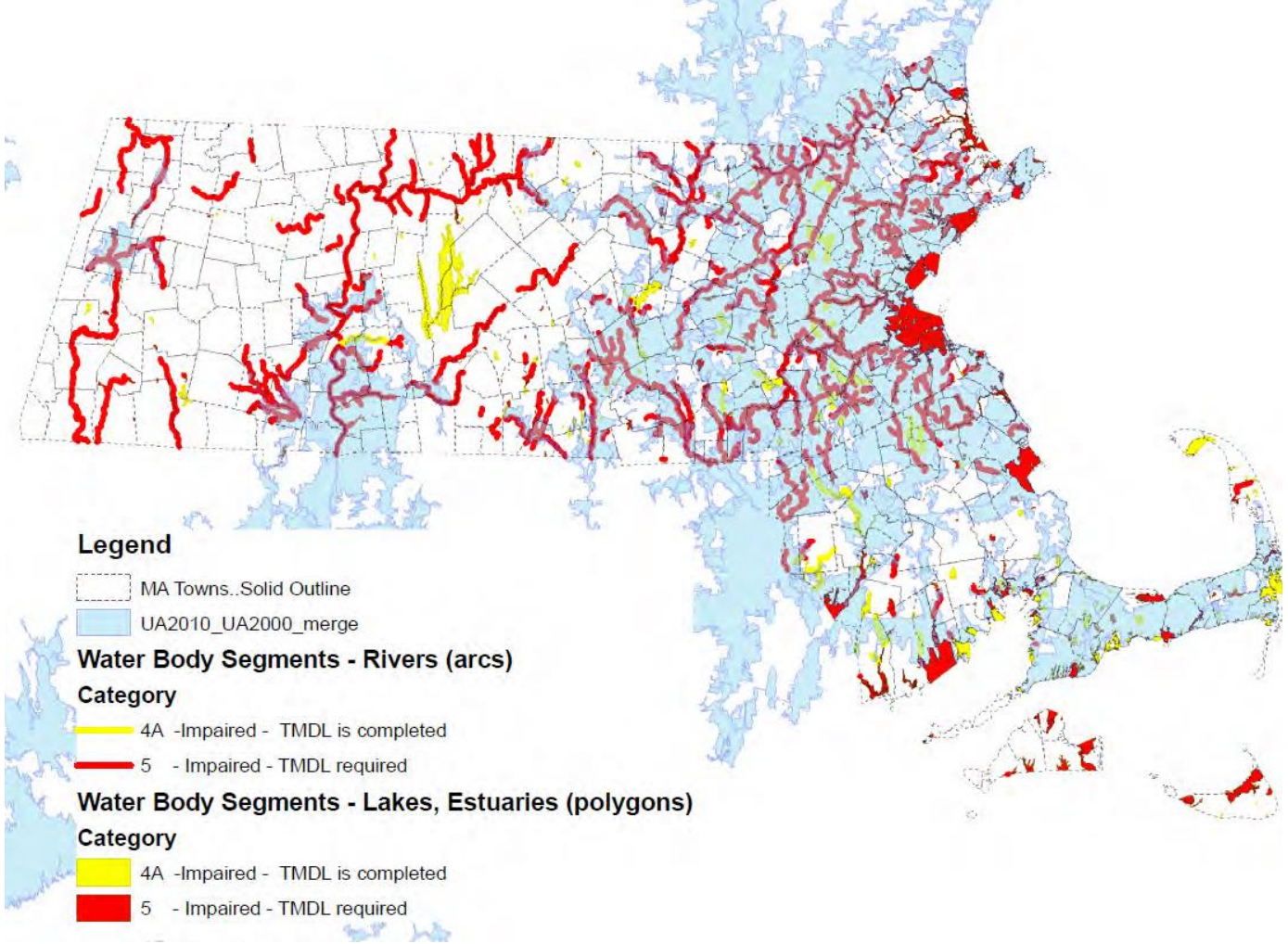
Preparing for the New Stormwater MS4 Permit

September 8, 2016

One Resource Many Uses

Stormwater & Water Quality

STORMWATER DISCHARGES ARE CAUSING OR CONTRIBUTING TO **55% OF THE WATER QUALITY IMPAIRMENTS** IN MASSACHUSETTS' ASSESSED WATERS

