EBC Connecticut Stormwater Program

MS4 Compliance Resources for Year Two & Beyond
Welcome

Dana Huff

Chair, EBC Connecticut Chapter

Vice President, Tighe & Bond

Environmental Business Council of New England
Energy Environment Economy
Program Overview
Purpose and What You Will Learn

Joseph Canas

Program Chair & Moderator

Project Manager, Tighe & Bond
Connecticut MS4:
Year 2 Overview and a Look Ahead

Joseph Canas

Project Manager
Tighe & Bond
MS4 YEAR 2 OVERVIEW

Presentation to EBC
January 24, 2019

Joseph Canas, PE, LEED AP, CFM, Project Manager
AGENDA

• MS4 Program Background
• Program Overview
• Ongoing Requirements
• Year 1 Tasks
• Year 2 Requirements
• Year 3 Look Ahead
MS4 - WHAT DOES IT STAND FOR?

Not to be confused with the much cooler MI6

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems
• Rooted in 1972 Clean Water Act

• 1990 ruling required stormwater to be regulated in two phases
  - Phase 1 (1990)
    - Cities over 100,000
    - Construction over 5 acres
  - Phase 2 (1999)
    - Urbanized Areas
    - Construction 1-5 acres
MS4 BACKGROUND

• EPA developed initial guidelines

• EPA delegates stormwater authority to most states, including Connecticut

• First CT MS4 permit issued in 2004

• Reissued in 2017
MS4 BACKGROUND

2004 Permit

21 pages

2017 Permit

68 pages
CONNECTICUT MS4 COMMUNITIES

• **2004 Permit**
  - 113 communities

• **2017 Permit**
  - 121 communities
BASIC REPORTING REQUIREMENTS

- Stormwater Management Plan
- Screening and Sampling
- Annual Report
BASIC REPORTING REQUIREMENTS

• Plan required once at beginning of permit, unless amended

• Report required annually
  - Post electronically, and hardcopy for public review and comment
  - “Reasonable efforts” to inform public
  - Minimum 45 day comment period
  - Due by April 1 of following year.
WHERE IT APPLIES – “PRIORITY AREAS”

Urbanized Area

DCIA > 11%

Direct Discharge to Impaired Waters
INVALUABLE TOOL

www.cteco.uconn.edu/projects/ms4/index.htm
PRIORITY AREAS

Impaired Waters

Urbanized Areas
PRIORITY AREAS

- Dry weather screening and wet weather sampling to take place in “Priority Areas”

- One or more of the following
  - Urbanized Area
  - Impaired Waters
  - Watershed DCIA > 11%

Watersheds DCIA > 11%
SIX MINIMUM CONTROL MEASURES

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Controls
5. Post-Construction Site Stormwater Controls
6. Municipal Operations
## ONGOING TASKS

### 1. Public Education and Outreach

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Implement Public Education Program</td>
<td>• Implement Public Education Program</td>
</tr>
<tr>
<td>- Target pollutants of concern</td>
<td>- Target pollutants of concern</td>
</tr>
</tbody>
</table>
## ONGOING TASKS

### 2 Public Involvement and Participation

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Comply with Public Notice Requirements for Annual Report</td>
<td>• Comply with Public Notice Requirements for Annual Report</td>
</tr>
</tbody>
</table>
# ONGOING TASKS

## Illicit Discharge Detection and Elimination

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Track illicit discharges</td>
<td>• Maintain citizen reporting program</td>
</tr>
<tr>
<td>• Maintain citizen reporting program</td>
<td>• Maintain citizen reporting program</td>
</tr>
<tr>
<td>• System mapping</td>
<td>• Record IDDE abatement activities</td>
</tr>
<tr>
<td>• Record IDDE abatement activities</td>
<td>• Record IDDE abatement activities</td>
</tr>
<tr>
<td>• Maintain SSO Inventory</td>
<td>• Maintain SSO Inventory</td>
</tr>
</tbody>
</table>
## Ongoing Tasks

