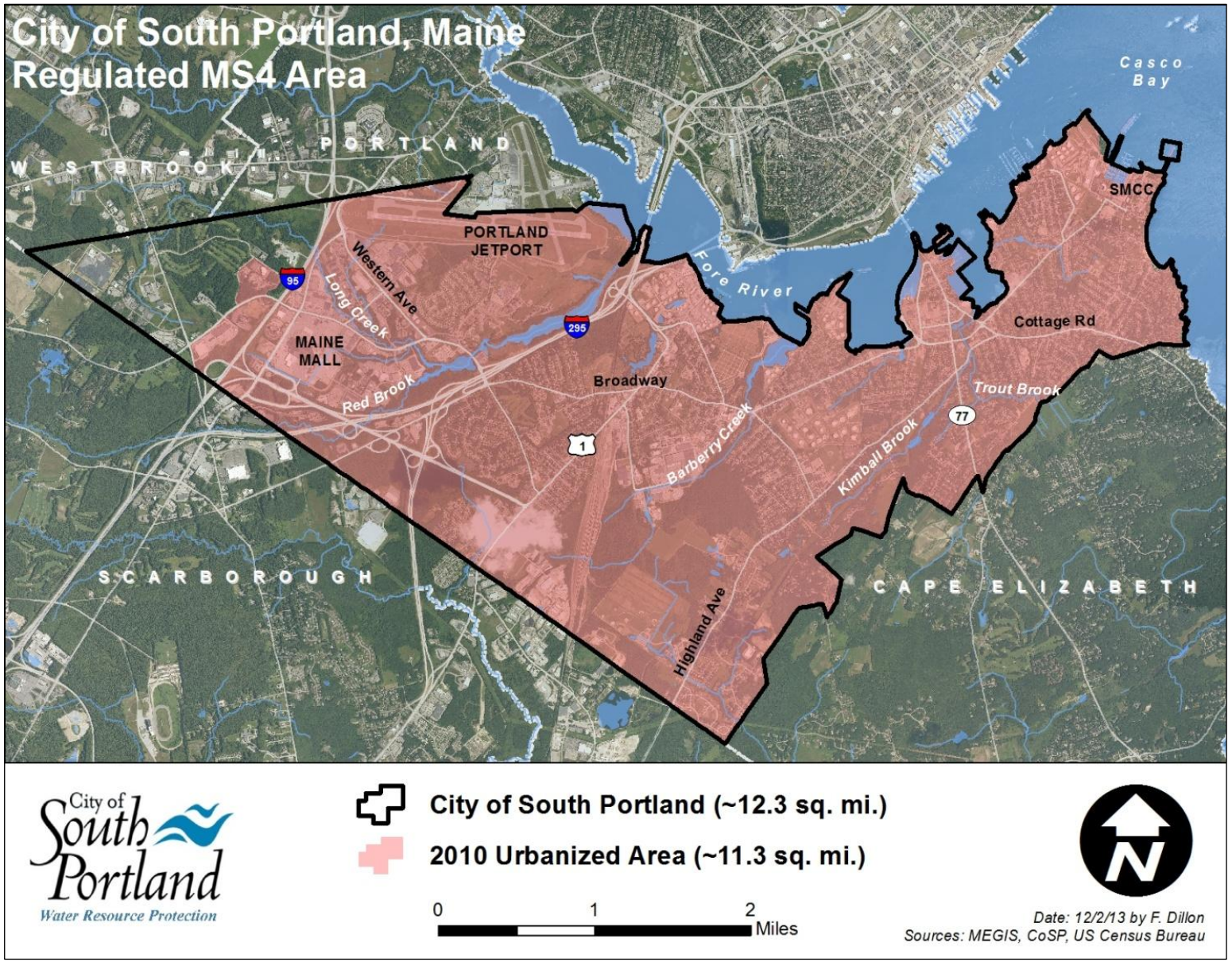
Stormwater Phase II
Annual Report for
Permit Year 1 (2013-14)

City of South Portland
Water Resource Protection



Cover Photo: canine source tracking at Willard Beach to identify presence of human bacteria sources (May 2014)

