategies must be used to the maximum extent feasible
- Submission of as-built plans
- Long-term O&M of structural BMPs
- Conformance with Massachusetts Stormwater Standards, *except #4 Water Quality*



MA Stormwater Standards

Currently triggered by:

- Work within a jurisdictional area under Massachusetts Wetlands Protection Act (WPA)
- Some local bylaws/regulations

Under 2016 MS4 permit:

- All projects disturbing ≥ 1 acre must comply with **MA Stormwater Standards 1, 2, 3, 5, & 6.**
- For redevelopment, to maximum extent practicable

Standard 1 No Untreated Discharges

Standard 2 Peak Rate Control

Standard 3 Groundwater Recharge

Standard 4 Water Quality

Standard 5 LUHPPLs

Standard 6 Water supply protection

Standard 7 Redevelopment

Standard 8 Construction period

Standard 9 Long Term O&M

Standard 10 Illicit Discharges



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Biggest Costs for FY2020

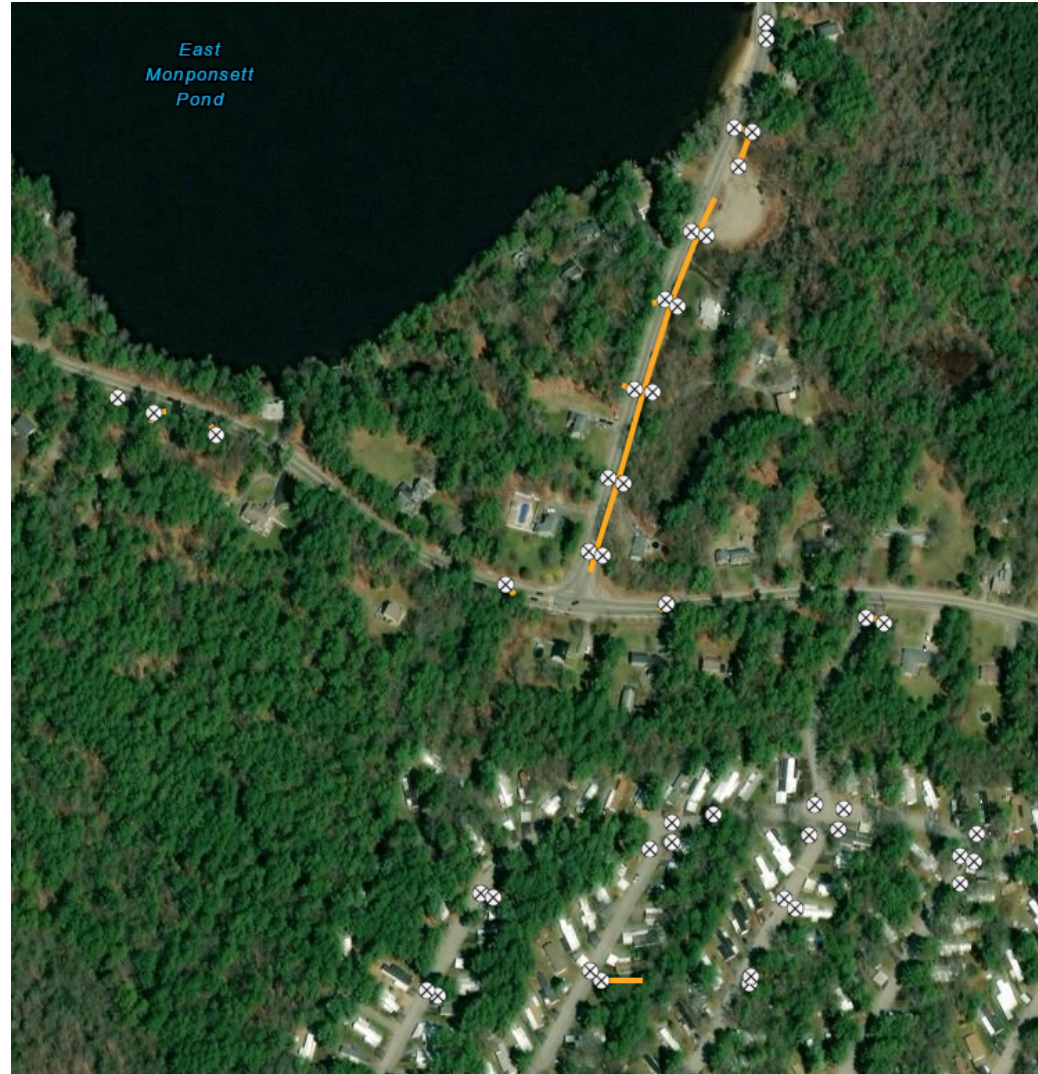


FY2020 Costs

- System mapping
- Outfall sampling and investigation
- Peer Review
- Written procedures
- Property inventory
- Annual BMP Inspections & Maintenance
- Operation and Maintenance

System Mapping

- Complete mapping in MS4 Regulated area
- Include additional information on structures
- Map catchments out outfalls town-wide
- Map structural BMPs



Outfall Sampling and Investigation

- 103 outfalls mapped in MS4 Regulated area
- Existing inspections on 40
- All outfalls must be inspected in dry weather within next 2 years
- Any outfall with flow needs to be sampled
 - Field tests
 - Lab tests



Peer Review

- Site plan review to ensure conformance with
 - MA Stormwater Standards
 - Construction Bylaw
 - Post Construction Bylaw
 - Low Impact Development Design
 - Water Quality calculations
- Site inspection and assistance with enforcement



Property Inventory

- Develop Inventory of Town-Owned properties and facilities
- Develop written procedures for each facility



Buildings and
Facilities



Parks and Open
Space



Vehicles and
Equipment

Written Procedures

- Site Plan Review
- Site Inspection and Enforcement
- Operation and Maintenance for:
 - Municipal Parks
 - Town-owned buildings and Facilities
 - Vehicle and Equipment Maintenance
 - MS4 Infrastructure Maintenance
 - Street Cleaning
 - Winter Road Maintenance
 - BMP Inspection and Maintenance
- SWPPP for Highway Yard and Recycling Center

Inspection and Maintenance of BMPs

- Inventory all structural stormwater treatment controls
 - Town-Owned
 - Town-Maintained
 - Town-Permitted
 - inspections may be done by owner, but tracked and enforced by Town
- Inspect each BMP annually
- Conduct maintenance as needed



Operation and Maintenance

- Sweep all town-owned streets and parking lots at least 2x per year
- Prioritize areas with more sediment, e.g. construction
- Ensure no catch basin is more than 50% full
- Annual Reporting



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Offices located throughout the east coast