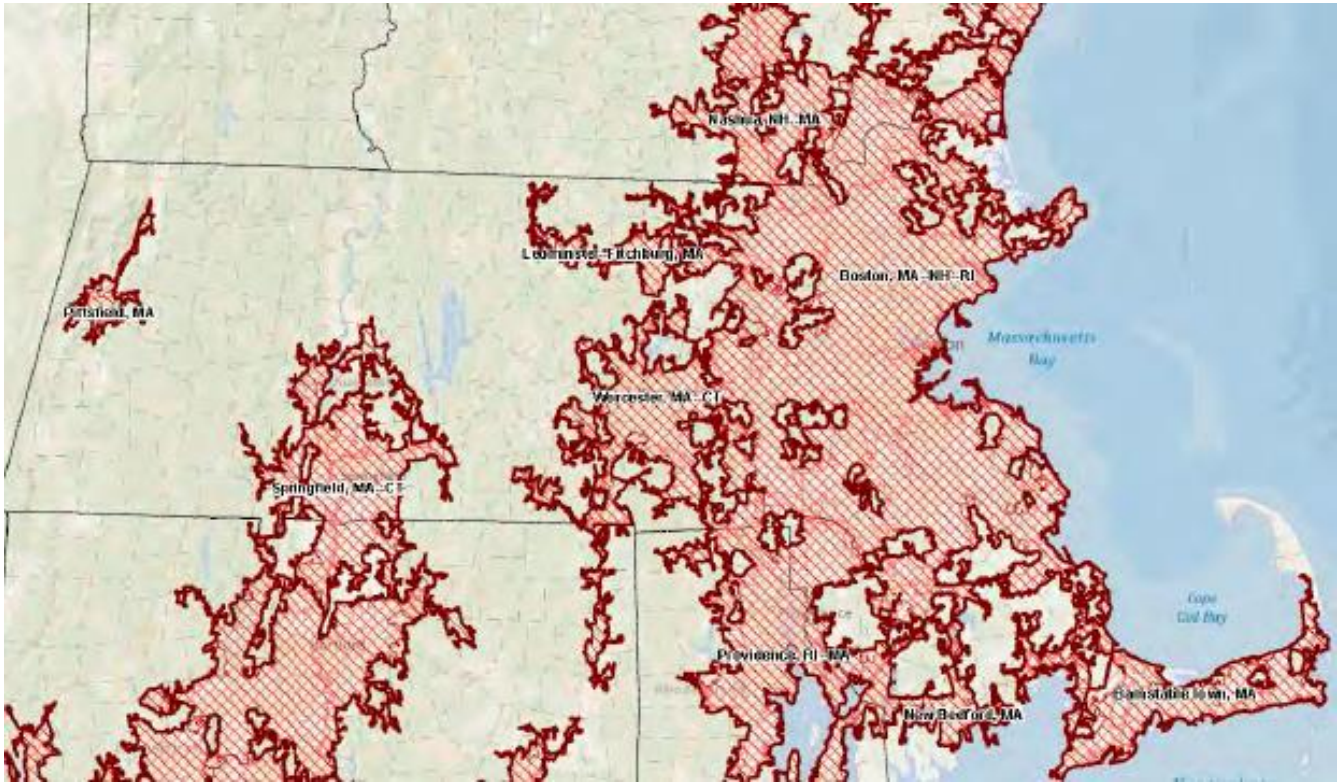


What Is an MS4 Permit?

MS4 = Municipal Separate Storm Sewer System
Jointly issued by EPA and DEP under the Clean Water Act
First Massachusetts permit issued in 2003 (still in effect)
New permit was issued April 2016
Schedule for new permit implementation:

FINAL PERMIT ISSUED	**APRIL 2016**
EFFECTIVE DATE	**JULY 1, 2017**
NOTICE OF INTENT DUE	**SEPT 29, 2017**
STORMWATER MANAGEMENT PLAN	**JULY 1, 2018**

MS4 Permit Coverage in Massachusetts



Overview of 2016 MS4 Permit for Massachusetts

- Builds on requirements of 2003 permit
- More detailed and rigorous
- Extensive reporting places a premium on data collection and sharing among departments
- Numerous deadlines
- Requirements are affected by TMDL's and Impaired Waters (Bacteria, Phosphorus, Nitrogen)

Overview of 2016 MS4 Permit for Massachusetts

Six Minimum Control Measures

1. Public Education and Outreach
2. Public Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Runoff Control
5. New Development and Redevelopment
6. Good Houskeeping

1. Public Education and Outreach

- Four audiences get two “basic” messages, plus...
- Annual pet waste message to residents
- Pet waste info with dog licenses
- Spring and fall fertilizer / yard care messages to residents and commercial/institutional
- Targeted message to septic system owners
- Define your goals, audiences/messages, and evaluation methods in SWMP