Table of Contents

ACKNOWLEDGEMENTS

This report was prepared collaboratively by the City of South Portland Water Resource Protection Department's (WRP) staff consisting of the following individuals:

- **Pat Cloutier** ~ *Director of Water Resource Protection Department*
- **Dave Thomes** ~ *Collection Systems Manager*
- **Brad Weeks** ~ *City Engineer*
- **Paul Collins** ~ *Treatment Systems Manager*
- **Tom Wiley** ~ *Compliance Administrator*
- **Pam McCarthy** ~ *WRP Office Manager*
- **Jerry Collett** ~ *Sewer Maintenance Supervisor*
- **Jeff Moulton** ~ *Sewer Maintenance Worker II*
- **Lee Gagnon** ~ *Sewer Maintenance Worker II*
- **Fred Dillon** ~ *Stormwater Program Coordinator*
- **Tom Burns** ~ *City's GIS Consultant*

WRP staff would also like to thank the following individuals for their ongoing assistance and support of the City's Stormwater Management Program goals:

- **James Gailey & Sue Mooney** ~ *City Manager & City Clerk*
- **Tex Haeuser, Pat Doucette, Steve Puleo, & Dave Kasik** ~ *S. Portland Planning & Development Department*
- **Doug Howard, Mark Lorello, & Denise Michaud** ~ *South Portland Public Works Department*
- **Chris Dumais, Tom Carellas & Andrew Hughen** ~ *South Portland Information Systems*
- **Rick Towle, Sarah Neuts, Mary Lou Fathke & Linky Erskine** ~ *South Portland Parks & Recreation Department*
- **Tony Vigue & Maurice Amaral** ~ *South Portland Community Television*
- **Jon Dore** ~ South Portland Land Trust
- **David Critchfield, Bill Sutton & Nathan Marles** ~ South Portland Conservation Commission
- **Curtis Bohlen & Matt Craig** ~ Casco Bay Estuary Partnership
- **Tamara Lee Pinard, Jami Fitch, Kate McDonald & Patrick Marass** ~ *Cumberland County Soil and Water Conservation District*
- **Wendy Garland** ~ *Maine Department of Environmental Protection*
- **Sarah Plummer & Carina Brown** ~ *Portland Water District*
- **Tom Mikulka** ~ *Cape Elizabeth resident and retired High School Science Teacher*
- **Jane Eberle & Elke Perks** ~ *South Portland School Department*
- **Katherine Bock** ~ *Cape Elizabeth School Department*
- **Karen Wilson** ~ *University of Southern Maine Department of Environmental Science & Policy*
- **Dave Owen** ~ *University of Maine School of Law*
- **The many teachers* & students who participated in the City's Stormwater Education & Outreach efforts**

** South Portland middle school science teacher Greg Carter passed away suddenly in Feb. 2014. Greg and his students were actively involved with the City's stormwater program every year since 2009. From stenciling storm drains, planting buffers and pulling trash from Trout Brook, and providing a classroom forum for discussions about stormwater – Greg was deeply committed to helping his students understand the importance of the region's water resources. He will be sorely missed.*

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 Interlocal Stormwater Working Group (ISWG), the Friends of Casco Bay (FOCB), the Casco Bay Estuary Partnership (CBEP), the South Portland Land Trust (SPLT) 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 first Permit Year (2013-14) 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 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 partnership with the Friends of Casco Bay and collaborated with South Portland & Cape Elizabeth Public Schools and the University of Maine Law School to increase public awareness about stormwater management concerns. WRP staff provided numerous presentations about the City's water resource protection efforts to local schools, at professional conferences and workshops, and submitted several articles for publication in the City's biweekly electronic newsletter. The City's Community Access Television station also produced a program on proper pet waste management (Figure 1).

Figure 1: Parks & Recreation Director Rick Towle interviews dog owners to promote responsible pet waste management for the May 2014 segment of South Portland's "Green Scenes".

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 Raise Awareness by Continuing Outreach Efforts from Last MS4 Permit Cycle

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

FUNCTION

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 increase public awareness of stormwater management issues.

