

# Good Housekeeping Workshops

Merrimack Valley Stormwater Collaborative



## Workshop 3 – Stormwater Management and Infrastructure Maintenance

April 10, 2015

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Horsley Witten Group, Inc.



# Good Housekeeping Workshop Agenda

## **Workshop 1 – Parks & Recreation Areas**

Tuesday, March 10, 2015 (8 - 11:00 AM)

Snow date: Thursday, March 12, 2015

Northern Essex Community College -  
Classroom

## **Workshop 2: Buildings, Facilities, Vehicle and Equipment Maintenance**

Friday, March 20, 2015 (8 - 11:00 AM)

Andover Public Safety Building and Public  
Works Maintenance Yard

## **Workshop 3: Stormwater Management and Infrastructure Maintenance**

Friday, April 10, 2015 (8 - 11:00 AM) →

Northern Essex Community College –  
Classroom

- DPW Stormwater Maintenance Responsibilities
- Applicable Regulations
- Stormwater Maintenance Practices
- Operation and Maintenance Programs
- Opportunities for Regional Efficiencies
- Wrap up



# Typical DPW Stormwater Maintenance Responsibilities



- Catch Basin Cleaning
- Street Sweeping
- Snow and Ice Management
- Cleaning Drainage Ditches/Swales
- Maintaining Stormwater Treatment Practices

# Do you know?

1. How many miles of municipal stormwater pipes are you responsible for?
2. How many stormwater outfalls does your municipality own?
3. What waterbodies does your town drain to and are they polluted?
4. Does your town/city own any swirl separators (e.g. Stormceptors), detention basins or bioretention systems, and where they are?
5. Bonus: What does MS4 stand for?