Evaluate annually and modify accordingly

2. Public Participation

Make SWMP and annual reports available on website

Annual “opportunity to participate in the review and implementation” of the SWMP

3. Illicit Discharge Detection and Elimination

Bylaw prohibiting illicit discharges

More detailed system map

Written IDDE plan and extensive recordkeeping

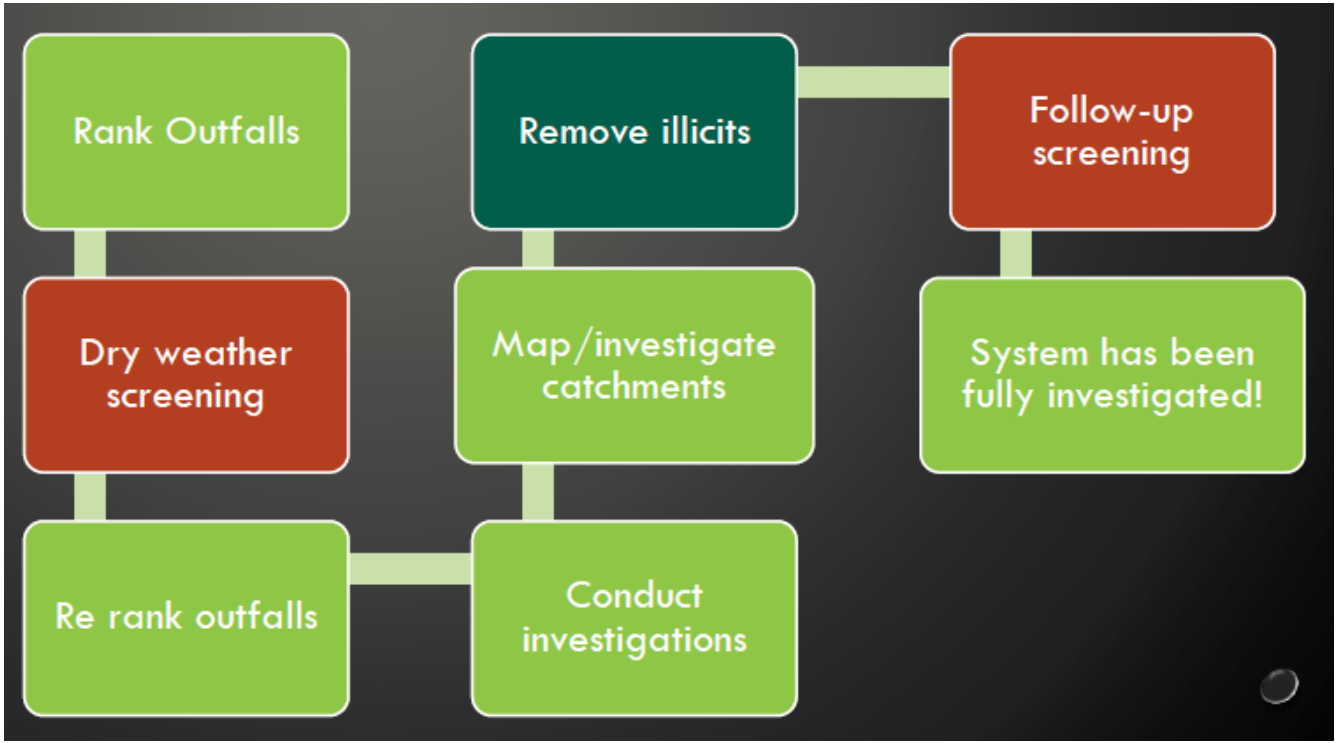
Assess and rank outfalls/catchments (year 1)

Dry weather outfall inspection / sampling (by year 3)

Catchment investigation of ALL outfalls (by yr 3-10)

- Manhole inspection / sampling
- Wet weather outfall sampling
- Isolate and repair problems
- Follow up checks

3. Illicit Discharge Detection and Elimination (IDDE)

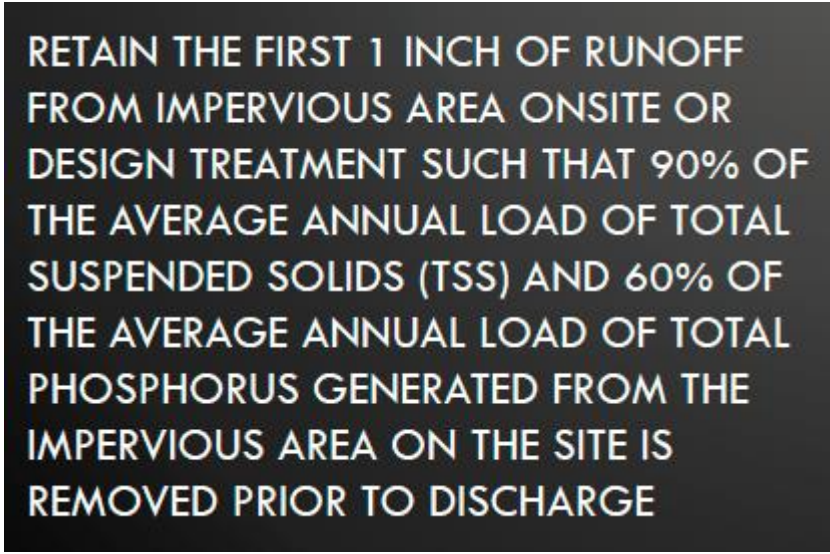


4. Construction Site Runoff Control

- Bylaw requiring erosion control BMPs
- Procedures for site inspection and enforcement
- Report on inspections and enforcement action annually