### 2004 Permittees
- Continue following Interdepartmental Coordination Plan
- Conduct site inspections / plan reviews
- Citizen reporting mechanism
- Notify developers of CTDEEP Construction General Permit

### 2017 Permittees
- Continue following Interdepartmental Coordination Plan
- Conduct site inspections / plan reviews
- Citizen reporting mechanism
- Notify developers of CTDEEP Construction General Permit
**ONGOING TASKS**

<table>
<thead>
<tr>
<th>Post-Construction Site Stormwater Controls</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enforce stormwater management requirements</td>
<td>• Enforce stormwater management requirements</td>
</tr>
</tbody>
</table>
### ONGOING TASKS

**2004 Permittees**
- Annual training
- Municipal property and operations best practices
- DCIA Tracking
- Street sweeping, priority areas
- Catch basin inspection and cleaning
- Snow / Ice SOP

**2017 Permittees**
- Municipal property and operations best practices
- DCIA Tracking
- Street sweeping, priority areas
- Catch basin inspection and cleaning
- Snow / Ice SOP
YEAR 1 TASKS

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• MCM 3</td>
<td>• MCM 6</td>
</tr>
<tr>
<td>• Develop Written IDDE Plan</td>
<td>• Establish catch basin inspection and cleaning schedule</td>
</tr>
<tr>
<td>• Establish IDDE Legal Authority</td>
<td>• Develop plan for street sweeping in non-priority areas</td>
</tr>
</tbody>
</table>
## YEAR 2 TASKS

### Illicit Discharge Detection and Elimination

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Map all outfalls and interconnection</td>
<td>• Develop written IDDE program</td>
</tr>
<tr>
<td>• Complete outfall categorization and prioritization</td>
<td>• Establish IDDE legal authority</td>
</tr>
<tr>
<td>• Follow up on identified illicit discharges</td>
<td></td>
</tr>
</tbody>
</table>

![Image of a person inspecting a pipe in the ground]
## YEAR 2 TASKS

### Construction Site Stormwater Controls

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Implement and upgrade land use regulations to meet MS4 requirements</td>
<td></td>
</tr>
</tbody>
</table>

![Calendar Image]
<table>
<thead>
<tr>
<th>YEAR 2 TASKS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post-Construction Site Stormwater Controls</strong></td>
</tr>
<tr>
<td><strong>2004 Permittees</strong></td>
</tr>
<tr>
<td>• Implement maintenance plan for stormwater ponds and treatment structures</td>
</tr>
</tbody>
</table>
## YEAR 2 TASKS

### Municipal Operations

<table>
<thead>
<tr>
<th>2004 Permittees</th>
<th>2017 Permittees</th>
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</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image of person at desk with stacks of paper" /></td>
<td><img src="image2.png" alt="Image of person at desk with stacks of paper" /></td>
</tr>
</tbody>
</table>

- Develop employee stormwater management training program
YEAR 3 LOOK AHEAD – 2004 PERMITTEES

- Determine baseline DCIA
- Develop retrofit plan
- Complete dry weather outfall screening
- Finalize detailed MS4 mapping
- Inspect all catch basins in Priority Areas
YEAR 3 LOOK AHEAD – 2017 PERMITTEES

• Determine baseline DCIA
• Establish construction site legal authority
• Map all MS4 outfalls
• Maintenance plan for stormwater treatment structures
• Develop retrofit plans
QUESTIONS?

