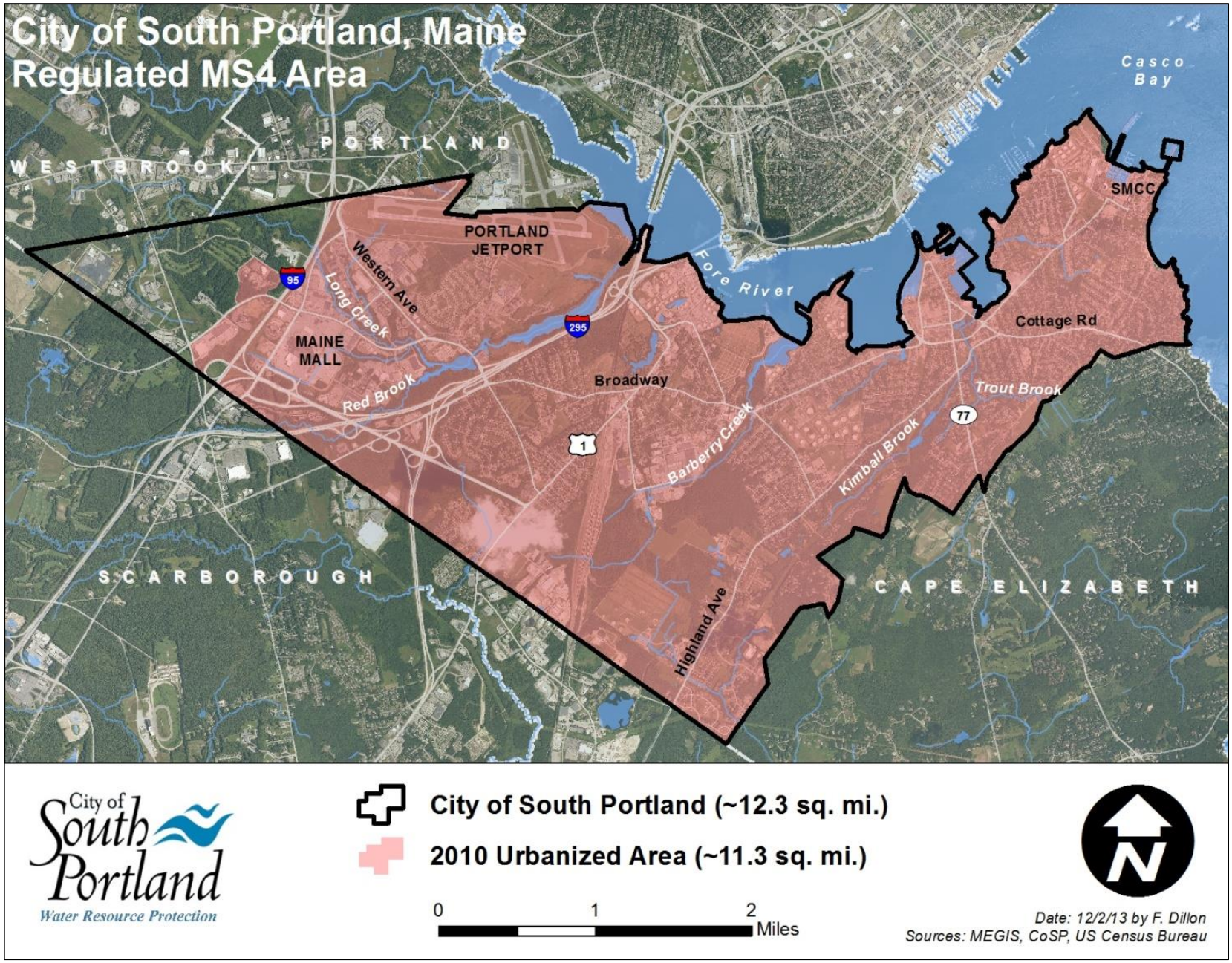
Stormwater Phase II
Annual Report for
Permit Year 3 (2015-16)

City of South Portland
Water Resource Protection

Submitted Electronically to MEDEP on 9/9/16



Cover: Girl Scout Troop 2289 Storm Drain Stenciling Team (photo credit: Catherine Callahan, May 2016)

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ACKNOWLEDGEMENTS

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- **Karen Wilson** ~ *University of Southern Maine Department of Environmental Science & Policy*
- **The many teachers & students who participated in the City's Stormwater Program Education & Outreach efforts**

Please direct questions about any aspect of this report to Fred Dillon (207-347-4138 / fdillon@southportland.org)

Introduction

In accordance with Maine's Small Municipal Separate Storm Sewer Systems (MS4) program, the City of South Portland continued its commitment to protect and improve local water resources through the implementation of our Stormwater Program Management Plan. City staff and program partners from the Maine Department of Environmental Protection (MEDEP), Cumberland County Soil & Water Conservation District (CCSWCD), Interlocal Stormwater Working Group (ISWG), the Maine Water Environment Association (MEWEA), the Portland Water District (PWD), Long Creek Watershed Management District (LCWMD), the Friends of Casco Bay (FOCB), the Casco Bay Estuary Partnership (CBEP), the Maine Healthy Beaches Program (MHB) and the South Portland Conservation Commission (SPCC) - among others - all participated in a wide variety of activities to mitigate the adverse effects of stormwater pollution. This annual report documents these activities for the third Permit Year (2015-16) in the third five year General Permit Cycle (2013-18).

Minimum Control Measure 1 – Public Education and Outreach

The City of South Portland fulfilled its requirements for Public Education and Outreach Minimum Control Measure primarily through continued collaboration with the Interlocal Stormwater Working Group (ISWG) and the ongoing funding to the ISWG for Public Education and Outreach services. **Appendix 1** provides detailed summaries for the activities completed by ISWG in support of MCM1. The City also continued its ongoing partnerships with the Maine Department of Environmental Protection, Portland Water District, Maine Healthy Beaches Program, Friends of Casco Bay, South Portland & Cape Elizabeth Public Schools to increase public awareness about stormwater pollution. WRP staff provided numerous presentations about the City's water resource protection efforts to local schools (Figure 1), at professional conferences and workshops, and submitted articles for publication in the City's biweekly electronic newsletter.

Figure 1: Stormwater Program Intern Gretchen Anderson demonstrates the types of impacts from stormwater pollution to Children's Water Festival attendees (May 2016)

The overall goals for this Minimum Control Measure are:

1. To raise awareness that stormwater pollution is the most significant source of water quality problems for Maine's waters;
2. To motivate people to use BMPs that reduce stormwater pollution; and
3. To reduce polluted stormwater runoff as a result of increased awareness and utilization of BMPs.

BMP 1.1 Continue Awareness Outreach Efforts from Previous MS4 Permit Cycle

Responsible Party: Stormwater Program Coordinator *Additional Party: ISWG Education Coordinator*

INTENT

To promote and increase awareness about the issues associated with stormwater pollution, which is the most significant source of water quality problems in the state.

METHODOLOGY

Beginning July 1, 2013, the City continued its collaboration with the Interlocal Stormwater Working Group (ISWG) to conduct outreach efforts for increasing public awareness of stormwater management issues.

MEASURABLE GOALS

- ***Measureable Goal 1.1.1*** – engage in efforts to increase awareness about stormwater pollution including through ongoing collaboration with the Interlocal Stormwater Working Group.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued collaborating with the ISWG and provided Think Blue Maine and YardScape links on its website and educational materials in municipal buildings to help promote public awareness of local and regional stormwater management concerns.

BMP 1.2 Develop and Implement Stormwater Awareness Plan

Responsible Party: Stormwater Program Coordinator *Additional Party: ISWG Education Coordinator*

INTENT

To raise awareness of polluted stormwater runoff issues for a target audience outside of municipal government.

METHODOLOGY

Continue collaboration with the Interlocal Stormwater Working Group (ISWG) to develop and implement a **Stormwater Public Awareness Plan**.

MEASURABLE GOALS

- ***Measureable Goal 1.1.1*** – by February 1, 2014, develop new or revise existing **Stormwater Public Awareness Plan** to raise awareness of stormwater issues for target audience outside of municipal government. Plan's goal will be to raise awareness of polluted stormwater runoff issues such as the path stormwater runoff takes, sources of stormwater pollution, and the impact that polluted stormwater runoff has on local water resources.
- ***Measureable Goal 1.1.2*** – by December 1, 2013 submit draft **Stormwater Public Awareness Plan** to Maine DEP for review and approval; draft Plan will be considered approved by February 1, 2014 unless DEP indicates otherwise. **Stormwater Public Awareness Plan** must identify:
    a. The target audience

b. The outreach tool(s) to be used
c. The message
d. The distribution system
e. The time line and implementation schedule
f. The person(s) responsible for implementation
g. An impact evaluation protocol
h. A plan modification protocol (including DEP approval of significant plan modifications)
i. The goals (e.g., the targeted level of change sought as a result of the education and outreach effort)

- ***Measureable Goal 1.1.3*** – provide review of **Stormwater Public Awareness Plan** in each annual report that specifies process indicators to assess execution of the Plan and includes impact indicators according to the following schedule (unless otherwise indicated in Plan):
  - Permit Year 3: conduct cursory evaluation and assessment on both the progress of implementing the Plan and the impact on the target audience
  - Permit Year 5: provide in-depth assessment of both implementation and impact of Plan
- ***Measureable Goal 1.1.4*** – include comprehensive review of **Stormwater Public Awareness Plan** in PY5 Report that includes an analysis of process and impact indicators.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to collaborate with the ISWG to implement the **Stormwater Public Awareness Plan**, as described in **Appendix 1**. Additionally, Stormwater Program and other City staff continued providing presentations and conducting activities on the sources and impacts of polluted stormwater runoff (Table 1).

Table 1: school presentations & activities provided by City Stormwater Program staff during PY2015-16

Date	School	# Students (approx)	Contact	Subject	Comments
10/21/15	Cape Elizabeth High School	12	Kathy Bock	Senior AP Env Science	Class presentation by SW Coord on macros & WQ
10/29/15	Cape Elizabeth High School	12	Kathy Bock	Senior AP Env Science	Field work w/ SW Coord, DEP & Tom Mikulka for macro kick nets
5/3/16	Small School / PWD	43	Sarah Plummer (PWD)	Earth Science	SW Coord, PWD & CBEP staff WQ, macro id & landscape assessment "stations"
5/4/16	SPHS/CEHS Career Fair	50	Jane Eberle	Professions in WQ	SW Coord & Treatment Systems Manager spoke with ~50 students (among ~600 attendees)
5/6/16	Cape Elizabeth High School	12	Kathy Bock	Senior AP Env Science	Field work w/ SW Coord, DEP & Tom Mikulka for macro kick nets
5/10/16	Memorial Middle School	50	Andrew Gelman	Earth Science	Class presentation by SW Coord on City's water resource protection efforts
5/20/16	Children's Water Festival	50	Beth Chase (DEP)	Earth Science	SW Intern & MHB staffer provide SW pollution demonstration for ~50 students (among ~700 attendees)
Various Dates	SoPo 3rd Grade Classes	250	Jane Eberle	General	City Manager presentation to all 3rd graders includes discussion of SW program.
	Total Students (approx.):	***479***			

Among these educational activities was the ongoing and very productive partnership with Cape Elizabeth

High School teacher Kathy Bock and her Advanced Placement Senior Environmental Science class. With the help of retired high school science teacher (and PhD biochemist) Tom Mikulka and Maine DEP's Wendy Garland, Kathy and her students have been helping to identify trends in the aquatic macroinvertebrate community of Trout Brook, one of the City's five urban impaired streams.

The City also continued to participate in the popular and successful Portland Water District-sponsored trout release event at the Trout Brook Nature Preserve in South Portland (Figure 2). Additionally, Water Resource Protection Department staff participated in a very well attended Career Fair sponsored by the South Portland / Cape Elizabeth Community Chamber of Commerce (Figure 3) and published articles on the event in City and Maine Water Environment Association (MEWEA) electronic newsletters. For the second year in a row, Stormwater Program and Maine Healthy Beaches Program staff also partnered on the DEP's Children's Water Festival. Finally, South Portland's City Manager even included a section on stormwater pollution in presentations he provided to all of the City's 3rd graders.

Figure 2: Small School students preparing to release trout fry into Trout Brook during PWD-sponsored public educational event (May 2015)

Figure 3: Treatment Systems Manager Paul Collins explains employment opportunities at the South Portland & Cape Elizabeth High School Career Fair (May 2015)

The City's Stormwater Program Coordinator made numerous presentations at conferences throughout the state on what South Portland is doing to address the adverse effects of polluted stormwater runoff.

- **11/10/15: Waterfront Alliance – Portland Regional Chamber of Commerce** – *Overview of MS4 Program Requirements (presentation with Curtis Bohlen)*
- **2/10/16: Maine Water Utilities Association Trade Show** – *"Disinfection Protocol: Protecting Public Health, Managing MS4 Considerations" (presentation and panel discussion with Brian Kavanah, Roger Crouse, Zach Henderson and Jon Earle)*
- **4/15/16: Maine Water Environment Association Spring Conference** – *"Topics in Stormwater: Nutrients – Current Status, Perspectives and Trends" (presentation and panel discussion with Curtis Bohlen, Nick Batista, Michael Kuhns, Sharon Newman and Chris Perkins)*
- **4/16/16: The 34th National Pesticide Forum** – *"Organizing for Local Policy Change" (presentation and panel discussion with Jon Hinck, Mike Horn, Ling Tan, Avery Yale Kamilla and Rachel Burger)*

BMP 1.3 Develop and Implement Permit Awareness Plan

Responsible Party: Stormwater Program Coordinator *Additional Party: ISWG Education Coordinator*

INTENT

To raise awareness of polluted stormwater runoff and MS4 program requirements for municipal staff including municipal employees, volunteers, Council members and other elected officials.

METHODOLOGY

Continue collaboration with the Interlocal Stormwater Working Group (ISWG) to develop and implement a **Permit Awareness Plan**.

MEASURABLE GOALS

- ***Measureable Goal 1.2.1*** – by January 6, 2014, submit draft **Permit Awareness Plan** to Maine DEP for review and approval; draft Plan will be considered approved by March 1, 2014 unless DEP indicates otherwise and implementation shall begin within one week of approval. The **Permit Awareness Plan** must identify:
    a. The target audience
    b. The outreach tool(s) to be used
    c. The distribution system
    d. Method to address turnover of employees, elected officials and volunteers
    e. The time line and implementation schedule
    f. The person(s) responsible for implementation
    g. An impact evaluation protocol
    h. A plan modification protocol (including DEP approval of significant plan modifications)
    i. The goal (e.g., the target level of awareness for each audience)
- ***Measureable Goal 1.2.2*** – by March 1, 2014 or within one week of DEP approval, the **Permit Awareness Plan** will be implemented to raise awareness of stormwater issues including MS4 permit requirements for municipal employees, elected officials and volunteers within municipal government. The **Permit Awareness Plan's** goal is to raise awareness of polluted stormwater runoff such as the sources of stormwater pollution, the path polluted stormwater runoff takes from the pollution sources to waters of the State, the impact polluted stormwater runoff has on the community, potential measures to reduce or eliminate pollution sources, and General Permit obligations and responsibilities to ensure permit compliance.
- ***Measureable Goal 1.2.3*** – Provide review of **Permit Awareness Plan** in Annual Reports that includes process indicators to assess execution of Plan according to the following schedule (unless otherwise indicated in the Plan):
    - Permit Year 3: evaluate and assess both the progress of Plan implementation and impact efforts are having on target audience
    - Permit Year 5: provide in-depth assessment of both the implementation and impact of **Permit Awareness Plan**

ACTIONS COMPLETED DURING PERMIT YEAR

In addition to collaborating with ISWG to implement the **Permit Awareness Plan** as described in **Appendix 1**, the City's Stormwater Program Coordinator also provided a presentation to the Planning Board on 3/8/16 on the City's MS4 permit requirements and the potential consequences for noncompliance. City staff including the City Manager, Collection Systems Manager and Stormwater Program Coordinator also organized an "***Urban Impaired Streams Tour***" for City Councilors and Planning Board members on 6/13/16. Tour participants visited nearly a dozen stops (Figure 4) throughout the City where stormwater improvement projects are being considered or have already occurred. The tour included a discussion about the relationships between urbanization, polluted stormwater runoff and impairment sources for each of the locations visited. Tour participants were also provided with a summary describing each urban impaired watershed, the identified impairment sources and recommended restoration strategies (**Appendix 2**). The Planning Board presentation and "***Urban Impaired Streams Tour***" were both video recorded and are available for viewing on the South Portland Community Television (SPCTV) website.

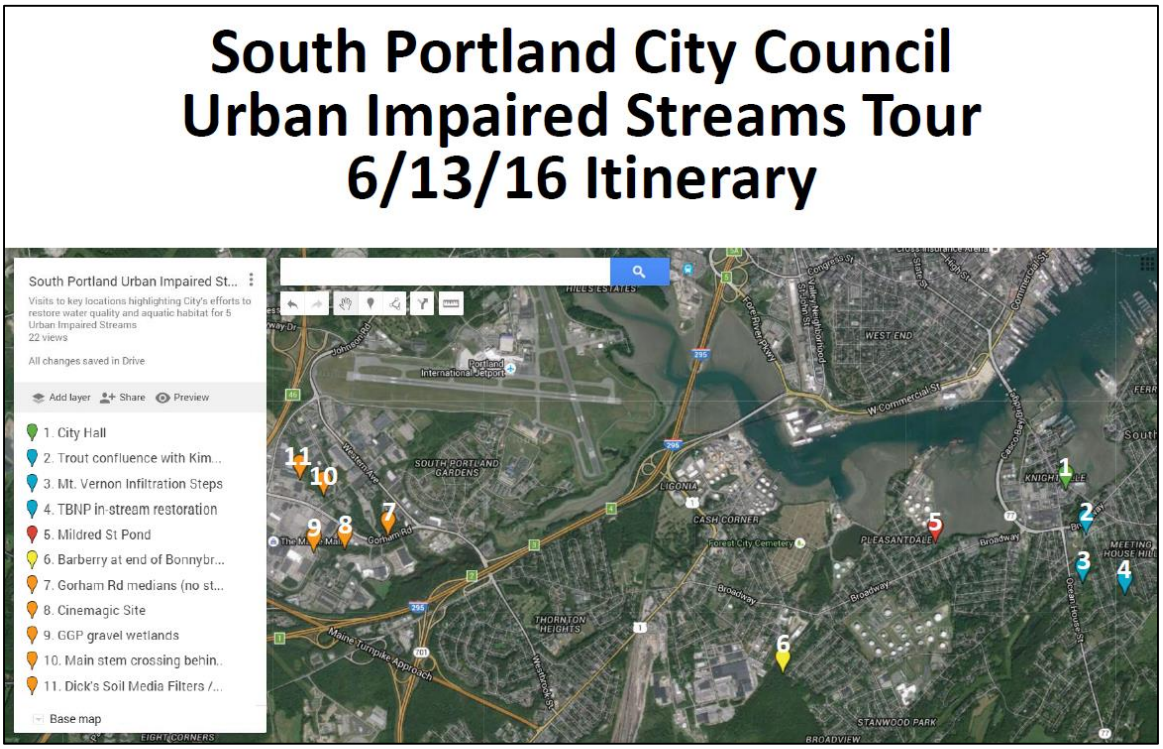


Figure 4: "*Urban Impaired Streams Tour*" itinerary for City Council and Planning Board members

BMP 1.4 Continue Targeted BMP Adoption Efforts from Previous MS4 Permit Cycle

Responsible Party: Stormwater Program Coordinator *Additional Party: ISWG Education Coordinator*

INTENT

To continue outreach efforts from the previous MS4 General Permit while developing or revising a new **Targeted BMP Adoption Plan**.

METHODOLOGY

Continue collaboration with the Interlocal Stormwater Working Group (ISWG) to develop a new or revised **Targeted BMP Adoption Plan** with the goal of promoting behavior change through the implementation of at least one specific BMP targeted for focused outreach.

MEASURABLE GOALS

- ***Measureable Goal 1.4.1*** – beginning July 1, 2013, continue outreach efforts from the previous MS4 General Permit while developing or revising a new **Targeted BMP Adoption Plan**.
- ***Measureable Goal 1.4.2*** – by November 1, 2013, submit draft **Targeted BMP Adoption Plan** to DEP for review and approval; Plan will be considered approved by January 15, 2014 unless DEP indicates otherwise and implementation shall begin within one week of approval. The **Targeted BMP Practices Adoption Plan** must identify:
  a. The BMP
  b. The target audience
  c. The outreach tool(s) to be used
  d. The message
  e. The distribution system
  f. The time line and implementation schedule
  g. The person(s) responsible for implementation
  h. An impact evaluation protocol
  i. A plan modification protocol (including DEP approval of significant plan modifications)
  j. The goal (e.g., the target level BMP adoption for each audience)
- ***Measureable Goal 1.4.3*** – by January 15, 2014, implement new or revised **Targeted BMP Adoption Plan** that promotes behavior change through the implementation of BMPs; emphasize at least one specific BMP to target for adoption by at least 15% of the segmented audience.
- ***Measureable Goal 1.4.4*** – include review of **Targeted BMP Adoption Plan** in Annual Reports that includes process indicators to assess Plan execution; also include impact indicators according to the following schedule (unless otherwise indicated in the Plan):
  - Permit Year 1: assess target audience to set baseline and inform development of **Targeted BMP Adoption Plan**
  - Permit Year 3: conduct preliminary evaluation and assessment of Plan implementation progress and impact efforts are having on target audience
  - Permit Year 5: provide final assessment of Plan implementation and impact; include comprehensive review of Plan with analysis of process and impact indicators

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to collaborate with the ISWG to implement the **Targeted BMP Adoption Plan**, which established a goal to reduce the amount of lawn chemicals (fertilizers and pesticides) used by 15% of college-educated homeowners aged 35-55 as further described in **Appendix 1**. During most of PY2015-16, the

Stormwater Program Coordinator was also closely involved (along with the Sustainability Coordinator and Parks & Recreation Superintendent) in helping to draft a Pesticides Use Ordinance which, if passed by the Council, will greatly restrict the use of most pesticides on most public and private properties in the City of South Portland. During the ordinance development and review process there were numerous news stories on the initiative in local media outlets that provided extensive coverage, and by extension increased awareness about concerns with pesticides use. The City may also be considering drafting an ordinance for restricting the use of fertilizers in the near future.

BMP 1.5 Enhance Education & Outreach Effort

Responsible Party: Stormwater Program Coordinator *Additional Party: ISWG Education Coordinator*

INTENT

To target a specific activity for an impaired waterbody that if successfully addressed will improve and/or protect water quality in the priority or impaired watershed; alternately, identify common regional or statewide stormwater pollution issue with the goal of reducing or eliminating pollutant(s) of concern.

METHODOLOGY

Continue collaboration with the Interlocal Stormwater Working Group (ISWG) to either target specific activity for improving and/or protecting water quality in priority / impaired watershed or identify common regional or statewide stormwater pollution issue for pollutant load reduction or elimination.

MEASURABLE GOALS

- ***Measureable Goal 1.5.1*** – by July 1, 2014, provide draft **Education & Outreach Plan** to DEP for either targeted activity or regional / statewide stormwater issue that addresses the following element:
  a. Identify the specific stormwater activity or pollutant to be addressed
  b. The target audience(s)
  c. The outreach tool(s) to be used
  d. The message and the BMPs to be encouraged
  e. The time line and implementation schedule
  f. The person(s) responsible for implementation
  g. The goal of the outreach effort
  h. An impact evaluation protocol
- ***Measureable Goal 1.5.2*** – by November 1, 2014, provide final **Education & Outreach Plan** to DEP; Plan will be considered approved by January 5, 2014 unless DEP indicates otherwise with implementation to begin immediately.
- ***Measureable Goal 1.5.3*** – annual reports will include progress and results of targeted outreach efforts; permit year 5 report will include analysis of the process and impact indicators for implementation of the **Education & Outreach Plan.**

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to collaborate with the ISWG to implement the **Education & Outreach Plan** as described in **Appendix 1**. Additionally, the Stormwater Program Coordinator was principally involved in establishing the Maine Water Environment Association (MEWEA) Stormwater Committee and currently serves as committee Co-Chair. The committee's first meeting was on 9/8/15 and several regular meetings have been held since. The primary function of the MEWEA Stormwater Committee is:

> *"To advance understanding of how the implementation of stormwater best management practices (including best asset management practices) and policies contributes to the protection and restoration of water resources and increases community resiliency; to promote efficient, effective and balanced water resources compliance strategies by integrating key common interest areas of stormwater and wastewater management; to define and promote stormwater management governance capacity."*

The first duty of the Committee is to:

> *"**Educate and raise awareness** of MEWEA members, the public and decision makers on relevant national and regional studies, technical best practices, regulatory approaches, and innovations in the stormwater management profession. Collaborate with organizations and groups to advance and promote the benefits of sound stormwater management decision making for Maine communities."*

The Committee is currently focused on improving understanding about the stormwater management profession among MEWEA Executive Board members and the general membership. In the future, we will shift our focus to using MEWEA's considerable organizational capacity as a platform for broadening public education and outreach efforts related to stormwater management. Participants on the Committee include representatives from all of Maine's MS4 clusters along with numerous other environmental, legal and private sector interests.

Minimum Control Measure 2 – Public Involvement and Participation

The overall goal of this MCM is to involve the public in both the planning and implementation process of improving water quality and reducing stormwater quantity via the City's stormwater program. The City addresses these requirements for Public Involvement and Participation primarily through continued collaboration with the Interlocal Stormwater Working Group (ISWG) and the continued funding to the ISWG for Public Involvement and Participation services, most notably including the Urban Runoff and Green Neighbor Family Fest (**Appendix 1**).

Additionally, the City has established public involvement and participation procedures as part of its development review process (e.g., Planning Board meetings) that provide regular opportunities for members of the public to offer comments on the implementation of stormwater performance standards. City staff and officials have also been appointed to the Long Creek Watershed Management District (a quasi-municipal entity), which has an open process whereby members of the public can participate in implementing the Long Creek Watershed Management Plan (LCWMP). The LCWMP was developed largely in response to the

stormwater pollution impacts from surrounding land uses and was commissioned by the City of South Portland through an EPA 319 grant. Finally, the City also hosts annual public events that provide the opportunity for local residents to participate in South Portland's Stormwater Management Program. The long-standing Household Hazardous Waste Collection event has been very popular and successful at preventing potential pollutants from entering local water resources. Likewise, the City's collaboration with civic groups, state agencies (Maine Healthy Beaches Program) and local businesses for the "April Stools" Day has gained momentum since the inaugural event in 2014 (Figure 5).

Figure 5: Jessie Ellebracht (left with baby), Manager of Pet Life, and volunteer at the 2016 April Stools Day event.

BMP 2.1 Comply with Public Notice Requirements

Responsible Party: Water Resource Protection & Planning Departments

Additional Parties: ISWG Stormwater Program Coordinator & LCWMD Executive Director

INTENT

To comply with applicable state and local public notice requirements by using effective mechanisms for reaching the public; to comply with Maine Freedom of Access Act public notice requirements (1 M.R.S.A. §§ 401 et. seq. – "FOAA") when involving stakeholders in General Permit implementation.

METHODOLOGY

Continue participation in the ISWG and conform to applicable MEDEP, City of South Portland and Long Creek Watershed Management District public notice requirements.

MEASURABLE GOALS

- ***Measureable Goal 2.1.1*** – ISWG, the City and the Long Creek Watershed Management District will follow all applicable state and local Public Notice requirements. Copies of the plans specifying these requirements are available on the City of South Portland and Long Creek Watershed Management District websites.
- ***Measureable Goal 2.1.2*** – ISWG, the City and the Long Creek Watershed Management District will follow state and local Public Notice requirements when involving stakeholders in the implementation of the MS4 General Permit, the City's Stormwater Program Management Plan, the City's Stormwater Management Performance Standards (Ch. 27-1536) and the Long Creek Watershed Management Plan.

ACTIONS COMPLETED DURING PERMIT YEAR

Following the adoption of Stormwater Management Performance Standards by the City in April of 2009,

virtually every Planning Board meeting affords the public with an opportunity to participate in efforts to improve local water quality through the reduction of impacts from stormwater pollution. This occurs because nearly every Planning Board meeting consists of new development and redevelopment proposals with provisions for stormwater management. Records of public notices, attendance and minutes for these meetings are maintained by the City's Planning Department and posted on the City's website. The Long Creek Watershed Management District also allows public participation for efforts to reduce impacts from stormwater pollution at each of its regular meetings and posts meeting agendas and minutes on its website.

BMP 2.2 Host, Conduct or Participate in a Public Event

Responsible Party: Water Resource Protection Dept. *Additional Party: ISWG Education Coordinator*

INTENT

To increase public awareness by hosting, conducting or participating in a public event for a target audience that includes a pollution prevention and/or water quality theme.

METHODOLOGY

Provide highly visible opportunities for members of the public to meaningfully participate in activities that increase awareness about reducing impacts from polluted stormwater runoff.

MEASURABLE GOALS

- ***Measurable Goal 2.2.1*** – ISWG and/or the City will annually host/conduct or participate in at least one public event such as storm drain stenciling, stream cleanup, household hazardous waste collection day, volunteer monitoring, neighborhood educational events, conservation commission outreach program, Urban Impaired Stream outreach program, or adopt a storm drain or local stream program. The target audience will be a segment of the urbanized area population that the City wishes to reach. The ISWG and/or the City will consult with DEP to ensure the event will satisfy the requirements for this BMP.

ACTIONS COMPLETED DURING PERMIT YEAR

October 10, 2015 – Household Hazardous Waste Collection Day

The City continued to provide the popular annual Household Hazardous Waste Collection Day for South Portland residents and businesses (Figure 6). As with the previous year, the event was held at the Public Works Department's O'Neil Street location and was very well-attended with approximately 250 individual participants. The types of wastes collected included petroleum products, paints, solvents, pesticides, batteries, fluorescent lights, among other materials. The City also continued to administer a participant questionnaire. The results from the questionnaire indicated that a considerable number of respondents were

familiar with the City's stormwater management efforts, YardScaping and Think Blue Maine (**Appendix 3**). In 2016, the Water Resource Protection and Public Works Departments will be partnering with the Sustainability Office to include electronic wastes as part of the Household Hazardous Waste collection program.

Figure 6: Clean Harbors staff separating Household Hazardous Waste items at the City's annual event.

April 25, 2015 – April Stools Day

The City hosted the second April Stools Day event in partnership with the Maine Healthy Beaches Program, the Friends of the Eastern Promenade (a Portland-based neighborhood group), Pet Life, SoPo Dogs (a local dog-owner's group) and the South Portland Land Trust. Staff and volunteers were on hand from 9AM – noon at Hinckley Park, Bug Light Park and Willard Beach – some of the most popular destinations for dog owners from South Portland and beyond. Staff and volunteers provided free "doggie" bags to numerous dog owners and reminded them why picking up after their dogs is so important and how improper pet waste management can adversely affect local water quality.

April 25, 2015 – Urban Runoff & Green Neighbor Family Fest

The City continued its involvement with ISWG's 4th annual Urban Runoff & Green Neighbor Family Fest (**Appendix 1**). The City donated $500 to help fund the effort. This event has proven to be highly successful at increasing public awareness of polluted stormwater runoff impacts.

Minimum Control Measure 3 – Illicit Discharge Detection & Elimination

The overall goal of this MCM is to implement and enforce a program to detect and eliminate illicit and non-stormwater discharges.

BMP 3.1 Continue to Keep Watershed-Based Storm Sewer System Infrastructure Map Current and Update Annually

Responsible Party: Water Resource Protection Dept. *Additional Party: N/A*

INTENT

To maintain a current, detailed and accurate digitally-based map of the City's storm drain infrastructure to assist in stormwater management and planning.

METHODOLOGY

Continue updating GIS map layer of storm sewer system and add features as new stormwater infrastructure is constructed and/or as previously unidentified stormwater infrastructure is discovered.

MEASURABLE GOALS

- ***Measurable Goal 3.1.1*** – annually review GIS map layer of storm sewer system and update based on construction of new publicly owned storm sewer infrastructure and/or discovery of previously unidentified storm sewer infrastructure.
- ***Measurable Goal 3.1.2*** – annually incorporate construction of private storm sewer infrastructure into GIS map layer for new development or redevelopment projects as funding allows.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to invest considerable time and money in maintaining, updating and improving GIS map layers of the publicly owned stormwater system and likely has one of the most complete and comprehensive spatial data sets for municipal stormwater infrastructure in the State. Moreover, efforts to improve this data set occur on a continuous basis throughout each Permit Year (Table 2).

Table 2: summary of PY2015-16 updates made to City's GIS data related to Stormwater Management Program.

Date	Description of Update
1/11/16	StormStructures feature class update for CB accessibility
1/18/16	Updates to several data layers relating to Sewer Video
2/1/16	Updates to Barberry w'shed boundary per DEP
2/3/16	Further refinements to Barberry w'shed per DEP
2/5/16	Annual updates to MapGeo site for 12 data layers
4/2/16	Updates to 8 data layers used by ArcReader & ArcGIS
4/19/16	Updates to roads data layer for ArcReader & ArcGIS
5/26/16	Beta version of new AGOL ditch inspection app
6/2/16	Finalize AGOL ditch inspection app
6/16/16	Provide MEGIS with latest parcel data for FEMA/FIRM

BMP 3.2 Continue Implementation of Non-Stormwater Discharge Ordinance to Prohibit Unauthorized Discharges into Storm Sewer System

Responsible Party: Stormwater Program Coordinator *Additional Party: Compliance Administrator*

INTENT

To prohibit unauthorized non-storm water discharges to the storm drainage system through municipal ordinance and to establish the legal authority and procedures to carry out all inspection, monitoring and enforcement activities necessary to ensure compliance with this ordinance.

METHODOLOGY

Use the authority granted by the ordinance to enforce the provisions therein; coordinate and cooperate with the Maine DEP, Portland Water District and Interlocal Stormwater Working Group to develop hydrant flushing policies that are protective of local water resources.

MEASURABLE GOALS

- ***Measurable Goal 3.2.1*** – the City of South Portland will continue to enforce the Non-Stormwater Discharge Ordinance. This ordinance is referenced in the South Portland Code of Ordinances as Chapter 22 Sewer and Drains, Article XIV Non- Stormwater Discharge (§§22-200 -- 22-209) which was passed on September 8, 2004.
- ***Measureable Goal 3.2.2*** – in Permit Year 1, coordinate with the Portland Water District (PWD) via mail or in person to evaluate whether water line and hydrant flushing are significant contributors of pollutants to the City's MS4 system. Evaluation will include the following actions:
    - Provide the PWD with a location map showing the extent of the municipal urbanized area,

and the highest priority watershed(s).