MEASURABLE GOALS

- ***Measureable Goal 1.1.1*** – by February 1, 2014, develop new or revise existing 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 Awareness Plan** to Maine DEP for review and approval; draft Plan will be considered approved by February 1, 2014 unless DEP indicates otherwise. Stormwater 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 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 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 as described in **Appendix 1**. The City also continued to provide 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 Raise Municipal Staff Awareness of Stormwater Pollution & MS4 Requirements

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

FUNCTION

To raise awareness of both stormwater pollution and MS4 Program requirements for municipal staff including employees, volunteers, council members and other elected officials.

METHODOLOGY

Beginning July 1, 2013, the City continued its collaboration with the Interlocal Stormwater Working Group (ISWG) to develop 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. **Permit Awareness Plan's** goal is to raise awareness of polluted stormwater runoff by describing stormwater pollution sources, path stormwater takes from pollution source to waters of the State, polluted stormwater impacts on local water resources, potential measures to reduce or eliminate pollution sources, and General Permit obligations and responsibility to ensure permit compliance. **Permit Awareness Plan** must also 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, implement new or revised **Permit Awareness Plan** to raise awareness of stormwater issues including MS4 permit requirements for municipal employees, elected officials and volunteers within municipal government
- ***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

The City continued to collaborate with the ISWG as described in **Appendix 1**. The City also continued to provide 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 1.3 Targeted BMP Adoption Plan

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

FUNCTION

To motivate people to use BMPs that reduce stormwater pollution.

METHODOLOGY

Beginning July 1, 2013, the City continued its collaboration with the Interlocal Stormwater Working Group (ISWG) on conducting outreach efforts from the previous MS4 General Permit while developing a new or revising an existing **BMP Adoption Plan**.

MEASURABLE GOALS

- ***Measureable Goal 1.3.1*** – by November 1, 2013, submit draft **BMP Adoption Plan** to Maine DEP for review and approval; draft Plan will be considered approved by January 15, 2014 unless DEP indicates otherwise. BMP 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 1.3.2*** – by January 15, 2014, implement new or revised **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 1.3.3*** – include review of 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 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 as described in **Appendix 1**. The City also continued to provide 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 1.4 Enhance Education & Outreach Efforts in Impaired or Priority Watershed

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

FUNCTION

To enhance education and outreach efforts in impaired or priority watershed or address a stormwater pollutant issue of regional or statewide significance.

METHODOLOGY

Continue collaboration with the Interlocal Stormwater Working Group (ISWG) and develop a draft education and outreach plan to work collaboratively on a common regional or statewide stormwater pollutant issue.

MEASURABLE GOALS

- ***Measureable Goal 1.4.1*** – by July 1, 2014, provide draft plan to Maine DEP on working collaboratively with ISWG to address stormwater pollutant issue of regional or statewide significance.
- ***Measureable Goal 1.4.2*** – by November 1, 2014, finalize plan and implement by January 5, 2015 with following elements:
  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 1.4.3*** – include summary of progress and results of targeted outreach effort in Annual Report; Permit Year 5 report will include comprehensive review of outreach effort with an analysis of process and impact indicators.

ACTIONS COMPLETED DURING PERMIT YEAR

Through the City's continued participation in and collaboration with the ISWG, an enhanced education and outreach plan to address a common regional or statewide stormwater pollutant issue is being developed.

BMP 1.5 Continue School Outreach Efforts

Responsible Party: Stormwater Program Coordinator *Additional Party: see below*

FUNCTION

To promote increased awareness about water quality and stormwater pollution issues in public, private and parochial schools as well as at the University level.

METHODOLOGY

Continue participation in and collaboration with the ISWG and PWD to conduct a variety of educational outreach activities; also continue building partnerships between City staff and local schools to integrate water quality and stormwater program concepts into academic curriculum.

MEASURABLE GOALS

- ***Measureable Goal 1.5.1*** – continue collaborating with partner organizations such as the Cumberland County Soil & Water Conservation District, Portland Water District and University of Southern Maine to provide instruction on connections between water quality and polluted stormwater runoff.