Joseph Canas, PE, LEED AP, CFM
Principal Engineer
jacanas@tighebond.com
Future of Stormwater Funding: Update on Utilities in New England

Sarah Bounty  Project Engineer  Tighe & Bond

Emily Scerbo  Project Manager  Tighe & Bond
FUTURE OF STORMWATER FUNDING: UPDATE ON UTILITIES IN NEW ENGLAND

January 24, 2019

Emily Scerbo, PE
Sarah Bounty, PE
OUTLINE

• MS4s in CT
• Funding Options
• Stormwater Utilities Outside CT
• Example Fee Structures
• Path Forward for CT
CT MS4

- Permit issued by CTDEEP
- July 1, 2017 effective date, currently in Permit Year 2
FUNDING OPTIONS FOR STORMWATER

• General Fund

• Limited grant funding opportunities

• Stormwater Utility
  - User fee assessed similar to water or wastewater

• Lack of broad enabling legislation for Stormwater Utilities in CT
  - Four pilot communities authorized in 2007 to develop stormwater authorities and charge a fee
CHALLENGE OF FUNDING STORMWATER

Police
Fire
Schools
Highway
Seniors
Recreation
Stormwater
General Fund
STORMWATER UTILITY

- User fee based
- Flexible and varied
- Equitable
  - Tax exempt properties contribute
- Common in other parts of the country and gaining popularity in New England
TIMELINE OF STORMWATER UTILITIES IN NEW ENGLAND

* Orange indicates adopted utilities

- Chicopee, MA (1998)
- Newton, MA (2000)
- Reading, MA (2002)
- Lewiston, ME (2006)
- Fall River, MA (2008)
- Burlington, VT (2010)
- Bangor, ME (2012)
- Westfield, MA (2014)
- Milton, MA (2016)
- Brookline, MA (2018)
- Augusta, ME (2018)
- Chelmsford, MA (2018)
- Colchester, VT (2018)
- Dracut, MA (2018)
- Longmeadow, MA (2018)
- Northampton, MA (2019)
- Williston, VT (2019)
- Ashland, MA (2019)
- Braintree, MA (2019)
- Millis, MA (2019)
- Pepperell, MA (2019)
- Portland, ME (2020)
SUMMARY OF STORMWATER UTILITIES IN NEW ENGLAND
DRIVERS FOR STORMWATER UTILITY

- Insufficient funding
- Consolidate responsibilities
- Regulatory mandates
- Flooding
- Aging infrastructure
- Need for comprehensive, cohesive, consistent programs
- Protecting recreation areas
DEMOGRAPHICS OF NEW ENGLAND SWU COMMUNITIES

Table 1. Median Household Income vs. Annual Rate

<table>
<thead>
<tr>
<th>Community</th>
<th>Median Household Income</th>
<th>Single Family Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newton, MA</td>
<td>$127,402</td>
<td>$75.00</td>
</tr>
<tr>
<td>Reading, MA</td>
<td>$115,416</td>
<td>$40.00</td>
</tr>
<tr>
<td>Milton, MA</td>
<td>$111,071</td>
<td>$32.00</td>
</tr>
<tr>
<td>Chelmsford, MA</td>
<td>$93,643</td>
<td>$40.00</td>
</tr>
<tr>
<td>Colchester, VT</td>
<td>$67,413</td>
<td>$52.00</td>
</tr>
<tr>
<td>Pepperell, MA</td>
<td>$64,663</td>
<td>$60.00</td>
</tr>
<tr>
<td>Northampton, MA</td>
<td>$61,813</td>
<td>$66.18</td>
</tr>
<tr>
<td>Dracut, MA</td>
<td>$57,876</td>
<td>$90.00</td>
</tr>
<tr>
<td>Westford, MA (Proposed)</td>
<td>$125,143</td>
<td>$120.00</td>
</tr>
<tr>
<td>Westfield, MA</td>
<td>$45,240</td>
<td>$20.00</td>
</tr>
<tr>
<td>Burlington, VT</td>
<td>$42,677</td>
<td>$79.20</td>
</tr>
<tr>
<td>Augusta, ME</td>
<td>$37,027</td>
<td>$99.60</td>
</tr>
<tr>
<td>Fall River, MA</td>
<td>$36,798</td>
<td>$160.00</td>
</tr>
<tr>
<td>South Burlington, VT</td>
<td>$67,396</td>
<td>$80.28</td>
</tr>
<tr>
<td>Williston, VT</td>
<td>$61,620</td>
<td>$51.00</td>
</tr>
<tr>
<td>Mills, MA</td>
<td>$62,806</td>
<td>$33.00</td>
</tr>
<tr>
<td>Braintree, MA</td>
<td>$87,500</td>
<td>$25.00</td>
</tr>
<tr>
<td>Loweston, ME</td>
<td>$36,035</td>
<td>$60.00</td>
</tr>
<tr>
<td>Chicopee, MA</td>
<td>$35,585</td>
<td>$100.00</td>
</tr>
<tr>
<td>New London, CT</td>
<td>$35,357</td>
<td>$30.00</td>
</tr>
<tr>
<td>Bangor, ME</td>
<td>$35,107</td>
<td>$22.00</td>
</tr>
<tr>
<td>Portland, ME</td>
<td>$29,445</td>
<td>$75.60</td>
</tr>
</tbody>
</table>
EXAMPLE UTILITY FEES