- Gather information from the PWD, specific to the urbanized area and priority watershed(s), including the number and location of hydrants and details on water line or hydrant flushing that outlines procedures, including how often flushing occurs, typical flow rates and duration, where the water is conveyed, what the target or actual chlorine concentrations are, and what best practices are employed to prevent erosion and address potential pollutants.

- ***Measureable Goal 3.2.3*** – by no later than December 30, 2014, unless otherwise approved by the Department, using available GIS or other municipal mapping information, the location of hydrants will be added to the storm sewer system infrastructure map to aid in the evaluation; the City of South Portland will work with the PWD to prioritize the hydrants or water lines that have the potential to cause exceedances of the ambient water quality criterion for chlorine when discharged through the MS4. The City will request a water quality progress report that documents what best management practices are being implemented for flushing activity at the prioritized hydrants as well as the PWD's testing results of the total residual chlorine for any such discharges.
- ***Measureable Goal 3.2.4*** – in Permit Years 3-5, the City will request an annual water quality progress report that documents what best management practices are being implemented for flushing activity at the prioritized hydrants as well as the PWD's testing results of the total residual chlorine for any such discharges.
- ***Measureable Goal 3.2.5*** – if it is determined by the end of Permit Year 3, that water line or hydrant flushing is a significant contributor of pollutants to the MS4, and the PWD has demonstrated that it will not voluntarily implement BMPs in order to reach ambient water quality criteria for chlorine, the City will, as soon as practicable or by no later than the end of Permit Year 4, update their IDDE ordinance to allow enforcement of discharges that cause exceedances of water quality criteria.

Reporting: the annual report will include a summary of Non-Stormwater Discharge incidents; it will also include a status update on the evaluation of water line and hydrant flushing as a significant contributor of pollutants to the MS4 and an update on subsequent actions.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to enforce the Non-Stormwater Discharge Ordinance as specified in the South Portland Code of Ordinances Chapter 22 Sewer and Drains, Article XIV Non-Stormwater Discharge (§§22-200 - 22-209), which was enacted on September 8, 2004. City staff responded to 30 incident reports of potential illicit discharges or spills and followed up on several of these, often in cooperation with Maine DEP staff (Table 3 on next page). Reports and/or photos are available for all of these incidents.

Table 3: spills or IDDE incidents reported for PY2015-16

Report Date	Incident Location	Description	Did non-SW discharge enter MS4 or WOTUS?	Findings / Follow-up
7/2/2015	428 Cottage Road	Gas spill (unknown gal amount)	Indeterminate	Cumberland Farms contacted Fire Dept. AR-1 report lacked details.
7/8/2015	Dyer School	Mower hydraulic hose rupture on lawn spilled ~5 gal oil	No	Staff "scalped" grass and removed clippings; DEP contacted
7/10/2015	Super Great Wall Buffet	Grease spilling from dumpster onto pavement	Indeterminate	Ongoing comms with Property Manager
7/20/2015	DPW O'Neil St	Front end loader hydraulic hose rupture onto pavement spilled ~3 gal oil	No	Staff cleaned with absorbents; DEP contacted
8/14/2015	Community Center	Latex paint spill (~3 gal) onto pavement	No	Staff cleaned with absorbents; DEP contacted
10/22/2015	1 Cushing Court	Hydraulic hose spill (~1-2 gal.) to ocean	Yes	Portland Pipe Line contacted the Fire Dept. and DEP. AR-1 report lacked details.
11/9/2015	City Line Drive	Private pump station failure resulted in sewage surcharge onto pavement	Indeterminate	CCSWCD staff contacted PM to bring in repair crew
11/10/2015	Taj Restaurant	Grease dumped into CB	Indeterminate	Coord. w/ CCSWCD staff on next steps
11/12/2015	Western Ave	Car fire spilled small amount of oil on pavement	No	FD cleaned with absorbent materials
11/13/2015	59 Main Street	Fuel oil (~30 gal) spilled from mobile container	Indeterminate	Sprague energy contacted Fire Dept. AR-1 report lacked details.
11/19/2015	327 Main St	Ballast water from new fuel tanks discharge to sewer	No	Photo documentation and discussion with construction foreman
12/30/2015	27 Main Street	#2 heating oil (~3 gal) spilled from mobile container	No	Dale's energy contacted Police and Fire Dept - contained spill to cement pad and cleaned up excess oil. (AR-1 report complete)
12/30/2015	Redbank Community Center	Plow truck hydraulic line rupture onto pavement (~35 gal)	No	Staff cleaned with absorbents; DEP contacted
1/19/2016	Fairchild - TI	Fairchild water line break & TI pump station malfunction	Yes	Fairchild and TI responded immediately and notified DEP & City. Repaired broken water line and assessed water discharged from pump station (nearly all removed as ice).
2/1/2016	12 Kenneth Road	~25 gallon oil container overflowing onto ground	No	Contacted DEP for site inspection - Property owner removed oil container.
2/12/2016	1 Clark Street	Kerosene (200+ gal) spilled from fixed container due to valve failure.	No	Global Oil company contacted the Fire Dept, Maine State Police, and the National Reponse Center. The spill was contained. AR-1 report lacked detail regarding follow-up.
2/19/2016	Taj Restaurant	Cooking oil / grease allegedly dumped onto ground behind restaurant	Indeterminate	Police Department contacted SW coordinator; site inspection conducted with CCSWCD staff did not initially find evidence of oil dump. Follow-up visit confirmed grease dump & referred to CEO for further action.
2/23/2016	Route 1 & Billy Vachon Street	Hissong overloaded trucks spilled salt along gutter line and adjacent CB	No	SW coordinator contacted Hissong President - dispatched crew to sweep spilled material the same day.
2/25/2016	Shermin Williams Paint Store	Milky substance was being washed from container onto the ground and private CB/SD	Yes	Collection Systems Division staff member contacted SW coordinator - site inspection conducted the same day. Little to no evidence of substance on ground or in SD.
3/11/2016	205 Broadway	Oil spill found near old gas station - headed toward SD.	No	Violator undetermined - property owner cleaned spill with absorbants.
4/5/2016	South Portland Municipal Golf Course	Motor oil spill (~3 gal) in front of maintenance building entrance	No	City Turf Manager contacted SW coordinator - golf course maintenance staff contained and cleaned up the spill. SW coordinator contacted DEP and discussed follow-up.
4/27/2016	Rigby Yard	Chlorine gas leaked from loose valve on top of a train car.	No	Rigby Yard workers contacted Fire Department - South Portland Hazmat team contained gas around train car and tightened valve.
5/9/2016	Lincoln Street	Petroleum or waste oil identified in CBs	Yes	City staff identified spill during annual CB cleaning - contacted SW coordinator who confirmed spill. Notified DEP who conducted an additional inspection. DEP notified Clean Harbors to have waste oil removed.
5/12/2016	3 Higgins Lane	White residue identified on CB grate	Indeterminate	Resident noticed residue and contacted SW coordinator who conducted a site inspection - found little evidence of nonstormwater discharge in CB. SW coordinator spoke with homeowner about discharge ordinance.
6/1/2016	18 McLean Street	Gas dumping in private CB	No	Resident complained of gas odors - upon site insepction it was determined that resident's son dumped gas down private CB.
6/1/2016	617 Broadway	DD employee dumping discharge into CB	Yes	Resident contacted SW coordinator regarding illegal dumping. SW coordinator followed-up with DD to discuss discharge ordinance.
6/1/2016	Lemont Avenue	Wash water, suds identified in CB	Yes	CSD staf contacted SW coordinator. Site inspection conducted the same day - identified subs in CB. Identified cleaning company as violator.
6/27/2016	Sawyer and Ocean Street	Concrete staining identified at intersection near CBs possible due to sidewalk improvements.	Indeterminate	Resident contacted SW coordinator - followed up with the Glidden company regarding stormwater permit, discharge ordinance, and possible BMPs for ongoing construction activities.
6/28/2016	Brown School	The school grease vault was overfilled and pooled on the pavement.	Indeterminate	The buildings and groundskeeper for the school department contacted SW coordinator. Site inspection conducted following day - identified spill outline on pavement. SW coordinator offered services to remediate spill

Figure 7: Stormwater Intern Gretchen Anderson collecting a stormwater sample from a catch basin in the Willard Beach watershed.

The City also continued working with the Maine Healthy Beaches (MHB) Program on bacteria source tracking investigations in the Willard Beach watershed. Paired optical brightener and bacteria samples were collected at several strategic locations during the 2015 and 2016 summer swim beach seasons to isolate potentially problematic subcatchment areas throughout the watershed (Figure 7). Water Resource Protection staff contributed to MHB's 2015 report which included a statistical analysis of data from 2012-15. While the results generally indicated non-point pollution sources as the most likely contributors to elevated bacteria levels in the Willard Beach storm sewer system, there were a few sampling locations with higher bacteria and optical brightener concentrations potentially suggesting possible human sources. Consequently, in addition to monitoring for enterococcus and optical brighteners, WRP staff conducted chlorine, ammonia, surfactant and *Bacteroides* sampling in an attempt to further identify potential human sources. This work is currently ongoing and additional information will be included in the PY2016-17 annual MS4 report.

WRP staff also continued to be closely involved in working with the Portland Water District (PWD) and other water utilities servicing MS4 communities throughout the state to establish procedures for water line and hydrant flushing. In February 2016, the PWD provided a report to all ISWG communities documenting that their water line and hydrant flushing SOP (**Appendix 4**) successfully prevented pollutant discharge (i.e., total residual chlorine) in concentrations above DEP's stated threshold of 0.05 ppm. Also (and as discussed above), the Stormwater Program Coordinator presented at the Maine Water Utilities Association trade show and was part of a panel in February 2016 that discussed the relationship between MS4 permit requirements and drinking water disinfection practices (**Appendix 5**). The event afforded an important opportunity to provide water utility professionals with detailed information on why water line and hydrant flushing are of concern to MS4 program managers. More recently, the Stormwater Program Coordinator was closely involved in working with representatives from MWUA and Maine Rural Water Association (MRWA) to draft a letter in response to DEP's Issue Profile on drinking water discharges to MS4 systems (**Appendix 6**).

BMP 3.3 Continue Implementation of Prioritized Dry Weather Outfall Inspection Program

Responsible Party: Stormwater Program Coordinator *Additional Party: N/A*

INTENT

To identify potential sources of illicit non-stormwater discharges for elimination in watersheds or sub-watersheds that pose the greatest potential threat to local receiving waters.

METHODOLOGY

Physically inspect stormwater outfalls in priority subwatersheds during dry weather periods.

MEASURABLE GOALS

- ***Measureable Goal 3.3.1*** – continue conducting dry weather outfall inspections in all the subwatersheds of Long Creek (formerly the highest priority watershed for the 2008-13 MS4 permit) and Trout Brook (the highest priority watershed for the 2013-18 MS4 permit). The boundaries of all subwatersheds may be further refined as additional mapping and field assessment is conducted or as development / redevelopment occurs.
- ***Measureable Goal 3.3.2*** – by the end of Permit Year 1, the City will identify the subwatersheds for dry weather outfall inspections within the second highest priority watershed, Barberry Creek. By the end of Permit Year 3, the City will conduct dry weather outfall inspections in all subwatersheds of Barberry Creek. The boundaries of all subwatersheds may be further refined as additional mapping and field assessment is conducted or as development / redevelopment occurs.
- ***Measureable Goal 3.3.3*** – the City will continue using the standard operating procedure (SOP) and data collection system for the dry weather outfall inspection program from the previous permit cycle and modify either as needed. The SOP includes inspection forms and a policy/procedure or protocol that identifies the steps that must be taken when an illicit discharge is encountered during routine and opportunistic inspections.

Reporting: inspection results will be documented in a database management system or other recordkeeping system. The annual report will provide a summary of the inspection results.

ACTIONS COMPLETED DURING PERMIT YEAR

Dry weather outfall inspections were completed in the Long Creek and Trout Brook watersheds during late December 2015 and early January 2016 when temperatures remained well below freezing for an extended period. The inspections for the Barberry Creek watershed were not conducted before the end the PY2015-16 due to an inadvertent oversight by the Stormwater Program Coordinator. To make up for this oversight, the inspections were conducted in early September and will be conducted again for PY2016-17. The inspection summaries for all three watersheds (Long Creek, Trout Brook and Barberry) are included in **Appendix 7**.

While there were a number of potential maintenance issues identified, such as trash and vegetative overgrowth, no occurrences of illicit discharges were detected. Outfall inspection data was once again collected using the cloud-based application Fulcrum, which allows users to create customized forms for data collection using smart phones or tablets and include photos with each inspection. Inspection data is accessed through Fulcrum's website where it can be viewed, edited and exported in Excel, ArcGIS shapefile and Google Earth formats. Data collection for the outfall inspection program has not yet been moved to ArcGIS Online but may be within the next year

Subwatersheds for Barberry Creek (the City's second-highest priority urban impaired stream) were delineated several years ago primarily by using an ArcGIS spatial modeling module with on-screen corrections to account for the stormwater and combined sewer systems. In the summers of 2015 and 2016, DEP staff completed detailed on-the-ground subcatchment delineations for each stormwater outfall. The City has incorporated these enhancements into our GIS data library.

BMP 3.4 Continue Development & Implementation of Dry Weather Open Ditch Inspection Program

Responsible Party: Stormwater Program Coordinator *Additional Party: N/A*

INTENT

Identify potential sources of illicit discharge from open drainage ditches that serve as part of the City's stormwater collection and conveyance system.

METHODOLOGY

Identify the extent, location and hydrologic connectivity of drainage ditches in priority watershed in relation to the City's stormwater collection system and develop an IDDE strategy for all relevant ditches.

MEASURABLE GOALS

- ***Measureable Goal 3.4.1*** – continue implementing the inspection program from the previous permit cycle to detect any illicit discharges in the open ditch system of the Long Creek watershed.
- ***Measureable Goal 3.4.2*** – by the end of Permit Year 1, the City will identify the length of open ditches within the highest priority watershed, Trout Brook.
- ***Measureable Goal 3.4.3*** – by the end of Permit Year 2, the City will implement a strategy to detect any illicit discharges in the open ditch system of the Trout Brook watershed.
- ***Measureable Goal 3.4.4*** – by the end of Permit Year 4, the City will identify the length of open ditches within the second highest priority watershed, Barberry Creek.
- ***Measureable Goal 3.4.5*** – by the end of Permit Year 5, the City will implement a strategy to detect any illicit discharges in the open ditch system of the Barberry Creek watershed.

Reporting: inspection results will be documented in a database management system or other recordkeeping system. The annual report will provide a summary of the inspection results.

ACTIONS COMPLETED DURING PERMIT YEAR

In June of 2016, WRP staff inspected and photographed all of the open ditches in the Long Creek watershed (Figure 8). The summary of inspections is included in **Appendix 8**. The data collection system was migrated from Fulcrum to ArcGIS Online to allow for a more seamless integration with the City's existing GIS data. There were no overt signs of illicit discharges observed at the time of inspections. Given the extensive use of piped stormwater systems to provide drainage for the dense residential and commercial areas in the Trout Brook and Barberry Creek watersheds, no open ditches are present in the public right-of-way and therefore no inspections were necessary.

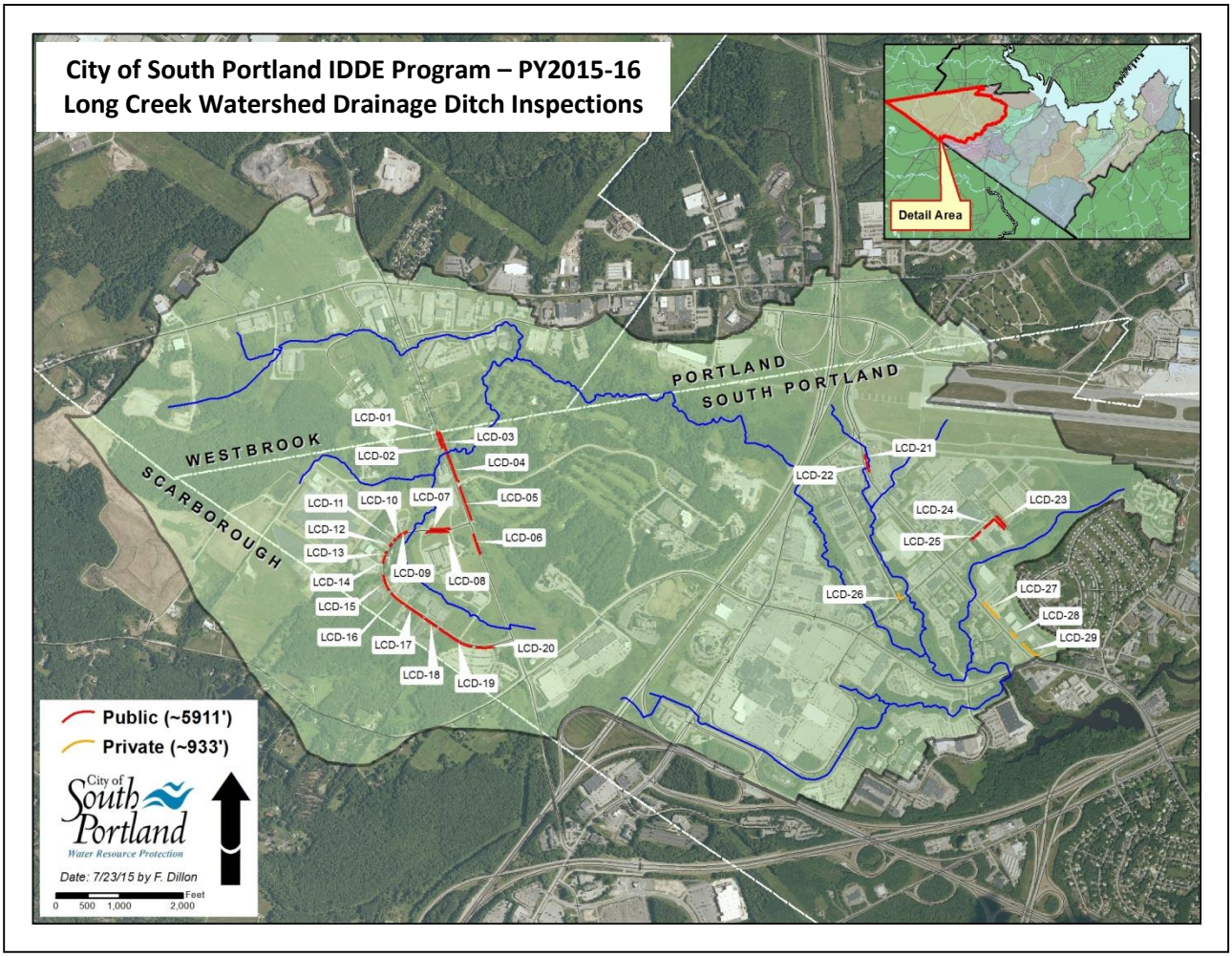


Figure 8: dry weather ditch inspection locations for the Long Creek watershed

BMP 3.5 Develop List & Evaluation Protocols for Septic Systems 20 Years Old or Greater with Potential to Discharge into MS4 System in Event of Failure

Responsible Party: Stormwater Program Coordinator *Additional Party: N/A*

INTENT

To identify and assess the potential for discharges from failing septic systems to enter City's MS4 system and adversely affect local water resources.

METHODOLOGY

Develop list of septic systems 20 years or older and an evaluation protocol to determine whether any of these may be discharging to the MS4 system and/or nearby water resources.

MEASURABLE GOALS

- ***Measureable Goal 3.5.1*** – by the end of Permit Year 3, develop a list and evaluation protocols for septic systems that are 20 years old or greater and have the potential to discharge into the MS4 for the Long Creek watershed (formerly the highest priority watershed for the 2008-13 MS4 permit) and

Trout Brook (the highest priority watershed for the 2013-18 MS4 permit).

- ***Measureable Goal 3.5.2*** – by the end of Permit Year 4, implement a drive-by evaluation and documentation program for septic systems that are 20 years old or greater and have the potential to discharge into the MS4 for the Long Creek watershed and Trout Brook. This septic system inspection and documentation program will include a mechanism for addressing any discharges to the MS4 from malfunctioning septic systems.

Reporting: the annual report for Permit Year 3 will provide a summary of the progress made on developing the septic system list and evaluation protocols; the reports for Permit Years 4 and 5 will include a summary of septic system inspection results and associated corrective actions if needed.

ACTIONS COMPLETED DURING PERMIT YEAR

In July of 2015, we finalized our GIS data layer of properties on septic systems to identify the locations of these parcels for the entire City (and not just the Long Creek and Trout Brook watersheds as specified in the MS4 General Permit and our Stormwater Program Management Plan). Creation of updated ArcMap data layer for all parcels on private septic systems

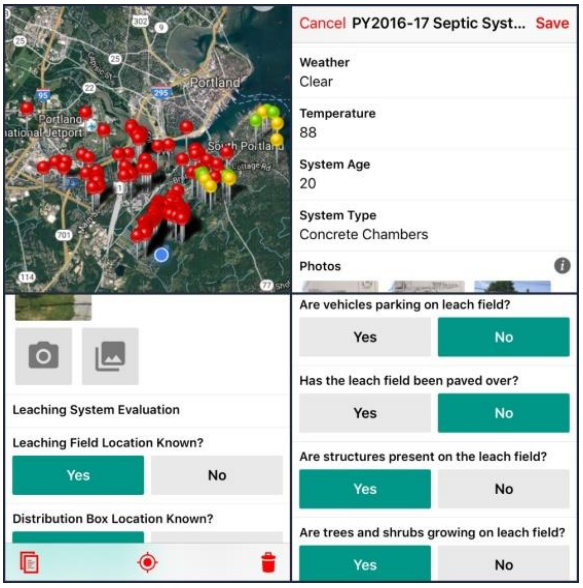


Figure 9: screen shots of customized Fulcrum data collection application for septic system evaluations

To establish drive-by septic system evaluation protocols, WRP staff adapted the approach provided by the Town of Yarmouth to MS4 participants in the Interlocal Stormwater Working Group. We created another Fulcrum-based application by importing septic system location / GIS data and developing a customized data collection form that incorporated all key elements from Yarmouth's tracking system (Figure 9). As with all of our other Fulcrum applications, the septic system evaluation app provides real-time cloud-based data collection using smart phones, tablets or iPads and can affix multiple georeferenced photos to each individual record (in this case, septic system). WRP staff began using the app in August 2016 and intends to complete evaluations for virtually all septic systems in the City by the end of the permit year (6/30/17).

BMP 3.6 Continue Hosting Annual Household Hazardous Waste Collection Day

Responsible Parties: Water Resource Protection & Public Works Departments *Additional Party: N/A*

INTENT

To provide a means for residents to dispose of household hazardous waste.

METHODOLOGY

Host an annual Household Hazardous Waste collection day.

MEASURABLE GOALS

- ***Measureable Goal 3.6.1*** – as funding allows, provide a reasonable means for residents to dispose of hazardous materials by continuing to host an Annual Household Hazardous Waste (HHW) collection day.

ACTIONS COMPLETED DURING PERMIT YEAR

The City held another annual Household Hazardous Waste Collection Day on October 10, 2015. Please refer to summary of activities for BMP 2.2 and **Appendix 3** for more details.

BMP 3.7 Continue Supporting the Friends of Casco Bay Mobile Vessel Pumpout Service

Responsible Party: Water Resource Protection *Additional Party: N/A*

INTENT

To support the Friends of Casco Bay's mobile vessel pumpout service.

METHODOLOGY

Annual financial contribution ($5,000) to pumpout program.

MEASURABLE GOALS

- ***Measureable Goal 3.7.1*** – as funding is available, continue to financially support the mobile vessel pumpout service.

ACTIONS COMPLETED DURING PERMIT YEAR

The City contributed $5,000 to the Friends of Casco Bay's Boat Pumpout Program for PY2015-16.

BMP 3.8 Continue Providing Confidential Public Complaint Hotline for Suspected Illicit Discharges

Responsible Party: Water Resource Protection *Additional Party: N/A*

INTENT

To provide a confidential method for residents to report suspected illicit discharges to the City's stormwater system.

METHODOLOGY

Use voicemail and online system for residents to anonymously report suspected illicit discharges and conduct follow up inspections to document findings from resident reports.

MEASURABLE GOALS

- ***Measureable Goal 3.8.1*** – continue to provide an easy and confidential method for individuals to report suspected illicit connections or illegal dumping via the voice mail system and / or the online complaint form for the Water Resource Protection Department.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to maintain a Stormwater Violations Hotline and Online Complaint Report form that allowed concerned citizens to easily and anonymously report any suspected incidents of non-stormwater discharge violations to the publicly owned stormwater system. No complaints were filed through the online reporting system during the permit year. As summarized in Table 3 above, when illicit discharge incidents are reported by any means, follow up inspections are conducted.

BMP 3.9 Continue Storm Drain Stenciling Program

Responsible Party: Water Resource Protection *Additional Party: N/A*

INTENT

To provide a visible reminder to residents about the close connections between their activities, the stormwater collection / conveyance system and potential impacts to local surface waters.

METHODOLOGY

Continue ongoing annual catch basin stenciling program.

MEASURABLE GOALS

- ***Measureable Goal 3.9.1*** – continue to annually stencil catch basins in conjunction with catch basin cleaning.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to stencil catch basins as part of its annual Dig Safe utility location program. We receive over 1,500 Dig Safe requests each year and staff reapplies paint the "No Dumping Drains to Casco Bay" stencils. As part of our IDDE efforts in the Willard Beach watershed, the Stormwater Intern blanketed the area with fresh stencils. The City also partnered with the Friends of Casco Bay on their stormwater education and outreach efforts by permitting teams of volunteers to stencil catch basins in the City's right of way (see report cover photo).

Minimum Control Measure 4 – Construction Site Stormwater Runoff Control

The City of South Portland completed a variety of activities for the Construction Site Stormwater Runoff Minimum Control Measure. The overall goals of this MCM are to develop, implement, and enforce a program that reduces pollutants in stormwater runoff to the City's regulated small MS4 from construction activities that result in a land disturbance of an acre or more.

BMP 4.1 Continue Notification to Construction Site Developers and Operators of Maine Construction General Permit or Chapter 500 Registration Requirements

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To reduce the amount of stormwater runoff pollution by ensuring that construction site developers and operators use appropriate stormwater BMP practices and are aware of their obligations under applicable state regulations.

METHODOLOGY

Use existing municipal notification procedures through development application and review process.

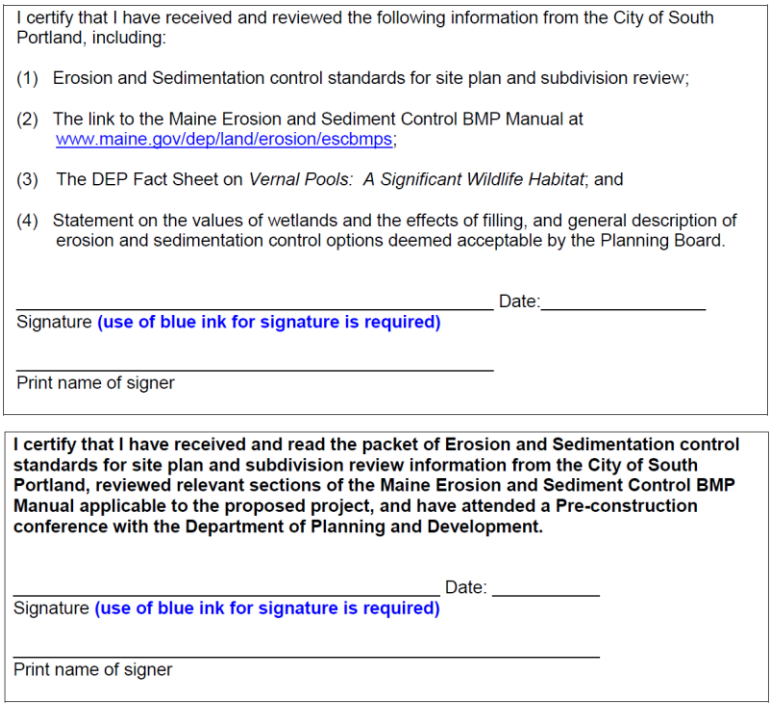
MEASURABLE GOALS

- ***Measurable Goal 4.1.1*** – continue notification procedures from previous permit cycle that occur through the site plan review permitting process. Additionally, notification is provided to building permit applicants that meet the one acre threshold.
- ***Measureable Goal 4.1.2*** – continue annual evaluations of current notification system and modify if necessary.

Reporting: the annual report will include a description of any updates made to the notification procedures.

ACTIONS COMPLETED DURING PERMIT YEAR

The City requires property owners, developers and contractors for all construction activities from single family residential house lots to large commercial projects disturbing an acre or more of area to comply with Planning Board Regulation #2. This local regulation was developed specifically for erosion and sediment control and refers directly to the Maine Erosion and Sediment Control Practices Field Guide for Contractors (which refers directly to the Maine's Erosion and Sediment Control Law, the Natural Resources Protection Act, the Maine Construction General Permit, the Shoreland Zoning Act, and the Stormwater Management Law). Applicants for construction projects are



I certify that I have received and reviewed the following information from the City of South Portland, including:

(1) Erosion and Sedimentation control standards for site plan and subdivision review;

(2) The link to the Maine Erosion and Sediment Control BMP Manual at www.maine.gov/dep/land/erosion/escbmps;

(3) The DEP Fact Sheet on *Vernal Pools: A Significant Wildlife Habitat*; and

(4) Statement on the values of wetlands and the effects of filling, and general description of erosion and sedimentation control options deemed acceptable by the Planning Board.

_____ Date:_____
Signature **(use of blue ink for signature is required)**

_____
Print name of signer

I certify that I have received and read the packet of Erosion and Sedimentation control standards for site plan and subdivision review information from the City of South Portland, reviewed relevant sections of the Maine Erosion and Sediment Control BMP Manual applicable to the proposed project, and have attended a Pre-construction conference with the Department of Planning and Development.

_____ Date: _____
Signature **(use of blue ink for signature is required)**

_____
Print name of signer

Figure 10: Planning Board Regulation #2 certification statements required for owner/developers (top) and excavation contractors (bottom)

required to sign a certification statement that the owner/developer and excavation contractor/subcontractor have read and will follow the applicable provisions in the Maine Erosion & Sediment Control BMP Manual (Figure 10 previous page). As part of this process, owners/developers and their excavation contractors are also required to attend a pre-construction meeting prior to the start of the project to review the site-specific erosion and sediment control plan.

The City continued to confirm that developers for projects requiring site plan review under the Maine Construction General Permit (MCGP) sent in their Notice of Intent (NOI) before receiving approval from the South Portland Planning Board. The City also confirmed that the Maine DEP had all applicable projects on file. All building permit applicants disturbing greater than one acre received a copy of the NOI to comply with the MCGP. Additionally, the City's Stormwater Performance Standards (Ch. 27-1536) require projects subject to a modified site plan approval process to comply with the provisions of Planning Board Regulation #2.

The City also continued to use third party inspectors to evaluate proposed site plans. Each site plan was reviewed to ensure that proposed construction phasing included appropriate soil erosion and sedimentation control practices. Site plans that lacked appropriate soil erosion and sediment control practices were brought to the attention of the City and design engineer for further action.

BMP 4.2 Continue to Document Every Construction Activity that Disturbs One or More Acres within the Urbanized Area

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To annually document all construction activities disturbing one or more acres within the urbanized area for use in the construction site inspection program (BMP 4.3).

METHODOLOGY

Use shared computer network to implement electronic filing & tracking system for documentation of applicable construction activities.

MEASURABLE GOALS

- ***Measurable Goal 4.2.1*** – continue implementation of tracking system to record every activity that disturbs greater than or equal to one acre of land area. This system will track and differentiate construction activities within an urban impaired stream watershed; priority watershed(s), and all other watersheds. The system will be used to summarize data to be included in the annual report submitted to the DEP.

Reporting: the number of construction activities disturbing greater than or equal to one acre will be included under MCM 4, BMP 4.3, described immediately below.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to document periodic inspections of construction activities disturbing one or more acres

of area. (We also documented inspections for projects ranging from single family residential house lots to those just under the 1 acre threshold). Third parties appointed by the City (or the Long Creek Watershed Management District for projects covered under the Long Creek General Permit) conducted Erosion & Sediment Control (ESC) inspections on at least a monthly basis. The City's Engineering Inspector and Stormwater Program Coordinator reviewed all third party ESC reports to determine whether any follow up actions were needed to address deficiencies. Reports were then electronically filed in a shared network folder accessible to all City staff responsible for ensuring compliance with the City's Stormwater Permit.

BMP 4.3 Continue Implementation of Construction Site Inspection Program

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To ensure construction projects an acre or larger are in compliance with the MCGP and Chapter 500 and to reduce the amount of stormwater pollution entering local water resources through the City's MS4 system.

METHODOLOGY

Develop and implement construction site inspection program in accordance with local and state stormwater laws (South Portland Ordinance § 27-1536, Maine Construction General Permit, Chapter 500, and General Permit for Small MS4s, respectively).

MEASURABLE GOALS

- ***Measurable Goal 4.3.1*** – continue procedures for construction site inspections that meet the terms and conditions of the General Permit and modify if necessary.
- ***Measurable Goal 4.3.2*** – continue use of standardized inspection form to ensure documentation of all required inspections.
- ***Measurable Goal 4.3.3*** – continue implementation of process for tracking and notifying the site developer or contractor of non-compliance issues. The inspector will complete an inspection report that will be transmitted to the City, and necessary enforcement will be the responsibility of the City. Sites that are not in compliance will be issued a written letter from the City requiring the site to come into compliance within a specified time period. If the violation continues, the City's Code Enforcement Officer will contact the Corporation Counsel to authorize legal proceedings needed to enforce all applicable ESC requirements. Continued non-compliance will be reported to the DEP with supporting documentation.
- ***Measurable Goal 4.3.4*** – continue inspecting construction sites located in the watershed of an urban impaired stream a minimum of three times, and inspect construction sites located in all other watersheds a minimum of two times. For all construction sites, at least one of the required inspections will be at project completion to ensure that all post-construction BMPs were properly installed and that final stabilization of the site has been completed. All construction inspections will be properly documented.

Reporting: inspection results will be documented in a database management system or other recordkeeping system. The annual report will provide a summary of the inspection results.