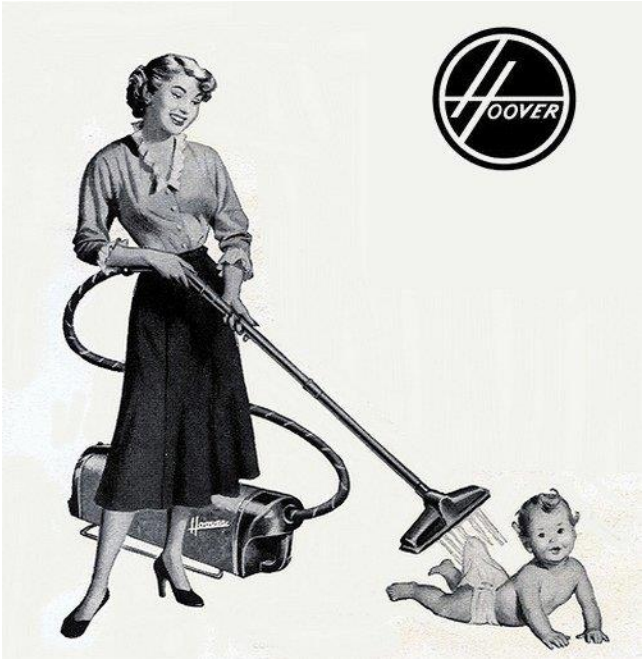
5. New Development and Redevelopment

- Update stormwater bylaw to reflect the “1 inch rule,” phosphorous optimization and off-site provisions
- Evaluate and report on changes to other bylaws (zoning, subdivision, etc)
- Inventory and rank retrofit opportunities on town land



6. Good Housekeeping

- Inventory parks, buildings, parking; create O&M plan; train employees
- “Optimize” catch basin cleaning (<50% full); report number and total volume
- Sweep twice annually; report miles and volume
- Implement “Storm Water Pollution Prevention Plan” for DPW yard and other areas re spill control, minimizing pollution, training and inspections