# The Problem: Rain is clean... until it's not. Stormwater carries pollutants to our waters.

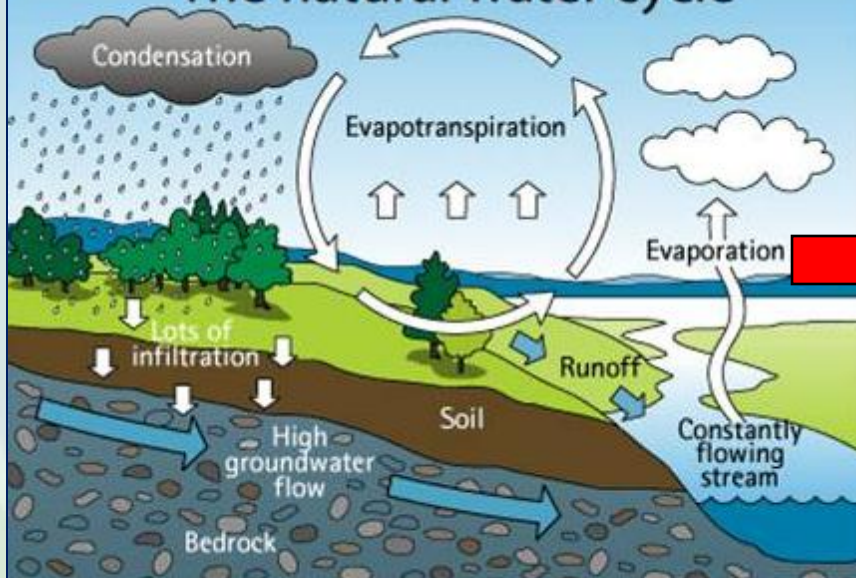








# The natural water cycle



Source: *Clemson University*

# The urban water cycle

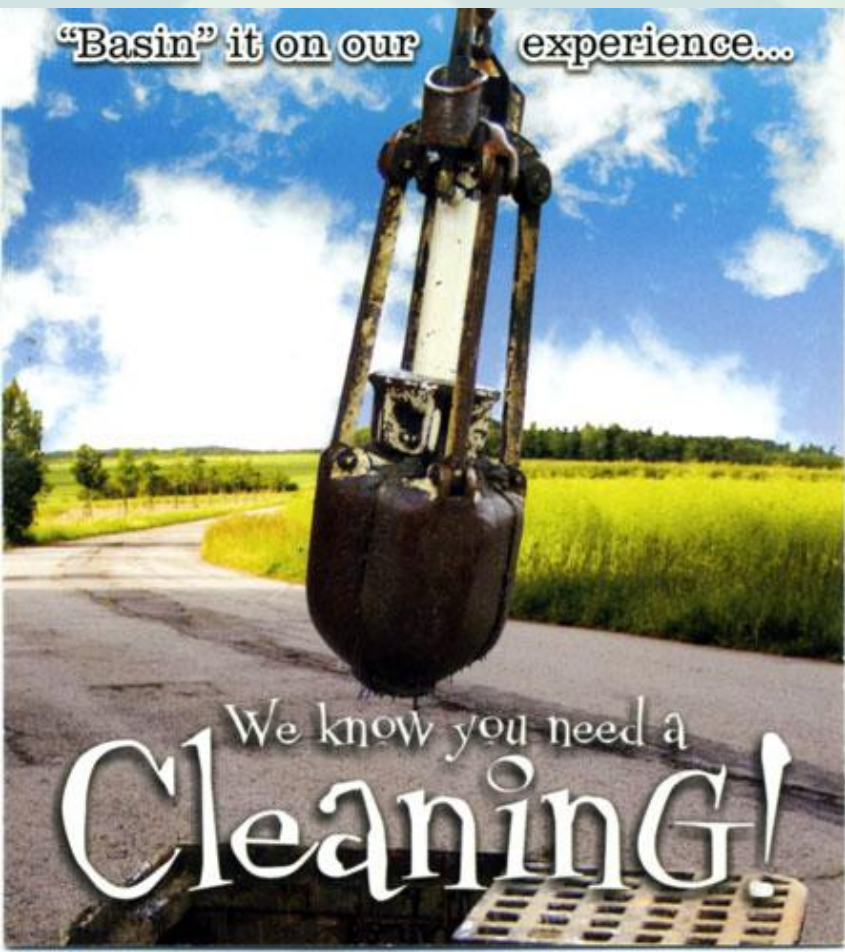


# Towards a more sustainable urban water cycle





# Catch Basin Cleaning



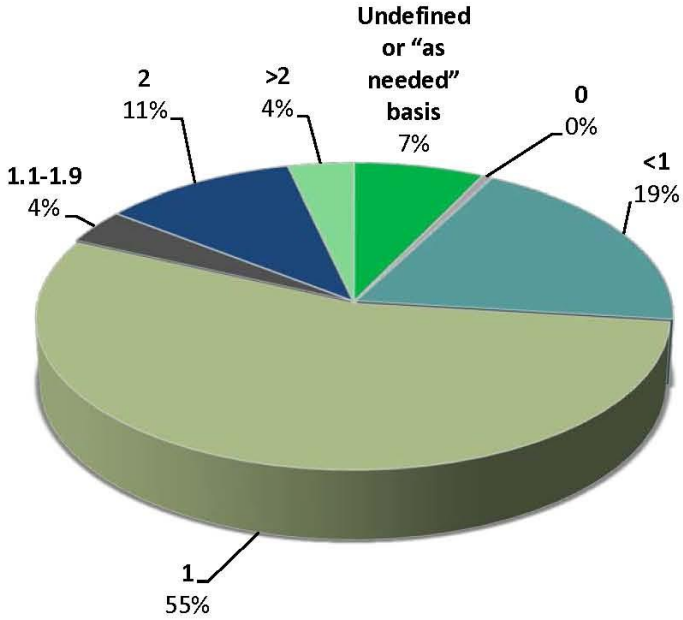
[http://www.worldsweeper.com/phpmd\\_contractors/alex-b-white-catch-basin-cleaning-and-sweeping-462.html](http://www.worldsweeper.com/phpmd_contractors/alex-b-white-catch-basin-cleaning-and-sweeping-462.html)



# How well are we doing?

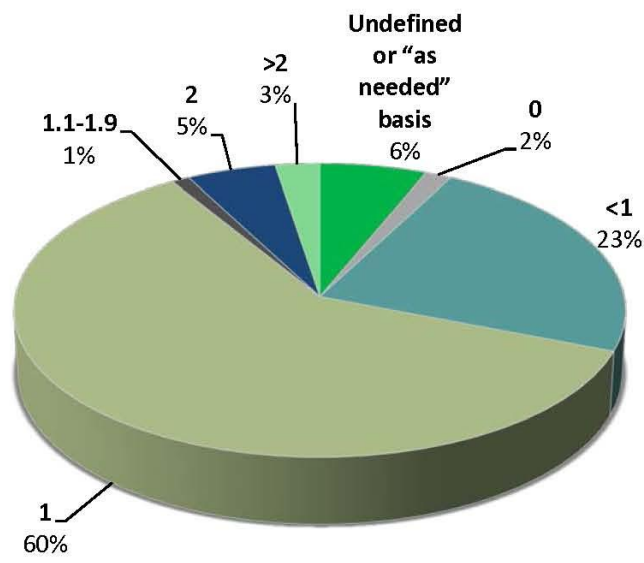
## Pollution Prevention and Good Housekeeping Metric Average Annual Catch Basin Cleaning Frequency

### Commercial/Arterial or Other Critical Streets (Cleanings/year)



83% reporting (193 of 232 municipalities)

### Non-Commercial/ Non-Arterial Streets (Cleanings/year)



84% reporting (194 of 232 municipalities)



# Street Sweeping



[alloveralbany.com/archive/2011/05/06/street-sweeping](http://alloveralbany.com/archive/2011/05/06/street-sweeping)