ACTIONS COMPLETED DURING PERMIT YEAR

The WRP and Planning & Development Departments continued to share and improve construction project oversight duties for PY2015-16. An inspection process flow chart (Figure 11) was developed for smaller project sites (<1 acre) to provide greater clarity on the rolls and responsibilities for third party inspectors and City staff. The flow chart is still in draft form pending a full review this fall by WRP and Planning & Development staff. (A similar effort currently underway for project sites with an acre or more of disturbance).

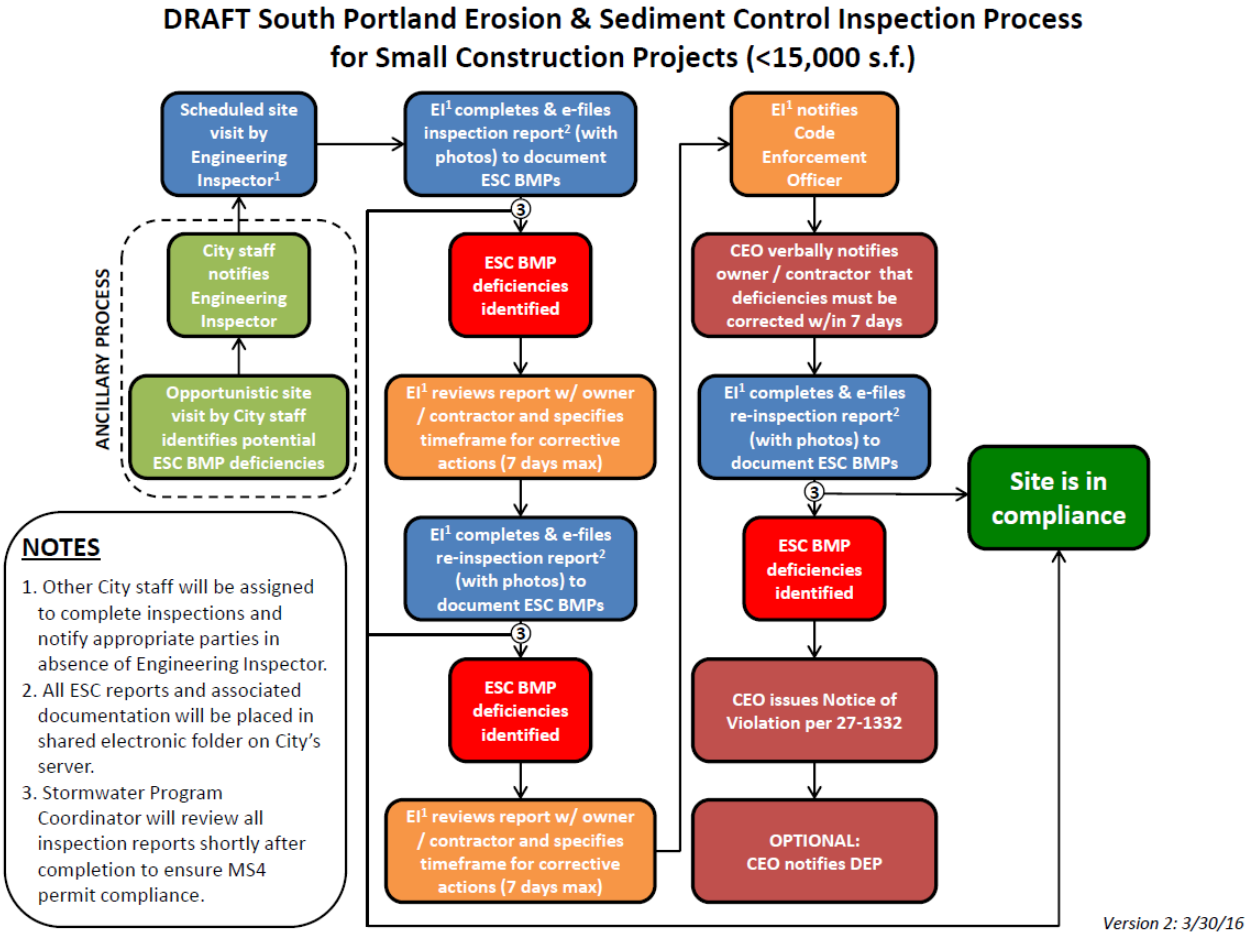
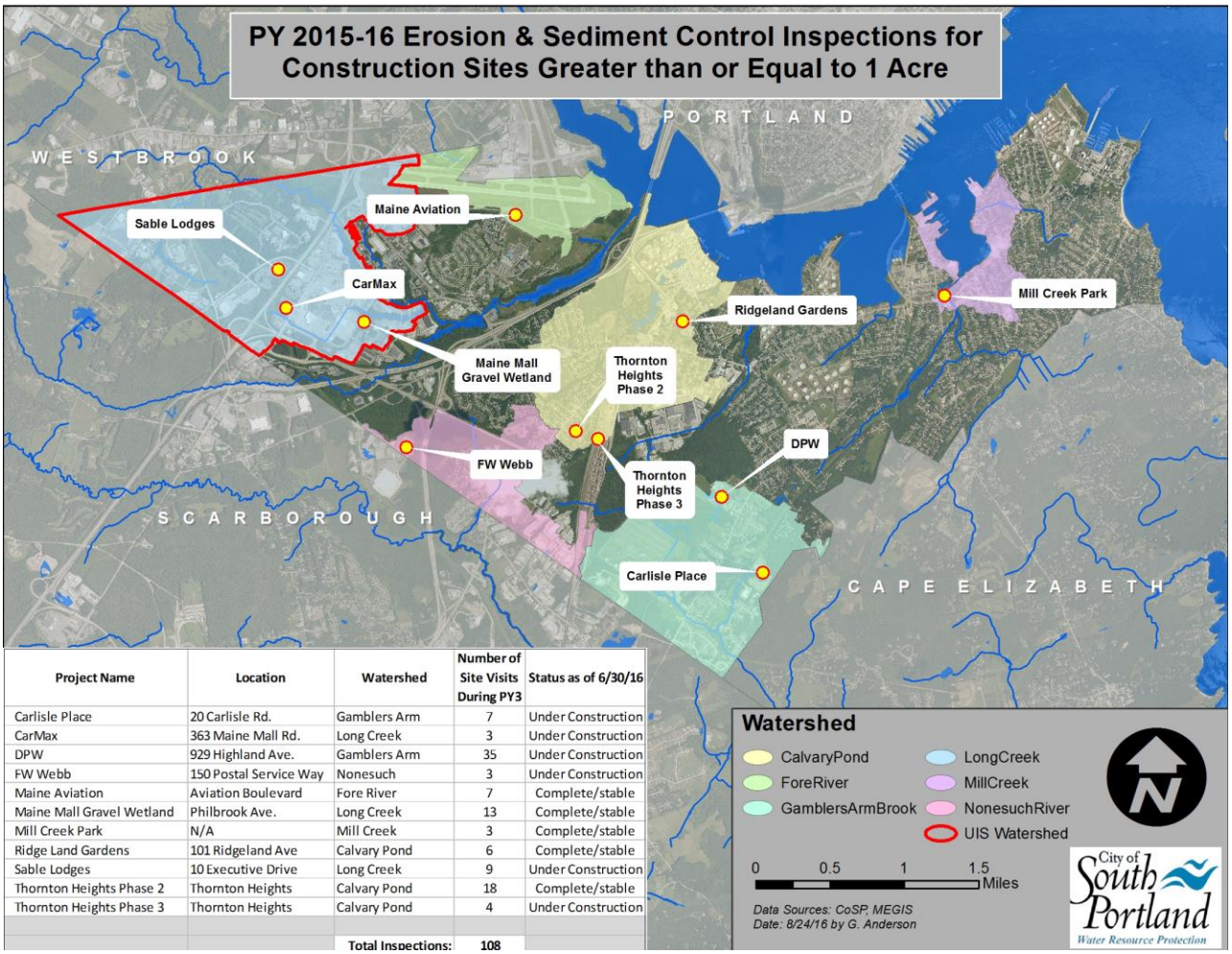


Figure 11: draft Erosion & Sediment Control inspection process flow chart

As described above, third party inspectors appointed by the City conducted inspections on a monthly basis and submitted the reports electronically for review by the Community Planner, Engineering Inspector and Stormwater Program Coordinator. Individual inspection reports for each construction project were compiled as separate Excel worksheets in a single Excel workbook. Each inspection report is linked to a summary worksheet that identifies the number of ESC BMPs needing ongoing maintenance, the number of BMPs

failing to provide adequate ESC protection, the expected and actual completion dates for remediation and any enforcement actions needed to ensure compliance. For PY2015-16, 108 individual inspection reports were completed by third parties and the City's Engineering Inspector for 11 separate construction projects disturbing an acre or more of area (Figure 12). Projects with only a few inspections were either completed shortly after the beginning or started just before the end of PY2015-16. In both cases, these projects were inspected on multiple occasions during the previous permit year (2014-15) or during the current permit year (2016-17).



Project Name	Location	Watershed	Number of Site Visits During PY3	Status as of 6/30/16
Carlisle Place	20 Carlisle Rd.	Gamblers Arm	7	Under Construction
CarMax	363 Maine Mall Rd.	Long Creek	3	Under Construction
DPW	929 Highland Ave.	Gamblers Arm	35	Under Construction
FW Webb	150 Postal Service Way	Nonesuch	3	Under Construction
Maine Aviation	Aviation Boulevard	Fore River	7	Complete/stable
Maine Mall Gravel Wetland	Philbrook Ave.	Long Creek	13	Complete/stable
Mill Creek Park	N/A	Mill Creek	3	Complete/stable
Ridge Land Gardens	101 Ridgeland Ave	Calvary Pond	6	Complete/stable
Sable Lodges	10 Executive Drive	Long Creek	9	Under Construction
Thornton Heights Phase 2	Thornton Heights	Calvary Pond	18	Complete/stable
Thornton Heights Phase 3	Thornton Heights	Calvary Pond	4	Under Construction
		Total Inspections:	108	

Figure 22: PY2015-16 erosion and sediment control (ESC) inspections for sites greater than 1 acre

BMP 4.4 – Continue Promotion of Certified Contractors in Erosion Control Practices

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To encourage contractors to receive MEDEP certification (or equivalent training) in erosion control practices as a means of reducing the amount of stormwater pollution into the City's water resources.

METHODOLOGY

Provide informational materials from the MEDEP's Nonpoint Source Training and Resource Center to contractors and developers as part of the project proposal and site plan review process.

MEASURABLE GOALS

- ***Measurable Goal 4.4.1*** – continue to encourage contractors to be certified in erosion and sediment control through the DEP Non-Point Source Training and Resource Center or its designee.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to provide information (Maine Erosion and Sedimentation Control Law) to contractors as part of the project proposal and site plan review process. The Stormwater Program Coordinator also worked on an ISWG subcommittee to help develop an improved Erosion & Sediment Control Inspection form that accounts for all key Chapter 500 and Maine Construction General Permit requirements pertaining to construction project inspections, maintenance and recordkeeping. This form was also provided to MEWEA Stormwater Committee members who work in other MS4 clusters and is currently (September 2016) being considered for adoption at the regional level.

Minimum Control Measure 5 – Post-Construction Stormwater Management of Development and Redevelopment

The overall goals of this MCM are to develop and implement a program that addresses stormwater runoff from new development and redevelopment projects greater than or equal to one acre in size, including projects less than one acre that discharge to the MS4 and are part of a larger common plan of development or sale; implement local ordinance regulations to ensure the adequate long-term operation and maintenance and proper functioning of post-construction BMPs; and to annually document all related post-construction activities for inclusion the City's annual stormwater report.

BMP 5.1 Continue Implementation of Program to Address Stormwater Runoff from New Development and Redevelopment Projects

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To ensure that controls are in place to prevent or minimize water quality impacts from newly developed or redeveloped projects.

METHODOLOGY

Continue using City's Stormwater Management Performance Standards (Section 27-1536) to address post-construction stormwater runoff from new development and redevelopment projects greater than or equal

to one acre in size, including projects less than one acre that discharge to the MS4 and are part of a larger common plan of development or sale.

MEASURABLE GOALS

- ***Measureable Goal 5.1.1*** – implement Stormwater Management Performance Standards to ensure the installation of post-construction BMPs from applicable new development and redevelopment projects.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to implement the Stormwater Management Performance Standards (local ordinance Sec. 27-1536) to ensure that post-construction BMPs were being installed for applicable new development and redevelopment projects. Implementation of these standards occurs through the Planning Board application review process for all new development or redevelopment projects disturbing 15,000 square feet of land or for nonconforming lots of record. As such, the City's ordinance requirements exceed state standards which generally do not require stormwater management practices for projects disturbing less than 1 acre of land.

BMP 5.2 Continue Implementing Tracking Program for Post-Construction BMPs in Urbanized Area

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To ensure the adequate long-term operation and maintenance of post-construction stormwater BMPs for new development or redevelopment projects that disturb an acre or more (including projects less than 1 acre that are part of a larger common plan of development) and discharge to the City's MS4 system.

METHODOLOGY

Establish and implement a process to notify owners/operators of qualifying properties about annual inspection requirements for post-construction stormwater BMPs; establish and implement a tracking system to ensure that these systems are being inspected annually and properly maintained to ensure effective long-term operation.

MEASURABLE GOALS

- ***Measurable Goal 5.2.1*** – continue implementing tracking program for post-construction stormwater BMPs in the Urbanized Area to ensure completion and receipt of annual inspection certification reports from owner/operator of BMPs.
- ***Measurable Goal 5.2.2*** – conduct yearly evaluations of tracking program and modify if necessary.

Reporting: documentation of all BMPs and annual certifications will be entered into a database management system or other recordkeeping system for tracking and annual reporting to DEP. The following information will be included in the annual report:

  - Cumulative number of sites that have post construction BMPs discharging to City's MS4.

- Summary of the number of sites that have post-construction BMPs discharging into the City's MS4 that were reported to municipality.
- Number of sites with documented functioning post-construction BMPs.
- Number of sites that required routine maintenance or remedial action to ensure the post-construction BMP was functioning as intended.

ACTIONS COMPLETED DURING PERMIT YEAR

The City's tracking program for the annual post-construction stormwater BMP inspections in the Urbanized Area continued to document and ensure the submittal of certified 3rd party inspection reports for all qualifying properties (Figure 13). In addition to inspection requirements for new or redevelopment projects disturbing an acre or more as specified in the MS4 permit, the City's Stormwater Performance Standards (27-1536) also require stormwater BMPs and inspections for projects disturbing 15,000 square feet or more and in some cases even for small non-conforming lots of record (~5,000 s.f.).

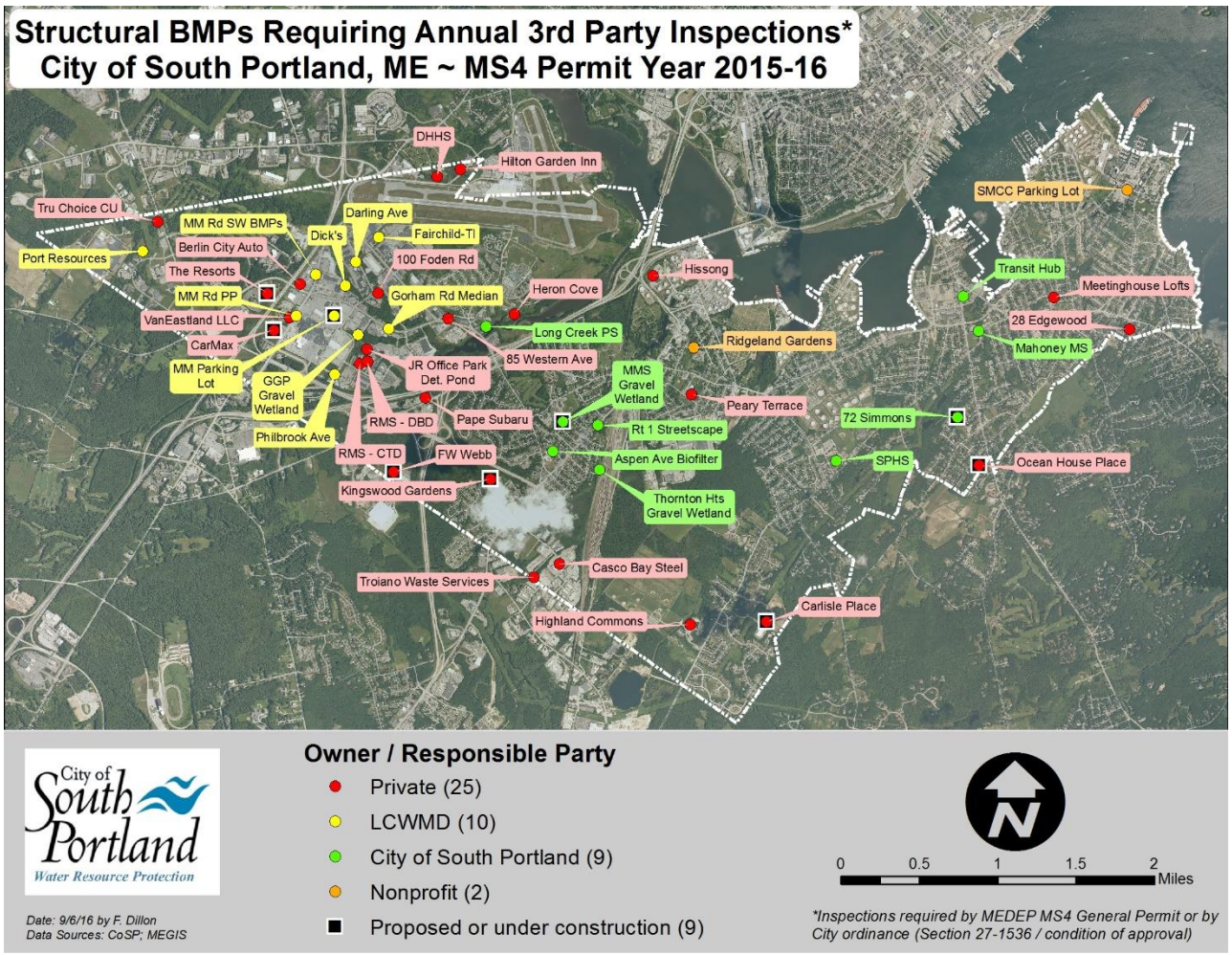


Figure 33: locations of qualifying post-construction structural stormwater BMPs in South Portland for PY2015-16

As of 6/30/16, the properties or projects that currently require (or will require) stormwater BMP inspections were as follows:

- ***25 privately owned properties / projects*** (some of which are under construction or in the planning phase)
- ***10 properties / projects managed by the Long Creek Watershed Management District*** (some under construction or in the planning phase)
- ***9 City-owned properties / projects*** (some under construction or in the planning phase)
- ***2 Nonprofit properties / projects***

The City sent notification letters in April 2016 to all qualifying property owners not participating in the Long Creek General Permit informing them of the annual post-construction BMP inspection requirements specified in the MS4 permit and City's ordinance. By late August 2016, inspection reports for all but one qualifying property had been submitted to the City (Table 4). Virtually all of the reports were completed by City-certified 3rd party inspectors and the majority of systems inspected were functioning properly with some minor maintenance needed, such as revegetation. Systems requiring more significant maintenance included the John Roberts Road Office Park, where the wet pond installed in 2013 needed major reconstruction, and the Long Creek Pumping Station, which has a small section of porous asphalt in need of repair. The City also retains inspection reports for stormwater systems covered under the Long Creek General Permit.

Table 4: PY2015-16 properties requiring post-construction 3rd party inspections for stormwater treatment BMPs

INSPECTIONS	3PI Report Received	Follow-up Needed?	Comments	Inspection Requirement		
Private				**MS4**	**27-1536**	**Other**
100 Foden Road	Y	N	3/23 & 5/24/16: 3PI by Stormwater Compliance.	x		
28 Edgewood	Y	N	6/16/16: inspection by homeowner.		x	
Berlin City Auto (IP parcel)	Y	N	5/20/16: IP parcel completed 3PI by Scott Reynolds / CCSWCD; CCSWCD inspecting GP parcel in July.	x		
Casco Bay Steel	Y	N	6/6/16: 3PI by Sebago Technics.	x		
Highland Commons	Y	Y	7/15/16: 3PI by Sebago Technics.	x		
Hilton Garden Inn	Y	N	6/6/16: 3PI by Will Savage / Acorn.	x		
Hissong	Y	N	8/19/16: 3PI by Sebago Technics.	x		
John Roberts Rd Office Park	Y	N	8/28/15: Sterling 3PI failed; follow up 3PI 12/28/15 passed.	x		
Meetinghouse Lofts	Y	N	12/1/15: 3PI for OC by John Mahoney / Ransom.		x	
Osprey Circle	Y	N	8/9/16: 3PI by Reg Strout (completed 6/14/16)		x	
Pape Subaru	Y	N	5/6/16: 3PI by Chris Baldwin / St Germain Collins.	x		
Peary Terrace	Y	N	6/6/16: 3PI by Michael Guethle / Wright-Pierce	x		
RMS 28 Chris Toppi Drive	Y	N	8/9/16: 3PI by Todd Gammon.	x		
RMS 30 Donald Dean Drive	Y	N	8/9/16: 3PI by Todd Gammon.	x		
State Office Building - DHHS	Y	N	5/11/16: 3PI by Stormwater Compliance.	x		
Troiano Waste Services	Y	N	7/15/16: 3PI by Peter Dalfonso / St. Germain.	x		
Tru Choice Credit Union	Y	N	5/6/16: 3PI by Jayson Haskell / DM Roma.	x		
VanEastland LLC	Y	N	7/21/16: 3PI by Sterling Stormwater.	x		
Western Ave Crossing	Y	N	7/14/16: 3PI by Paul Ostrowski / ST.	x		
19						
City of South Portland						
City Hall / Transit Hub	Y	Y	8/17/16: 3PI by Chris Baldwin with follow up needed.		x	
Community Center	Y	N	8/17/16: 3PI by Chris Baldwin			x
Long Creek PS	Y	Y	4/7/16: 3PI failed; most maint complete and awaiting reinspection as of 9/8/16.		x	
Mahoney Middle School	Y	Y	7/10/16: 3PI by Chris Baldwin.	x		
South Portland High School	Y	N	7/18/16: 3PI by Chris Baldwin	x		
Sunset Ave Gravel Wetland	Y	N	12/3/15: 3PI completed by Sebago Technics.		x	
6						
Nonprofit						
Ridgeland Estates (SPHA)	Y	Y	7/8/16: 3PI by St. Germain.	x		
SMCC Parking Lot	N	N	9/8/16: 3PI report expected in mid-Sept.		x	
2						

BMP 5.3 Continue Implementing Procedures for Notifying Site Developers to Consider Incorporating Low Impact Development Techniques

Responsible Party: Planning Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To promote the use of LID practices for new development and redevelopment projects.

METHODOLOGY

Use Stormwater Management Performance Standards (Sec. 27-1536) to encourage the use of LID practices.

MEASURABLE GOALS

- ***Measurable Goal 5.3.1*** – as specified in the City's Stormwater Management Performance Standards (Sec. 27-1536), projects requiring a Chapter 500 stormwater permit will comply with the practices described in Maine DEP's Stormwater Management Manual, which include low impact development techniques.
- ***Measureable Goal 5.3.2*** – as specified in the City's Stormwater Management Performance Standards (Sec. 27-1536), projects not requiring a Chapter 500 stormwater permit but requiring a Post-Construction or Basic Stormwater Management Plan from the City will use LID practices as determined by the Planning Board to be appropriate for the site.
- ***Measureable Goal 5.3.3*** – as specified in the City's Stormwater Management Performance Standards (Sec. 27-1536), projects not requiring a Chapter 500 stormwater permit but requiring a Drainage Plan from the City are encouraged but not required to use LID practices appropriate for the type of development identified in the Maine DEP's Volume III – BMP Technical Design Manual or City's Stormwater Manual.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued to rely on Stormwater Management Performance Standards (Sec. 27-1536) to encourage the use of LID practices. All new or redevelopment projects requiring Planning Board review are subject to these standards. The relevant ordinance language is as follows:

> *If the project does not require a stormwater permit from the DEP under its Chapter 500 Rules, the plan may either meet the Chapter 500 standards as set forth in (a) above, or provide for the treatment of 0.5 inches of runoff from ninety percent (90%) of the impervious surfaces on the site, and 0.2 inches of runoff from all disturbed pervious areas of the site using LID design practices and techniques determined by the Planning Board to be appropriate for the site…The treatment techniques used may include those set forth in Chapter 10 of the DEP Stormwater Manual, Volume III-BMPs Technical Design Manual, and/or any City of South Portland LID (Stormwater) Manual adopted by the Planning Board...Provisions must be made in the Stormwater Management Plan for all stormwater treatment techniques to be maintained in perpetuity.*

Minimum Control Measure 6 – Pollution Prevention / Good Housekeeping for Municipal Operations

The City completed a variety of activities for the Pollution Prevention / Good Housekeeping for Municipal Operations Minimum Control Measure as described below. The overall goals of this MCM are to develop an inventory of all municipal operations that have the potential to generate stormwater pollution; conduct a municipal employee training program; develop a sweeping program for all publicly owned streets and parking lots; develop a cleaning and maintenance program for all City-owned catch basins and other stormwater structures; evaluate and implement a prioritized schedule for maintaining and upgrading the City's stormwater system; and develop Stormwater Pollution Prevention Plans (SWPPPs) for all applicable municipal facilities and operations.

BMP 6.1 Continue to Maintain Inventory of Municipal Properties, Facilities & Activities for Implementation of Operation & Maintenance Plans

Responsible Party: Stormwater Program Coordinator *Additional Party: N/A*

INTENT

To ensure the use of structural and non-structural controls at all applicable municipally owned or operated properties and facilities that will reduce stormwater pollution to the maximum extent practicable.

METHODOLOGY

Continue to maintain GIS-based inventory of all City properties with a list of associated municipal activities that have the potential to generate stormwater pollution and continue implementation of O&M procedures.

MEASURABLE GOALS

- ***Measurable Goal 6.1.1*** – continue maintaining and updating inventory of all municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, parks and open space owned or operated by the City that have the potential to cause or contribute to stormwater or surface water pollution.
- ***Measurable Goal 6.1.2*** – continue implementing written operation and maintenance (O&M) procedures that include maintenance schedules and inspection procedures to ensure long-term operation of structural and non-structural controls that reduce stormwater pollution to the maximum extent practicable for all areas of the City within the Urbanized Area. These procedures must address the following, as applicable:
    - Proper use, storage, and disposal of petroleum and non petroleum products, hazardous materials, waste materials, pesticides and fertilizers, including minimizing the use of these products and an alternative product analysis;
    - Spill response and prevention;
    - Vehicle and equipment storage, maintenance, and fueling;
    - Amount and type(s) of deicing materials used each deicing season;
    - Landscaping and lawn care, including, where applicable, an evaluation of reduced mowing

frequencies, establishing and maintaining buffers, and cutting vegetation within 100 feet of a stormwater conveyance or surface water;

- Erosion and sedimentation control;
- Feeding gulls, waterfowl or other wildlife.

ACTIONS COMPLETED DURING PERMIT YEAR

The most recent South Portland cadastral records (November 2015) identified 208 parcels that are owned by the City (Figure 14). Various municipal departments are responsible for maintaining these properties in accordance with the Operations & Maintenance Plans developed by the Interlocal Stormwater Working Group in 2015.

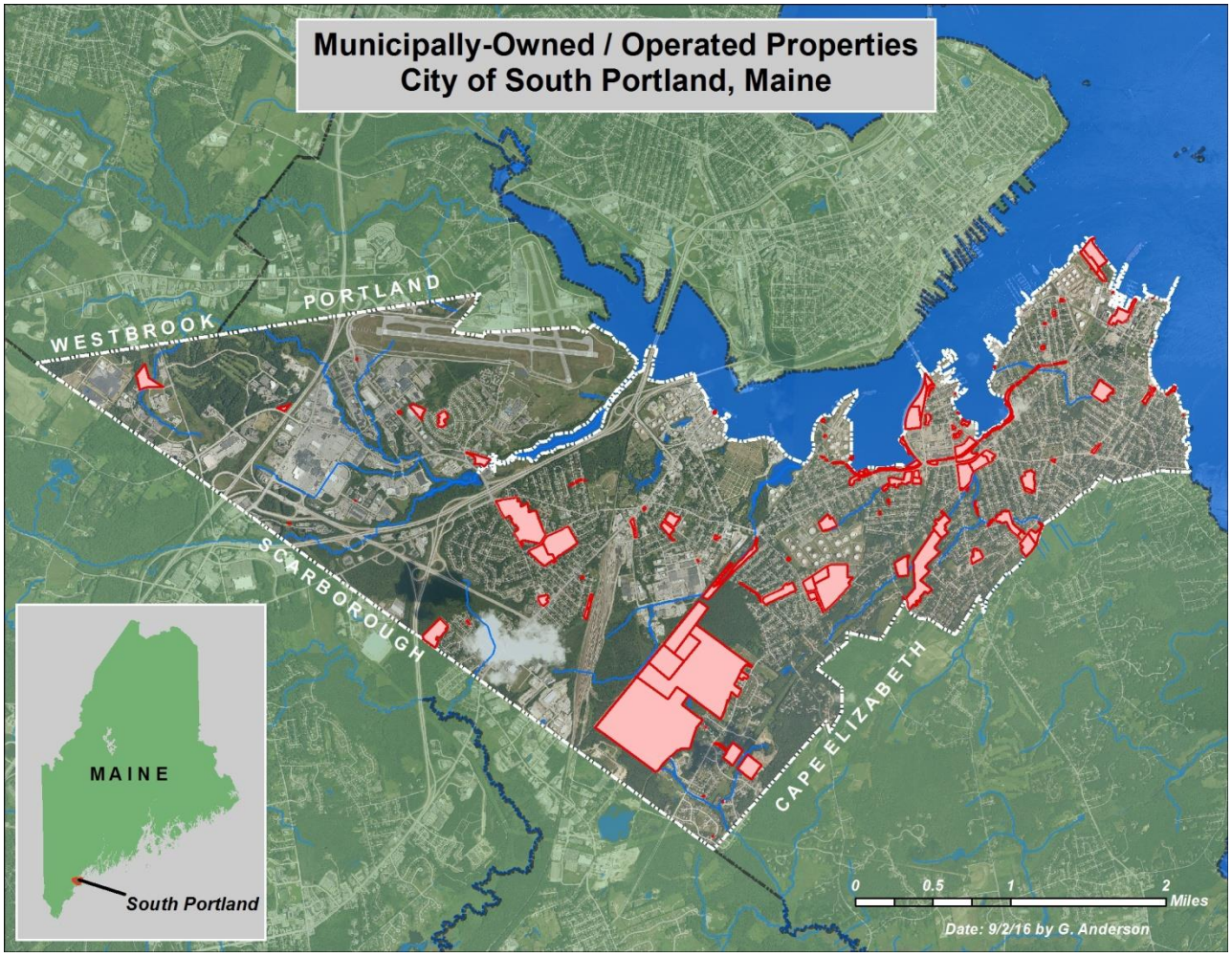


Figure 44: properties owned and operated by the City and subject to O&M plans to minimize / prevent polluted stormwater runoff

BMP 6.2 Continue Implementation of Municipal Employee Training Program

Responsible Party: Stormwater Program Coordinator *Additional Party: N/A*

INTENT

To provide employee training that will prevent or reduce stormwater pollution from municipal operations

and facilities.

METHODOLOGY

Continue working independently and in partnership with the Interlocal Stormwater Working Group and Maine DEP to provide municipal employees with relevant training for the prevention or reduction of stormwater pollution from municipal operations.

MEASURABLE GOALS

- ***Measurable Goal 6.2.1*** – continue to identify training needs and materials and revise / update as necessary.
- ***Measurable Goal 6.2.2*** - continue implementing municipal employee training program to reduce stormwater pollution potential from municipal operations. Topics to be covered by the training program may include, but not be limited to:
    - Maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural stormwater controls to reduce pollutants discharged from the separate storm sewers.
    - Controls for reducing or eliminating the discharge of pollutants into the separate storm sewers from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, snow disposal areas, and waste transfer stations.
    - Procedures for disposing of waste removed from the separate storm sewers and areas listed above in accordance with all regulatory requirements (such as dredge spoil, accumulated sediments, floatables, and other debris).

ACTIONS COMPLETED DURING PERMIT YEAR

The City participated in or provided a number of Stormwater Pollution Prevention Plan (SWPPP) and Good Housekeeping / Pollution Prevention (GH/PP) training events in PY2015-16. On 4/14/16, the Stormwater Program Coordinator provided site-specific SWPPP training to 22 employees (bus drivers and maintenance staff) from the School Department's Transportation Division; on 5/3/16, the Stormwater Program Coordinator provided GH/PP training to 10 employees from the Public Works Department and 18 employees

Figure 55: site specific employee training for School Bus Maintenance Facilities SWPPP (4/14/16) and general GH/PP training for Parks & Recreation and Public Works Departments (5/3/16)

from the Parks & Recreation Departments (Figure 15 previous page).

On 6/24/16, the City partnered with Maine DEP and the Interlocal Stormwater Working Group (ISWG) to provide pollution prevention & good housekeeping training to 58 staff members from MS4 communities throughout the greater Portland area including 18 South Portland employees from various municipal departments (Figure 16). The City of South Portland has hosted this annual event at our Community Center for the past several years. In addition to the City's commitment to partner with MEDEP and ISWG for ongoing annual SWPPP and GH/PP training, we will also continue providing this training directly to various municipal departments to ensure that relevant staff understand how they are the first line of defense in preventing polluted stormwater runoff. For PY2015-16, the total number of City staff receiving either SWPPP or GH/PP training was 58.

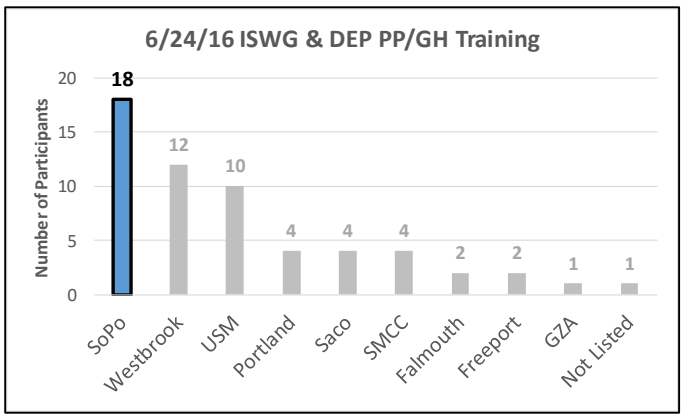


Figure 66: 6/24/16 MEDEP & Interlocal Stormwater Working Group Pollution Prevention & Good Housekeeping training event

BMP 6.3 Continue Implementation of Street Sweeping Program

Responsible Party: Public Works Dept. *Additional Party: Water Resource Protection Dept.*

INTENT

To continue (and refine as needed) the City's ongoing pavement sweeping program for all municipally owned or operated streets and parking areas.