- **Equivalent Residential Unit (ERU)**
  - Based on the average residential lot
  - Impervious Area on each parcel is determined with GIS
  - Impervious Area per Parcel / ERU = ERUs per parcel
  - A fee can be established on an ERU basis

[Image of Equivalent to 1 ERU and Equivalent to 5 ERUs]
EXAMPLE UTILITY FEES

• **ERU basis offers flexibility**
  - Block rates (up to X ERUs = flat rate)
  - Proportional rates (5 ERUs = 5 x base rate)
  - Combination (flat rate for all residential, proportional for other properties)

• **Credit policies can reduce fees**
  - Elderly, disabled, and veteran populations
  - BMPs or LID on certain property types
  - Educational components of MS4 permit obligations

• **Typical residential fees in New England:**
  
  $25-$160 per year
KEY STEPS TO A ROBUST STORMWATER PROGRAM

• Review needs and drivers specific to individual town
  - Estimate current and future stormwater program costs

• A “Champion” in Town Leadership is Essential

• Public support
EXAMPLE PROGRAM COSTS

Typical MA community of approximately 25,000

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Staff Salaries</th>
<th>Operation and Maintenance</th>
<th>Program Management and Compliance</th>
<th>Capital Improvement Projects</th>
<th>Annual Program Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>$185,000</td>
<td>$150,000</td>
<td>$50,000</td>
<td>$180,000</td>
<td>$570,000</td>
</tr>
<tr>
<td>Future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - Advanced</td>
<td>$380,000</td>
<td>$320,000</td>
<td>$230,000</td>
<td>$1,500,000</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>B - Protective</td>
<td>$370,000</td>
<td>$240,000</td>
<td>$170,000</td>
<td>$700,000</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>C - Minimum Compliance</td>
<td>$250,000</td>
<td>$160,000</td>
<td>$130,000</td>
<td>$300,000</td>
<td>$840,000</td>
</tr>
</tbody>
</table>
MAKING THE CASE FOR A UTILITY

- Asset Management
- Financial Obligations
- Equitable Funding

Malloy Budget Slashes Money For Wealthy Communities, But Overall Municipal Aid Unchanged

Gov. Malloy Cuts Municipal Aid by $91 Million, Stunning Legislators And Local Leaders

Lamont plants clues to his first budget in opening address

Though full details won't be forthcoming for weeks, Lamont indicated he would seek big savings from unionized state employees and from municipalities.
• Lack of enabling legislation and precedent
  - 2004
    - OLR Research Report
  - 2007
    - Pilot Communities
  - 2018
    - New London Utility
PATH FORWARD

• Build support for program now
• Develop and maintain a robust MS4 program
• Determine service needs and gaps
• Determine financial need