ACTIONS COMPLETED DURING PERMIT YEAR

The City continued its collaboration with the ISWG to conduct educational outreach activities as described in **Appendix 1**. Additionally, the City continued its collaboration with the Portland Water District's trout release program for Trout Brook. Nearly 50 students and a dozen parent chaperones participated in an "outdoor classroom" in the Trout Brook Nature Preserve that consisted of water quality sampling & analysis, benthic macroinvertebrate identification and a landscape assessment to identify polluted stormwater impacts from surrounding development. City staff also partnered with retired high school science teacher Tom Mikulka and Wendy Garland with Maine DEP to provide both classroom and field-based instruction on benthic macroinvertebrate assessment methods to South Portland and Cape Elizabeth high school science students (Figure 2). An article about this effort was published in the City's electronic newsletter, which has a circulation of nearly 2,000 recipients. The City's Stormwater Program Coordinator also made numerous water quality and stormwater presentations to students from elementary school to the University of Maine's Law School (Table 1).

Figure 2: Tom Mikulka instructs Cape Elizabeth High School senior AP-science students on macroinvertebrate sampling & identification in Trout Brook (Oct. 2013)

Table 1: student presentations to raise awareness about impacts from polluted stormwater runoff

Date	School	Number of Students
9/24/13	SPHS classroom presentation (grade 9)	~100
10/21/13	CEHS classroom presentation (grade 12)	~15
10/28/13	CEHS field exercise (grade 12)	~15
10/29/13	SPHS classroom presentation (grade 9)	~60
10/30/13	SPHS classroom presentation (grade 9)	~40
10/31/13	SPHS WWTP tour (grade 9)	~30
11/1/13	SPHS WWTP tour (grade 9)	~30
11/7/13	U. Maine Law School panel discussion (2nd year)	~10
11/14/13	UMaine faculty panel discussion	~50
4/3/14	GPCS classroom presentation (grade 4)	~20
4/29/14	Brown Earth Day Cleanup (grade 5)	~40
5/23/14	Dyer classroom presentations (grade 5)	~50
5/28/14	CEHS field exercise (grade 12)	~10
Total Participants:		***~470***

BMP 1.6 Continue Broadcasting Water Quality Videos on Community Television

Responsible Party: Stormwater Program Coordinator *Additional Party: SPCTV*

FUNCTION

To promote increased awareness about stormwater pollution issues among South Portland residents and other interested parties.

METHODOLOGY

Use the City's Community Television system to broadcast educational videos about water resource protection and restoration topics.

MEASURABLE GOALS

- ***Measureable Goal 1.7.1*** – continue to air videos related to water quality on South Portland's Community Television system.

ACTIONS COMPLETED DURING PERMIT YEAR

The City's Community Television system continued to extensively air educational videos highlighting a wide variety of water resource protection topics. However, due to staffing shortages and the recent replacement of SPCTV's server and video distribution technology, the capability to query the programming database by topic area and quantify the air times was not available. SPCTV staff believe their programming was similar to previous years for the types and duration of water quality-related topics and hope to

reestablish their database for programming tracking purposes by next year. In May of 2014, SPCTV also created a video (Figure 3) promoting increased awareness about responsible pet waste management and the use of specially trained dogs to detect sewage in MS4 systems (see MCM3 below for additional discussion).

Figure 3: a specially trained dog checks a separated stormwater line in the Willard Beach watershed for the presence of human-source bacteria (May 2014).

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 also fulfilled the requirements for Public Involvement and Participation 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 (Figure 4 and **Appendix 2**).

Figure 4: The 2014 Urban Runoff & Green Neighbor Family Fest provided over 500 participants with a better understanding of the issues associated with polluted stormwater runoff (April 2014)

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.