METHODOLOGY

Annually assess the effectiveness of the City's ongoing pavement sweeping program and refine as needed based on the latest research and available funding.

MEASURABLE GOALS

- ***Measurable Goal 6.3.1*** – continue or modify as needed the City's ongoing pavement sweeping program for all municipally owned or operated streets and parking areas and ensure that sweeping is conducted at least once a year as soon as possible after snowmelt.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued its ongoing sweeping program for all municipally owned or operated streets and parking areas along with a more intensive sweeping regimen for the Long Creek watershed in support of restoration efforts there. Long Creek was swept twice during the permit year – once shortly after final leaf drop in the fall of 2015 and once shortly after final snow melt in the late winter / early spring of 2016.

BMP 6.4 Continue Cleaning of Stormwater Structures Including Catch Basins

Responsible Party: Water Resource Protection Dept. *Additional Party: N/A*

INTENT

To ensure that all municipally owned or operated stormwater structures and catch basins are properly functioning and maintained and that the materials removed from them are disposed of appropriately per applicable state law.

METHODOLOGY

Conduct annual cleaning activities for stormwater structures and catch basins to ensure their proper functioning and dispose of associated materials appropriately.

MEASURABLE GOALS

Measurable Goal 6.4.1 – continue or modify as needed the City's ongoing stormwater structure and catch basin cleaning program with cleaning frequencies determined by sediment accumulation rates. At a minimum, all stormwater structures and catch basins should be cleaned every other year. Stormwater structures and catch basins will be cleaned more frequently if inspections indicate excessive sediment accumulation (i.e., when the sump is greater than or equal to 50 percent filled).

ACTIONS COMPLETED DURING PERMIT YEAR

The City cleans virtually 100% of all publicly-owned catch basins with sumps on an annual basis. This was also the case for 2016 and we continued using ArcGIS Online (AGOL) with iPads to track data collection for our catch basin cleaning program. As of 9/1/16, approximately 301 tons of grit material was removed from 2,304 catch basins and disposed of at Commercial Paving & Recycling in Scarborough. The total operational cost to complete this work (excluding equipment maintenance and replacement costs) was just under $30,000 and the average cost to clean each catch basin was approximately $12.86 (Table 5).

Table 5: summary of 2016 catch basin cleaning costs

2016 CITY OF SOUTH PORTLAND CATCH BASIN CLEANING - SUMMARY BY WATERSHED							RELATIVE EFFICIENCIES			
Watershed	CBs Cleaned	Labor Hours	Fuel Use (Gallons)	Grit Tons	Grit Tons / CB	Approx. Ops. Cost	Labor Hrs/CB	Gallons Fuel/CB	Ops Cost $/Ton	$/CB Cleaned
Anthoine Creek	136	12.00	11.50	18.76	0.14	$1,289	0.09	0.08	$68.69	$9.48
Barberry Creek	201	44.12	48.02	24.00	0.12	$2,550	0.22	0.24	$106.26	$12.69
Breakwater	267	29.00	43.50	23.59	0.09	$2,093	0.11	0.16	$88.73	$7.84
Calvary Pond	315	74.05	95.55	42.76	0.14	$4,444	0.24	0.30	$103.93	$14.11
Clarks Pond	101	42.20	46.10	10.79	0.11	$1,844	0.42	0.46	$170.87	$18.25
Danforth Cove	12	3.00	4.00	2.20	0.18	$203	0.25	0.33	$92.42	$16.94
Gamblers Arm Bk	185	22.00	24.50	15.59	0.08	$1,451	0.12	0.13	$93.06	$7.84
Kimball Brook	34	5.50	10.00	6.93	0.20	$522	0.16	0.29	$75.36	$15.36
Long Creek	316	95.27	248.17	53.91	0.17	$6,018	0.30	0.79	$111.63	$19.04
Mill Creek	162	46.00	61.00	26.82	0.17	$2,778	0.28	0.38	$103.58	$17.15
Nonesuch River	99	13.54	22.34	18.65	0.19	$1,357	0.14	0.23	$72.77	$13.71
Red Brook	31	6.10	12.35	16.27	0.52	$1,003	0.20	0.40	$61.67	$32.37
Trout Brook	117	7.00	7.00	10.24	0.09	$718	0.06	0.06	$70.12	$6.14
Turners Island	239	48.00	81.10	18.36	0.08	$2,477	0.20	0.34	$134.89	$10.36
Willard Beach	89	8.00	16.00	12.31	0.14	$873	0.09	0.18	$70.92	$9.81
Totals:	**2304**	**455.78**	**731.13**	**301.18**	**0.13**	**$29,621**	**0.20**	**0.32**	**$98.35**	**$12.86**

* Assumes $28.07 hourly labor rate; $2.83 / gal fuel cost; and $49 / ton grit disposal cost. DOES NOT include maintenance or equipment replacement costs.

BMP 6.5 Continue Maintenance and Upgrade of Stormwater Conveyances, Structures and Outfalls

Responsible Party: Water Resource Protection *Additional Party: N/A*

INTENT

To ensure that all municipally owned or operated stormwater conveyances and outfalls are properly functioning and maintained.

METHODOLOGY

Conduct ongoing annual inspection and maintenance program to identify condition of stormwater conveyances and outfalls and repair, replace or install new infrastructure as needed.

MEASURABLE GOALS

- ***Measurable Goal 6.5.1*** – continue repairing or upgrading MS4 system conveyances, structures, and outfalls through general maintenance, repairs and new construction, and as part of the combined sewer system separation program.
- ***Measurable Goal 6.5.2*** – continue to evaluate and implement a prioritized schedule, as necessary, for repairing or upgrading the conveyances, structures and outfalls of the its MS4.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued its ongoing inspection and maintenance program for stormwater conveyances and completed 117 construction projects for PY2015-16. Project examples include stormwater treatment system maintenance, catch basin repair or replacement, storm drain or combined sewer line repair / replacement, culvert replacement, regrading to improve drainage, and ditch armoring with rip rap for erosion control, among others. Excluding equipment replacement and maintenance costs, the City expended just over $160,000 – or approximately 69% of the total construction program budget ($234,385) – on a variety of stormwater system repair and replacement projects for the 2015-16 permit year (Figure 17).

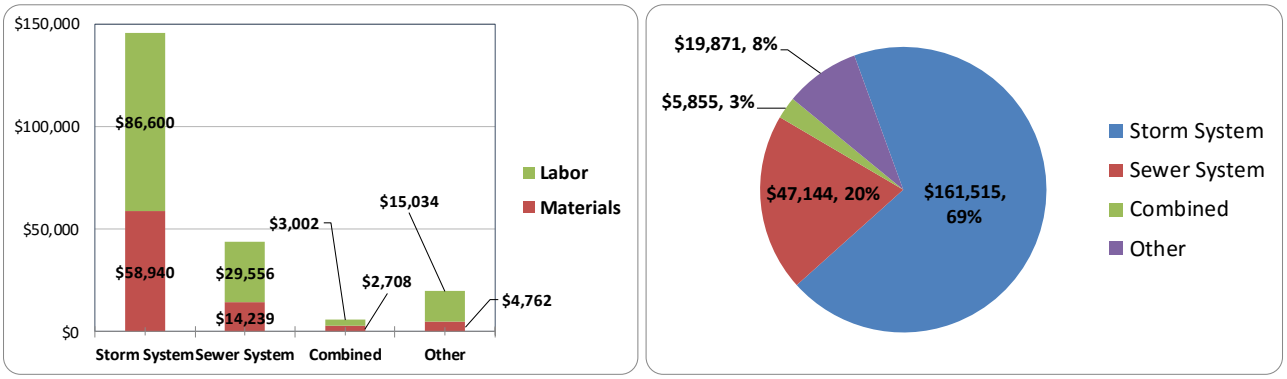


Figure 17: summary of construction project expenses for South Portland's stormwater and sewer systems

The Thornton Heights Stormwater Separation Project is perhaps the most notable and significant upgrade to the City's stormwater system ever completed. Phase 2, which was finished in early 2016, consisted of disconnecting ~0.4 acres of impervious area, removing 34 combined catch basins from a 26-acre catchment area and installing ~6,100' of new separated storm drain discharging to a gravel wetland stormwater treatment system. The City adopted a "complete streets" approach to this infrastructure improvement project that incorporated numerous BMPs along the esplanade (Figure 18), significant traffic calming and landscaping features, and bicycle and pedestrian amenities to enhance the "human-scaled" experience. Phase 3, which began in early 2016 and will be completed by early-mid autumn 2016, will consist of disconnecting another 0.4 acres of impervious area, removing 9 combined catch basins from an 18-acre drainage area and installing ~4,400' of new separated storm drain. Two additional gravel wetland stormwater treatment systems were also installed as part of this effort (Figure 19). Once completed, the Thornton Heights Stormwater Separation Project will greatly reduce the frequency and severity of CSO events from this area while also significantly reducing adverse impacts from polluted stormwater runoff. The total cost to install this new stormwater infrastructure will be approximately $6.4 million.

Figure 88: stormwater treatment system installed in the esplanade along Route One / Main Street (Nov. 2015)

Figure 79: nearly completed gravel wetland on Wythburn Road (May 2016)

BMP 6.6 Continue Implementation of Stormwater Pollution Prevention Plans (SWPPPs)

Responsible Party: Stormwater Program Coordinator *Additional Party: Public Works & School Depts.*

INTENT

To ensure that all applicable municipal facilities (public works, transfer station, school bus maintenance garage) in the urbanized area have current Stormwater Pollution Prevention Plans (SWPPP) that are being implemented accordingly.

METHODOLOGY

Work with department heads and other relevant staff to ensure that SWPPPs are current being implemented as specified.

MEASURABLE GOALS

- ***Measurable Goal 6.6.1*** – continue implementing SWPPPs for public works facilities, transfer station and school bus maintenance facilities. Collaborate with DEP and ISWG on developing and implementing a training program for municipal facility staff informing them about the requirements of the SWPPP and how to implement it effectively. The managers for each facility will retain an up-to-date printed copy of the SWPPP on each site so affected employees can refer to it as needed.

ACTIONS COMPLETED DURING PERMIT YEAR

SWPPPs have been developed for the public works facilities, school bus maintenance garage and transfer station, the latter of which was significantly updated to reflect new facilities that were completed in early 2016. The City is currently constructing a new public works facility on outer Highland Avenue that is expected to be ready for occupancy by the summer of 2017. The DPW SWPPP will be updated to reflect these changes upon completion of the new facility. (The current DPW facility on O'Neil Street will be vacated and redeveloped for residential housing). Staff from numerous City departments attended SWPPP and municipal good housekeeping / pollution prevention training provided by the City's Stormwater Program Coordinator, MEDEP and ISWG as described for BMP 6.2 above.

APPENDICES

Appendix 1: ISWG Permit Year 2 Summary of MCMs 1 & 2

The following is a summary of work facilitated by the Cumberland County Soil & Water Conservation District (CCSWCD) on behalf of the Interlocal Stormwater Working Group (ISWG), and in some instances for all statewide municipalities.

MCM1: Public Education and Outreach on Stormwater Impacts

Stormwater Public Awareness Plan

<table>
<tr><th>Task</th><th>Status</th><th>Details[1]</th></tr>
<tr><td>Summarize plan implementation to date</td><td>complete</td><td>Plan goal: As a result of our efforts, at the end of this permit cycle, 50% of homeowners, aged 35-55, in the 30 regulated small MS4 municipalities will understand that water does run off their property, not all is absorbed, and it will carry with it pollutants, such as lawn chemicals, pet waste, and oil drops. This polluted water will enter the storm drain system and discharge, untreated, directly to water bodies used for drinking, fishing, and swimming.</td></tr>
<tr><td>Conduct awareness media campaign utilizing television and online advertising</td><td>complete</td><td>CCSWCD coordinated a statewide television and online media campaign through Time Warner Cable. The original ducky and devil ducky ads ran two weeks per month from March through June 2016 in PY3. The ads were shown on cable television stations most likely to reach the target audience (i.e., homeowners, aged 35-55, in Maine's 30 MS4 communities), including: AMC, Animal Planet, CNN, Discovery, ESPN, Food Network, Freeform (formally ABC Family), FX, Fox News, HGTV, NESN, National Geographic, Nickelodeon, Outdoor Network, The Weather Channel.

The following television campaign data were provided by Time Warner Cable:
<table>
<tr><th>Television Airplay</th><th>Est. Reach[2]</th><th>Est. Frequency[3]</th></tr>
<tr><td>525</td><td>52%</td><td>4.3</td></tr>
</table>
CCSWCD developed online ads with a clean water message that directed users to the Think Blue Maine website. Time Warner Cable placed the ads on websites most likely to reach the target audience (e.g. local and national news websites, outdoor-themed sites). The online ad campaign ran continuously from March through June 2016. The average number of impressions[4] for two-day periods throughout the online ad campaign was approximately 4,500. Time Warner Cable also placed a full-screen advertisement and link to www.ThinkBlueMaine.org on their webmail login screen for a specified two-day period in March. During this time period, ad impressions spiked to nearly 32,000.

The following online campaign data were provided by Time Warner Cable:
<table>
<tr><td>Impressions[4]</td><td>628,789</td></tr>
<tr><td>Click thru rate[5]</td><td>0.22% (national average is 0.04%)</td></tr>
</table>
Based on analytical software installed on the Think Blue Maine website, hits during the online media campaign were more than five times higher than hits during the same three-month time period in 2015 when the online ad campaign was inactive. Between March and June 2016, there were 3,347 visits to the Think Blue Maine website. Between March and June 2015, there were 614 visits.</td></tr>
</table>

[1] CCSWCD maintains a documentation notebook for all MCM 1&2 activities.
[2] Reach is the percentage of the audience that saw the television ads.
[3] Frequency is the number of times the audience saw the television ads.
[4] Impressions are the number of times users saw the online ads.
[5] Click thru rate is the number of users that click on a specific link out of the total users that view a page, email, or advertisement.

Promote and participate in local public event	complete	*Promotion* With the help of ISWG representatives, CCSWCD promoted ISWG's public event, the Urban Runoff 5K and Green Neighbor Family Fest, via social media, paid online ads, and direct email communication to participants. In addition, 340 posters were distributed throughout the 14 ISWG communities by ISWG representatives; radio ads aired on 98.9 WCLZ during the month of April. In addition, News 8 WMTW developed a 20 second ad that ran on their station throughout the month of April. They also conducted 6 live interviews the morning of the event, and attended the race and festival on April 23, 2016.
		Participation Representatives from the ISWG municipalities volunteered or participated at the events, on April 23, 2016. Many representatives provided logistical support for the race and festival (e.g. flagging, parking set up, etc.). In addition, the City of Portland and other organizations provided educational activities focused on keeping water clean. Please see the MCM2 summary for more details about the events.
Develop standard impact evaluation protocol	complete & ongoing	CCSWCD updated the existing evaluation survey (i.e., originally developed by DEP) for evaluating impact of our awareness activities in PY3. Revisions to the evaluation survey were based on experiences with the MS4 evaluation survey conducted in the previous permit cycle (i.e., 2008-2013), DEP's intercept survey (circa 2007), other surveys carried out by CCSWCD (i.e., Capisic Brook evaluation survey in 2013), and feedback from MS4 colleagues. The revised survey draft was distributed to representatives from Maine's MS4 clusters for review and revision. survey will be finalized and administered in PY4, as indicated in the timeline of the approved Statewide Awareness Plan.
Additional activities not identified in the plan	complete	CCSWCD redesigned www.ThinkBlueMaine.org and upgraded the site to a WordPress platform. The redesign and upgrade allows content to be more readily added to facilitate more frequent updates.

Targeted Best Management Practices Adoption Plan

Task	Status	Details
Summarize plan implementation to date	complete	Plan goal: As a result of our efforts, at the end of this permit cycle, 15% of college-educated homeowners, aged 35-55, residing in the urbanized area and/or the priority watershed within the ISWG communities and who currently apply fertilizers and pesticides to their lawns will reduce their use of lawn chemicals.

Point of Sale

Retain 21 Point of Sale locations in the ISWG communities	complete	The ISWG YardScaping Point of Sale Program continued to be maintained at more than the 21 locations required. Twenty-two stores participated in PY3, with one store declining to participate in PY3. The distribution of the stores in PY3 is as follows:
		Biddeford: 1
		Cape Elizabeth: 0
		Cumberland: 1
		Falmouth: 2
		Freeport: 1
		Gorham: 2
		Old Orchard Beach: 0
		Portland: 3
		Saco: 1
		Scarborough: 1

		South Portland: 3
		Westbrook: 2
		Windham: 3
		Yarmouth: 2
Maintain Point of Sale program in Home Depot stores within ISWG communities	complete	The ISWG YardScaping Point of Sale program continued to be maintained in the four Home Depot stores located in ISWG municipalities (Biddeford, Portland, South Portland, and Windham). Program components include a staff training, distribution of educational materials to the general public, and an educational event for customers at each store.

Adult Education

Offer a minimum of seven adult education events per year on YardScaping practices	complete	Once again, the number of YardScaping educational events offered in the ISWG municipalities far exceeded the minimum on the Plan. In PY3, 12 YardScaping events were provided as follows:
		Portland: 9/12/15, Greenfest, 63 participants
		Scarborough: 9/17/2015, adult education class, 12 participants
		Yarmouth: 9/22/2015, adult education class, 2 participants
		Biddeford: 10/19/2015, adult education class, 10 participants
		Scarborough: 3/29/2016, adult education class, 7 participants
		Portland: 4/4/2016, Home Depot staff training, 4 participants
		Biddeford: 4/7/2016, Home Depot staff training, 1 participant
		South Portland: 5/2/2016, Home Depot staff training, 14 participants
		Windham: 5/7/2016, Home Depot community education event/staff training, 14 participants
		Portland: 5/14/2016, Home Depot community education event/staff training, 16 participants
		Yarmouth: 5/14/16, Yarmouth Public Works Open House, 32 participants
		Biddeford: 5/14/2016, Home Depot community education event/staff training, 27 participants
Promote adult education classes	complete	Information on YardScaping classes was published in local adult education brochures, via direct mail, using social media, and through host locations.
Track behavior change	complete	CCSWCD staff documented class evaluations and contacted past adult education class participants to determine which YardScaping practices were implemented. Please see summary of behavior change reported by participants of PY2 classes, as well as those practices participants of PY3 classes intend to implement below.

Adult Education Behavior Change Tracking

During the fall of 2015, phone calls were made to participants of YardScaping adult education classes held in the fall of 2014 and spring of 2015 in order to determine class participants' level of implementation of the YardScaping practices. Follow up phone calls are made six months to one year after the class to allow participants a growing season to implement the recommended practices. Our follow-up provided an anticipated rate of compliance for the YardScaping practices that class participants intended to implement.

Permit Year 2 Post-Class Evaluations			
Lawn Care Practice	**Plan to implement**	**Implemented Practice**	**% behavior change**
Set Mower to a height of 3"	4	3	75.0%
Leave grass clippings	4	3	75.0%
Sharpen mower blades	3	2	66.7%
Aerate	5	1	20.0%
Topdress	5	2	40.0%

Overseed	3	2	66.7%
Use low maintenance seed	4	2	50.0%
Get a soil test	3	1	33.3%
Use nitrogen-only fertilizer	5	3	60.0%
Use compost tea	6	3	50.0%

Below are the results of the Permit Year 3 post-class evaluations completed by the YardScaping class participants.

Permit Year 3 Post-Class Evaluations			
Lawn Care Practice	**Plan to implement**	**Currently do not implement**	**% planning to implement**
Set Mower to a height of 3"	10	10	100.00%
Leave grass clippings	11	11	100.00%
Sharpen mower blades	11	12	91.67%
Aerate	22	26	84.62%
Topdress	20	26	76.92%
Overseed	22	24	91.67%
Use low maintenance seed	23	23	100.00%
Get a soil test	25	27	92.59%
Use nitrogen-only fertilizer	22	26	84.62%
Use compost tea	19	25	76.00%

CCSWCD staff will contact the class participants from the Permit Year 3 classes in Permit Year 4 to determine which behaviors have been adopted.

Targeted Information Distribution

Distribute lawn care information in one targeted neighborhood per ISWG community	complete	YardScaping information was distributed throughout priority neighborhoods in each ISWG community. The following number of households received information:
		Biddeford: 113
		Cape Elizabeth: 79
		Cumberland: 115
		Falmouth: 116
		Freeport: 87
		Gorham: 125
		Old Orchard Beach: 109
		Portland: 353
		Saco: 255
		Scarborough: 115
		South Portland: 117
		Westbrook: 103
		Windham: 311
		Yarmouth: 89

Websites & Free Media

Maintain and monitor CCSWCD YardScaping website	complete	CCSWCD has launched its newly redesigned website. The YardScaping section is now up-to-date with YardScaping partner stores and updated fact sheets. The YardScaping calendar of events is still in development. Community events and classes are advertised through CCSWCD's Facebook page.
	complete	*Portland Press Herald: Letter to the Editor:* Casco Bay steward offers kudos to chemical-free lawn care professionals (July 2, 2015)

Newspaper coverage of YardScaping activities and healthy lawn care		*Portland Press Herald:* What to plant when you no longer want a lawn (July 5, 2015)
		The Sentry: Lawn Care can help reverse global warming (September 11, 2015)
		Portland Press Herald: Letter to the Editor: Portland should ban lawn products containing pesticides (October 6, 2015)
		Portland Press Herald: Portland citizens' group proposes broad pesticide ban (October 7, 2015)
		The Sunrise Guide Blog: A Healthy Fall Lawn Makes for a Happy Spring (October 9, 2015)
		The Sentry: Couple raises alarm over pollutants on Willard (October 16, 2015)
		Portland Press Herald: Pesticide ordinance would have Portland flourishing responsibly (February 1, 2016)
		Portland Press Herald: The grass is not always greener. On our lawns, that is (March 27, 2016)
		Portland Press Herald: South Portland gives initial approval to pesticide ban (April 5, 2016)
		Portland Press Herald: Letter to the Editor: Pesticide-free green lawns? Learn how from the experts (April 14, 2016)
		Portland Press Herald: The incredible shrinking lawn: It's a movement that should grow (May 1, 2016)

Additional Activities not Identified in the Plan

Purchased ad space	complete	ISWG/CCSWCD placed a 1/6-page color ad promoting the YardScaping program in the Fall 2015 / Winter 2016 edition of *Green and Healthy Maine Homes* magazine. An article about fall lawn care was also submitted, but it was not published in the magazine. (The article was made available on the Sunrise Guide website: http://thesunriseguide.com/a-healthy-fall-lawn-makes-for-a-happy-spring/.)
Materials development	complete	CCSWCD developed a new educational brochure to accompany displays at point of sale retailers. This new handout provides an overview of the YardScaping program and a schedule for carrying out recommended practices. The brochure is also available online at www.cumberlandswcd.org (click on the YardScaping ducky logo to access the YardScaping page).

Municipal Permit Awareness Plan

Task	Status	Details
Summarize plan implementation to date	complete	Plan goal: As a result of our efforts, at the end of this permit cycle, municipal councilors, managers, and directors of Planning, Public Works, and Parks & Recreation (or equivalent) departments in the ISWG communities will understand that they are subject to a Maine Pollutant Discharge Elimination System (MPDES) permit and will understand the requirements under that permit. They will also gain an understanding of stormwater pollution, how their municipal operations may contribute to stormwater pollution, and steps that can be taken to reduce stormwater pollution.

Materials Development

Develop permit awareness materials	complete & ongoing	**Fact Sheets:** Fact sheets developed in PY2 were updated for ISWG municipalities as needed in PY3. These fact sheets were provided to new council members in ISWG municipalities. **PowerPoint:** The PowerPoint presentation developed in PY2 was updated/tailored for the municipalities identified to receive targeted municipal outreach in PY3. **Public Works Brochure:** CCSWCD modified the "Clean Water is Everyone's Job" poster that was developed in PY2 to create a tri-fold brochure for distribution at

		annual trainings and events (e.g. Highway Congress). Similar to the poster, the brochure outlines important good housekeeping and pollution prevention practices, including proper vehicle washing, chemical storage, and spill response.

Targeted Outreach

Provide targeted outreach to four to five ISWG communities each Permit Year.	complete	CCSWCD provided targeted outreach to municipal staff and elected officials in Westbrook, South Portland, Cape Elizabeth, Gorham, and Windham during PY3. The designated MS4 stormwater coordinator from each municipality worked with CCSWCD staff to determine what support would be most beneficial to their stormwater programs in their community. CCSWCD was able to tailor efforts to the specific needs of each municipality by offering many varied methods of support. CCSWCD offered numerous trainings, facilitation of interdepartmental meetings, support and training for fieldwork components of the stormwater program, support and training for municipal and construction site inspections, and more.		
		Westbrook	10/07/15	Initial planning /consultation meeting with MS4 Coordinator
			03/11/16	Interdepartmental meeting: City Manager, Department of Public Works (DPW), Schools, Police, Fire, Code Enforcement, Planning
			06/16/16	Code Enforcement Training: 1 hour – erosion and sedimentation control at construction sites
			05/31/16	Westbrook hosted Cumberland County Municipal Managers' Meeting to discuss stormwater and regional needs
		South Portland	10/07/16	Initial planning /consultation meeting with Stormwater Coordinator
			12/15/16	Construction Project oversight meeting: Water Resources Protection, Code Enforcement, Planning
			02/02/16	Second Construction Project oversight meeting: Water Resources Protection, Code Enforcement, Planning
			03/08/16	Presentation to Planning Board: MS4 Permit 101 (provided by City staff)
		Cape Elizabeth	09/22/15	Initial planning /consultation meeting with MS4 Coordinator (conference call)
			03/23/16	Meeting to discuss pool discharge fact sheet
			07/12/16	Pool discharge fact sheet delivered to municipality for review and distribution
		Gorham	09/16/15	Initial planning /consultation meeting with MS4 Coordinator
			03/10/16	Meeting with MS4 Coordinator to discuss outfall inspection project, council presentation
			08/02/16	Presentation to City Council: MS4 Permit 101
		Windham	09/16/15	Initial planning /consultation meeting with MS4 Coordinator
			01/11/16	Interdepartmental meeting: DPW, Code Enforcement, Parks & Recreation, Police, Fire, Planning, Town Manager, GIS, Facilities
			2/16/16	CCSWCD staff provided council presentation regarding MS4, TMDL, and ongoing watershed protection projects
			03/28/16	Inspection follow-up meeting: Town manager, DPW, Planning

General Outreach

Provide presentation to municipal councils or planning boards about municipal stormwater program	complete	Under ISWG's Municipal Permit Awareness Plan, each municipality is required to provide a presentation to their municipal council or planning board about their MS4 program during each permit year. Municipalities may elect to receive CCSWCD support for the presentation to Council (noted below).
		Cape Elizabeth: 03/21/16
		Cumberland: 06/21/16
		Falmouth: 5/31/16 (County Managers' Meeting)
		Freeport: 01/05/16
		Gorham: 08/2/16 (CCSWCD)
		Old Orchard Beach: 05/03/16
		Portland: 04/11/16
		Saco: 06/16/16 (CCSWCD)
		Scarborough: 04/04/16
		South Portland: 03/10/16
		Westbrook: 12/14/15
		Windham: 02/16/16 (CCSWCD)
		Yarmouth: 05/11/16

Cooperative Outreach

<table>
<tr><td rowspan="2">Provide outreach through a minimum of one partner organization</td><td rowspan="2">complete</td><td>Winter Maintenance Roundtable – 9/10/15

ISWG/CCSWCD partnered with BASWG, MaineDOT, and the Long Creek Watershed Management District to provide a winter maintenance roundtable for municipal public works staff. The day-long event provided an introduction to the new Maine Winter Maintenance BMP Manual, training on winter maintenance operations outlined in the manual, winter maintenance case studies, and a roundtable discussion.</td><td>Municipality</td><td>Number of Attendees</td></tr>
<tr><td></td><td>Biddeford</td><td>0</td></tr>
<tr><td></td><td></td><td>Cape Elizabeth</td><td>0</td></tr>
<tr><td></td><td></td><td>Cumberland</td><td>2</td></tr>
<tr><td></td><td></td><td>Falmouth</td><td>0</td></tr>
<tr><td></td><td></td><td>Freeport</td><td>2</td></tr>
<tr><td></td><td></td><td>Gorham</td><td>0</td></tr>
<tr><td></td><td></td><td>Old Orchard Beach</td><td>0</td></tr>
<tr><td></td><td></td><td>Portland</td><td>6</td></tr>
<tr><td></td><td></td><td>Saco</td><td>0</td></tr>
<tr><td></td><td></td><td>Scarborough</td><td>2</td></tr>
<tr><td></td><td></td><td>South Portland</td><td>4</td></tr>
<tr><td></td><td></td><td>Westbrook</td><td>2</td></tr>
<tr><td></td><td></td><td>Windham</td><td>1</td></tr>
<tr><td></td><td></td><td>Yarmouth</td><td>1</td></tr>
<tr><td></td><td></td><td>Cumberland County Municipal Managers' Meeting – 5/30/16

Cumberland County Government and the Greater Portland Council of Governments convened municipal managers from</td><td>Municipality</td><td>Number of Attendees</td></tr>
<tr><td></td><td></td><td></td><td>Biddeford</td><td>0</td></tr>
<tr><td></td><td></td><td></td><td>Cape Elizabeth</td><td>0</td></tr>
<tr><td></td><td></td><td></td><td>Cumberland</td><td>0</td></tr>
<tr><td></td><td></td><td></td><td>Falmouth</td><td>1</td></tr>
<tr><td></td><td></td><td></td><td>Freeport</td><td>0</td></tr>
</table>

		throughout Cumberland County to discuss short-term and long-term needs to address stormwater.	Gorham	1
			Old Orchard Beach	0
			Portland	0
			Saco	0
			Scarborough	1
			South Portland	1
			Westbrook	1
			Windham	1
			Yarmouth	1
		Highway Congress – 6/2/16 An interactive educational booth about spill response procedures was staffed at APWA's annual Highway Congress, held on June 2, 2016. Time out for Training, a program coordinated by Maine Local Roads, ensured that 137 people visited the booth.	**Municipality**	**Reps. from ISWG who visited booth**
			Biddeford	0
			Cape Elizabeth	7
			Cumberland	0
			Falmouth	0
			Freeport	2
			Gorham	3
			Old Orchard Beach	0
			Portland	5
			Saco	0
			Scarborough	1
			South Portland	0
			Westbrook	0
			Windham	3
			Yarmouth	0
		Low Impact Development Lunch & Learn – 6/22/16 CCSWCD and ACF Environmental collaborated to provide a 2-hour lunch and learn about LID and Green Infrastructure concepts. The training provided overviews and case studies for ACF's stormwater solution products. A total of 29 people attended the training, including ISWG municipal representatives and design consultants who work in ISWG municipalities.	**Municipality**	**Registered Municipal Attendees**
			Biddeford	2
			Cape Elizabeth	0
			Cumberland	0
			Falmouth	0
			Freeport	0
			Gorham	0
			Old Orchard Beach	0
			Portland	5
			Saco	1
			Scarborough	0
			South Portland	0
			Westbrook	0
			Windham	0
			Yarmouth	0

<table>
<tr>
<td></td>
<td></td>
<td>Cumberland County Clean Water Council – 5/26 & 6/30/16

CCSWCD assisted the Cumberland County government and Greater Portland Council of Governments to bring together municipal leaders from Cumberland County and the surrounding region to identify opportunities to collaborate for clean water.

A large group met on May 26th and generated an extensive list of needs and collaboration opportunities. A subset of attendees volunteered to serve on the design and mission team to identify a path forward. The design and mission team met on June 30th and will continue to meet throughout PY4.</td>
<td>
<table>
<tr><th>Municipality</th><th>Attended on 5/26</th><th>Attended on 6/30</th></tr>
<tr><td>Biddeford</td><td>1</td><td>0</td></tr>
<tr><td>Cape Elizabeth</td><td>0</td><td>0</td></tr>
<tr><td>Cumberland</td><td>0</td><td>0</td></tr>
<tr><td>Falmouth</td><td>1</td><td>1</td></tr>
<tr><td>Freeport</td><td>0</td><td>0</td></tr>
<tr><td>Gorham</td><td>0</td><td>0</td></tr>
<tr><td>Old Orchard Beach</td><td>2</td><td>0</td></tr>
<tr><td>Portland</td><td>3</td><td>1</td></tr>
<tr><td>Saco</td><td>3</td><td>1</td></tr>
<tr><td>Scarborough</td><td>2</td><td>0</td></tr>
<tr><td>South Portland</td><td>4</td><td>0</td></tr>
<tr><td>Westbrook</td><td>1</td><td>0</td></tr>
<tr><td>Windham</td><td>1</td><td>1</td></tr>
<tr><td>Yarmouth</td><td>2</td><td>0</td></tr>
</table>
</td>
</tr>
<tr>
<td>A minimum of one representative from each ISWG municipality will attend the Maine Stormwater Conference</td>
<td>complete</td>
<td colspan="2">
<table>
<tr><th>Municipality</th><th>Registered Municipal Attendees</th></tr>
<tr><td>Biddeford</td><td>3</td></tr>
<tr><td>Cape Elizabeth</td><td>1</td></tr>
<tr><td>Cumberland</td><td>1</td></tr>
<tr><td>Falmouth</td><td>2</td></tr>
<tr><td>Freeport</td><td>2</td></tr>
<tr><td>Gorham</td><td>1</td></tr>
<tr><td>Old Orchard Beach</td><td>2</td></tr>
<tr><td>Portland</td><td>9</td></tr>
<tr><td>Saco</td><td>1</td></tr>
<tr><td>Scarborough</td><td>5</td></tr>
<tr><td>South Portland</td><td>5</td></tr>
<tr><td>Westbrook</td><td>4</td></tr>
<tr><td>Windham</td><td>2</td></tr>
<tr><td>Yarmouth</td><td>3</td></tr>
</table>
</td>
</tr>
<tr>
<td>Provide regional Good Housekeeping / Pollution Prevention Training</td>
<td>complete</td>
<td colspan="2">
<table>
<tr><th>Municipality</th><th>Municipal Staff in Attendance on 6/24/16</th></tr>
<tr><td>Biddeford</td><td>0</td></tr>
<tr><td>Cape Elizabeth</td><td>0</td></tr>
<tr><td>Cumberland</td><td>0</td></tr>
<tr><td>Falmouth</td><td>2</td></tr>
<tr><td>Freeport</td><td>1</td></tr>
<tr><td>Gorham</td><td>0</td></tr>
<tr><td>Old Orchard Beach</td><td>0</td></tr>
<tr><td>Portland</td><td>4</td></tr>
<tr><td>Saco</td><td>4</td></tr>
</table>
</td>
</tr>
</table>

		Scarborough	0
		South Portland	16
		Westbrook	12
		Windham	0
		Yarmouth	0

Evaluation

Conduct annual survey of ISWG municipalities to gauge awareness	complete	The survey was administered to ISWG representatives in PY3. See summary of survey responses in Appendix A-2.