• Consider advocating for enabling legislation – find partners
  - CT Conference of Municipalities
  - CT Fund for the Environment
• Learn from New London and other examples around New England
UConn’s CLEAR’s Data, Tools, & Support for MS4 Communities

David Dickson

NEMO Program Co-Director & Mobile Mapping Educator

UConn Clear & Department of Education

Environmental Business Council of New England
Energy Environment Economy
UConn CLEAR’s Data, Tools, & Support for MS4 Communities

Environmental Business Counsel of NE Meeting

January 24, 2019

David Dickson, UConn CLEAR
MISSION: to provide information and assistance to land use decision makers and other audiences in support of better land use decisions, healthier natural resources, and more resilient communities.
NEMO’s MS4 Support

Funded by DEEP for 5 years

- MS4 educator
- website & listserv
- workshops & webinars
- maps & data

Amanda Ryan

http://s.uconn.edu/ctms4list

workshops & webinars

maps & data

http://nemo.uconn.edu/ms4
Online MS4 Guide

1. Basics
2. Tasks
3. Tools

http://nemo.uconn.edu/ms4
MS4 Basics

MS4 Tasks for 2004 Permits:

- MS4 Basics
- Tasks for 2004 Permits
- Connecticut MS4 Guide
- Download [1.03 MB]

http://nemo.uconn.edu/ms4
MS4 Implementation Tasks

IDDE Workshop Materials
The NEMO program and Fuss and O'Neill presented a workshop on IDDE on 9/27/17 at Newington Town Hall. Most of the presentations were recorded. The presentation slides and recordings (where available) can be found below.

IDDE Overview, presented by David Dickson, UConn CLEAR

IDDE Written Program, presented by Erik Mas, Fuss and O'Neill

IDDE Mapping Requirements, presented by David Dickson, UConn CLEAR

CT MS4 General Permit: Developing a Written IDDE Program
IDDE Workshop
September 27, 2017

CT MS4 General Permit: IDDE Mapping Requirements
IDDE Workshop
9/27/17

IDDE workshop materials

Connecticut MS4 Guide
Required topics

• Pet waste
• Fertilizer, herbicides, and pesticides
• Impervious cover
• Illicit discharges

Additional topics

• Topics based on impairments for nitrogen, phosphorus, bacteria, mercury

http://nemo.uconn.edu/ms4
Tools & Templates

- SMP, Annual Report, & IDDE Templates
- Legal authorities templates (soon)

http://nemo.uconn.edu/ms4
Tools & Templates

- SMP, Annual Report, & IDDE Templates
- Legal authorities templates (soon)
- Recorded webinars

http://nemo.uconn.edu/ms4
Tools & Templates

- SMP, Annual Report, & IDDE Templates
- Legal authorities templates (soon)
- Recorded webinars
- FAQs

http://nemo.uconn.edu/ms4
Identifying Priority Areas - MS4 Map Viewer

- Urbanized Area
- MS4 Impaired Waters
- DCIA>11%
  - New HR IC Data
    - By Basin
    - By Town
    - DOT & Non-DOT IC

http://s.uconn.edu/ctms4map
Mapping Your Stormwater System

• Outfalls & interconnections
  • All outfalls (townwide, regardless of size)
  • Due Date
    • July 1, 2019 (existing MS4s)
    • July 1, 2020 (new MS4s)

• Entire system
  • In priority areas
  • Due Date
    • July 1, 2020 (existing MS4s)
    • July 1, 2022 (new MS4s)
Mapping Options

MS4 Mapping Workshop
Fall 2018
Rocky Hill, CT
Map & Disconnect Impervious Cover

• Establish baseline estimate of connected impervious cover
• Develop plan to disconnect 2% by 2022
• Track disconnections
Map & Disconnect Impervious Cover

- Establish baseline estimate of connected impervious cover
- Develop plan to disconnect 2% by 2022
- Track disconnections
- New Statewide High-Res IC Data
Map & Disconnect Impervious Cover