<http://www.cambridgema.gov/theworks.aspx>



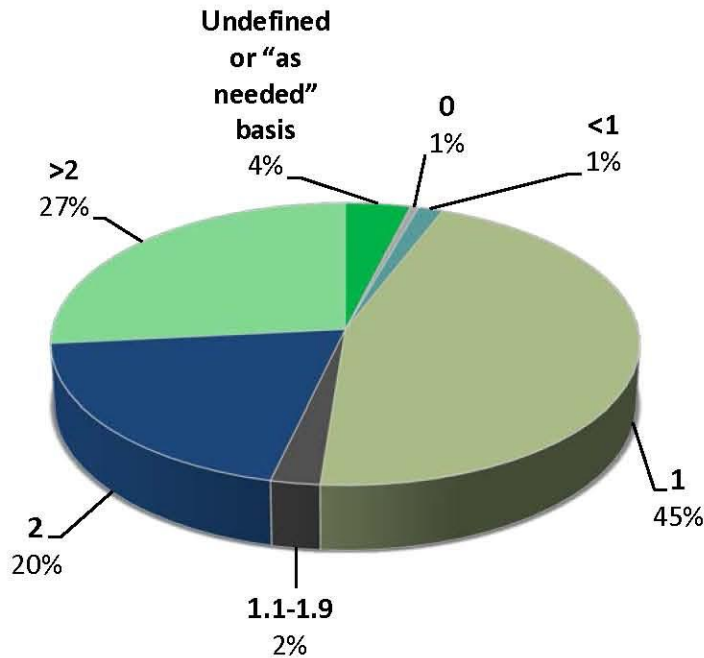
[harrisonwest.org/wp-content/uploads/2012/11/Street\\_Sweeping\\_harrison-west.jpg](http://harrisonwest.org/wp-content/uploads/2012/11/Street_Sweeping_harrison-west.jpg)





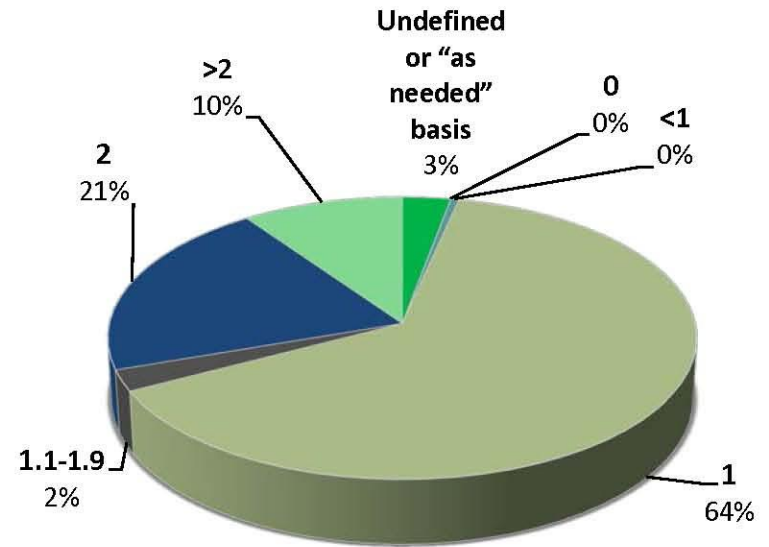
# Pollution Prevention and Good Housekeeping Metric Average Annual Street Sweeping Frequency

## Commercial/Arterial or Other Critical Streets (Cleanings/year)



88% reporting (203 of 232 municipalities)

## Non-Commercial/ Non-Arterial Streets (Cleanings/year)



88% reporting (205 of 232 municipalities)

# Snow and Ice Management



<http://surfky.com/index.php/communities/67-local-muhlenberg-top-news/25746-two-salt-trucks-off-roads-in-muhlenberg>