BMP 2.1 Comply with Applicable State and Local Public Notice Requirements

Responsible Party: Water Resource Protection & Planning Departments

Additional Parties: ISWG Stormwater Program Coordinator & LCWMD Executive Director

FUNCTION

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 Restoration project 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 has afforded 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 development 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*

FUNCTION

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 12, 2013 – Household Hazardous Waste Collection Day

The City continued to provide an annual Household Hazardous Waste Collection Day for South Portland residents and businesses. The event was held at the Public Works Department's O'Neil Street location to provide residents with an opportunity to view the antiquated facilities in advance of a public referendum to build a new Public Works facility in 2016 (the referendum passed by a comfortable margin). 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**). The 2014 HHW event will also be held at the DPW's O'Neil Street facilities in preparation for eventually moving it to the future Public Works facilities on outer Highland Avenue.

February 12, 2014 – Thornton Heights Stormwater Separation Project Public Meeting

In early 2013, the Water Resource Protection Department began developing a stormwater separation project plan for the Thornton Heights area of the City. The project is an outgrowth of the City's CSO Master Plan and will reduce incidence of discharge events at one of the six remaining CSOs. It will also include the use of green infrastructure along Route One and construction of gravel wetlands to accommodate larger storm flows. The second in a series of informational hearings was held on February 12, 2014 to solicit public input on the project. The meeting was attended by approximately 30 people and recorded for airing on the South Portland Public Access Television channel.

April 15, 2014 – April Stools Day

The City hosted an inaugural April Stools Day event in partnership with the local PetLife store and dog-owner's group SoPo Dogs. City staff and PetLife employees were on hand from 9AM – noon at Hinckley Park and Willard Beach, two of the City's most popular locations for dog owners. PetLife employees provided free "doggie" bags to remind residents and visitors to pick up after their dogs while also informing them of how improper pet waste management can adversely affect local water quality (Figure 5). The City also ran an article summarizing the event for its electronic newsletter (**Appendix**

Figure 5: Hinckley Park visitors provided with information about responsible pet waste management (April 2014)

4), which has circulation of just over 2,000 recipients.

April 26, 2014 – Urban Runoff & Green Neighbor Family Fest

The City continued its close involvement with ISWG's 3rd annual Urban Runoff & Green Neighbor Family Fest (**Appendix 2**). City staff volunteered for the entire day assisting with race coordination and event clean up. This event has proven to be highly successful at increasing awareness of polluted stormwater runoff impacts while also providing an opportunity for ISWG members to interact with the public.

May 22 & May 29, 2013 – Trout Brook Trout Release

Water Resource Protection Department staff partnered again with the Portland Water District and the Cumberland County Soil & Water Conservation District on a trout release educational module for South Portland elementary school students. Numerous teachers, parent chaperones and nearly 50 students participated in the event (also described under BMP 1.5 above), which received local media coverage.

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*

FUNCTION

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 Maine DEP conducted an audit of the City's Stormwater Program in September 2013 and identified

potential concerns with the GIS map layer for the storm sewer system. These concerns included a lack of stormwater outfall attribute information such as pipe type, material, size and the specific watershed in which each outfall resides. A more general concern was also raised about the thoroughness of the City's stormwater infrastructure GIS map layer. In response to these concerns, an attribute field was established shortly after the audit to denote the watershed in which every stormwater outfall is located. The City also identified a timeline to collect the type, material and size of each outfall structure for Barberry Creek, the second highest priority watershed, in PY2015-16. (This information is already available for the outfalls in the Long Creek and Trout Brook watersheds).

The City has invested considerable time and money in developing a GIS map layer of the publicly owned stormwater system and likely has one of the most complete and comprehensive municipal spatial data sets in the State. Moreover, efforts to improve this data set are continuously ongoing. For example, as of 6/30/13 the GIS data layer of the stormwater system identified 4,829 catch basins, 1,328 drain manholes and 86 outlet control structures; as of 7/1/14 these numbers were updated to 4,979, 1,414 and 92, respectively. (Some of these structures are on private property but were added to our GIS map layer to continue building a more complete data set). Additionally, most of the post-construction stormwater BMPs in the City are now available as a GIS data layer that is hydrologically connected to the storm sewer system.

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: N/A*

FUNCTION

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 20 incident reports of potential illicit discharges and followed up on several of these, often in cooperation with Maine DEP staff (Table 2). Reports and/or photos are available for all of these incidents.