• Establish baseline estimate of connected impervious cover
• Develop plan to disconnect 2% by 2022
• Track disconnections
• New Statewide High-Res IC Data
• Mapping workshop recordings
Water Quality Monitoring

Two monitoring requirements:
- Impaired waters
- IDDE

 Helpful resources
- MS4 Monitoring webpage
- MS4 Map viewer

<table>
<thead>
<tr>
<th>area covered</th>
<th>Impaired waters monitoring</th>
<th>Baseline monitoring (IDDE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All outfalls to Stormwater impaired waters</td>
<td>Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DOC &gt; 11%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)</td>
</tr>
<tr>
<td>type of sampling</td>
<td>wet weather</td>
<td>dry weather for initial baseline screening</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dry weather manhole investigation wet weather screening at outfall for catchment with at least one SVF to be investigated and screened.</td>
</tr>
<tr>
<td>pollutant(s) to screen for</td>
<td>The listed stormwater pollutant of concern (nitrogen, phosphorus, bacteria, or other pollutant of concern). Note that for waters impaired by 'other pollutant of concern' screen for turbidity.</td>
<td>Listed stormwater pollutants of concern (if any), PLUS: ammonia, chlorine, conductivity, salinity, E. coli, Enterococcus (saline or brackish receiving water), surfactants, temperature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dry ww: ammonia, chlorine, and surfactants Wet ww: listed impairment pollutant(s) (if any), PLUS ammonia, chlorine, conductivity, salinity, E. coli, Enterococcus (saline or brackish receiving water), surfactants, temperature</td>
</tr>
</tbody>
</table>

**Helpful resources**
- MS4 Monitoring webpage
- MS4 Map viewer
Water Quality Monitoring

Impaired waters outfall monitoring

- Does the outfall discharge to an impaired waterbody? No → Do not need to screen this outfall
- Yes → Conduct wet weather monitoring for impairment(s)

- Does sample exceed pollutant threshold? No → Conduct drainage area investigation and implement BMPs to address impairment
- Yes → After sampling 50% of outfalls, conduct annual wet weather monitoring of 6 most polluted outfalls

MS4 Monitoring Requirement Comparison

<table>
<thead>
<tr>
<th>Impaired waters monitoring</th>
<th>Baseline monitoring (IDDE)</th>
<th>Catchment Investigation Procedure (IDDE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DOC &gt; 11%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)</td>
<td>Problem, High Priority and Low Priority catchments in the priority area. Those with at least one SFV to be investigated and screened.</td>
<td></td>
</tr>
</tbody>
</table>

- Conduct wet weather monitoring for all outfalls to Stormwater impaired waters

- Dry weather for initial baseline screening

- Dry weather manhole investigation wet weather screening at outfall for catchment with at least one SFV

- Wet weather

- Conduct wet weather monitoring for the 6 most polluted outfalls

- The listed stormwater pollutants of concern (nitrogen, phosphorus, bacteria, or other pollutant of concern). Note that for waters impaired by 'other pollutant of concern' screen for turbidity.

- Dry weather manhole investiga­tion wet weather screening at outfall for catchment with at least one SFV

- Wet weather for listed impairment pollutant(s) (if any), PLUS: ammonia, chloride, and surfactants

- E. coli (freshwater) or enterococcus (saline or brackish receiving water)
Water Quality Monitoring

IDDE baseline monitoring

- Is the outfall in a Priority Area?
  - Yes: Begin Catchment Investigation Procedure
  - No: Do not need to screen this outfall.

- Did you classify it as a high or low priority outfall?
  - Yes: Conduct dry weather IDDE screening
  - No: Do not need to screen this outfall.