# Cleaning Drainage Ditches and Swales



# Maintaining Stormwater Treatment Practices

- Detention Basins
- Constructed Wetland/ Gravel Wetland





# Stormwater Treatment Practices

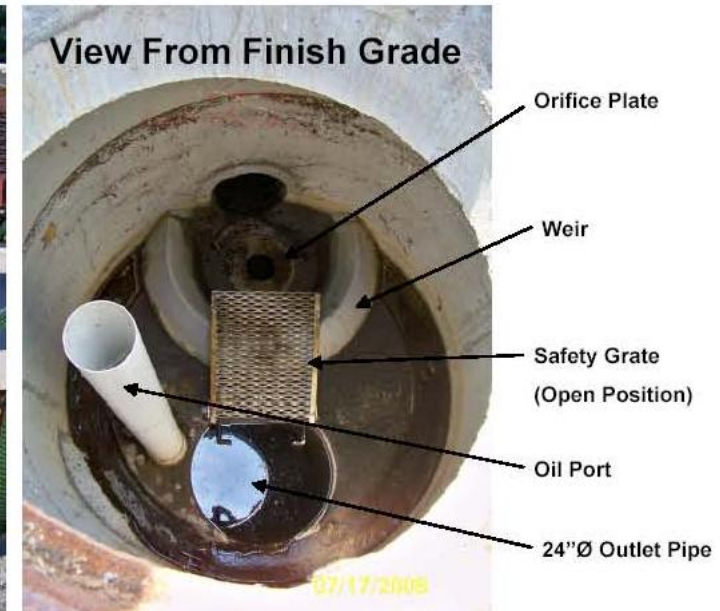
- Bioretention Systems
- Dry Swales





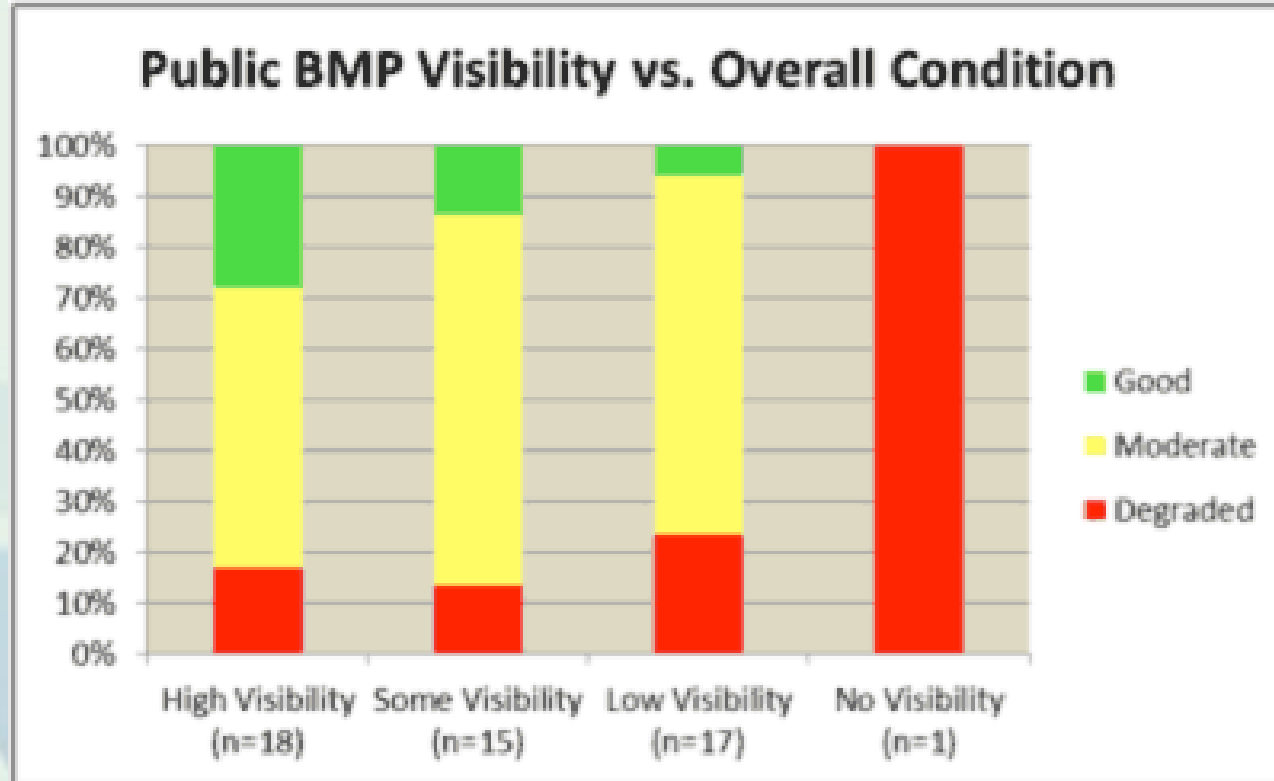
# Stormwater Treatment Practices

- Infiltration chambers
- Oil/water separators





# We Take Care of Problems We Can See....

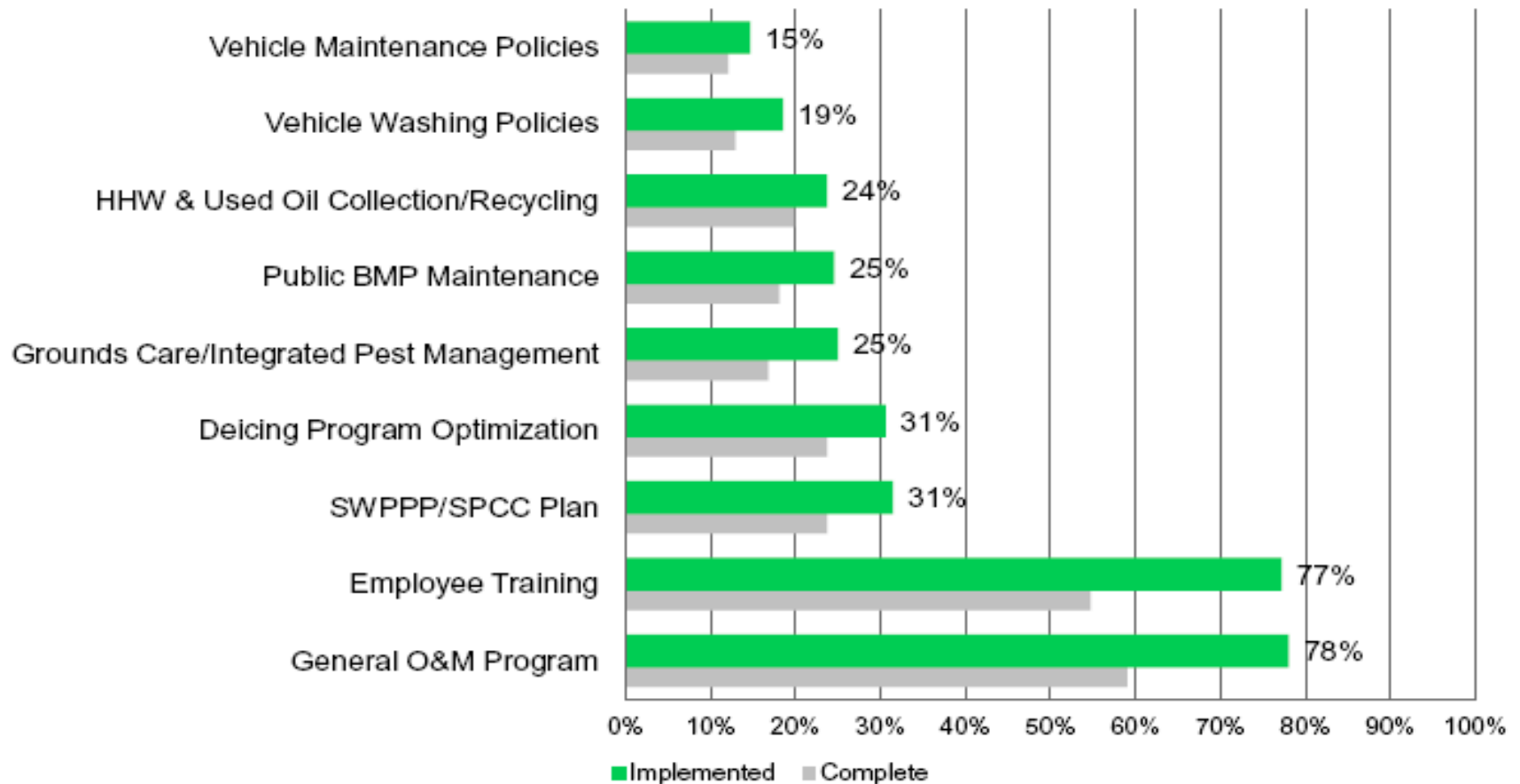


## MVPC Good Housekeeping Survey:

- 7 of 10 DPWs manage their maintenance schedules in response to citizen complaints
- 3 of 10 have a written annual maintenance schedule

# EPA 2011-2012 Annual Report Summary (232 of 238 MS4s)

## Pollution Prevention and Good Housekeeping BMPs (MCM6)



Percent reporting the use and completion of practice among the 97% of MA municipalities reporting



# Questions or Comments?



# Regulations: These Affect Your Stormwater O&M Responsibilities

- NPDES MS4 General Permit
- State Wetlands Protection Regulations
- State Stormwater Management Manual
- Local Wetlands Protection Regulations
- Local Stormwater Management Regulations
- Local Zoning Code + Subdivision Regulations





# Regulations – Local Boards + Commissions

- Regulations affecting municipal stormwater infrastructure:

Decisions by local boards/commissions

- NPDES MS4 General Permit

- State Wetlands Protection Regulations

- State Stormwater Management Manual

- Local Wetlands Protection Regulations

- Local Stormwater Management Regulations

- Local Zoning Code + Subdivision Regulations

- Other: drinking water source protection, contaminated soils regulation



# Local Stormwater Regulation - Applicability

Large projects and subdivisions



Local Site Plan and Subdivision Regulations

Wetlands Protection Regulations

Any impervious cover within:  
100' of a wetland, or  
200' of a stream/river



Stormwater Regulations

Projects > 1 acre, including road projects