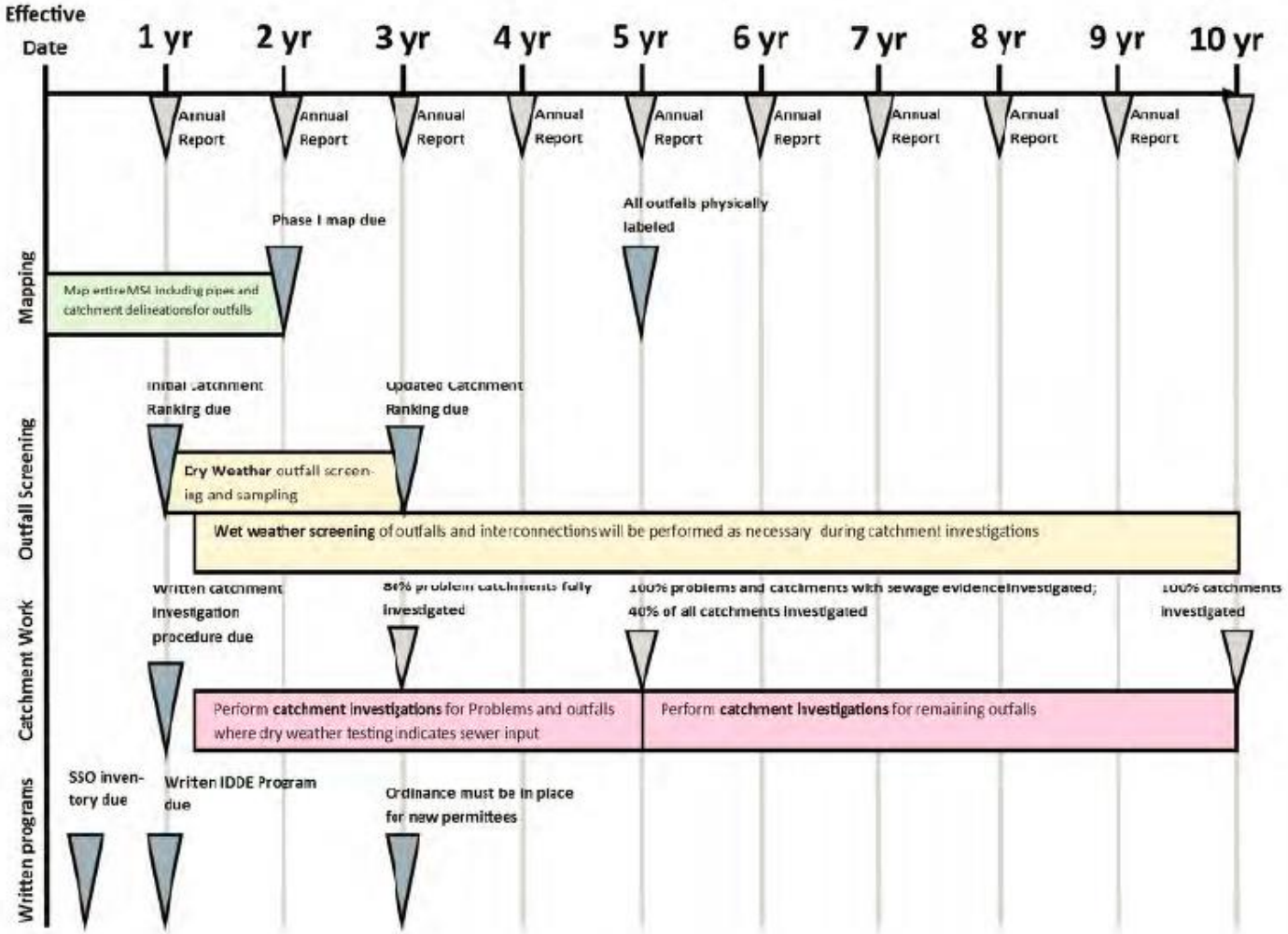


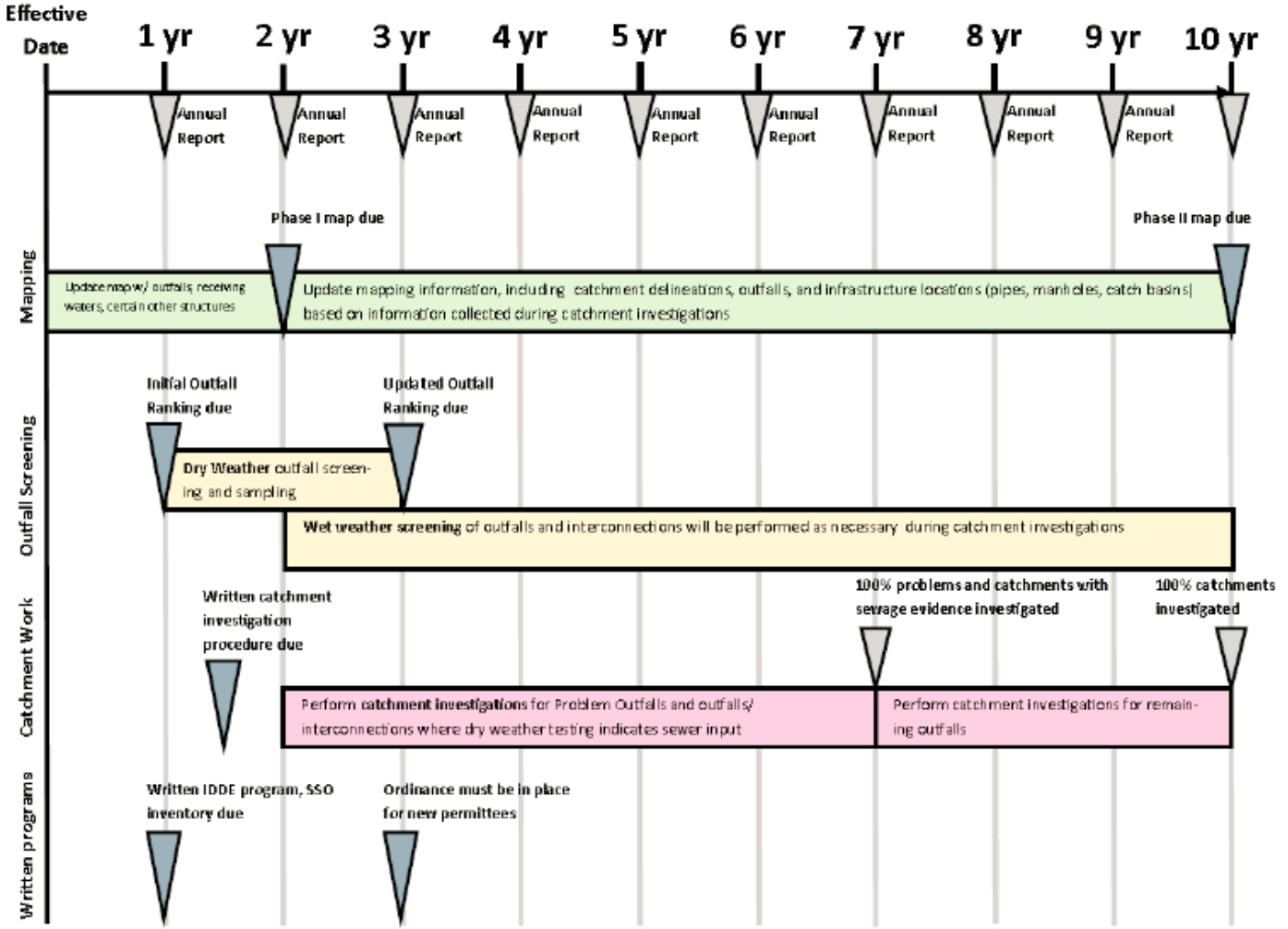
Additional Impaired Waters Requirements

- Nitrogen and Phosphorous Source Identification Reports
- Estimate and track N and P pollution load reduction from BMPs
- Construct at least two demonstration retrofits

Annual Reporting

- Annual reporting with detailed documentation
- Ongoing record keeping and cross-departmental data collection
- Evaluate results and make changes annually


Effective Date
1 yr
2 yr
3 yr
4 yr
5 yr
6 yr
7 yr
8 yr
9 yr
10 yr
Annual Report
Phase I map due
All outfalls physically labeled
Mapping
Map entire MS4 including pipes and catchment delineations for outfalls
Outfall Screening
Initial Catchment Ranking due
Updated Catchment Ranking due
Dry Weather outfall screening and sampling
Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Catchment Work
Written catchment investigation procedure due
80% problem catchments fully investigated
100% problems and catchments with sewage evidence investigated; 40% of all catchments investigated
100% catchments investigated
Perform catchment investigations for Problems and outfalls where dry weather testing indicates sewer input
Perform catchment investigations for remaining outfalls
Written programs
SSO inventory due
Written IDDE Program due
Ordinance must be in place for new permittees