- If flow present, did sampling indicate sewer input?
  - Yes: Begin Catchment Investigation Procedure
  - No: Done

- Did you classify it as a problem outfall?
  - Yes: Begin Catchment Investigation Procedure
  - No: Done

Monitoring Requirement Comparison

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Baseline monitoring (IDDE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DocA &gt; 11%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)</td>
<td></td>
</tr>
<tr>
<td>Dry weather for initial baseline screening</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catchment Investigation Procedure (IDDE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem, High Priority and Low Priority catchments in the priority area. Those with at least one SVF to be investigated and screened.</td>
</tr>
<tr>
<td>Dry weather manhole investigation at wet weather screening at outfall for catchment with at least one SVF</td>
</tr>
</tbody>
</table>

- Listed stormwater pollutants of concern (if any), PLUS: ammonia, chlorine, conductivity, salinity, E. coli. (freshwater) or enterococcus (saline or brackish receiving water), surfactants, temperature, E. coli. (freshwater) or enterococcus saline or brackish receiving water, surfactants, temperature
Water Quality Monitoring

**IDDE Catchment Investigation Procedure**

**MS4 Monitoring Requirement Comparison**

<table>
<thead>
<tr>
<th>Impaired waters monitoring</th>
<th>Baseline monitoring (IDDE)</th>
<th>Catchment Investigation Procedure (IDDE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DCIA &gt; 1%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)</td>
<td>Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DCIA &gt; 1%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)</td>
<td>Problem. High Priority and Low Priority catchments in the priority area. Those with at least one SVF to be investigated and screened.</td>
</tr>
<tr>
<td>All outfalls to Stormwater impaired waters</td>
<td>Dry weather for initial baseline screening</td>
<td>Dry weather manhole investigation wet weather screening at outfall for catchment with at least one SVF</td>
</tr>
<tr>
<td>wet weather</td>
<td>wet weather</td>
<td>Dry wx: ammonia, chloride, and surfactants</td>
</tr>
<tr>
<td>wet weather</td>
<td>wet weather</td>
<td>Wet wx: listed impairment pollutant(s) (if any), PLUS ammonia, chlorine, conductivity, salinity, E. coli (freshwater) or enterococcus (saline or brackish receiving water) surfactants temperature</td>
</tr>
</tbody>
</table>

The listed stormwater pollutant of concern (nitrogen, phosphorus, bacteria, or other pollutant of concern). Note that for waters impaired by 'other pollutant of concern' screen for turbidity.
Water Quality Monitoring – Identifying Impaired Waters

• Know the impaired waters in municipality/institution
  • [http://s.uconn.edu/ctms4map](http://s.uconn.edu/ctms4map)

• Begin monitoring outfalls to impaired waters by:
  
  July 2018 – Existing MS4
  July 2019 – New MS4

• **Red** – use for determining priority area and for impaired waters monitoring
• **Purple** – impaired waters monitoring only
Updating Land Use Regulations

- Remove obstacles to LID
- Establish LID as preferred approach
- 2% disconnect by 2022
- Site redevelopment retention standards

http://s.uconn.edu/stateoflid
Future Workshop/Webinar Topics

• Stormwater Collaboratives
Future Workshop/Webinar Topics

• Stormwater Collaboratives
• Stormwater Utilities
Future Workshop/Webinar Topics

• Stormwater Collaboratives
• Stormwater Utilities
• Your favorite (or least favorite) topic here
If you get stressed, remember MEP

**Maximum Extent Practicable (MEP)**
- Make a serious attempt to comply
- Don’t reject practical solutions
- Attenuating factors:
  - MS4 size
  - Ability to finance
  - Capacity to perform operations & maintenance
  - Local conditions
  - Etc.
If MEP chanting fails . . .

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http://nemo.uconn.edu/ms4
Panel Discussion

Moderator: Joe Canas, Tighe & Bond

Panelists:

• Sarah Bounty, Tighe & Bond
• David Dickson, University of Connecticut CLEAR
• Emily Scerbo, Tighe & Bond