Additional Activities not Identified in the Plan

Additional materials developed	complete	**Construction Inspection Checklist:** CCSWCD worked with an ISWG subcommittee and local consultants and developers to create a comprehensive construction inspection checklist to be used for construction projects of 1 acre or greater within municipal urbanized areas. The inspection checklist incorporates the erosion and sedimentation control requirements outlined in the Maine Construction General Permit and Chapter 500, which are referentially included in the MS4 permit. **Code Enforcement Training:** CCSWCD developed a two-hour training session to educate municipal code enforcement officers (CEO) about proper erosion and sedimentation best management practices, municipal non-stormwater discharge ordinance, and other relevant MS4 permit requirements. The training was developed with assistance from Windham's CEO and piloted with Westbrook's Code Enforcement staff. The training will be offered to CEOs in the larger ISWG group in PY4.

MS4 Enhanced Outreach Plan

Task	Status	Details
Summarize plan implementation to date	complete	Plan goal: Provide the Environment and Natural Resources Committee and the legislature with information about use and environmental impacts of coal tar sealants in the state, and the viability of potential alternative products, so they can make an informed decision about legislating the use of coal tar sealants.
Provide status report to DEP by February 1, 2016 (requested in Plan approval letter)	complete	ISWG and the York County MS4s submitted the status report to DEP on January 29, 2016. The report summarized the tasks completed to date and provided proposed revisions to the Plan, which included: 1. Revising the message used to reach legislators to address issues raised in the opposition's 2015 testimony. 2. Updating the coal tar fact sheet based on the opposition's testimony. 3. Conducting proactive outreach to members of the Environment and Natural Resources Committee (e.g. inviting them to attend MEWEA's legislative breakfast on March 3, 2016 and other events as applicable). 4. Meet with Representative Daughtry to plan for the next session. ISWG and the York County MS4s received written notification of approval of the Plan revisions on April 8, 2016.
Revise outreach message to address issues raised in the opposition's testimony	complete	Testimony from the 2015 LD1208 hearing was reviewed. The talking points developed in 2015 were updated to address issues raised in the opposition testimony. Information relating to availability of preferred asphalt-based products and municipal support of the coal tar ban was added.
Update coal tar fact sheet	complete	Similar to the updated talking points, the coal tar and PAH fact sheet was reviewed for accuracy and updated to address issues raised in the opposition's 2015 testimony.

Conduct outreach to Environment and Natural Resources Committee	complete	Representatives from ISWG/CCSWCD and the York County MS4s invited legislators to attend MEWEA's Legislative breakfast on March 3, 2016. Staff attended the breakfast and provided the coal tar fact sheet to interested parties. In addition, staff spoke directly with legislators about the impact coal tar-based sealers have on water resources.
Meet with Rep. Daughtry to plan for the 2016-17 legislative session	complete & ongoing	Representatives from ISWG/CCSWCD and the York County MS4s reached out to Rep. Daughtry to discuss plans to reintroduce the bill in the 2016/2017 legislative session. Rep. Daughtry confirmed that she is planning to reintroduce the bill and requested the assistance of ISWG and the York County MS4s to provide educational materials and outreach to the legislators. A meeting to discuss roles and responsibilities is planned for the fall of 2016.
Additional activities not identified in the Plan or status report	complete	ISWG/CCSWCD met with Mickey Kuhns, DEP Water Bureau Director, and other representatives from DEP to discuss various MS4-related topics. ISWG/CCSWCD sought Mr. Kuhns' input regarding how to successfully achieve a ban on coal tar-based sealers. Mr. Kuhns suggested that successful efforts on the local level would help influence the legislature. He also suggested obtaining more local water quality data that indicates coal tar products and PAHs are impacting Maine's water resources.

Additional Outreach Activities not identified in the Permit or Outreach Plans

Maine Stormwater Conference
ISWG served as a Coordinating Sponsor for the 2015 Maine Stormwater Conference, which is a biennial event that draws a large audience of municipal and state employees, consulting engineers, and stormwater professionals. The event educates these audiences about a variety of stormwater-related topics, including local, state, and federal regulations; innovative designs; resiliency; and emerging issues. Professional development hours were available to engineers, planners, code enforcement officers, waste water operators, drinking water operators, and lawyers who attended. The Conference drew more than 400 people from Maine and New England, including many representatives from the ISWG communities.

The post-Conference evaluation asked attendees if they learned anything that they will apply to future decisions. Some answers included the following:

- "Holistic stormwater approaches."
- "We are beginning a process of revamping our City stormwater regulations. I wanted to get a sense of what others are doing. This conference will help us to kick off our efforts."
- "This will help with Comprehensive Plan development to include taking into account conservation development."
- "I will consider storm frequency and severity in future construction planning decisions."

Planning for the 2017 (PY5) Conference is underway, and ISWG will once again serve as a coordinating sponsor.

Winter Maintenance Outreach and Support
ISWG/CCSWCD participated in the statewide Maine Salt Group to finalize a manual of winter maintenance best management practices (BMP) to reduce salt use in Maine. On behalf of ISWG, CCSWCD staff provided technical review of the BMP manual; assisted with the coordination of and presented at the Winter Maintenance Roundtable on September 10, 2015; and coordinated and attended two meetings with representatives from Maine and New Hampshire to discuss piloting New Hampshire's Green SnowPro program and training in Maine. As a result of these efforts, ISWG is sponsoring a Green SnowPro training on September 22, 2016 (PY4) in Portland.

Maine Water Environment Association (MEWEA)
ISWG/CCSWCD is serving on MEWEA's Stormwater Committee and assisting with the Committee's technical and outreach efforts. ISWG outreach materials are being used as a basis to educate MEWEA's membership about stormwater. In addition, ISWG/CCSWCD provided review of MEWEA's website and other materials to suggest how stormwater can be integrated into the Association's marketing and outreach materials.

Furthermore, the Stormwater Committee identified consistent construction inspection criteria as a priority. The Committee is looking to ISWG's Construction Committee as a resource for discussing compliance concerns; establishing consistent inspection criteria; and developing a comprehensive inspection form that can be used statewide. Feedback from the form (developed in PY3) following this construction season will be considered and incorporated into the form in PY4.

ISWG Youth Education

Although not a permit requirement, ISWG provides funding to deliver clean water education to K-12 students in each municipality. CCSWCD staff provide the education on behalf of ISWG. Portland Water District provides information on their clean water lessons to supplement ISWG's efforts. A summary of students reached, contact hours, and topics covered is provided below.

Overall:
Total students: 4,975
Total contact hours: 13,107

Primary educator contact information
CCSWCD: Kat Munson, Education and Outreach Coordinator, Cumberland County Soil & Water Conservation District, kmunson@cumberlandswcd.org, 207-892-4700 x 102.

Portland Water District (PWD): Sarah Plummer, Environmental Education Coordinator, Portland Water District, splummer@pwd.org, 207-774-5961 x3324.

Biddeford
Total students: 200 (CCSWCD)
Total contact hours: 200 (CCSWCD)
Lesson topics: Watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants
Schools: Biddeford Middle School

Cape Elizabeth
Total students: 93 (CCSWCD: 64, PWD: 29)
Total contact hours: 250 (CCSWCD: 134, PWD: 116)
Lesson topics: Macroinvertebrate sampling and identification & bioassessment; water quality parameters and testing, pollution and wastewater; marine debris, nonpoint source pollution and prevention and ocean currents; watershed protection; drinking water and wastewater treatment
Schools: Cape Elizabeth High School

Cumberland
Total students: 167 (CCSWCD & PWD: 100, PWD: 67)
Total contact hours: 1,320 (CCSWCD & PWD 200, PWD: 1,120)
Lesson topics: TroutKids: brook trout habitat requirements and life cycle, water quality monitoring, trout releases at local water body, water quality testing, macroinvertebrate sampling, streamside assessment hike; HydroLogics program: water movement, nonpoint source pollution, water quality, best management practices, and stewardship
Schools: Greely Middle School

Falmouth
Total students: 156 (CCSWCD)
Total contact hours: 156 (CCSWCD)
Lesson topics: Watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants; types of erosion; best management practices for erosion control
Schools: Falmouth Middle School

Freeport
Total students: 183 (CCSWCD: 77, PWD: 106)
Total contact hours: 353 (CCSWCD: 77, PWD: 276)
Lesson topics: Amount of water in the world, conservation, and the water cycle; watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants; nonpoint source pollution, stormwater, storm drains, and cumulative impact; impervious/pervious surfaces, runoff, and best management practices; Southern Maine Children's Water Festival: Day-long field trip at USM with theme "Clean Water: It's all about ME!"
Schools: Mast Landing School

Gorham
Total students: 350 (CCSWCD: 72, PWD: 278)
Total contact hours: 1,749 (CCSWCD: 144, PWD: 1,605)
Lesson topics: nonpoint source pollution; water quality; marine debris, nonpoint source pollution and prevention, and ocean currents; TroutKids: brook trout habitat requirements and life cycle, water quality monitoring, trout releases at local water body, water quality testing, macroinvertebrate sampling, streamside assessment hike; HydroLogics program: water movement, nonpoint source pollution, water quality, best management practices, and stewardship; home drinking water and wastewater distribution; human impact on water's quality and quantity
Schools: Gorham Middle School, Gorham Girl Scout Troops

Old Orchard Beach
Total students: 54 (CCSWCD)
Total contact hours: 162 (CCSWCD)
Lesson topics: Amount of water in the world, conservation, and the water cycle; watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants; nonpoint source pollution, stormwater, storm drains and cumulative impact; impervious/pervious surfaces, runoff and best management practices
Schools: Loranger Middle School

Portland
Total students: 2,518 (CCSWCD: 218, PWD: 2300)
Total contact hours: 4,219 (CCSWCD: 958, PWD: 3261)
Lesson topics: Watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants; types of erosion, best management practices for erosion control; nonpoint source pollution, stormwater, storm drains, and cumulative impact; reducing impact on waterways by changing lawn care practices (Youth YardScaping)[6]; Sebago to Sea Field Trip: Presumpscot River history and land use, water quality parameters and testing, bioassessment using macro-invertebrate sampling, river characteristic observations; HydroLogics program: water movement, nonpoint source pollution, water quality, best management practices, and stewardship; field trip with Audubon on the Presumpscot River: water quality sampling, plant & animal identification stations; Maine's brook trout: life cycle, adaptations and reliance on healthy water; branching patterns, water systems, watersheds; home drinking water and wastewater distribution; human impact on water's quality and quantity; Southern Maine Children's Water Festival: Day-long field trip at USM with theme "Clean Water: It's all about ME!"; "Sustainable Solutions" partnership event; PWD presentation covered Sebago Lake as a water source & challenges to its future; Portland Schools STEM Expo partnership event; PWD exhibit featured macroinvertebrates & biomonitoring
Schools: Lincoln Middle School, Deering High School, Longfellow Elementary School, Lyman Moore Middle School, Presumpscot Elementary School, Lyseth Elementary School, Portland Girl Scout Troop, King Middle School, Portland Public Schools

Saco
Total students: 53 (CCSWCD)
Total contact hours: 61 (CCSWCD)
Lesson topics: Marine debris, nonpoint source pollution and prevention and ocean currents; watersheds; nonpoint source pollution; water quality parameters and testing, pollution and wastewater; macroinvertebrate sampling, identification & bioassessment
Schools: Thornton Academy

[6] Additional funding for Youth YardScaping provided by the City of Portland

Scarborough
Total students: 223 (CCSWCD)
Total contact hours: 223 (CCSWCD)
Lesson topics: Marine debris, nonpoint source pollution, and ocean currents[7]
Schools: Scarborough Middle School

South Portland
Total students: 201 (CCSWCD: 56, PWD: 145)
Total contact hours: 814 (CCSWCD: 112, PWD: 702)
Lesson topics: Macroinvertebrate identification and mock sampling/bioassessment; water quality; runoff; impervious/pervious surfaces; nonpoint source pollution; erosion; best management practices; vegetated buffers; shorefront landscape design; TroutKids: brook trout habitat requirements and life cycle, water quality monitoring, trout releases at local water body, water quality testing, macroinvertebrate sampling, streamside assessment hike; HydroLogics program: water movement, nonpoint source pollution, water quality, best management practices, and stewardship
Schools: Small Elementary School, Mahoney Middle School

Westbrook
Total students: 180 (CCSWCD)
Total contact hours: 900 (CCSWCD)
Lesson topics: Watershed ecology: Students evaluated the health of the Presumpscot River during a field trip to two sites on the River, one rural and one urban; water quality parameters and testing; bioassessment using macro-invertebrate sampling; river characteristic observations; compared data from the two sites to develop their ideas about human impact on the river ecosystem.[8] PWD educators provided extra staffing support for this field trip.
Schools: Westbrook High School

Windham
Total students: 352 (CCSWCD: 66, PWD: 286)
Total contact hours: 2,326 (CCSWCD: 484, PWD: 1842)
Lesson topics: Watersheds, watershed models, water movement and branching patterns; transport of nonpoint source pollutants; stormwater, storm drains, and cumulative impact; impervious/pervious surfaces, runoff, and best management practices; water quality parameters and testing, bioassessment using macro-invertebrate sampling, river characteristic observations; Service Learning[9]: Nonpoint source pollution research, pollution prevention and solutions for Windham Middle School Campus, community education, water quality parameters and testing; TroutKids: brook trout habitat requirements and life cycle, water quality monitoring, trout releases at local water body, water quality testing, macroinvertebrate sampling, streamside assessment hike; HydroLogics program: water movement, nonpoint source pollution, water quality, best management practices, and stewardship; Southern Maine Children's Water Festival: Day-long field trip at USM with theme "Clean Water: It's all about ME!"; Converting "Discovering Water" book to an iBook; focus on technology and HydroLogics curriculum/water-related topics in the book.
Schools: Manchester Elementary School, Windham High School, Windham Middle School

Yarmouth
Total students: 245 (CCSWCD)
Total contact hours: 374 (CCSWCD)
Lesson topics: Water pollution, nonpoint source pollution, soil as pollutant; impervious/pervious surfaces, runoff, and best management practices; vegetated buffers; shorefront landscape design; groundwater model; groundwater resources and pollution prevention[10]
Schools: Yarmouth Elementary School, Harrison Middle School

[7] Additional funding for ocean currents lessons provided by Scarborough School Department

[8] Additional funding for student field trip provided by the Westbrook Environmental Improvement Corporation

[9] Additional funding for service learning was provided by the Portland Water District

[10] Additional funding for groundwater lessons provided by the Yarmouth Water District

MCM2: Public Involvement and Participation

Urban Runoff & Green Neighbor Family Fest

2016 marked the fifth year ISWG supported, coordinated, promoted, and participated in the Urban Runoff and Green Neighbor Family Fest, a day-long community event that promotes clean water and raises awareness of water pollution. In addition to raising awareness, funds raised from the Urban Runoff and Green Neighbor Family Fest support ISWG's in-school youth education program. The race and festival, held on April 23, 2016, served as the Public Involvement and Participation event for all ISWG communities. Each community's participants are summarized in the table below.

By all accounts, the event continues to be a huge success. Over 700 runners and walkers registered for the race, and many local businesses supported the race through sponsorships, in-kind donations, and employee participation as race participants and volunteers. Local media outlets advertised the events, including the donation of radio advertisement during the months of March and April by 98.9 WCLZ. Channel 8 WMTW developed and ran a 20-second ad promoting the events throughout the month of April, and they attended the race and festival to provide news coverage of the events, including 6 live interviews on the morning of April 23rd, 2016. Social media, paid online advertising, posters, and direct mail and email were also used to promote the race and included a clean water message. Additional clean water messages were included on the event website, social media, eblasts, and other marketing tools that were sent to all registered participants, sponsors, and partners.

The *Green Neighbor Family Fest* was held after the race at Deering High School. The event ran for three hours and was attended by approximately 900 people. Scheduled events included the awards ceremony and live music. A total of 29 exhibits were set up by local nonprofit, governmental organizations, and businesses to provide hands-on, educational activities for children and families. These activities included a marine touch tank, making mini ecosystems, water quality experiments, and more. Children also took part in face painting, an obstacle course moon bounce, and water related prize giveaways.

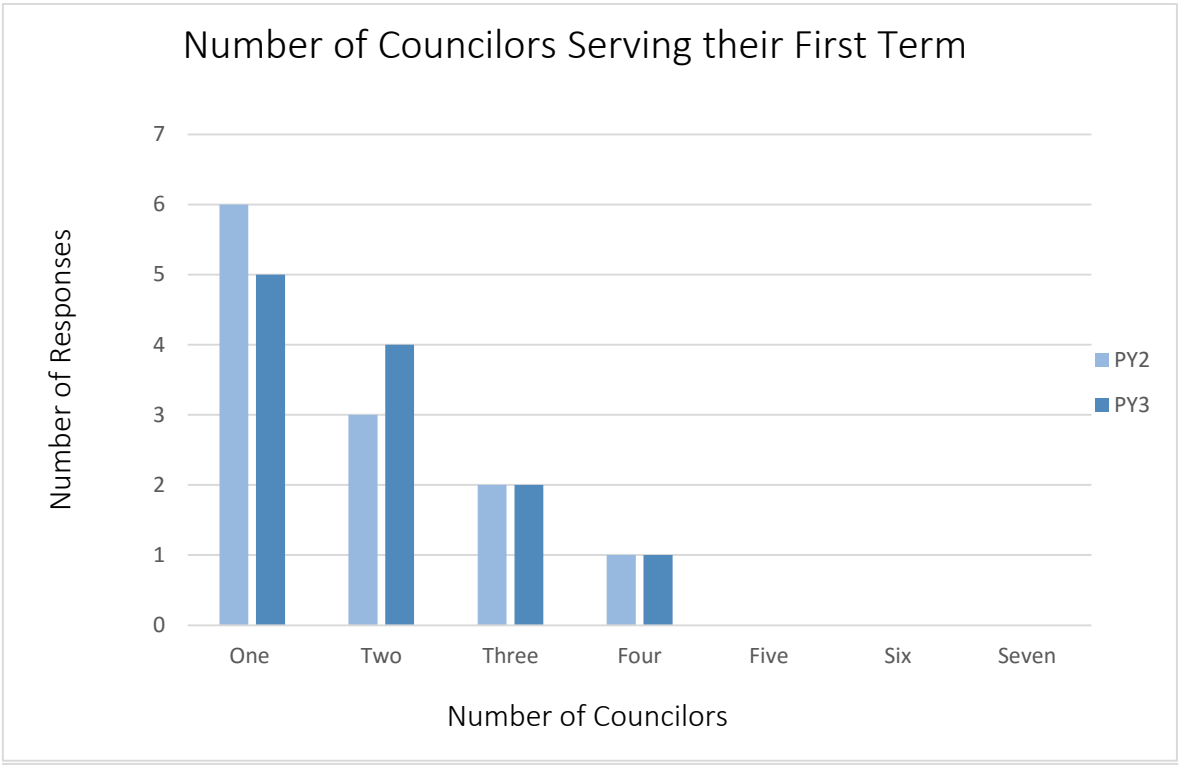
Plans are underway to host the sixth annual *Urban Runoff* 5K and *Green Neighbor Family Fest* on Saturday, April 22, 2017.

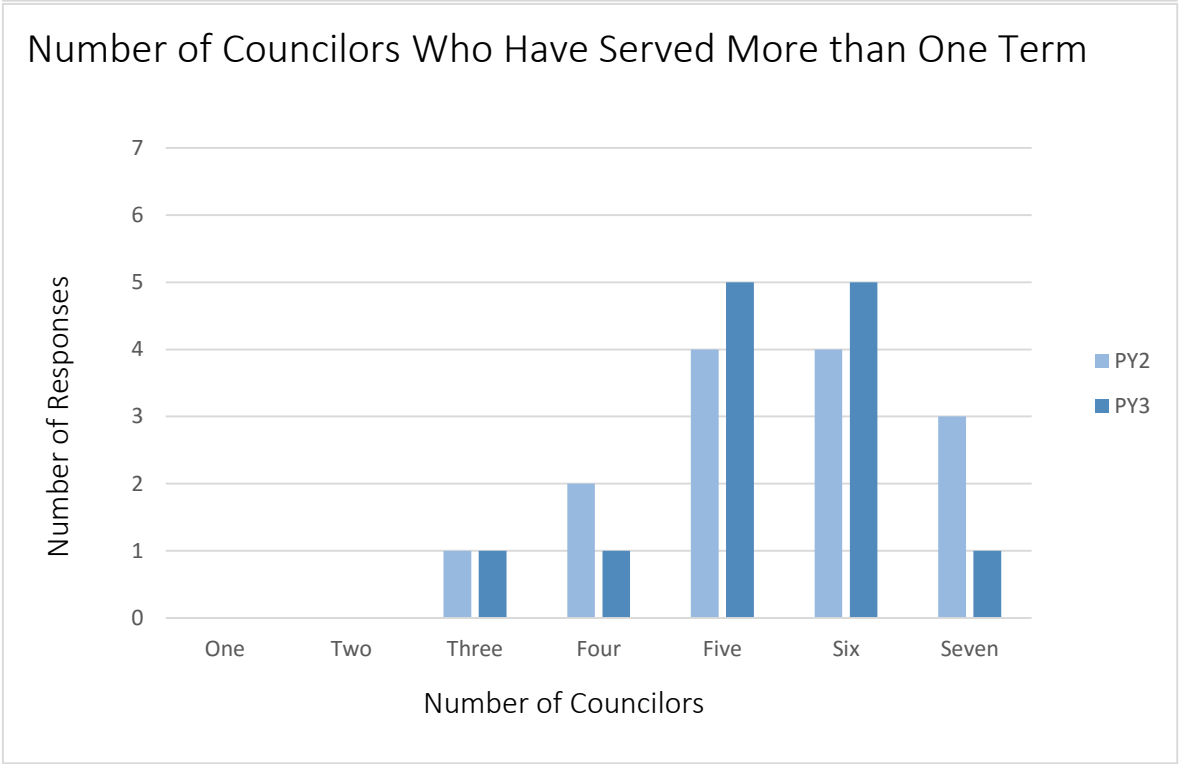
Summary of ISWG Municipal Involvement in the 2016 Urban Runoff & Green Neighbor Family Fest

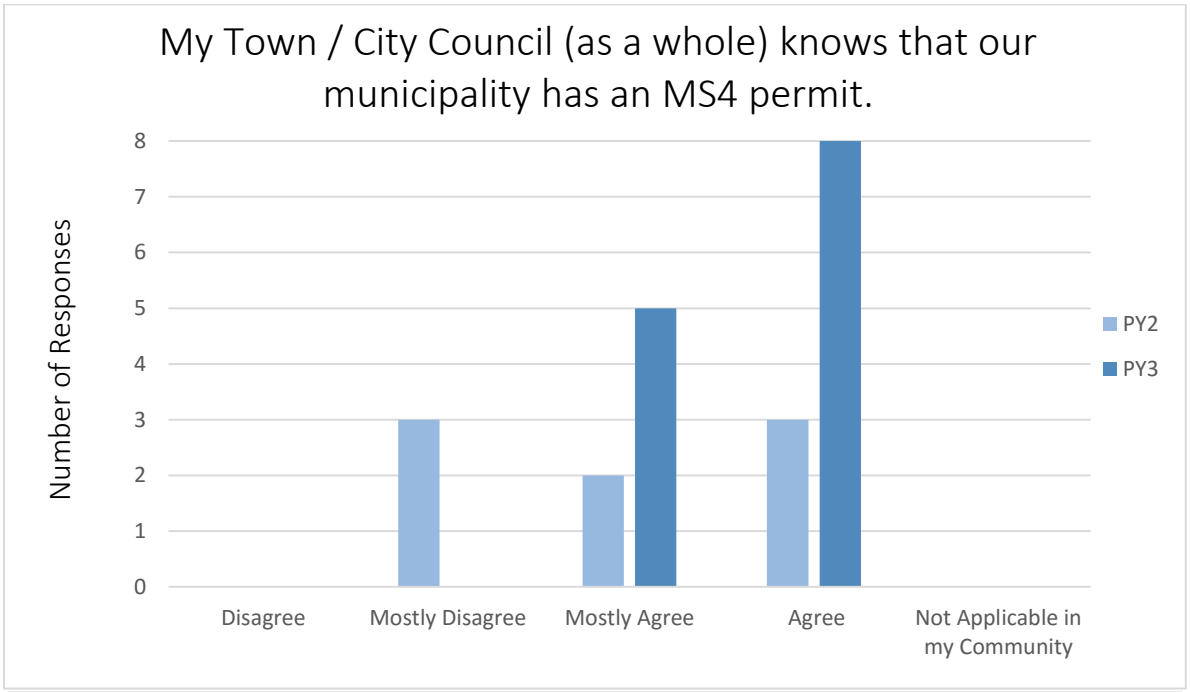
	Race Participants	Municipal Volunteers	Municipal Team (number of members)	Posters Provided for Distribution	Additional Contribution
Biddeford	9	1		25	
Cape Elizabeth	11	1		16	
Cumberland	29			19	
Falmouth	38		5	21	
Freeport	3			25	
Gorham	26	2		19	
Old Orchard Beach	1			21	
Portland	202	13	9	50	Permit fees waived; display at festival
Saco	19	1		28	
Scarborough	41	6	19	24	
South Portland	38	1		28	$500 Splash Sponsorship
Westbrook	63	2	18	22	
Windham	20	2		23	
Yarmouth	4	2		19	

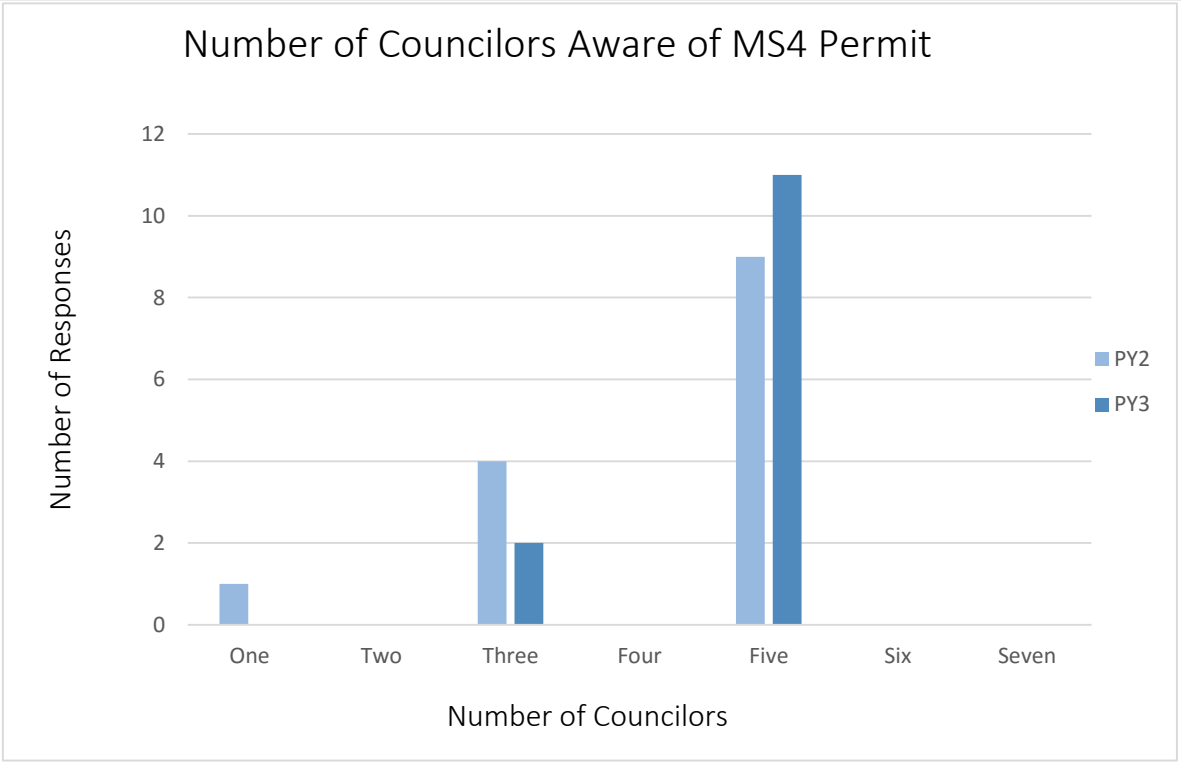
APPENDIX A-2: Permit Year 3 (PY3) Summary Municipal Survey Responses

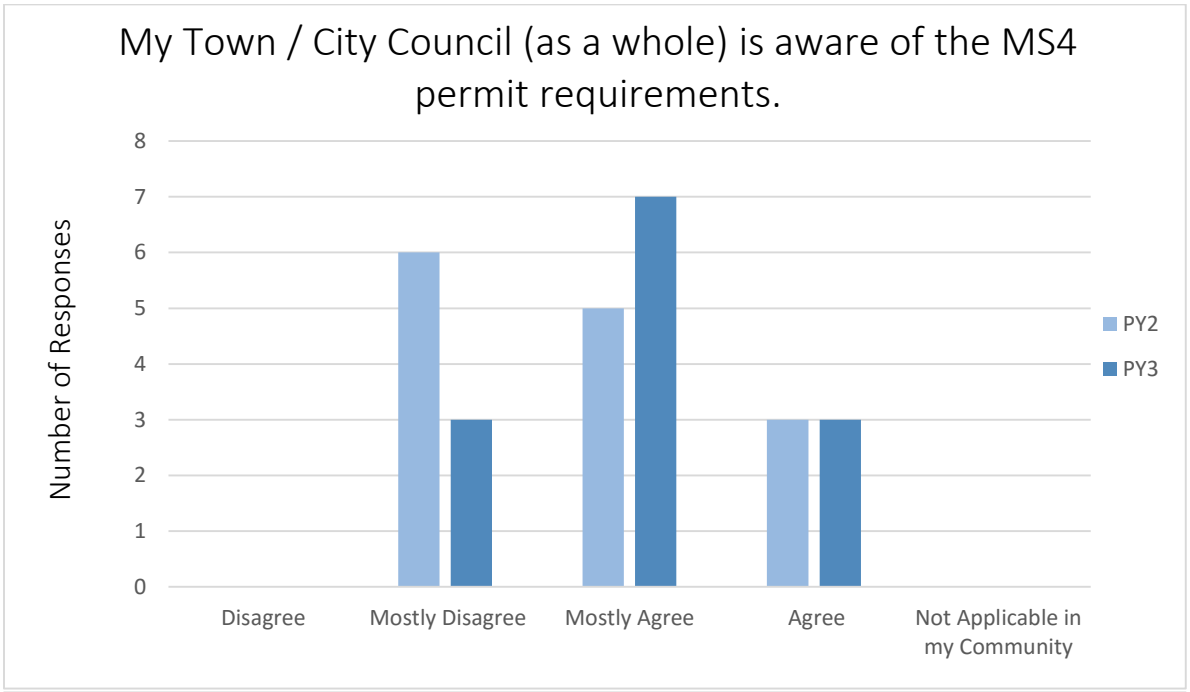
The following graphs summarize the responses to the annual municipal survey that was conducted in the first quarter of PY3. This survey is used to gauge municipal councilors' awareness of their municipal stormwater program.