Effective Date
1 yr
2 yr
3 yr
4 yr
5 yr
6 yr
7 yr
8 yr
9 yr
10 yr
Annual Report
Phase I map due
Phase II map due
Mapping
Update map w/ outfalls receiving waters, certain other structures
Update mapping information, including catchment delineations, outfalls, and infrastructure locations (pipes, manholes, catch basins) based on information collected during catchment investigations
Outfall Screening
Initial Outfall Ranking due
Updated Outfall Ranking due
Dry Weather outfall screening and sampling
Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Catchment Work
Written catchment investigation procedure due
100% problems and catchments with sewage evidence investigated
100% catchments investigated
Perform catchment investigations for Problem Outfalls and outfalls/ interconnections where dry weather testing indicates sewer input
Perform catchment investigations for remaining outfalls
Written programs
Written IDDE program, SSO inventory due
Ordinance must be in place for new permittees

Estimated Compliance Costs

- Costs are seldom tracked under a single line item
- Costs are distributed across multiple departments
- Costs heavily depend on existing level of effort
- A few costs could potentially be covered by grants

Annual Costs as Estimated by Canton DPW

Category	Present	Expected
Operations and Maintenance	360,000	530,000
Regulatory Compliance	13,000	44,000
GIS Data Collection and Management	13,500	56,000
Administrative	19,000	24,000
Engineering and Master Planning	121,500	208,000*
Capital Improvement Projects	240,000	518,000**
Total Program Cost	**767,000**	**1,380,000**

*Master Planning costs are expected for 5 years and may or may not continue.

**Capital costs may vary from year to year, but this is an expected average

Annual Costs as Estimated by Dedham DPW

Category	**Estimated Annual Cost Increase**
Administration	83,553
Regulation/Enforcement	13,500
Engineering & Master Planning	366,795
Operations and Implementation	575,113
Monitoring	17,650
Total Program Cost	**1,056,661**

Regional Collaboration for MS4 Compliance: Neponset Stormwater Partnership

Mission

Reduce the cost and increase the effectiveness of municipal stormwater management through regional cooperation and resource sharing.

Partners

Towns of Walpole, Foxborough, Medfield, Westwood, Dedham, Milton, Canton, Stoughton and Sharon, along with the Metropolitan Area Planning Council and the Neponset River Watershed Association

Outreach and Public Participation

- Web site with Outreach materials www.neponsetstormwater.org
- Model Public Outreach and Education and Public Participation SWMPs

Stormwater Pollution Prevention Guide
FOR HOMEOWNERS

It's Easy to Prevent Stormwater Pollution Around Your Home

Make sure that anyone that does work around your house (landscapers, contractors, handymen) adhere to the same rules as well!

Pick-up After Your Pets

Pet waste carries high levels of harmful E. coli bacteria and other pathogens. Dog waste left on the lawn or sidewalk is a major contributor to local water pollution, plus it's just nasty.

- Always carry a plastic bag when you walk your dog, and dispose of pet waste in a trash can.

Lawn & Garden

- Use lawn chemicals sparingly and sweep up any spills on paved areas.
- Choose organic and phosphate-free fertilizers whenever possible, and never use more than the directions call for.
- Don't pile grass clippings, leaves or other yard waste in streams or wetlands.
- Prevent yard waste from being washed into storm drains.
- *Ask your landscaper what they do with your yard waste.*
- Consider starting a compost pile.
- Don't allow irrigation to runoff onto pavement. Any water that ends up on the pavement contributes to polluted runoff, and is wasted water.
- Redirect downspouts away from pavement and onto grassy areas, where runoff from your roof can soak into the ground.
- Use pervious materials in landscape designs. Bricks, pavers and stones allow water to slowly filter into the ground. Plus they look nice!
- Set a rain barrel under your downspout to capture water for another use.
- Plant rain gardens to help filter and soak up water before it runs onto the street.

Chemicals

- Use the least toxic products available for all projects around your home.
- Avoid spilling oil, gasoline, antifreeze, and paint on paved areas or onto the soil.
- If a chemical spill occurs, clean with rags or absorbent material such as sand or kitty litter. Sweep up absorbents and dispose of in the trash.
- Collect all used oil, antifreeze, and other vehicle fluids in containers with tight fitting lids and recycle at a local service station.
- Dispose of hazardous waste through the local Household Hazardous Waste Program.

POISON

- Sweep up all construction areas on a regular basis and dispose of debris in the trash.
- Never use a hose to wash down the driveway or sidewalk. Not only does this wash pollutants into storm drains, it's a waste of water.
- Don't pour washwater or chemicals down stormdrains.
- Store chemicals in leak proof containers inside a building or shed, or under cover. Do not expose hazardous materials to rainwater.
- Avoid oversalting walkways and driveways in the winter, and use non-toxic products whenever possible.

Washing Cars and Boats

- Park your car or boat in a spot where the soap will run off onto grass, rather than into the street and down the storm drain.
- If practical, park your car or boat on your lawn when washing it.
- Use mild detergents, and never clean or pressure wash the undercarriage of a car at home. The oil, grease and other pollutants from this activity can contaminate shallow groundwater.
- Always use a hose nozzle with a trigger, and shut it off when you're not using it to conserve water
- Skip the home treatment and wash your car professionally, but use a carwash that recycles its water!