# Wetlands Protection Regulations

- State and Local Wetlands Protection Regulations
  - Regulate stormwater management for projects within 100 feet of a wetland, 200 feet of a stream or river
  - MA Stormwater Handbook
    - Defines the menu of treatment practices
    - Treatment (sizing and design) standards
    - Requires a written O & M Plan

# Local Stormwater Management Regulations

- Required by existing 2003 NPDES MS4 Permit
- Some use the MA Stormwater Handbook
- Implementing agencies vary among towns:
  - Planning Board
  - Conservation Commission
  - Zoning Board
  - DPW



# Local Zoning and Subdivision Regulations

- Usually have ‘drainage’ requirements
- Often predate the MA Stormwater Manual
- Stormwater standards often too general or poorly written to apply effectively
- Sometimes conflict with other requirements
- Implemented by:
  - Planning Board, Zoning Board

# NPDES MS4 General Permit

- Federal Clean Water Act program
- Permit-holder: Local municipality for its MS4 (MS4: municipal separate stormwater sewer system)
- Goal: Reduce pollutants in local water






# NPDES MS4 General Permit Overview of Requirements

## Stormwater Management Plan:

- Water Quality Based Effluent Limitations
- Discharges to Certain Impaired Waters
- Reduce Pollutants to the Max Extent Practicable (MEP)
  - Public education and outreach
  - Public involvements and participation
  - Illicit discharge detection and elimination program
  - Construction site stormwater runoff control
  - Stormwater management in new dev't and redev't
  - Good housekeeping and pollution prevention

# NPDES MS4 General Permit Minimum Control Measures

1. Public Education & Outreach
2. Public Involvement & Participation
3. Illicit Discharge Detection and Elimination
4. Construction Runoff
5. Post-Construction Stormwater Management
- 6. Pollution Prevention & Good Housekeeping in Municipal Operations**



Welcome to the  
MS4 program!