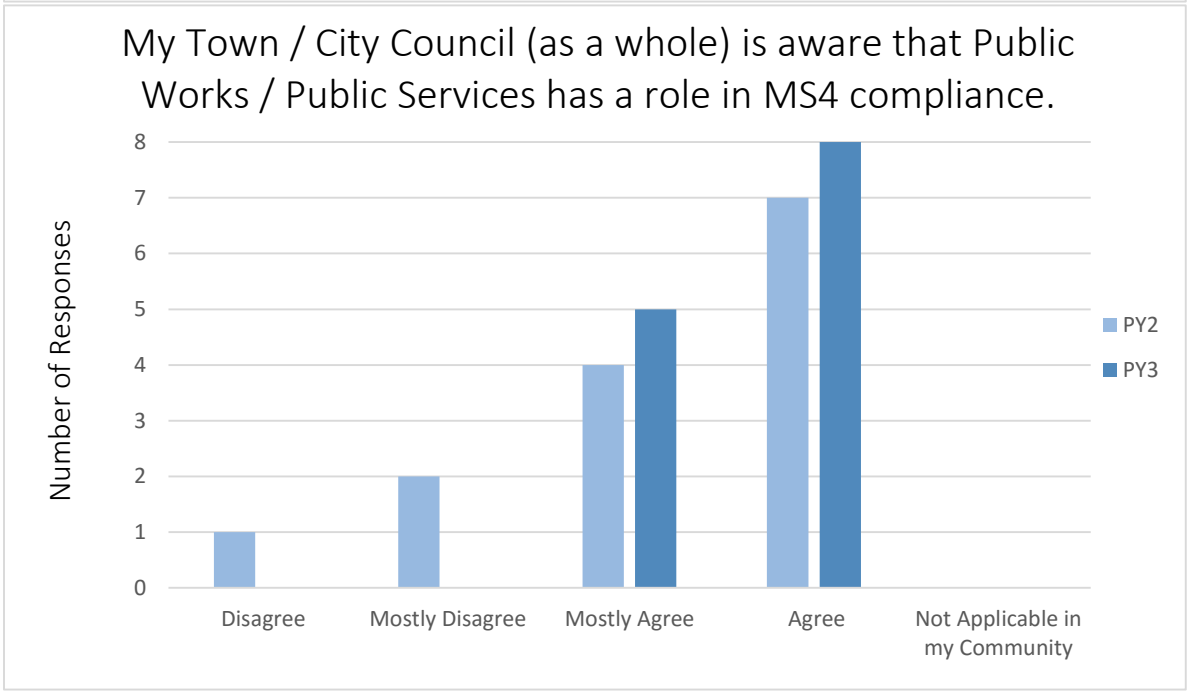


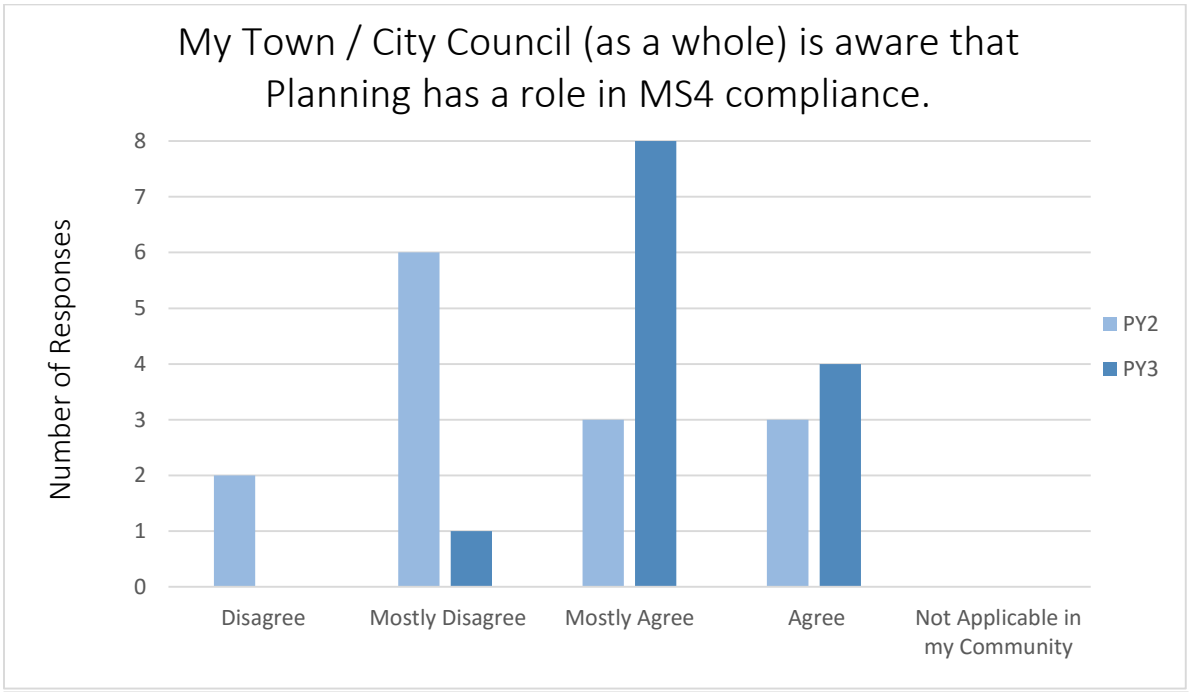


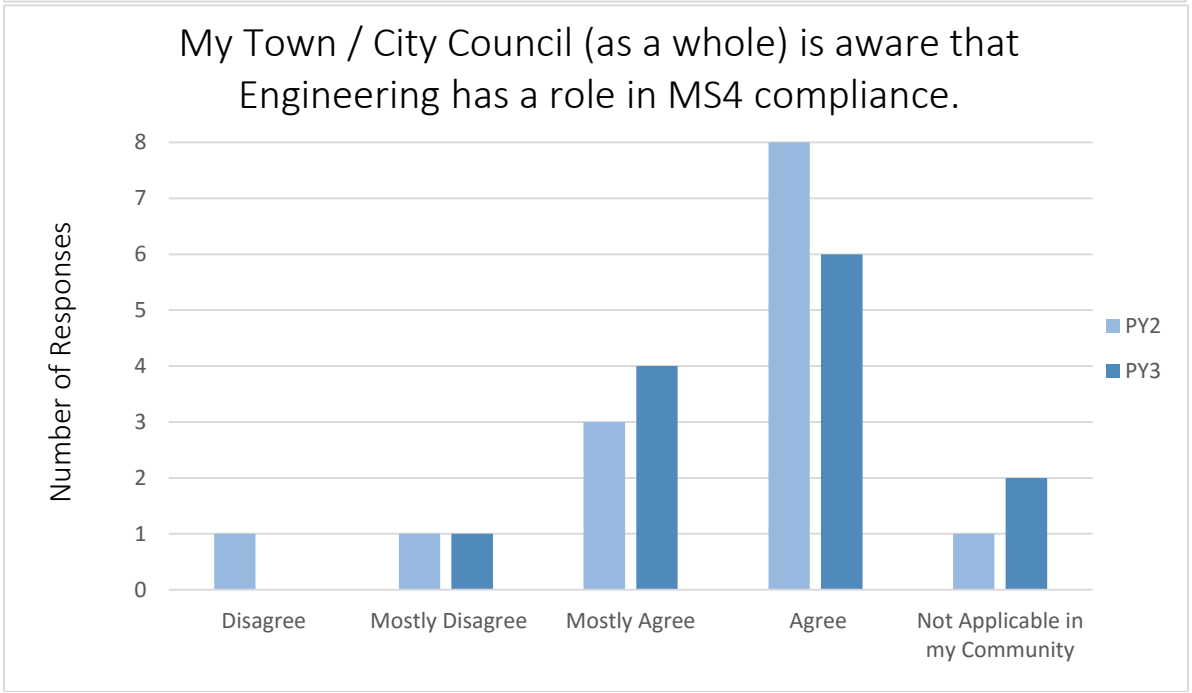

My Town / City Council (as a whole) knows that our municipality has an MS4 permit.
Number of Responses
8
7
6
5
4
3
2
1
0
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3

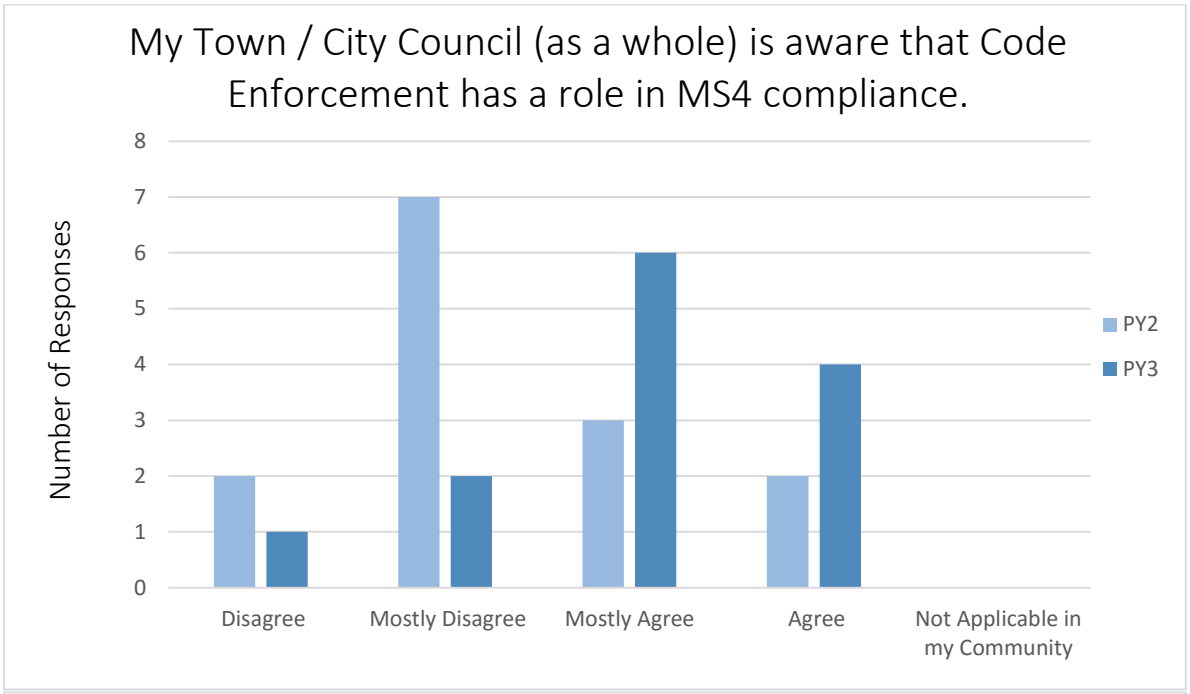

Number of Councilors Aware of MS4 Permit
Number of Responses
12
10
8
6
4
2
0
One
Two
Three
Four
Five
Six
Seven
Number of Councilors
PY2
PY3

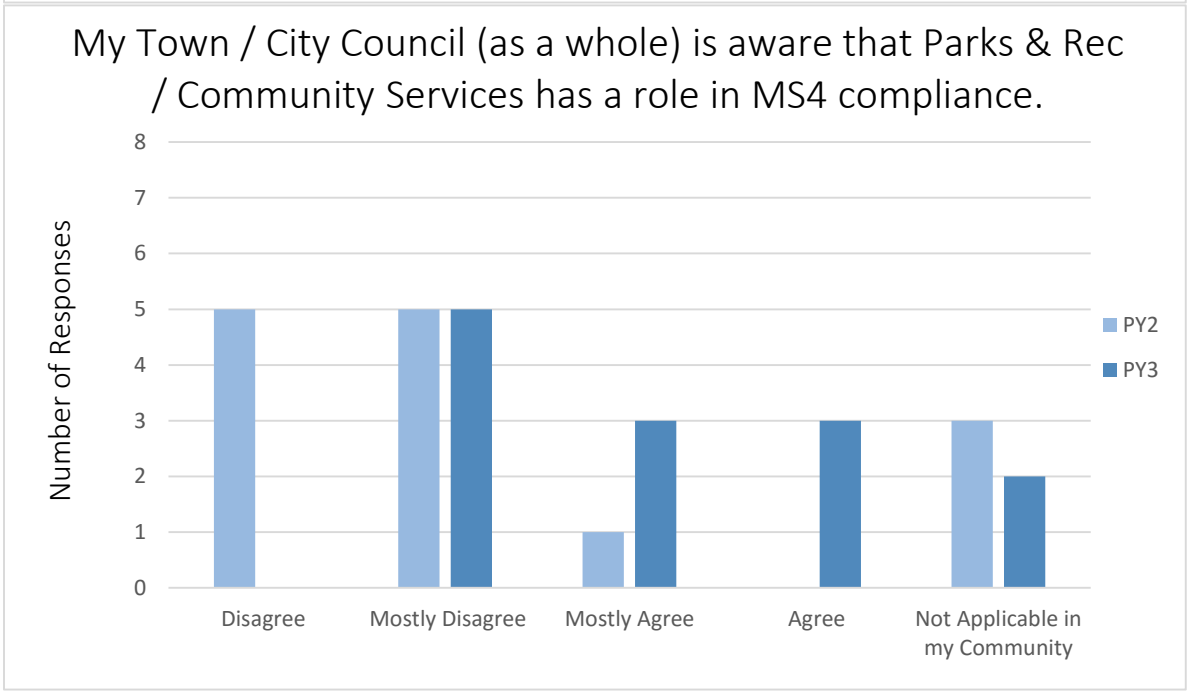

My Town / City Council (as a whole) is aware of the MS4 permit requirements.
Number of Responses
8
7
6
5
4
3
2
1
0
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3

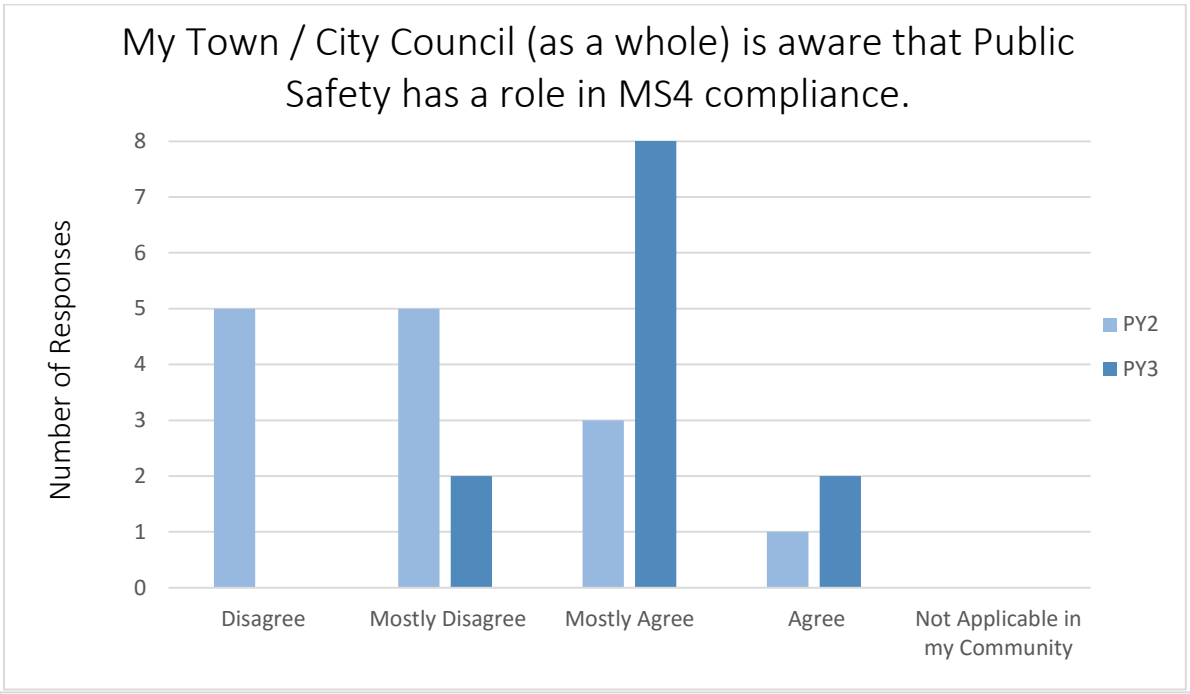

My Town / City Council (as a whole) is aware that Public Works / Public Services has a role in MS4 compliance.
Number of Responses
8
7
6
5
4
3
2
1
0
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3

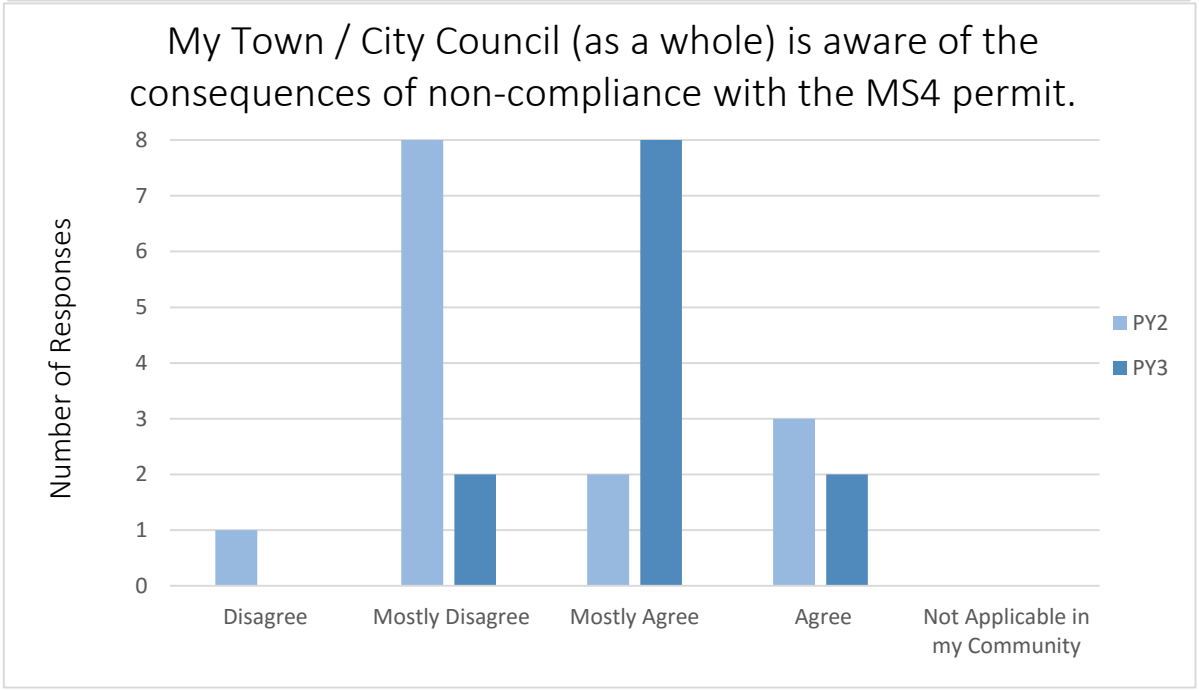

My Town / City Council (as a whole) is aware that Planning has a role in MS4 compliance.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3


My Town / City Council (as a whole) is aware that Engineering has a role in MS4 compliance.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3


My Town / City Council (as a whole) is aware that Code Enforcement has a role in MS4 compliance.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3


My Town / City Council (as a whole) is aware that Parks & Rec / Community Services has a role in MS4 compliance.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3


My Town / City Council (as a whole) is aware that Public Safety has a role in MS4 compliance.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3


My Town / City Council (as a whole) is aware of the consequences of non-compliance with the MS4 permit.
Number of Responses
0
1
2
3
4
5
6
7
8
Disagree
Mostly Disagree
Mostly Agree
Agree
Not Applicable in my Community
PY2
PY3

Appendix 2: South Portland Urban Impaired Streams Overview

INTRODUCTION

The City of South Portland has 5 streams that have been designated by the Maine Department of Environmental Protection (DEP) as "urban impaired" for failure to meet water quality standards due to the effects of polluted stormwater runoff from developed land (Figure 1). Beyond the implementation of the City's Stormwater Management Program, additional stormwater treatment controls are necessary in urban watersheds of impaired streams because proposed stormwater sources in urban and urbanizing areas contribute to the further degradation of stream water quality (from Ch. 502).

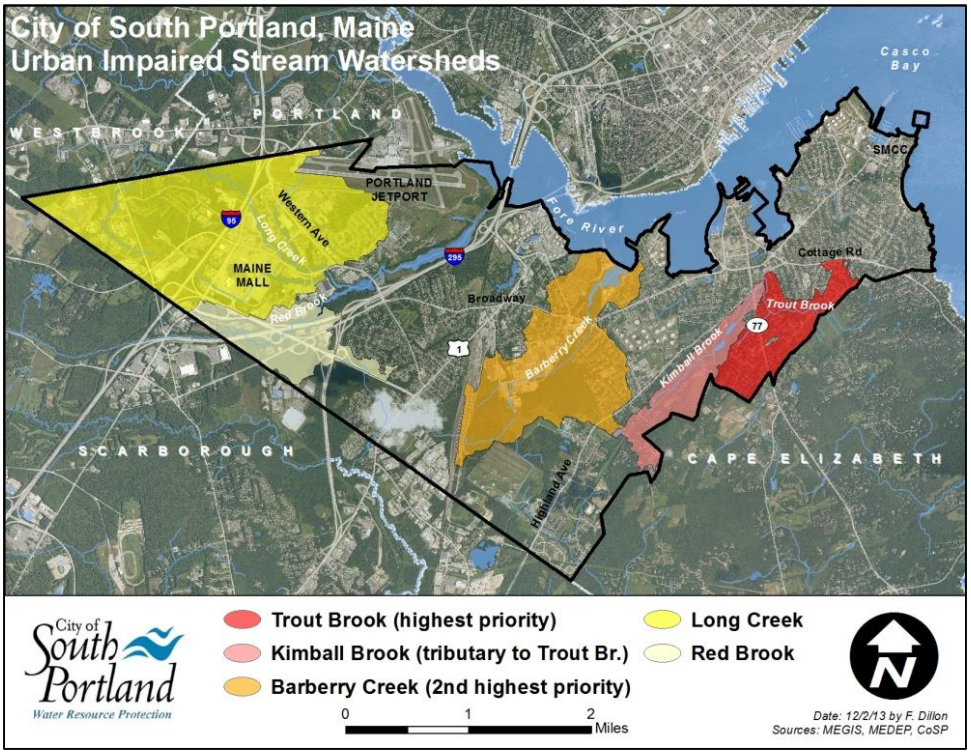


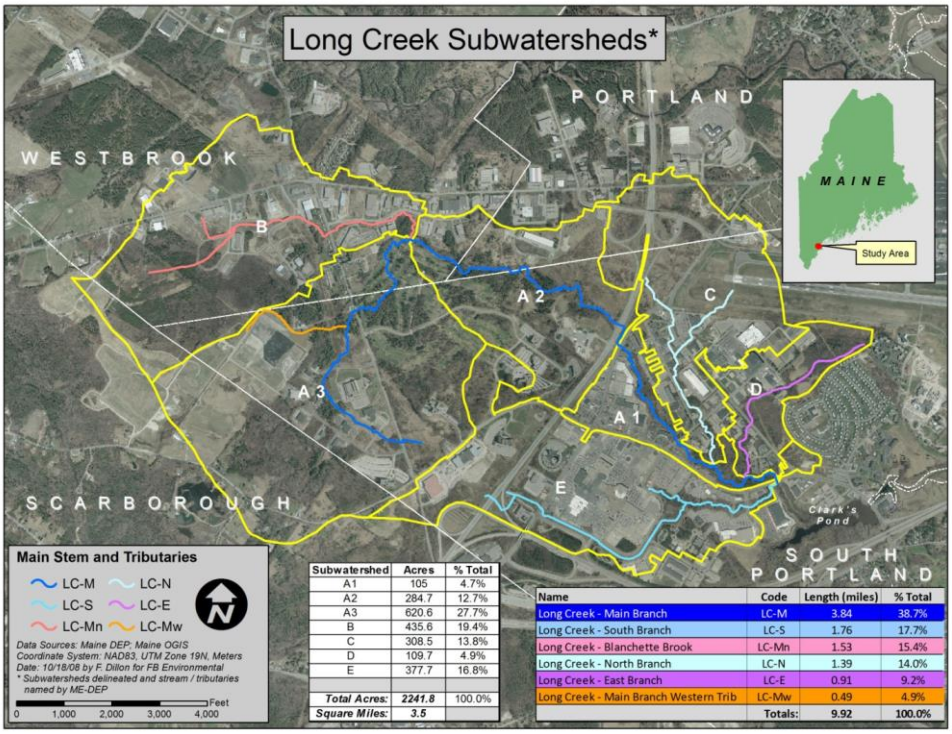
Figure 1: South Portland's Urban Impaired Streams

Summaries for each of the City's urban impaired streams that include brief watershed descriptions, likely impairment sources and restoration strategies are provided below.

LONG CREEK

1. Watershed Description

Long Creek is a meandering stream with four primary branches. Long Creek's headwaters originate in Westbrook, from where it flows through the Maine Mall area of South Portland. Its several branches join together and flow into Clark's Pond (Figure 2). Clark's Pond waters then flow into the Fore River, and ultimately into Casco Bay. Land uses in the Long Creek watershed have changed dramatically in the last 60 years. What was once primarily a rural landscape with forests and fields is now a highly developed area. The watershed encompasses 3.45 square miles, located in South Portland, Westbrook, Portland and Scarborough.



Subwatershed	Acres	% Total
A1	105	4.7%
A2	284.7	12.7%
A3	620.6	27.7%
B	435.6	19.4%
C	308.5	13.8%
D	109.7	4.9%
E	377.7	16.8%
Total Acres:	*2241.8*	100.0%
Square Miles:	*3.5*	

Name	Code	Length (miles)	% Total
Long Creek - Main Branch	LC-M	3.84	38.7%
Long Creek - South Branch	LC-S	1.76	17.7%
Long Creek - Blanchette Brook	LC-Mn	1.53	15.4%
Long Creek - North Branch	LC-N	1.39	14.0%
Long Creek - East Branch	LC-E	0.91	9.2%
Long Creek - Main Branch Western Trib	LC-Mw	0.49	4.9%
	Totals:	9.92	100.0%

Figure 2: Long Creek Watershed

2. Impairment Sources

Long Creek currently does not meet the water quality standards, which require "sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community." Years of urbanization have significantly impaired the stream's health, as well as its ability to support recreation and wildlife, such as brook trout. Water quality impairments are a result of increased concentrations of metals, chloride, phosphorus, nitrogen, polycyclic aromatic hydrocarbons (PAHs), and reduced dissolved oxygen (DO) concentrations.

3. Restoration Strategies

The Long Creek Restoration Project was initiated in 2007 in response to the threat of a third party lawsuit against the Environmental Protection Agency. The petitioners wanted EPA to establish a general permit for Long Creek to mitigate the adverse impacts from polluted stormwater runoff as specified in the Clean Water Act. In 2009, EPA worked with the Maine DEP to issue a General Permit for the Long Creek Watershed. Shortly thereafter, the Long Creek Watershed Management District was established to implement the Long Creek Watershed Management Plan (WMP). The WMP offers a variety of recommendations for restoring Long Creek and its tributaries to attain water quality standards, including the following:

- Structural stormwater treatment systems to attenuate the adverse effects polluted stormwater runoff
- Coordinated pavement sweeping, pollution-prevention and storm drain maintenance programs
- Education regarding environmentally benign and less costly landscaping that reduces pollutants
- Promotion of changes in municipal land use regulations that minimize the creation of stormwater runoff
- Restoration of flood plains, stream banks and stream channels in priority locations

RED BROOK

1. Watershed Description

The Red Brook watershed encompasses 3.2 square miles in Scarborough, South Portland and a small section of Westbrook (Figure 3). The watershed is a complex mix of land uses that includes residential, industrial, retail and forest land. The watershed includes a one mile section of the Maine Turnpike, I-295, other local and state roads and a regional waste incinerator and associated landfill. Parts of Red Brook were relocated to facilitate the construction of I-295 in the early 1960s.

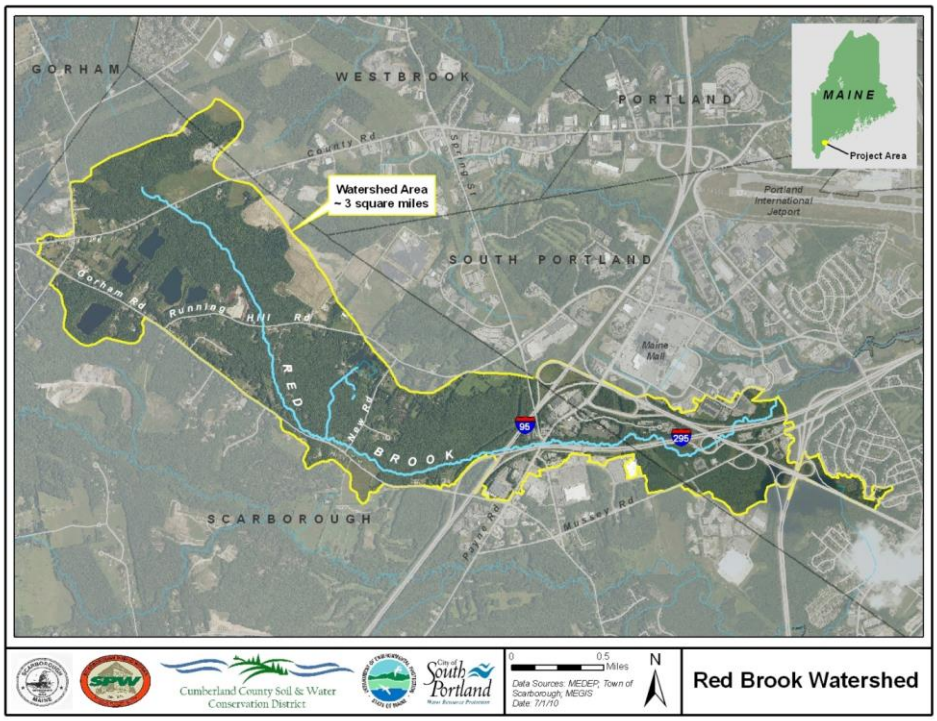


Figure 3: Red Brook watershed

2. Impairment Sources

Red Brook does not meet Maine's water quality classification standards. Specifically, it is listed as impaired because it does not attain the designated use for fish due to PCB contamination from unknown sources and it does not provide well for aquatic life due to stream habitat conditions. The lower sections are unstable and showing signs of stress due to alterations to the stream channel and floodplain from development and construction of highway crossings over the stream.

3. Restoration Strategies (no stormwater BMPs currently recommended for South Portland)

There are both long and short -term goals of the Red Brook Watershed Management Plan (WMP). The goals are to restore the stream to its statutory classification, protect the stream for the long term, allow for a more comprehensive and orderly management of growth in the watershed and involve local stakeholders from the watershed. Key restoration recommendations in the WMP include the following:

- Conduct in-stream habitat restoration
- Mitigate identified culverts – stabilize and repair sites that relate directly to culvert impacts on brook
- Stabilize stream corridor erosion sites
- Continue to monitor PCB levels in fish tissue until below action levels
- Develop zoning and ordinances to guide new development in a manner that protects the brook.
- Improve the management of stormwater runoff from existing development in an effort to improve stormwater quality and reduce peak stormwater flow.
- Develop an outreach program for citizens and businesses to promote and implement the watershed management plan.
- Develop and establish the Red Brook Workgroup to oversee Plan implementation and work towards long term health and ensure the Watershed Based Plan goals are achieved.

TROUT & KIMBALL BROOKS

1. Watershed Description

The Trout Brook watershed encompasses 2.35 square miles in South Portland and Cape Elizabeth (Figure 4). The watershed is a complex mix of land uses that includes dense residential, commercial, agricultural, public, and forest land. Up until 2005, there was a CSO that discharged into Trout Brook. The watershed includes Kimball Brook, a tributary of Trout Brook situated in the western portion of the watershed.

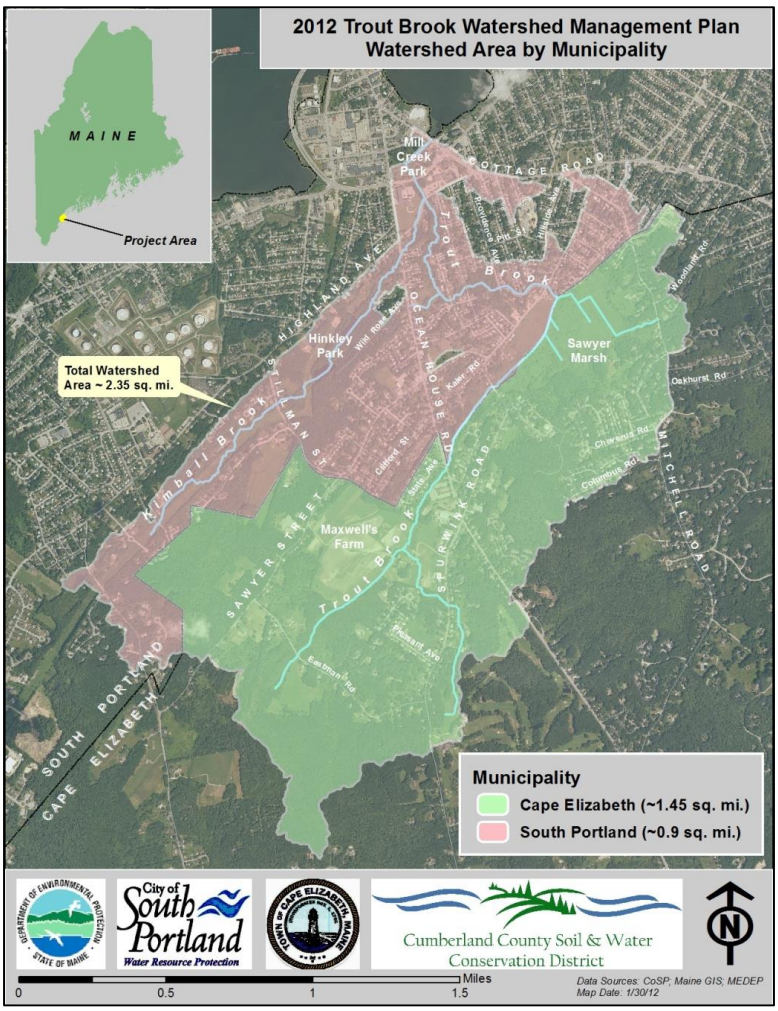


Figure 4: Trout Brook watershed

2. Impairment Sources

Trout and Kimball Brook do not meet standards for aquatic life and habitat. Trout Brook is also listed as an Urban Impaired Stream in MDEP's Chapter 502. Both Brooks do not support the aquatic macroinvertebrates or habitat required by the State's water quality classification standards. The threats to water quality and aquatic habitat are as follows:

- Stream bank erosion (associated with inadequate buffers)
- Inadequate buffers
- Yard waste dumping
- Stream channel alteration and the resulting degraded habitat
- Decreased dissolved oxygen (DO)
- Elevated chloride and specific conductance related to salt storage and application

3. Restoration Strategies

The Trout Brook Watershed Management Plan (WMP) identifies the following restoration actions to ensure that the brook attains State water quality classification standards.

- Nutrient Reduction: practices such as nutrient management systems, filter strips, and bioretention systems were modeled as solutions for nutrient (i.e., phosphorus) inputs to Trout Brook.
- Stream Habitat Restoration: restore problem sites to reduce sedimentation and nutrient loading to the stream.
- Chloride Reduction: promote education for landowners, private contractors, and Public Works personnel on salt reduction strategies and techniques.
- Stormwater Treatment and Impervious Cover Reduction: install stormwater management systems to treat approximately 14 acres of existing IC and manage stormwater during the development of new impervious surfaces in the watershed.

- Citizen Outreach: YardScaping and Green Neighbor Pledge Drive to enlist landowners to pledge to implement pollution prevention practices on their properties; install eleven stream crossing signs.
- Trout Brook Workgroup: identify potential future protection strategies that can be undertaken by municipalities, conservation groups to ensure ongoing protection in the Trout Brook watershed.

BARBERRY CREEK

1. Watershed Description

The Barberry Creek watershed encompasses 838 acres and is entirely located in South Portland (Figure 5 – next page). The watershed is a complex mix of land use that includes heavy industrial, wooded and residential. The stream flows through the Maine Central Railroad Rigby yard, nearby a capped landfill, and finally a dammed pond.

2. Impairment Sources

Barberry Creek does not meet the requirements of a Class C stream. Monitoring by the City and DEP began in 2015 and will continue in 2016. Adverse impacts to the creek are all related to stormwater runoff from highly developed areas. The following stressors were identified as likely impairment sources:

- Presence of toxic contaminants: during base flow conditions, iron and aluminum exceed Maine's limits for these contaminants. During storm flow conditions, aluminum, cadmium, copper, and zinc also exceeded the State requirements.
- Impaired in-stream habitat: very low sinuosity and channel over-widening as result of extensive channelization. Similarly, small size distribution of natural wood decreases natural habitat.
- Increased sedimentation: high levels of sediment during storm flows.
- Low base flow: reduced groundwater recharge of the stream due to inadequate infiltration of precipitation caused by high watershed imperviousness.