Automotive Repair

- Store automotive parts, such as batteries, engines, transmissions, and other parts that may have oily or greasy residue on them, under cover and off the ground, to minimize rainwater contact. Rainwater can wash pollutants off these parts and into stormdrains.

Swimming Pools and Hot Tubs

- Never discharge pool water directly into a storm drain.
- Dechlorinate pool, hot tub or spa water with neutralizing chemicals, if water is to be discharged into the ground.
- If water cannot be dechlorinated, the water must be collected by a pool maintenance company.

neponset stormwater partnership

For more information on how you can reduce stormwater pollution, please visit **www.neponsetstormwater.org**

Consider how your actions impact water quality.

The EPA estimates that stormwater runoff causes **more than half** of the pollution in our waterways.

If You See it, Please Report it!

If you ever see anything suspicious being poured or washed into a stormdrain, please call your local Water Department or Conservation Agent.

Remember—Storm Drains Aren't Trash Cans

Anything that gets dumped, thrown or washed into a storm drain eventually gets discharged to a river, stream, pond, or wetland.

Stormwater and the Construction Industry

Stormwater Pollution Prevention Guide

FOR CONSTRUCTION INDUSTRY

Protect your business, your clients and your reputation by installing and maintaining construction site stormwater best management practices (BMPs) properly.

You'll not only avoid fines and work stoppages, you'll be protecting the waterways your community depends on, and earning a well deserved reputation.

For more information visit:
www.neponsetstormwater.org

Protect Natural Features

Bad

Good

- Minimize Clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

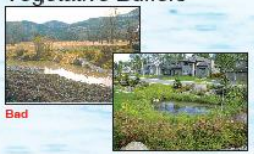
Construction Phasing

Bad

Good

- Sequence construction activities so that the soil is not exposed forlong periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization, such as landscaping, to be completed immediately after the land has been graded to its final contour.

Vegetative Buffers



Bad

Good

- Protect and install vegetative buffers along water-bodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodi-cally to ensure their effectiveness.

Silt Fencing

Bad

Good

- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

Maintain your BMPs!

www.neponsetstormwater.org

Site Stabilization

Bad

Good

- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been com-pleted.

Construction Entrances

Bad

Good

- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

Slopes

Bad

Good

- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

Dirt Stockplies

Bad

Good

- Cover or seed all dirt stockpiles.

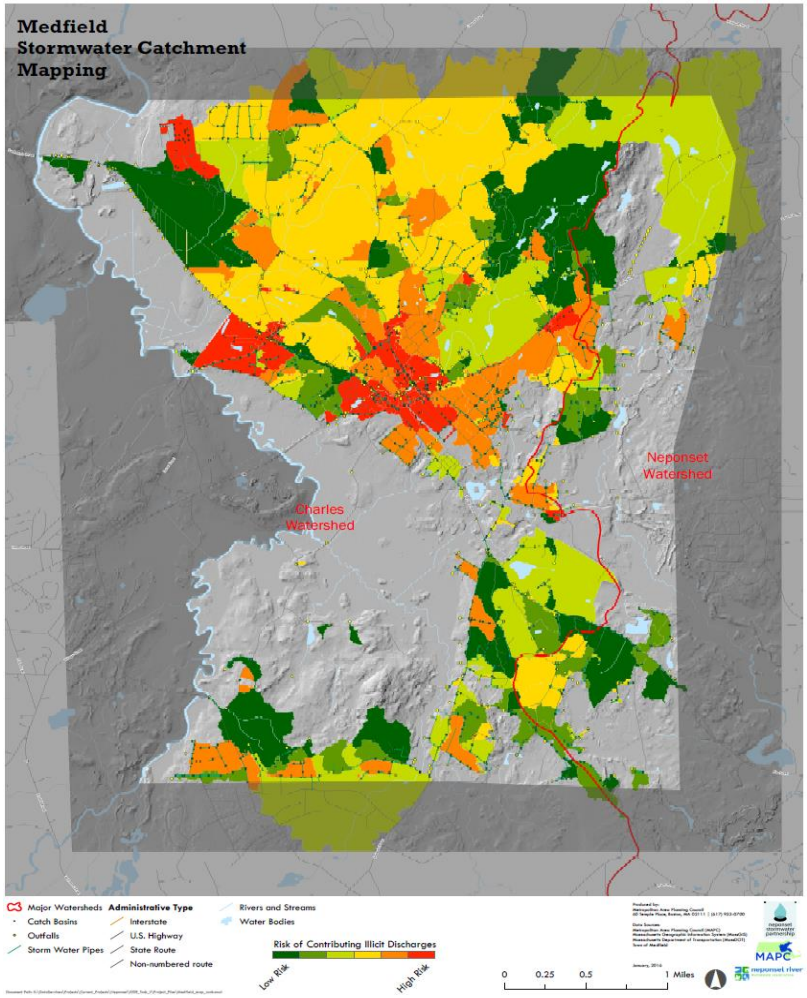
Storm Drain Inlet Protection

Bad

Good

- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

Brought to you by the Neponset Stormwater Partnership, a joint effort of the Metropolitan Area Planning Council, the Neponset River Watershed Association, and the municipalities of Boston, Canton, Dedham, Foxboro, Medfield, Milton, Norwood, Sharon, Stoughton, Randolph, Walpole and Westwood.