# What is Municipal Pollution Prevention/ Good Housekeeping?

## Our working definition:

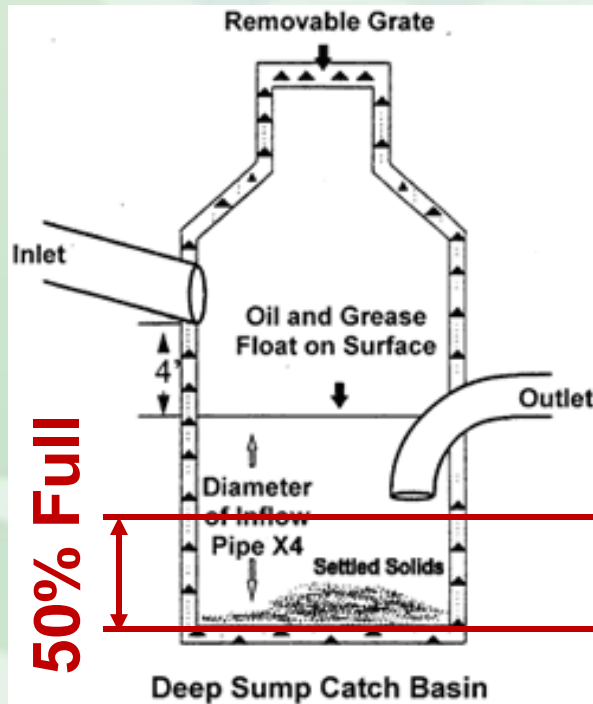
- Assessment and subsequent alteration of municipal operations to reduce the amount of pollution entering the storm drain system and, eventually, receiving water **through the implementation of Best Management Practices (BMPs)**

# Good Housekeeping Requirements

## 'Infrastructure Operations and Maintenance'

(Permit section 2.3.7.a.iii)

- Establish a **written maintenance program** (Yr 1)
- **Catch basin** cleaning must be optimized:
  - Prioritize inspections near construction activities, clean more frequently if needed
  - Clean catch basins before they reach 50% full
  - Plan and tracking for optimizing catch basin cleaning throughout the system
  - Annual Reporting: # CBs, # inspected, # cleaned, volume or mass of material removed





# Good Housekeeping Requirements 'Infrastructure Operations and Maintenance'

*(Permit section 2.3.7.a.iii)*

- **Sweeping of Roads and Parking Lots**
  - Minimum 1/year in the spring
  - More frequent sweeping in targeted areas (determined by the municipality based on catch basin inspections and cleaning)
  - Rural uncurbed roads with no catch basins
    - Minimum 1/year in the spring, or
    - Develop an inspection, documentation and targeted sweeping plan (Yr 1)
- **Catch Basin Cleanings and Street Sweepings**
  - Ensure proper storage of cleanings and sweepings prior to disposal



# Good Housekeeping Requirements 'Infrastructure Operations and Maintenance'

*(Permit section 2.3.7.a.iii)*

- **Winter Road Maintenance**
  - Establish procedures for winter road maintenance (Yr 1)
  - Minimize use of sodium chloride, other salts
  - Evaluate opportunities for alternatives
- **Storm Drain Systems and Stormwater Treatment Structures**
  - Establish inspection and maintenance frequencies and procedures
  - Inspections 1/year