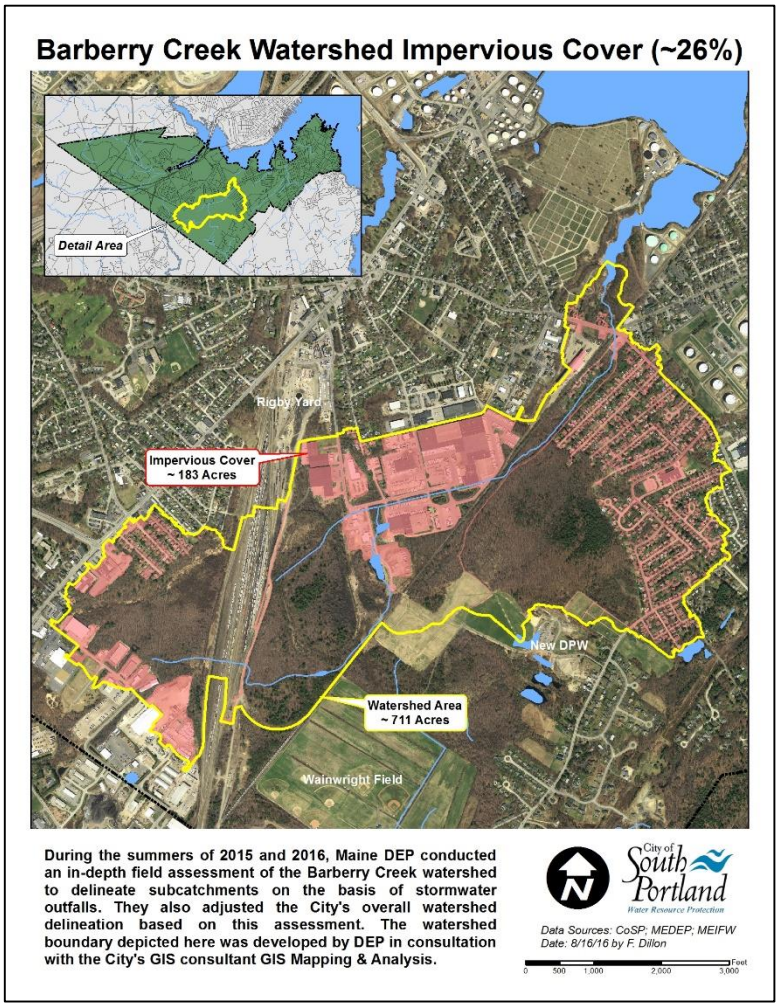


Figure 5: Barberry Creek Watershed

3. Restoration Strategies

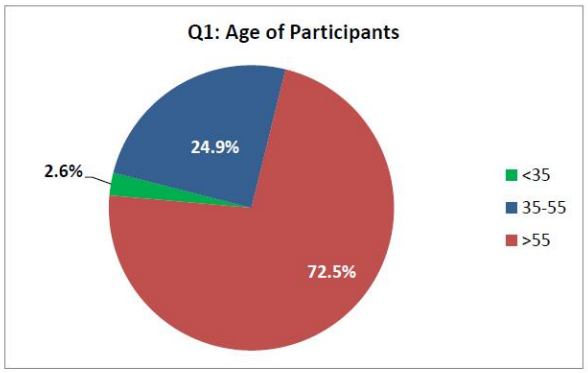
Barberry Creek is the only Urban Impaired Stream for which a Watershed Management Plan has not yet been developed. In 2015, the City applied for but did not receive a DEP grant to develop a WMP. The City will reapply in 2017 when the grant program is renewed.

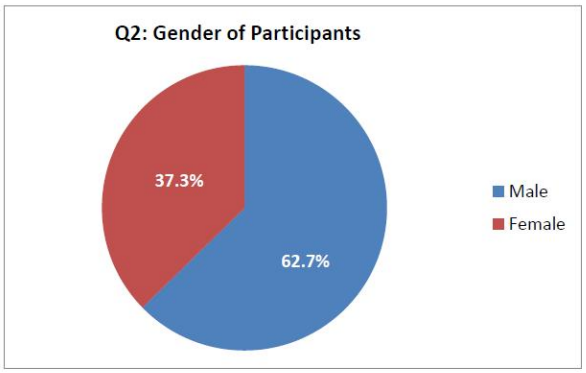
Appendix 3: Household Hazardous Waste Day Questionnaire Results

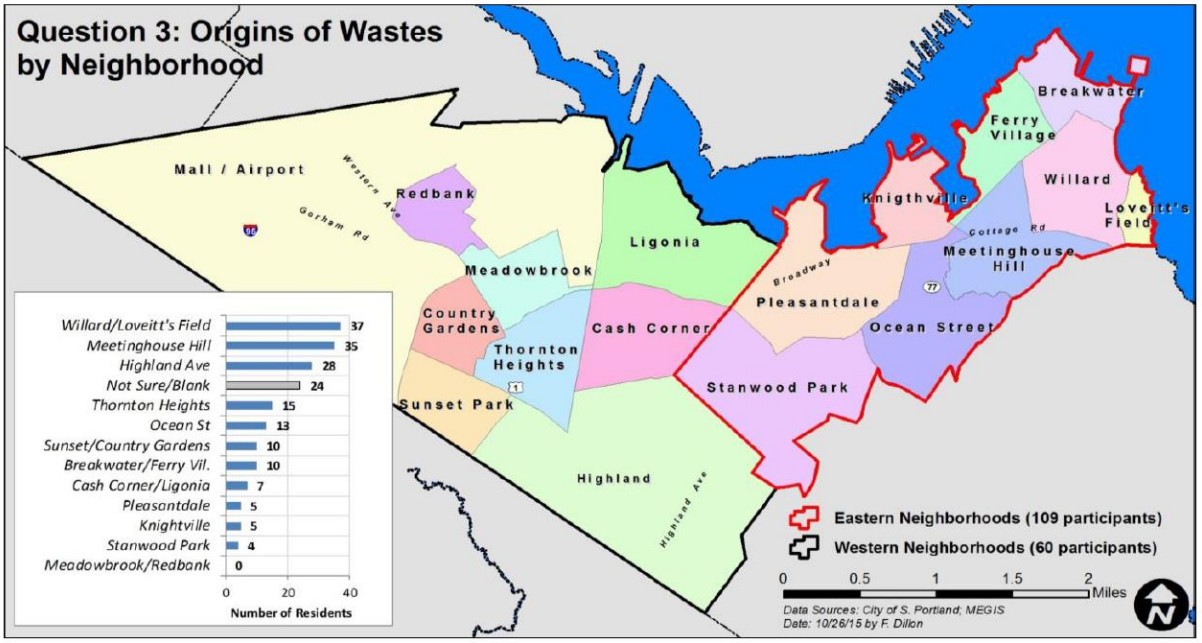
Household Hazardous Waste Collection Day ~ 10/10/15

QUESTIONS ***(200 questionnaires were distributed and 193 were returned; ~50 more residents participated after questionnaires ran out)***

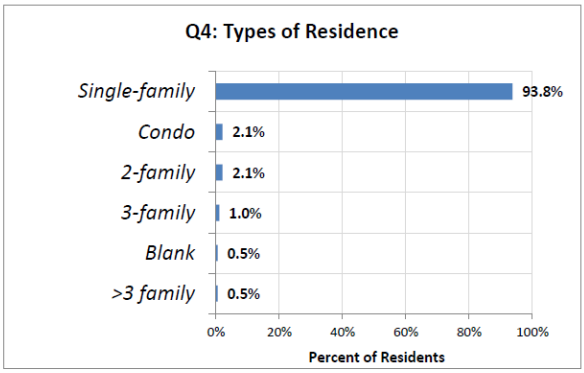
1. What is your age? *Most participants (~73%) were over 55 years old (only ~3% of participants were less than 35 years old).*
2. Are you male or female? *~63% of participants were men and 37% were women.*
3. Origins of wastes by neighborhood? *The majority of participants (57%) came from the the City's eastern neighborhoods.*
4. Please indicate the type of residence in which you live. *The vast majority (~94%) of participants reside in single family homes.*
5. Please indicate the types of wastes dropped off. *Paints/solvents were most common followed by auto fluids, cleaning products and weed/bug killer.*
6. How long have you had wastes? *Most participants (104) had wastes for 1-5 years.*
7. How did you learn about today's event? *Newspapers were by far the most common source of info for participants.*
8. Have you been to previous HHW events? *~54% of participants had attended previous HHW events.*
9. Reason(s) for participating in HHW event? *Protecting health & environment were the most common reasons for participating.*
10. Will you participate in future HHW events? *Vast majority of participants (~98%) will return for future HHW events.*
11. Are you aware of the following WQ protection efforts? *The City's SW Program was the most common effort with which participants were aware; numerous participants were also familiar with Think Blue Maine and Bayscaping.*
12. Does the HHW program need to be improved? *Nearly 49% of participants suggested program improvements; the most common suggestion was to increase event frequency to reduce wait times (~12% were happy with the program as-is).*

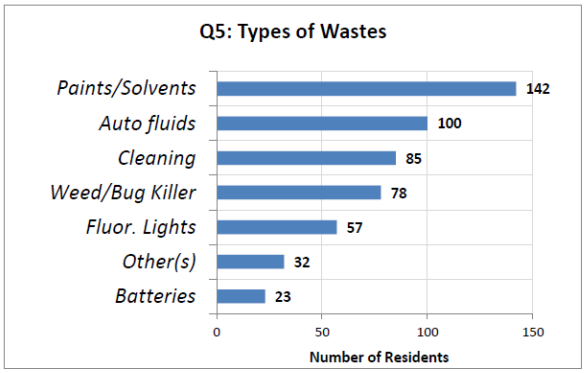


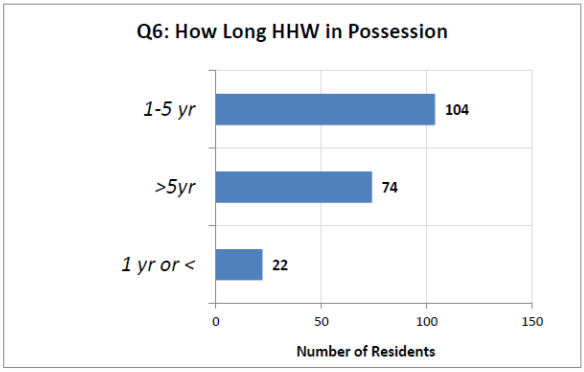


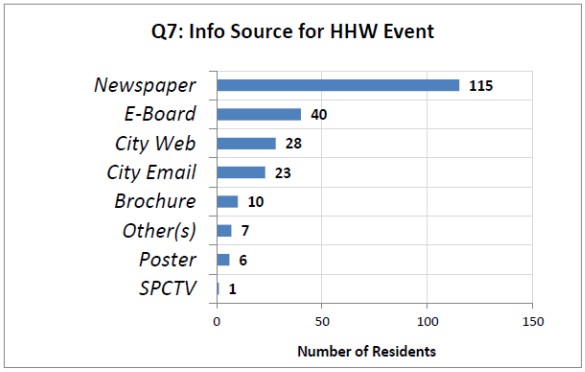


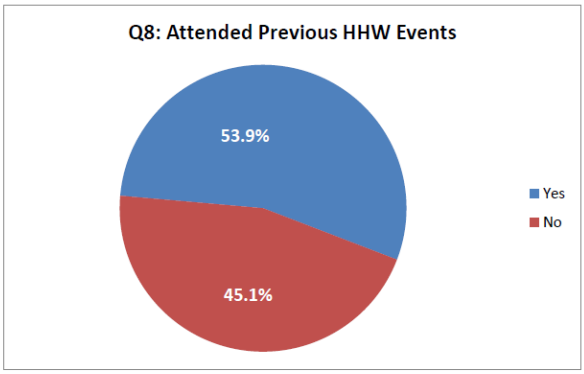
Household Hazardous Waste Collection Day ~ 10/10/15

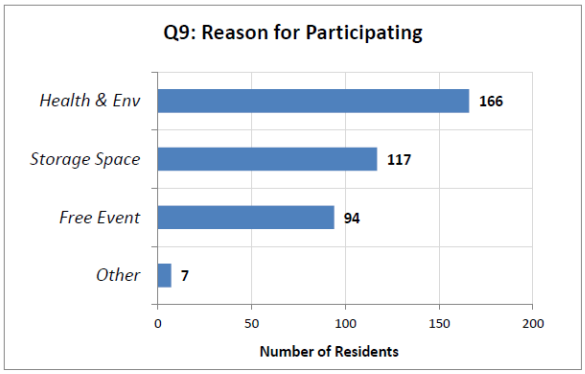


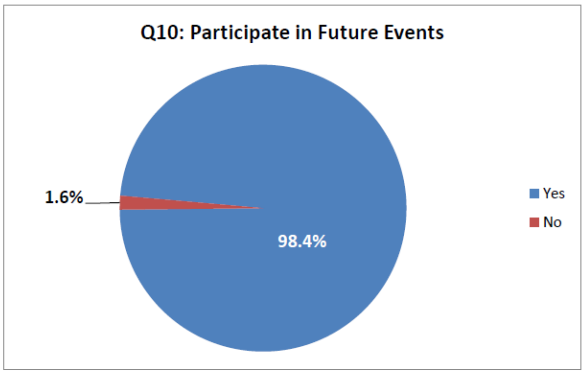


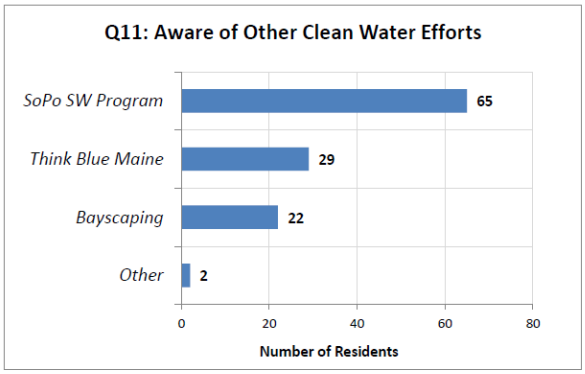












Household Hazardous Waste Collection Day ~ 10/10/15

Appendix 4: Portland Water District Memo on BMPs for MS4 Requirements

Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

To: Interlocal Stormwater Working Group (ISWG) Stakeholders – Cape Elizabeth, Cumberland, Falmouth, Gorham, Portland, Scarborough, South Portland, Westbrook, and Windham
From: Jon Earle, PE - Distribution System Manager
Date: February 26, 2016
Re: Summary of Portland Water District BMPs for Addressing MS4 Requirements

---

Introduction

It is our understanding that a requirement of your MS4 permits is to provide a summary of Best Management Practices (BMPs) to address chlorinated water discharges from hydrant flushing. This memo will summarize the BMPs currently being used by the District as part of our Unidirectional Flushing Program (UDF).

Dechlorination

The District's primary BMP for hydrant discharges is dechlorination. Two different dechlorination devices were used in 2015 with differing levels of success.

LPD-250 Dechlorinating Diffuser

Dechlor Demon

The LPD-250 unit utilizes Vita-D-Chlor tablets to neutralize the existing chlorine residual in the hydrant flow prior to being diffused at the end of the unit to help reduce chances of erosion. We found that the tablets brought inconsistent Cl residual results. The District will continue to explore

225 Douglass Street P.O. Box 3553 Portland, Maine 04104-3553
Phone: 207.774-5961 Fax: 207.761-8329 Web: www.pwd.org

other tablet options (to include ascorbic acid) to determine if this unit will remain a viable option for dechlorination.

The Dechlor Demon utilizes granular ascorbic acid to neutralize residual and allows our field crews to dial in the proper dosage amount rather than rely on flow contact with the tablets. Based on our most recent field evaluations in 2015, total residual chlorine concentrations were consistently below the detection limit of our field chlorine analyzer. The District's plan is to purchase additional units for our flushing and distribution crews in time for the starting of our flushing program in May.

Dilution

In certain instances when stream flows allow, our staff performs a dilution calculation to determine if residual chlorine is below the acute toxicity level of 0.019 mg/L. Typically applications of a dilution BMP involve dewatering of a water main to perform O&M or valve installations in the distribution system. The following information is estimated by our field crews in determining suitability:

- Stream flow (Estimated)
- Flow rate being discharged to MS4 – Measured in gallons per minute
- Existing chlorine residual – Measured using field chlorine analyzer.

Identifying Points of Concern

PWD staff has been working with the MS4 communities in our service area to develop GIS mapping that incorporates hydrant locations with watershed boundaries and stream locations. This mapping will allow our field crews to avoid flushing hydrants which are in close proximity to a receiving water body.

Staff Training

In December of 2014, our field crews were trained by staff from CCSWCD on the MS4 program. Additional staff training has included Basic Contractor Erosion and Sediment Control certification by the Maine DEP Nonpoint Source Pollution program.

225 Douglass Street P.O. Box 3553 Portland, Maine 04104-3553
Phone: 207.774-5961 Fax: 207.761-8329 Web: www.pwd.org

Appendix 5: Maine Water Utilities Association Trade Show Hydrant Flushing Presentation

Hydrant Flushing & What MS4s Have to About It

Fred Dillon, South Portland Stormwater Program Coordinator

Why Hydrant Flush Water is a Concern
(especially for smaller low-flow streams)

Effects of residual chlorine on aquatic life

WILLIAM A. BRUNGS

THE PRESENT EMPHASIS on environmental preservation and human health is resulting in an increased use of chlorine for disinfection and waste treatment. Few efforts, if any, are being made by those proposing such procedures to determine the adverse impact of increased usage. Recent investigations, including life-cycle studies with aquatic organisms, have greatly clarified the level of significance of chlorine toxicity. Several major projects in various stages of development or completion will add to this understanding, but sufficient data are available now to permit estimates of the maximum levels of residual chlorine that would protect aquatic life.

USE OF CHLORINE

The use of chlorine for water treatment falls generally into two categories: protection of public health and industrial use for antifouling. In the U. S., chlorination of municipal water supplies and wastewater treatment plant effluents is the most common procedure for disinfection.[1-10] Most biologists who have maintained aquatic animals in laboratories are aware of the toxicity of chlorinated tap water. This toxic action has been well documented, and remedies have been recommended.[11-16] Charcoal filters and treatment with sodium thiosulfate are the most common procedures used for chlorine removal, although chloramine removal by activated charcoal is incomplete and therefore inadequate for some sensitive species for long exposure periods.

In general, recommended concentrations of residual chlorine for disinfection are between 0.5 and 1.0 mg/l, a concentration range that is well below any levels known to demonstrate physiological effects on mammals.[18-21] Chlorination has also been used in the marine crustacean fisheries, especially for the disinfection of clams and oysters before marketing.[22, 23]

Chlorination has been used for the control of midge larvae in swimming pools,[24] for controlling taste and odor in municipal water supplies,[25] for sterilization of fish hatchery water supplies[26-28] and ponds,[29] for reduction in the biochemical oxygen demand of domestic wastewater,[30-32] and for odor control, clarification, and fly control at wastewater treatment plants.[33] Unfortunately, phenol and other organics in municipal water supplies combine with chlorine to produce an undesirable flavor.[5, 34] Chlorination of industrial wastes for several of the above reasons also is common.[35-37]

Chlorination has become the most frequently used procedure for antifouling of water lines for many water-intake structures and cooling systems at residual chlorine concentrations of 0.05 to 0.5 mg/l.[38-41] The use of chorine is common in pulp and paper production and causes occasional problems of toxicity to aquatic life.[42-44]

CHEMISTRY AND ANALYSIS OF CHLORINE

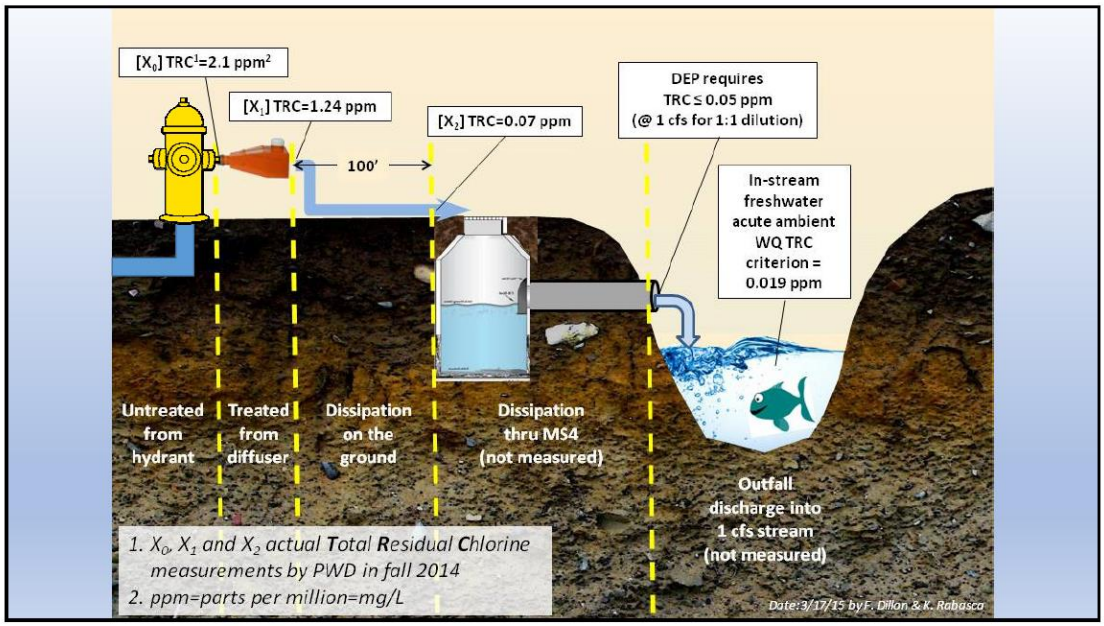
No attempt will be made in this review to discuss in detail the chemistry involved in chlorination of water supplies or wastewaters. Several books and technical papers cover these subjects thoroughly.[1, 2, 5, 45-48] In general, chlorine is a powerful oxidizing agent with a high solubility in water. Chlorine in water may be present as free available chlorine in the form of hypochlorous acid or hypochlorite ion or both. Chlorine may also be present as combined available chlorine in the form of chloramines (mono-, di-, and tri-) and

2180 Journal WPCF

Impacts of chlorine on aquatic organisms well-established (and largely an outgrowth of POTW discharge studies)

EPA Aquatic Life Criteria for Chlorine

- Acute (short term) = 0.019 ppm
- Chronic (longer term) = 0.011 ppm



DRAFT

Assessment of locations and conditions under which dechlorination will be required during water line flushing

Portland Water District (Max conc leaving PWD plant = 2.4 mg/l chlorine)		0.1	Yellow Indicates dechlorination will be required to meet Maine DEP 0.05 mg/l instream chlorine concentration	
Stream Flows (cfs)	In-stream concentration (mg/l) for hydrants discharging at 1 cfs (~450 gpm)	In-stream concentration (mg/l) for hydrants discharging at 2 cfs (~900 gpm)	In-stream concentration (mg/l) for hydrants discharging at 3 cfs (~1350 gpm)	Streams/Rivers in SoPo & Cape Elizabeth that have this type of flow
	1	2	3	
1	0.0500	0.0667	0.0750	Trout Brook under very low flow conditions
2.5	0.0286	0.0444	0.0545	Spurwink River - low tide
5	0.0167	0.0286	0.0375	Trout Brook under moderate flow conditions
10	0.0091	0.0167	0.0231	
15	0.0063	0.0118	0.0167	Trout Brook under high flow conditions
20	0.0048	0.0091	0.0130	Spurwink River - High tide
30	0.0032	0.0063	0.0091	
50	0.0020	0.0038	0.0057	
100	0.0010	0.0020	0.0029	Atlantic Ocean

What MS4s Have To Do About It

STORMWATER PROGRAM MANAGEMENT PLAN

PY1: coordinate with the water utility to evaluate whether hydrant flushing is a significant contributor of pollutants to the MS4

- MS4 provides location map to water utility showing extent of urbanized area and the highest priority watershed(s)
- Gather info from water utility on number and location of hydrants, hydrant flushing details including frequency, flow rates/duration, water conveyance, TRC concentrations, BMPs to prevent erosion & potential pollutants (i.e., TRC)

What MS4s Have To Do About It

STORMWATER PROGRAM MANAGEMENT PLAN

By 12/30/14: add hydrants to storm sewer map to aid in the evaluation

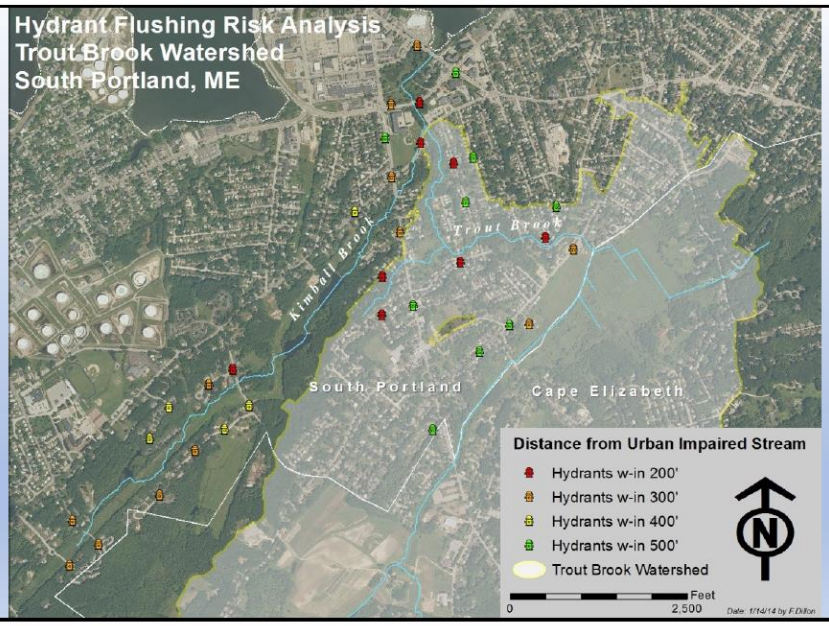
- Prioritize the hydrants or water lines that have the potential to cause TRC exceedances
- Request WQ progress report on BMPs for flushing activity at prioritized hydrants and water utility's TRC test results

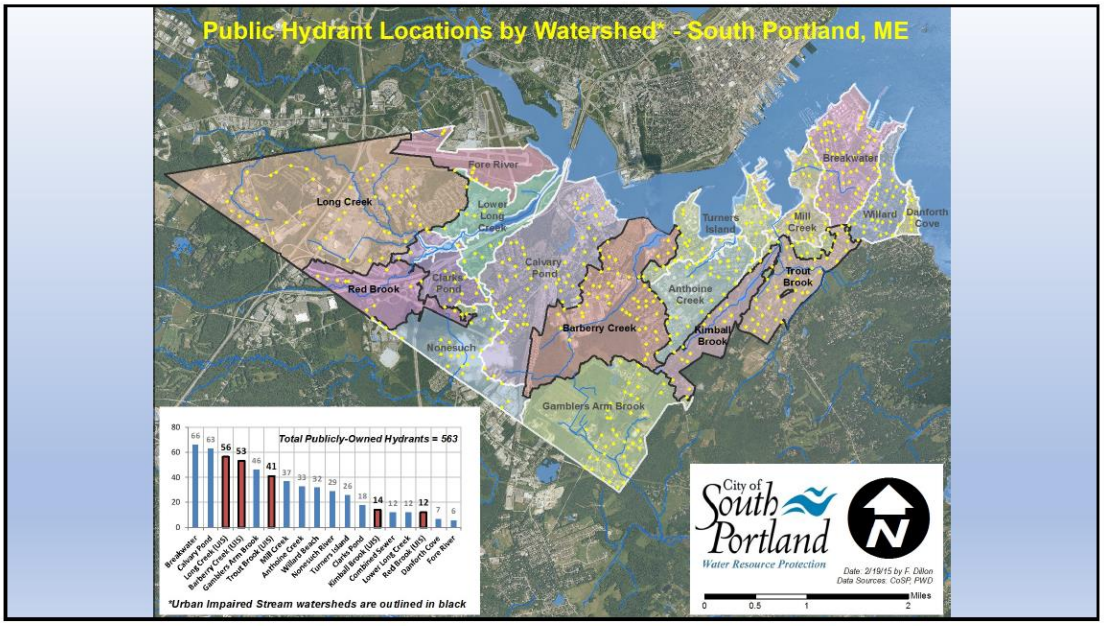
What MS4s Have To Do About It

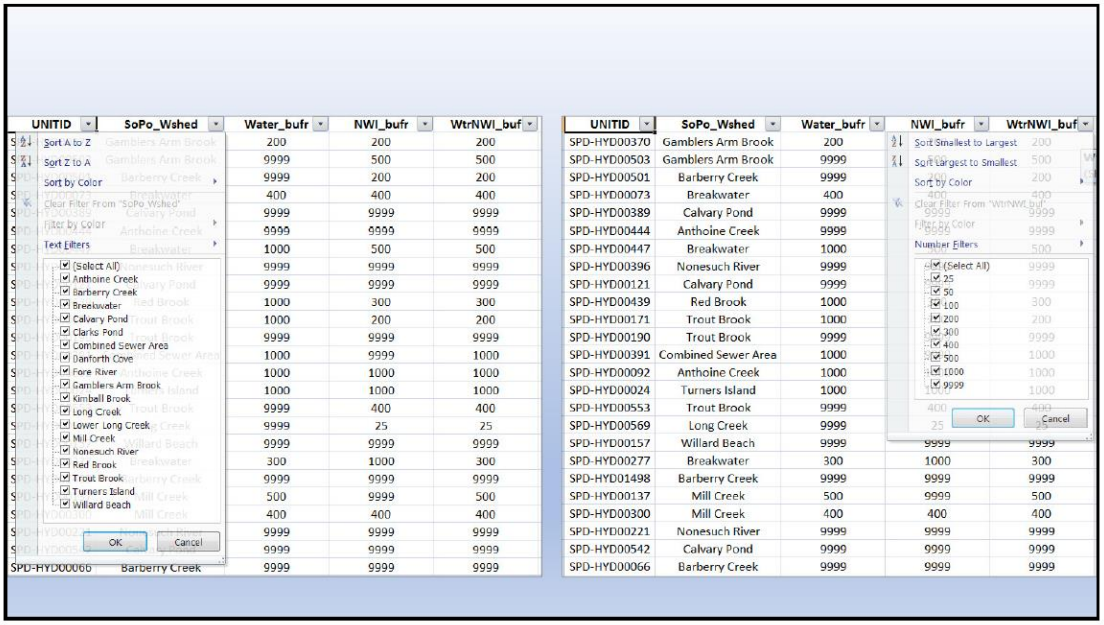
STORMWATER PROGRAM MANAGEMENT PLAN

PYs3-5: request WQ progress report on BMPs for flushing activity at prioritized hydrants and water utility's TRC test results

- If ***by end of PY3 (6/30/16)*** hydrant flushing found to be significant contributor of pollutants to the MS4 municipality will update IDDE ordinance ***by end of PY4 (6/30/17)*** to enforce discharges that cause exceedances of water quality criteria.
- Annual report will include status update on the evaluation of hydrant flushing as a significant contributor of pollutants to the MS4 and an update on subsequent actions.







UNITID	SoPo_Wshed	Water_bufr	NWI_bufr	WtrNWI_buf
SPD-HYD00370	Gamblers Arm Brook	200	200	200
SPD-HYD00503	Gamblers Arm Brook	9999	500	500
SPD-HYD00501	Barberry Creek	9999	200	200
SPD-HYD00073	Breakwater	400	400	400
SPD-HYD00389	Calvary Pond	9999	9999	9999
SPD-HYD00444	Anthoine Creek	9999	9999	9999
SPD-HYD00447	Breakwater	1000	500	500
SPD-HYD00396	Nonesuch River	9999	9999	9999
SPD-HYD00121	Calvary Pond	9999	9999	9999
SPD-HYD00439	Red Brook	1000	300	300
SPD-HYD00171	Trout Brook	1000	200	200
SPD-HYD00190	Trout Brook	9999	9999	9999
SPD-HYD00391	Combined Sewer Area	1000	9999	1000
SPD-HYD00092	Anthoine Creek	1000	1000	1000
SPD-HYD00024	Turners Island	1000	1000	1000
SPD-HYD00553	Trout Brook	9999	400	400
SPD-HYD00569	Long Creek	9999	25	25
SPD-HYD00157	Willard Beach	9999	9999	9999
SPD-HYD00277	Breakwater	300	1000	300
SPD-HYD01498	Barberry Creek	9999	9999	9999
SPD-HYD00137	Mill Creek	500	9999	500
SPD-HYD00300	Mill Creek	400	400	400
SPD-HYD00221	Nonesuch River	9999	9999	9999
SPD-HYD00542	Calvary Pond	9999	9999	9999
SPD-HYD00066	Barberry Creek	9999	9999	9999

Implications…

- Deadline is fast-approaching (6/30/16) to implement BMPs that will prevent TRC exceedances as stated in MS4 SWMP provisions
- Last thing anyone wants is for MS4s to invoke Non-Stormwater Discharge Ordinances to enforce TRC exceedances from hydrants into storm drains (and it would be really tough to police); ***THEREFORE…***
- **Collaboration between DEP, MS4s and water utilities is key**

QUESTIONS / COMMENTS / CONCERNS

Appendix 6: Comments on DEP Drinking Water Discharge Issue Profile

July 8, 2016

Brian Kavanah
Director, Division of Water Quality Management
Bureau of Water Quality
Maine Department of Environmental Protection
Station 17
Augusta, Maine 04333

Dear Mr. Kavanah,

Thank you for the opportunity to comment on the draft DEP Drinking Water System Discharge Profile. The Maine Water Environment Association (MEWEA) with the assistance of its Stormwater Committee, Maine Rural Water Association (MRWA), the Maine Water Utilities Association (MWUA), and the Maine Municipal Association (MMA) have compiled the following comments based on a review of the profile and several years of experience working with Water Districts and Water Departments on this issue in the regulated Municipal Separate Storm Sewer System (MS4) communities.