IDDE - Mapping and Ranking of Stormwater Catchments in Medfield

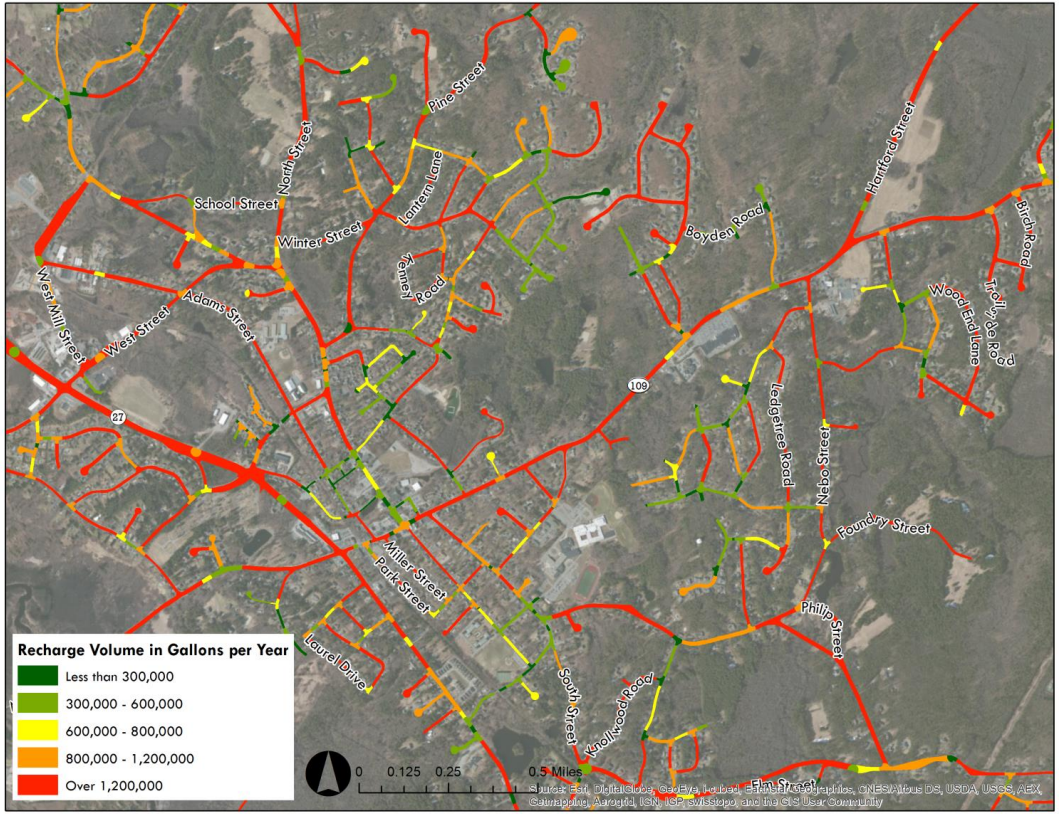
Stormwater and Non-Stormwater Bylaws

- Stormwater & Non-Stormwater Bylaw evaluation checklists
- Model Stormwater Bylaw & Guidance on Bacteria
- Town-by-Town Analysis of Stormwater and Non-Stormwater Bylaws

Priority Non-stormwater Bylaw Recommendations R = Recommended Action	Canton	Dedham	Milton	Sharon	Stoughton	Westwoo	Medfield	Norwood	Randolph	Walpole
Limit tree clearance in zoning and subdivision regulations.	R	R	R		R	R	R			
Allow by-right construction of open space residential developments.	R	R	R	R			R	R		R
Don't require more than 3 parking spaces per 1,000 SF of floor space in professional buildings.	R			R			R			
Establish parking maximum standards for all uses.	R	R	R	R	R	R	R	R	R	R
Allow for reduction of parking requirements if parking is shared.	R				R		R		R	

Evaluation of Parcel & Roadway retrofits

- Evaluation methodology & Geodatabase of results
- Based on soil type, historic storm data, and amount of impervious coverage



Stormwater Good Housekeeping Tools

- Pollution prevention plan training workshop/materials
- Data management training

Data Management in MCM 6

MCM 6: Good Housekeeping & Pollution Prevention

- Catch Basin Cleaning
  - Total # of basins
  - Number inspected each Permit Year
  - Number cleaned
  - Volume or mass removed from each (impaired waters)
  - Volume or mass removed from whole system
- Facilty Inspections (SWPPP)
- Street Sweeping
  - Curb-miles swept
  - Volume or mass of material removed

Stormwater Financing – MAPC Toolkit

1. Determining Fee – Impervious Analysis
2. Town data on driveways, parking lots, buildings, decks
3. Match impervious area to parcel
4. Calculate the impervious area per parcel.
5. Divide impervious area by total parcel area to derive the percentage of impervious coverage per parcel.
6. Calculate the average impervious coverage for each land use (residential, commercial).