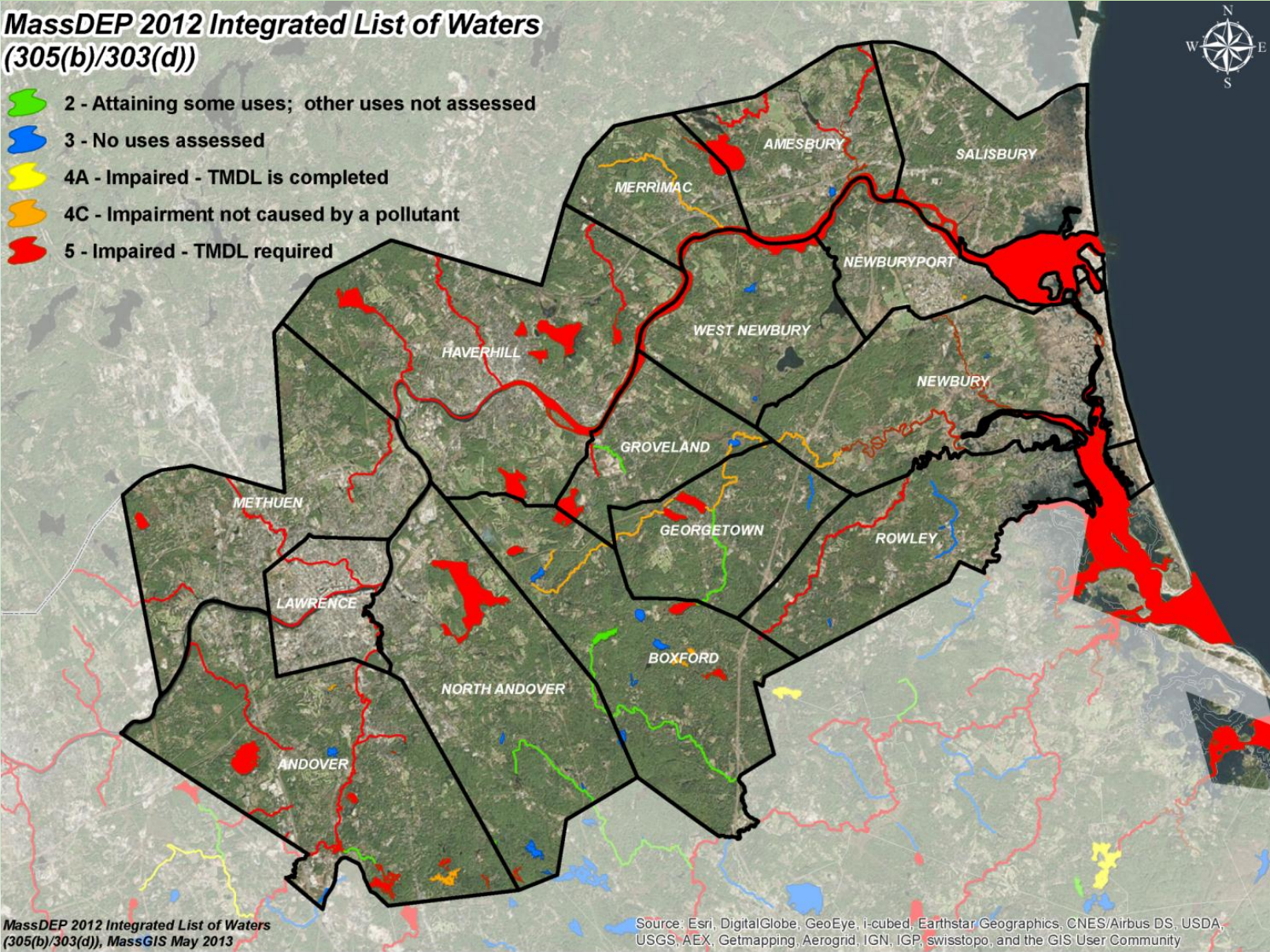




# Enhanced Requirements for Discharges to Impaired Waterbody

## MassDEP 2012 Integrated List of Waters (305(b)/303(d))

- 2 - Attaining some uses; other uses not assessed
- 3 - No uses assessed
- 4A - Impaired - TMDL is completed
- 4C - Impairment not caused by a pollutant
- 5 - Impaired - TMDL required



# Enhanced Requirements for Discharges to Impaired Waterbody

## Nitrogen/Phosphorus Impairment:

- Street and parking lot sweeping 2/yr

## Chloride Impairment:

- Salt reduction plan developed (Yr 3) and implemented (Yr 5)

## Solid, Oil/Grease or Metals Impairment:

- Street and parking lot sweeping increased to target high pollutant sources
- Increase catch basin inspections

# Questions or Comments?





# Resources

Merrimack Valley Stormwater Collaborative: <http://mvpc.org/>

## Pollution Prevention/Good Housekeeping Practices

- [EPA http://water.epa.gov/polwaste/npdes/swbmp/Pollution-Prevention-Good-Housekeeping-for-Municipal-Operators.cfm](http://water.epa.gov/polwaste/npdes/swbmp/Pollution-Prevention-Good-Housekeeping-for-Municipal-Operators.cfm)
- Winter Parking Lot and Sidewalk Maintenance Manual (June 2008)  
[www.pca.state.mn.us/publications/parkinglotmanual.pdf](http://www.pca.state.mn.us/publications/parkinglotmanual.pdf)
- Minnesota Snow and Ice Control: Field Handbook for Snow Operators (Sept 2012).  
[www.mnltap.umn.edu/publications/handbooks/documents](http://www.mnltap.umn.edu/publications/handbooks/documents)
- NH Green Snow Pro Training and Certification Program  
<http://www.t2.unh.edu/green-snowpro-training-and-certification>

## Regulations

- EPA Region 1 MS4 Permit Information  
<http://www.epa.gov/region1/npdes/stormwater/#smallms4program>
- MassDEP 2012 Integrated List of Waters 303(d)  
[http://www.epa.gov/region1/npdes/stormwater/MS4\\_MA.html](http://www.epa.gov/region1/npdes/stormwater/MS4_MA.html)
- MA Stormwater Manual  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts>



# CENTRAL MASSACHUSETTS REGIONAL STORMWATER COALITION



[www.centralmastormwater.org](http://www.centralmastormwater.org)

Search

## Standard Operating Procedures

[Printer-Friendly Version](#)

During Year 1 of the project, a number of Standard Operating Procedures (SOPs) were developed to guide communities towards meeting the six minimum control measures in the 2003 MS4 Permit. Some of the SOPs were created in anticipation for what is to come in the next permit. Click on the SOP below for the narrative and inspection forms associated with each.