In general, we are supportive of the issue profile and the effort by the Department to provide guidance and leadership before establishing widespread regulations. Impaired waters and specifically urban impaired waters, which are often small streams flowing at small volumes, are a focus of regulatory requirements within the MS4 General Permit. The required restoration of these streams will cost regulated MS4 communities millions of dollars. The basis for identified impairments is biological and the science on potential adverse impacts from excessive chlorine on biota is definitive and well-established in the laboratory. While we understand that there is uncertainty in the science behind hydrant flushing and non-attainment of water quality standards in the field, but if stream biology is affected by chlorine toxicity, then costs for restoration will likely be borne by regulated MS4 communities. We are actively exploring cost-effective solutions to address impairments and this includes the better management of chlorine discharges.

The following comments are in reference to **BOLD** headers within the Issue Profile.

Overview
The Drinking Water System Discharge Profile should discuss the difference between chlorine and chloramine and potential impacts on total residual chlorine (TRC) and residence time.

BMPs
We applaud the development of the Issue Profile - Best Management Practices (BMP). The following are a few of the challenges we have identified with implementation for several BMPs.

1. Very few communities have stream flow data for small streams. Determining dilution factors will not be possible in most cases. For example, several years of stream flow data from the urban impaired Capisic Brook in Portland indicates that flow rates are below 3 cfs (448 gallons per minute) approximately 30% of the time. Many MS4 communities have urban impaired streams with similar low flow characteristics but do not have the data to support dilution factor calculations.
2. Discharges to the sanitary sewer should be coordinated with the local sewer utility in order to avoid capacity issues and more importantly – trigger overflows.
3. The value of travel time as a BMP will be a function of the type of disinfection (see Overview comment)
4. Chemical dechlorinators are reducing agents and have the potential to adversely impact receiving waters. For these reasons, MEWEA, MRWA, MWUA, and MMA encourage non-chemical means to achieve TRC reduction whenever possible. However, in some instances the use of chemical dechlorinators may be the only BMP that ensures the reduction of TRC for drinking water prior to release into small streams, particularly for communities practicing chloramination.
5. It is our understanding that the ambient aquatic life criteria are based on a one-hour exposure. MEWEA, MRWA, MWUA, and MMA support flushing at time intervals of less than 45-minutes at a frequency of not more than once per day as a potentially effective BMP depending on receiving water body hydraulics. We support consideration of a flushing time BMP that would allow greater flexibility for low-volume, short duration discharges provided this practice is protective of the receiving water.

Emergency Situations
Thank you for acknowledging this challenging situation. Emergency situations may prevent many, if not all BMPs from being implemented. We support exceptions to protect public health and worker safety.

General Comments
We understand that there is general support among most of the public water suppliers servicing Maine's 30 MS4 communities in adopting chemical dechlorination as the primary BMP to address excessive chlorine from potable water discharges. A collaborative approach, with DEP's leadership, to identify cost-effective dechlorination standard methodology should be developed.

MEWEA, MRWA, MWUA, and MMA acknowledge the importance of meeting ambient aquatic life water quality criteria. Because this could present the potential for considerable cost and changes to long-time SOPs, and because field instruments cannot reliably and effectively test to the standard, the associations request that DEP consider technical assistance and funding opportunities for research and development of the most effective, efficient, and lowest cost dechlorination BMPs.

We understand the need for a numerical standard but believe there is value in allowing for the adoption of a presumptive standard. BMPs that consistently prove to be effective at reducing TRC concentrations below the numerical limit should not require repeated testing to verify their efficacy. If the public water supplier is following the prescribed BMP then compliance with

ambient water quality criteria should be presumed. Presumptive standards for dechlorination (or other) BMPs would allow public water suppliers to create simplified SOPs while ensuring MS4 program managers that potable water discharges are not contributing to non-attainment of water quality standards. This reduces potential friction between quasi-municipal district and the municipal MS4 permit holder and will greatly reduce BMP implementation costs and operational challenges. Presumptive standards are the DEP's current approach for regulating stormwater discharges through stormwater treatment systems. Aside from annual inspections, DEP-approved stormwater treatment systems do not require repeated and ongoing performance evaluations to verify efficacy. We support a similar approach for potable water discharge BMPs.

The Issue Profile currently applies only to Maine's 30 MS4 communities. If the DEP anticipates applying these requirements on a state-wide basis, state technical support and funding will be critical for successful implementation. DEP should be mindful that the costs and technical capacity required for dechlorination may be harder to achieve for smaller, understaffed rural water systems. Ultimately, it is in the best interest of public health to have our public water suppliers continue with SOPs such as hydrant flushing, maintaining storage tanks, etc. It is imperative that this process not create excessive barriers to providing safe public drinking water.

Thank you for the opportunity to provide comments to the draft issue paper. Please feel free to contact us to discuss in further detail.

Best regards,

Scott Firmin
President – MEWEA

Frank Kearney, Sr.
President - MWUA

Kirsten Hebert
Executive Director - MRWA

Geoff Herman
Director of State and Federal Relations - MMA

Appendix 7: Dry Weather Outfall Inspection Summaries

2015-16 Long Creek Outfall Inspection Results

Outfall ID	Watershed	Inspector	Date	Time	Pipe Size	Pipe Material	Pipe Shape	Submerged	Pollution	Odor	Pipe Flow	Flow Clarity	Flow Color	Sediment	Condition	Trash	Yard Waste	Follow Up	Comments
LC_2	Long Creek	Fred Dillon,Mike Lorello	2015-11-30	10:22	12	Steel	Round	No	None	None	None	Clear	Clear	None	Good	Yes	Yes	Yes	
LC_3	Long Creek	Mike Lorello	2015-11-30	14:00	3	PVC	Round	No	None	None	None	Clear	Clear	None	Good	No	No	No	
LC_4	Long Creek	Mike Adriance	2015-12-01	9:55	12"	Asbestos	Round	No	None	None	Trickle	Clear	Clear	None	Fair	Yes	No	No	
LC_5	Long Creek	Mike Lorello	2015-12-01	11:00	18	PVC	Round	No	None	None	Trickle	Clear	Clear	None	Fair,Good	No	No	No	
LC_6	Long Creek	Mike Lorello	2015-12-01	11:08	24	HDPE	Round	No	None	None	Trickle	Clear	Clear	None	Fair	No	No	No	
LC_7	Long Creek	Mike Lorello	2015-12-01	10:45	18	RCP	Round	No	Oil Sheen	None	Trickle	Cloudy	Brown	None,1/8	Poor	No	No	No	
LC_8	Long Creek	Mike Lorello	2015-12-01	10:50	12	PVC	Round	No	None	None	None	Clear	Clear	None	Good	No,Yes	No	No	
LC_9	Long Creek	Mike Lorello	2015-12-01	10:15	48	RCP	Round	No	Oil Sheen	None	Steady	Clear	Brown, Clear	1/8,None	Fair	Yes	No	See comments	Could remove shopping cart
LC_10	Long Creek	Mike Lorello	2015-12-01	10:05	10-12?	RCP	Round	No	None	None	None	Clear	Clear	1/2	Needs attention	Yes	No	Yes	Needs to be cleaned out
LC_11	Long Creek	Mike Lorello	2015-12-08	14:34	60	RCP	Round	No	Oil Sheen	None	1/4 Full	Clear	Brown	1/8,None	Fair,Good	Yes	No	No	
LC_12	Long Creek	Mike Lorello	2015-12-01	13:33	18	HDPE	Round	No	None	None	Trickle	Clear	Clear	None	Fair,Good	Yes	No	No	
LC_13	Long Creek	Mike Lorello	2015-12-01	13:17	12	RCP	Round	No	None	None	Trickle	Clear	Clear	None	Fair,Good	No	No	No	
LC_14	Long Creek	Mike Lorello	2015-12-01	13:11	12	RCP	Round	No	None	None	None	Clear	Clear	None	Fair	No	No	No	
LC_15	Long Creek	Mike Adriance	2015-12-01	9:58	12"	Asbestos	Round	No	None	None	Trickle	Clear	Clear	None	Needs attention	Yes	No	Yes	Washing out ground around
LC_16	Long Creek	Mike Adriance	2015-12-01	9:49	12"	PVC	Round	No	None	None	Trickle	Clear	Clear	None	Good	Yes	No	No	
LC_17	Long Creek	Mike Lorello	2015-12-08	9:10	12	Steel	Round	No	None	None	None	Clear	Clear	None	Poor	Yes	No	No	
LC_18	Long Creek	Mike Adriance	2015-12-01	11:13	12"	CMP	Round	No	None	None	Trickle	Clear	Clear	None	Fair	Yes	No	No	
LC_19	Long Creek	Mike Adriance	2015-12-01	10:08	12"	RCP	Round	No	Vegetation	None	Trickle	Clear	No flow	None	Fair	Yes	No	No	
LC_20	Long Creek	Mike Adriance	2015-12-01	11:30	12"	CMP	Round	No	None	None	Trickle	Clear	No flow	None	Fair	Yes	No	No	
LC_21	Long Creek	Mike Adriance	2015-12-01	11:26	12"	CMP	Round	No	None	None	Trickle	Clear	No flow	None	Fair	Yes	No	No	
LC_22	Long Creek	Mike Adriance	2015-12-01	10:59	36"	RCP	Round	No	Vegetation	None	None	Clear	No flow	None	Needs attention	Yes	No	Yes	Section of pipe removed
LC_23	Long Creek	Mike Adriance	2015-12-01	10:15	24"	RCP	Round	No	Iron Color	None	None	Clear	No flow	None	Good	Yes	No	No	
LC_24	Long Creek	Mike Lorello	2015-11-30	1035	16	Steel	Round	No	None	None	None	Clear	Clear	None	Good	Yes	Yes	Yes	Lots of clippings and leaves
LC_25	Long Creek	Mike Lorello	2015-11-30	11:04	24	Steel	Round	No	None	None	Can't tell	Other	Clear	1/2	Needs attention	No	No	Yes	Big root ball in front of pipe probably should come back with saw or hatchet
LC_26	Long Creek	Mike Lorello	2015-11-30	14:38	24	HDPE	Round	Yes - partially	None	None	Steady,1/4 Full	Clear	Clear	1/8,None	Good	No	No	No	
LC_27	Long Creek	Mike Lorello	2015-11-30	14:45	30	Steel	Round	No	None	None	None	Clear	Clear	None	Excellent	No	No	No	Bricked off
LC_28	Long Creek	Mike Lorello	2015-11-30	12:45	18	Steel	Round	No	None	None	Trickle	Clear	Clear	1/8	Fair	No	No	No	
LC_29	Long Creek	Mike Lorello	2015-11-30	13:00	8	PVC	Round	No	None	None	None	Clear	Clear	None	Good	Yes	No	No	
LC_30	Long Creek	Mike Lorello	2015-11-30	13:10	12	Steel	Round	Yes - partially	None	None	None,Can't tell	No flow	No flow	1/2	Needs attention	Yes	No	Yes	
LC_32	Long Creek	Mike Adriance	2015-12-01	2:48	30"	RCP	Round	No	None	None	Steady	Clear	Clear	None	Fair	No	No	No	
LC_33	Long Creek	Mike Adriance	2015-12-01	2:51	36"	RCP	Round	Yes - partially	None	None	Can't tell	No flow	No flow	1/4	Poor	Yes	No	Yes	Needs some ditching done
LC_34	Long Creek	Mike Adriance	2015-12-01	8:22	42"	RCP	Round	No	Vegetation	None	Steady	Clear	Clear	1/8	Needs attention	No	No	Yes	Cut out few trees
LC_35	Long Creek	Mike Adriance	2015-12-01	2:23	12"	Unknown	Round	Yes - almost fully	None	None	Can't tell	Cloudy	Iron deposit	1/2	Poor	Yes	No	No	
LC_36	Long Creek	Mike Lorello	2015-12-01	14:05	12	Steel	Round	No	None	None	Trickle,Steady	Clear	Clear	None	Fair	No	No	No	
LC_37	Long Creek	Mike Adriance	2015-12-01	1:38	32"	RCP	Round	Yes - partially	None	None	None	No flow	No flow	1/8	Fair	No	No	No	
LC_38	Long Creek	Mike Adriance	2015-12-01	8:58	54"	CMP	Round	No	None	None	Steady	Clear	Clear	1/8	Fair	Yes	No	No	
LC_39	Long Creek	Mike Adriance	2015-12-01	9:17	21"	RCP	Round	No	None	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_41	Long Creek	Mike Adriance	2015-12-01	8:48	12"	Asbestos	Round	No	None	None	Trickle	Clear	Clear	None	Fair	Yes	No	No	
LC_42	Long Creek	Mike Adriance	2015-12-01	8:44	16"	N-12	Round	Yes - partially	Oil Sheen	None	Trickle	Cloudy	Green, Black, Brown	1/2	Poor	Yes	No	Yes	
LC_43	Long Creek	Mike Lorello	2015-12-01	13:46	30	HDPE	Round	No	None,Algae	None	Steady	Clear	Brown, Clear	None	Good	No	No	No	
LC_44	Long Creek	Mike Adriance	2015-12-01	1:43	18"	N-12	Round	No	None	None	Steady	Clear	Clear	None	Good	No	No	No	
LC_45	Long Creek	Mike Adriance	2015-12-01	1:48	36"	N-12	Round	No	None	None	Steady	Clear	Clear	None	Good	Yes	Yes	No	
LC_46	Long Creek	Mike Adriance	2015-12-01	8:37	36"	RCP	Round	No	Vegetation	None	Trickle	Clear	Clear	1/8	Good	Yes	No	No	
LC_48	Long Creek	Mike Adriance	2015-12-01	8:39	12"	N-12	Round	No	Vegetation	None	None	No flow	No flow	None	Good	Yes	No	No	
LC_49	Long Creek	Mike Adriance	2015-12-01	8:41	72"	RCP	Round	No	None	None	Steady	Clear	Clear	None	Fair	Yes	No	No	
LC_51	Long Creek	Mike Adriance	2015-12-01	9:37	18"	CMP	Round	Yes - partially	Vegetation	None	Trickle	Clear	Clear	1/2	Poor	Yes	No	Yes	
LC_54	Long Creek	Mike Lorello	2015-11-30	13:38	18	Steel	Round	No	None	None	None	Clear	Clear	None	Good	No	No	No	
LC_55	Long Creek	Mike Lorello	2015-11-30	13:50	12	PVC	Round	No	None	None	None	Clear	Clear	None	Good	No	No	No	
LC_56	Long Creek	Mike Adriance	2015-12-01	2:27	12"	CMP	Round	No	None	None	None	No flow	No flow	1/4	Fair	Yes	No	No	

Outfall ID	Watershed	Inspector	Date	Time	Pipe Size	Pipe Material	Pipe Shape	Submerged	Pollution	Odor	Pipe Flow	Flow Clarity	Flow Color	Sediment	Condition	Trash	Yard Waste	Follow Up	Comments
LC_57	Long Creek	Mike Adriance	2015-12-01	12:52	16"	CMP	Round	Yes - partially	Vegetation,Oil Sheen, Iron	None	Steady	Clear	Clear	1/2	Poor	No	No	No	
LC_58	Long Creek	Mike Adriance	2015-12-01	12:47	18"	CMP	Round	No	Foam	None	Steady	Clear	Clear	None	Fair	No	No	No	
LC_59	Long Creek	Mike Adriance	2015-12-01	2:32	12"	N-12	Round	No	None	None	None	No flow	No flow	1/8	Poor	Yes	No	No	
LC_60	Long Creek	Mike Adriance	2015-12-01	1:07	18"	PVC	Round	No	Vegetation	None	None	No flow	No flow	1/8	Fair	No	No	No	
LC_61	Long Creek	Mike Adriance	2015-12-01	1:13	15"	N-12	Round	No	None	None	Steady	Clear	Clear	None	Good	No	No	No	
LC_62	Long Creek	Mike Adriance	2015-12-01	1:11	12"	PVC	Round	No	None	None	None	No flow	No flow	None	Good	No	No	No	
LC_63	Long Creek	Mike Adriance	2015-12-01	9:22	20"	PVC	Round	No	Algae	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_64	Long Creek	Mike Lorello	2015-12-01	11:15	3	PVC	Round	No	Algae	None	Trickle	Clear	Green, Clear	None	Fair	No	No	No	
LC_65	Long Creek	Mike Lorello	2015-12-01	10:35	12	RCP	Round	No	None	None	Trickle	Clear	Clear	None	Fair	No	No	No	
LC_66	Long Creek	Mike Lorello	2015-12-01	8:50	18	PVC	Round	No,Yes - partially	None	None	Trickle,None	Clear	Clear	None,1/8	Poor	Yes	No	Yes	
LC_67	Long Creek	Mike Lorello	2015-12-01	14:55	36	RCP	Round	Yes - partially	Vegetation	None	Can't tell	Cloudy	Brown	Pipe is full of water	Needs attention	No,Yes	No	Yes	
LC_68	Long Creek	Mike Lorello	2015-12-01	9:50	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Excellent	No	No	No	
LC_69	Long Creek	Mike Lorello	2015-12-01	9:00	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Excellent,God	Yes	No	No	
LC_70	Long Creek	Mike Lorello	2015-12-01	9:42	24	RCP	Round	Yes - partially	Algae,Vegetation	None	1/4 Full,Can't tell	Clear	Clear	1/8	Needs attention	No	No	Yes	Needs to be cleaned up
LC_71	Long Creek	Mike Adriance	2015-12-01	2:08	24"	RCP	Round	No	None	None	None	Clear	Clear	None	Good	No	No	No	
LC_72	Long Creek	Mike Lorello	2015-12-01	14:14	24	Steel	Round	No	None	None	Trickle	Clear	Clear	1/8,None	Poor	Yes	No	No	
LC_73	Long Creek	Mike Lorello	2015-12-08	14:09	12?	HDPE	Round	Yes - partially	Submerged - can't tell	Cannot determine	Submerged - can't tell	Submerged - can't tell	Submerged - can't tell	Submerged - can't tell	Needs attention	Yes	No	Yes	
LC_74	Long Creek	Mike Lorello	2015-12-01	14:24	12	Steel	Round	No	None	None	Trickle	Clear	Clear	1/4,1/8	Poor	No	Yes	No	
LC_75	Long Creek	Mike Lorello	2015-12-01	14:41	18	RCP	Round	Yes - partially	Oil Sheen	None	Can't tell	Clear	Clear	1/2,3/4	Needs attention	Yes	No	Yes	Needs to be grubbed out. Can't find other outfall could be buried
LC_83	Long Creek	Mike Lorello	2015-11-30	1120	18	Steel	Round	No	None	None	Trickle	Cloudy	Brown	1/8	Poor	Yes	No	No	
LC_84	Long Creek	Mike Lorello	2015-11-30	1057	24	Steel	Round	No	None	None	Trickle	Clear	Clear	1/8	Good	No	No	No	
LC_85	Long Creek	Mike Lorello	2015-11-30	1050	24	Steel	Round	No	None	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_86	Long Creek	Mike Lorello	2015-11-30	1318	12	Steel	Round	No	Oil Sheen,Vegetation	None	Steady	Cloudy	Clear	1/8,None	Poor	Yes	Yes	No	
LC_87	Long Creek	Mike Lorello	2015-12-08	9:40	18	PVC	Round	No	None	None	Trickle,Steady	Clear	Clear	Hanging culvert,None	Fair	Yes	No	No	
LC_88	Long Creek	Mike Lorello	2015-12-01	13:00	10 12	RCP	Round	No	None	None	None	Clear	Clear	1/2	Fair	Yes	No	Yes	
LC_89	Long Creek	Mike Lorello	2015-12-01	13:53	12&15	HDPE,PVC	Round	No	None	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_90	Long Creek	Mike Adriance	2015-12-01	1:02	24"	CMP	Round	Yes - partially	Vegetation	None	None	No flow	No flow	1/4	Fair	No	No	No	
LC_91	Long Creek	Mike Adriance	2015-12-01	1:20	36"	RCP	Round	No	Algae	None	None	No flow	No flow	1/8	Fair	Yes	No	No	
LC_92	Long Creek	Mike Lorello	2015-12-01	13:38	21	RCP	Round		Algae,Vegetation	None	Steady	Cloudy,Clear	Brown,Clear	None	Fair	Yes	No	No	
LC_98	Long Creek	Mike Lorello	2015-11-30	14:25	18	PVC	Round	No	None	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_99	Long Creek	Mike Lorello	2015-12-08	10:25	2	PVC	Round	No	Algae	None	Steady	Clear	Clear	None	Poor	No	Yes	No	
LC_100	Long Creek	Mike Adriance	12/1/2015	10:49	30	N-12	Round	No	None	None	Steady	Clear	Clear	None	Good	Yes	No	No	
LC_101	Long Creek	Mike Lorello	2015-12-01	13:25	12&4	HDPE,PVC	Round	No	None	None	None	Clear	Clear	None	Good	No	No	No	
LC_102	Long Creek	Mike Adriance	2015-12-01	10:46	8"	N-12	Round	No	None	None	Trickle	Clear	Clear	None	Good	Yes	No	No	
LC_103	Long Creek	Mike Adriance	2015-12-01	10:38	8"	N-12	Round	No	None	None	None	No flow	No flow	None	Good	Yes	No	No	
LC_104	Long Creek	Mike Lorello	2015-12-08	8:35	18	HDPE	Round	No	None	None	Trickle	Clear	Clear	None	Good	No	No	No	
LC_105	Long Creek	Mike Adriance	2015-12-01	10:51	8"	N-12	Round	No	None	None	None	No flow	No flow	None	Good	Yes	No	No	
LC_106	Long Creek	Mike Lorello	2015-12-08	1035	6	PVC	Round	Yes - partially	Cannot determine	Cannot determine	Can't tell	Can't tell	Can't tell	Can't tell	Needs attention	Yes	No	Yes	
LC_107	Long Creek	Mike Lorello	2015-12-01	815	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Good	Yes	No	No	
LC_108	Long Creek	Mike Lorello	2015-12-01	830	8	PVC	Round	No	None	None	None	Clear	Clear	None	Good,Fair	Yes	No	No	
LC_109	Long Creek	Mike Lorello	2015-12-01	822	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Good	Yes	No	No	
LC_110	Long Creek	Mike Lorello	2015-12-01	840	2	PVC	Round	No	None	None	Steady	Clear	Clear	None	Good	Yes	No	No	
LC_111	Long Creek	Mike Lorello	2015-12-01	835	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Excellent	Yes	No	No	
LC_112	Long Creek	Mike Lorello	2015-12-08	1018	6	PVC	Round	No	None	None	Trickle	Clear	Clear	None	Poor,Fair	No	No	No	
LC_113	Long Creek	Mike Lorello	2015-12-01	1000	12	HDPE	Round	No	None	None	None	Clear	Clear	None	Good	Yes	No	No	
LC_114	Long Creek	Mike Lorello	2015-12-08	920	12	RCP	Round	No	Iron Color	None	Trickle	Cloudy	Iron deposit	None	Poor,Fair	Yes	No	No	
LC_116	Long Creek	Mike Adriance	2015-12-01	10:40	14"	N-12	Round	No	None	None	None	No flow	No flow	None	Good	Yes	No	No	
LC_117	Long Creek	Mike Adriance	2015-12-01	11:22	12"	N-12	Round	No	None	None	None	No flow	No flow	None	Good	No	No	No	
LC_118	Long Creek	Mike Lorello	2015-12-08	906	4	PVC	Round	No	None	None	None	No flow	No flow	None	Good	Yes	No	No	
LC_119	Long Creek	Mike Adriance	2015-12-01	11:11	18"	CMP	Round	No	None	None	Steady	Clear	Clear	None	Fair	Yes	No	No	

PY2015-16 Barberry Creek Outfall Inspections

Date	Time	Outfall ID	Pipe Size	Pipe Material	Pipe Shape	Submerged?	Pollution	Odor	Pipe Flow	Flow Clarity	Flow Color	Sediment	Condition	Trash	Yard Waste	Follow up needed?	Comments
2016-09-09	09:20	BC_1															Unable to inspect - on private property
2016-09-02	09:20	BC_2															Unable to inspect - on private property
2016-09-02	09:20	BC_3															Unable to inspect - on private property
2016-09-02	09:20	BC_4															Unable to inspect - on private property
2016-09-02	08:39	BC_5	48"	CMP	Round	No	None	None	Steady	Clear	Clear	None	Good	No	No	No	
2016-09-02	08:24	BC_6	42"	RCP	Round	No	None	None	Trickle	Clear	Clear	None,1/8	Good	No	No	No	
2016-09-02	08:15	BC_8	30"	RCP	Round	No	None	None	None	No flow	No flow	1/8	Good	No	No	No	Sediment appeared to be plant-based matting. Could almost peel it off bottom of pipe.
2016-09-02	09:06	BC_9	16"	PVC	Round	No	None	None	None	No flow	No flow	1/8	Good	No	No	No	
2016-09-02	09:04	BC_10	16"	PVC	Round	No	None	None	None	No flow	No flow	None	Excellent	No	No	No	
2016-09-09	09:00	BC_11															Unable to inspect - on private property
2016-09-02	09:48	BC_12	30"	HDPE	Round	No	None	None	None	No flow	No flow	None	Excellent	No	No	No	
2016-09-09	09:00	BC_13															Unable to inspect - on private property
2016-09-02	09:15	BC_14															Unable to inspect - on private property
2016-09-02	08:01	BC_15	30"	RCP	Round	No	None	None	None	No flow	No flow	None	Excellent	No	No	No	

PY2015-16 Trout Brook Outfall Inspections

Outfall ID	Watershed	Inspector	Date	Time	Pipe Size	Pipe Material	Pipe Shape	Submerged	Pollution	Odor	Pipe Flow	Flow Clarity	Flow Color	Sediment	Condition	Trash	Yard Waste	Follow Up	Comments
KB_1	Trout Brook	Mike Lorello	2015-12-21	14:40	36	RCP	Round	No	None	None	Steady	Clear	Clear	None	Excellent	No	No	No	
MC_4	Trout Brook	Mike Lorello	2015-12-21	14:49	24	RCP	Round	No	None	None	Trickle,Steady	Clear	Clear	Hanging culvert	Good,Fair	No	Yes	No	
MC_15	Trout Brook	Mike Lorello	2015-12-21	14:55	24	RCP	Round	No	None	None	1/4 Full	Clear	Clear	None	Good	No	No	No	Tidal?
MC_16	Trout Brook	Mike Lorello	2015-12-21	14:14	48	RCP	Round	No	None	None	1/4 Full,Steady	Clear	Clear	None,1/8	Good	No	No	No	
TB_1	Trout Brook	Mike Lorello	2015-12-21	14:26	36	RCP	Round	No	None	None	Steady	Clear	Clear	None	Needs attention,Fair	No	No	Yes	Need to cut some brush around pipe
TB_2	Trout Brook	Mike Lorello	2015-12-21	11:15	10"	Clay	Round	Yes - partially	None	None	Steady	Clear	Clear	1/8,1/4	Needs attention	No	No	No	
TB_3	Trout Brook	Mike Lorello	2015-12-21	14:04	24	Steel	Round	No	None	None	Trickle	Clear	Clear	None	Poor	No	No	No	
TB_5	Trout Brook	Mike Lorello	2015-12-21	13:52	12	Other	Round	Yes - partially	None	None	Submerged - can't tell	Clear	Clear	1/4,1/2	Needs attention	No	No	Yes	
TB_6	Trout Brook	Mike Lorello	2015-12-21	13:40	15?	RCP	Round	Yes - partially	None	None	Submerged - can't tell	No flow	Clear,No flow	1/2	Needs attention	No	No	Yes	
TB_7	Trout Brook	Mike Lorello	2015-12-21	11:22	10	Clay	Round	No	None	None	Trickle	Clear	Clear	None	Fair	No	No	No	
TB_8	Trout Brook	Mike Lorello	2015-12-21	11:00	12	CMP	Round	No	None	None	None	Clear	Clear	None	Fair	No	No	No	
TB_9	Trout Brook	Mike Lorello	2015-12-21	11:18	12	PVC	Round	No	None	None	Trickle	Clear	Clear	None	Fair	No	No	No	

Appendix 8: Dry Weather Ditch Inspection Summary

LCD-01	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass Greater Than 90%	3-6 Inches	No	No	Trash, sticks, and other debris in inlet area
LCD-02	2016-6-1	No	No	No	None	None	No	N/A	N/A	Free Of Obstructions	Stable	Less Than 2 Inches	Stable	Normal Grass	Grass Greater Than 90%	3-6 Inches	No	No	Silt fence still in place - perhaps obstructing water flow. Bare soil in portion of ditch. Trash and leaf litter buildup in outlet
LCD-03	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Stable	Less Than 2 Inches	Stable	Invasive	Natural	Excessively Tall	No	No	Invasive knotweed encroaching on outlet culvert. Standing water in outlet - murky, brown color. Mostly natural, tall grass in ditch itself.
LCD-04	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Stable	Less Than 2 Inches	Woody Vegetation	Invasive	Natural	Excessively Tall	No	Yes	Trash and invasive plants encroaching on culvert.
LCD-05	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Free Of Obstructions	Free Of Obstructions	Greater Than 2 Inches	Stable	Woody	Natural	Excessively Tall	Yes	No	Trash accumulation
LCD-06	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Stable	Natural	Stable	Normal Grass	Grass	6-12 Inches	Yes	No	Trash accumulation. Erosion and bare soil present at bottom of ditch.
LCD-07	2016-6-1	No	No	No	None	None	No	N/A	N/A	Unstable	Obstructed	Natural	Stable	Weeds	Natural	6-12 Inches	Yes	No	Small presence of trash accumulation. Slight scour on bottom of ditch in some portions. Outlet overgrown with grass.
LCD-08	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Stable	Natural	Stable	Normal Grass	Grass	3-6 Inches	No	No	Culvert near Portland Press Herald is bare with no vegetation cover. See photos for details.
LCD-09	2016-6-1	No	No	No	None	None	No	N/A	N/A	Stable	Free Of Obstructions	Greater Than 2 Inches	Stable	Normal Grass	Grass	3-6 Inches	No	No	
LCD-10	2016-6-1	No	No	No	None	None	Yes	Cloudy	Brown	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass	Less Than 3 Inches	No	No	Work recently completed on stabilizing erosion. Hydro seed mating placed in bottom of ditch, with stone berm to reduce water flow.
LCD-11	2016-6-1	No	No	No	None	None	Yes	Cloudy	Brown	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass	Less Than 3 Inches	No	No	Ditch recently modified with erosion control equipment - hay matting, and stone berms. Grass starting to grow along ditch embankments.
LCD-12	2016-6-1	No	No	No	None	None	No	N/A	N/A	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass	3-6 Inches	No	No	
LCD-13	2016-6-1	No	No	No	None	None	No	N/A	N/A	Stable	Obstructed	Greater Than 2 Inches	Riprap Displaced	Normal Grass	10% or Greater Bare Soil	Less Than 3 Inches	Yes	Yes	All rip rap - high scour near outlet. Sediment buildup and outlet plugged.
LCD-14	2016-6-1	No	No	No	None	None	No	N/A	N/A	Unstable	Stable	Greater Than 2 Inches	Stable	Normal Grass	Grass	3-6 Inches	Yes	Yes	Inlet plugged with sediment - erosion in ditch
LCD-15	2016-6-1	No	No	Yes	None	None	Yes	Cloudy	Brown	Free Of Obstructions	Obstructed	Greater Than 2 Inches	Woody Vegetation	Natural	Natural	6-12 Inches	No	Yes	Outlet blocked by cat tails
LCD-16	2016-6-1	No	No	No	None	None	Yes	Cloudy	Brown	Unstable	Stable	Less Than 2 Inches	Woody Vegetation	Natural	Natural	Excessively Tall	No	No	
LCD-17	2016-6-1	No	No	No	None	None	No	N/A	N/A	Free Of Obstructions	Obstructed	Less Than 2 Inches	Stable	Woody	Grass	3-6 Inches	No	Yes	Outlet covered by grown over grass
LCD-18	2016-6-1	No	No	No	None	None	Yes	Cloudy	Clear	Unstable	Free Of Obstructions	Natural	Stable	Normal Grass	Grass	3-6 Inches	Yes	Yes	Inlet had high amount of standing water; scour from drainage pipes
LCD-19	2016-6-1	No	No	No	None	None	Yes	Cloudy	Green	Stable	Obstructed	Less Than 2 Inches	Woody Vegetation	Natural	Natural	Excessively Tall	No	Yes	Standing water in both inlet and outlet
LCD-20	2016-6-1	No	No	No	None	None	No	N/A	N/A	Unstable	Free Of Obstructions	Natural	Stable	Normal Grass	Grass	3-6 Inches	No	Yes	Inlet plugged with sediment.
LCD-22	2016-6-1	No	No	Yes	Oil / Film	None	Yes	Cloudy	Orange	Free Of Obstructions	Free Of Obstructions	Natural	Stable	Natural	10% or Greater Bare Soil	6-12 Inches	No	No	Cat tails obstructing outlet
LCD-21	2016-6-1	No	No	Yes	Oil / Film	None	Yes	Opaque	Orange	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Natural	10% or Greater Bare Soil	6-12 Inches	No	No	Possible clean out of plant material
LCD-26	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Stable	Natural	Stable	Normal Grass	Grass Greater Than 90%	3-6 Inches	Yes	No	Scour on ditch floor
LCD-23	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Unstable	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass Greater Than 90%	3-6 Inches	No	Yes	Tire tracks observed to disrupt soil. Sediment buildup near inlet. Hay matting and hydro seed applied. Reapplication may be necessary in dead/bare spots.
LCD-24	2016-6-1	No	Yes	No	None	None	No	N/A	N/A	Free Of Obstructions	Free Of Obstructions	Less Than 2 Inches	Stable	Normal Grass	Grass Greater Than 90%	3-6 Inches	No	No	Hay matting and hydro seed recently applied. Reapplication may be necessary in dead/bare spots.
LCD-25	2016-6-1	No	No	Yes	None	Musty	No	N/A	N/A	Unstable	Obstructed	Greater Than 2 Inches	Woody Vegetation	Natural	Natural	6-12 Inches	Yes	Yes	High amounts of scour and obstruction of outlet
LCD-27	2016-6-1	No	No	Yes	None	None	Yes	Cloudy	Brown	Free Of Obstructions	Obstructed	Less Than 2 Inches	Stable	Normal Grass	Grass Greater Than 90%	6-12 Inches	No	No	
LCD-28	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Stable	Free Of Obstructions	Less Than 2 Inches	Stable	Natural	Natural	6-12 Inches	No	No	Trash accumulation
LCD-29	2016-6-1	No	No	Yes	None	None	No	N/A	N/A	Free Of Obstructions	Stable	Natural	Stable	Natural	Natural	6-12 Inches	No	No	