[Dry Weather Outfall Inspection](#)

[Wet Weather Outfall Inspection](#)

[Catch Basin Inspection and Cleaning](#)

[Spill Response and Cleanup](#)

[Construction Site Inspection](#)

[Erosion and Sedimentation Control](#)

[Fuel and Oil Handling](#)

[Inspecting Constructed BMPs](#)

[Locating Illicit Discharges](#)

[Oil/Water Separator Maintenance](#)

[Storage and Use of Pesticides and Fertilizer](#)

[Water Quality Screening with Field Kits](#)

[Private Drainage Connections](#)



157 Main Street  
Spencer, MA 01562  
[www.spencerma.gov](http://www.spencerma.gov)



67 Forest Street  
Marlborough, MA 01752  
[www.tataandhoward.com](http://www.tataandhoward.com)

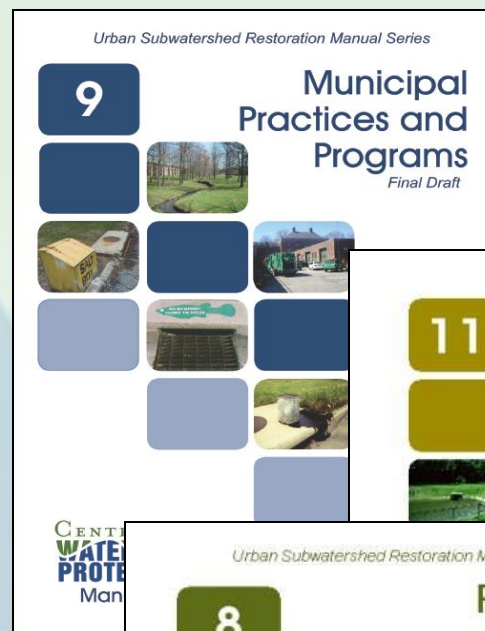


# CWP Urban Watershed Restoration Manual Series

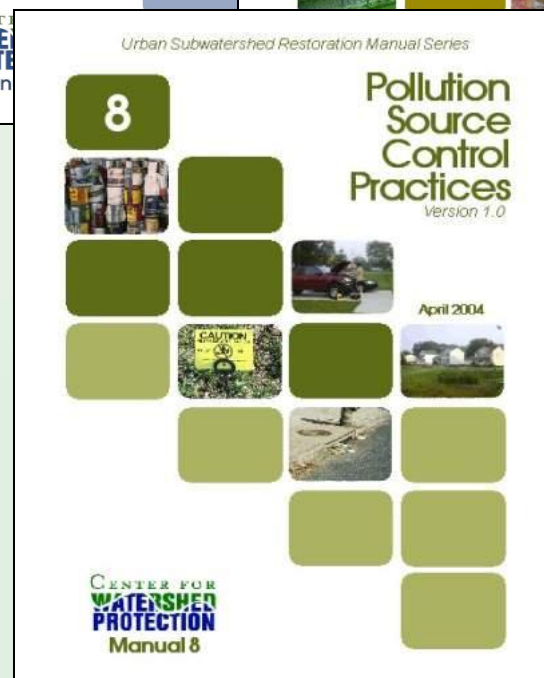
#9 Municipal Pollution Prevention/Good Housekeeping Practices—Programs

#8 Pollution Source Control Practices--Solutions

#11 Unified Subwatershed and Site Reconnaissance: A User's Manual—Assessment Protocols



[www.cwp.org](http://www.cwp.org)





## Water: Best Management Practices

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Education & Training

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# Pollution Prevention/Good Housekeeping for Municipal Operators

### Education

[Municipal Employee Training and Education](#)

### Municipal Activities

[Coal-Tar Sealcoats and Polycyclic Aromatic Hydrocarbons](#) (2 pp, 389K, [About PDF](#))

[Municipal Landscaping](#)

[Municipal Vehicle Fueling](#)

[Municipal Vehicle and Equipment Maintenance](#)

[Municipal Vehicle and Equipment Washing](#)

[Parking Lot and Street Cleaning](#)

[Road Salt Application and Storage](#)

[Roadway and Bridge Maintenance](#)

[Storm Drain System Cleaning](#)

### Municipal Facilities

[Hazardous Materials Storage](#)

[Materials Management](#)

[Municipal Facilities Management](#)

[Spill Response and Prevention](#)

### EPA Internet Resources:

- [Urban Management Measures Guidance](#) Chapters 7, 9 and 11 address some of the issues found in this minimum measure.
- [Stormwater case studies on good housekeeping](#) includes case studies of how a Phase I or Phase II community has implemented the good housekeeping requirements.

### Other Internet Resources:

- [California Municipal Stormwater BMP Handbook](#) [EXIT Disclaimer](#)
- [2005 Stormwater Management Manual for Western Washington : Volume IV -- Source Control BMPs](#) [EXIT Disclaimer](#)
- [Example Good Housekeeping Practices - Alameda Countywide Clean](#)



# Efficiencies, Cost Sharing, Working Together



## Food for Thought:

- CB Cleaning
- Street Sweeping
- Disposal Services
- Field Investigation
- Training
- Outreach
- Purchasing

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