Table 2: IDDE incidents reported for PY2013-14

Report Date	Incident Location	Reported Problem	Findings / Follow-up
7/3/2013	198 Maine Mall Rd (Super Great Wall Buffet)	Grease tank overflow	Poorly maintained grease storage tank overflowing onto paved area; contacted property manager, store manager, LCWMD, DEP & SoPo Compliance Administrator about cleaning overflow
8/3/2013	198 Maine Mall Rd (Mallside Plaza)	Sewer manhole overflow	Failing pump station for building resulting in surcharging sewer manhole; contacted property manager, LCWMD, DEP, SoPo CEO & Compliance Administrator about repairing station
8/11/2013	198 Maine Mall Rd (Mallside Plaza)	Sewer manhole overflow	Failing pump station for building resulting in surcharging sewer manhole; contacted property manager, LCWMD, DEP and SoPO CEO & Compliance Administrator about repairing station
9/26/2013	27 Robinson Street	Motor oil spill	Vehicle being serviced leaked oil onto street adjacent to catch basin; contacted owner & SoPo CEO about cleaning spill; DEP notified
10/8/2013	165 Pleasant Ave (Grow Tech)	Dumpster leakage	Peat moss stored in uncovered dumpster leaking leachate into combined sewer; contacted owner & SoPo Compliance Administrator about cleaning spill and covering dumpster
10/31/2013	118 Maine Mall Rd	Private pump station overflow	Pump station failure resulted in wetwell overflow; contacted owner, SoPo Compliance Administrator & DEP about fixing station and preventing future overflows
11/1/2013	334 Cottage Rd	Gasoline spill	Accidental spill by customer; site visit following notification by SPFD (which applied absorbents)
12/10/2013	Everett Ave	Hydraulic line leak from truck	Hydraulic oil spilled on public street; DPW applied absorbents; DEP notified
12/31/2013	20 F St	Foundation sealant leak	Utility trailer caught fire and released small amount of foundation sealant; v. little evidence of discharge
1/6/2014	333 Western Ave	Boiler discharge	Blow off valve malfunction resulted in accidental boiler water discharge; contacted manager & DEP about follow up to prevent reoccurrence
2/5/2014	42 Wallace Ave	Hydraulic oil spill	Followed up with SoPo Compliance Administrator and DEP (which was 1st responder)
2/13/2014	333 Western Ave	Boiler discharge	Blow off valve malfunctioned again; DEP addressed through industrial SW program requirements
3/4/2014	Buttonwood St	Hydraulic line leak from truck	DPW Ass. Supt. contacted Pine Tree Waste about cleaning spill; DEP notified
3/4/2014	Cottage Rd	Hydraulic line leak from truck	DPW Ass. Supt. contacted Pine Tree Waste about cleaning spill; DEP notified
3/10/2014	18 Ocean St (Snow Squall)	Grease filter pressure washing onto street	Contractor washed grease hood filters over pavement next to catch basin; contacted and informed that discharge was prohibited
6/4/2014	42 O'Neil St (DPW facilities)	Hydraulic line leak from loader	Line ruptured while lifting granite curbing; spill immediately contained & removed with absorbents; DEP notified
6/10/2014	125 Gary Maietta Pkway (Wainwright Field)	Hydraulic line leak from mower	Line ruptured while mowing lawn; spill immediately contained & removed with absorbents; DEP notified
6/16/2014	100 Waterman Dr (WWTP facilities)	Animal fat spill	"Bay Oil" coating leaked from dumpster onto pavement; promptly contained & removed with absorbents; DEP notified
6/24/2014	433 Cottage Rd (Thai Taste)	Grease filter pressure washing onto street	Contractor washed grease hood filters over pavement next to catch basin; contacted contractor and owner and notified them that discharge was prohibited
6/28/2014	929 Highland Ave (Transfer Station facilities)	Hydraulic line leak from loader	Line ruptured during normal operation; spill immediately contained & removed with absorbents; DEP notified

Water Resource Protection Department staff also helped coordinate a meeting and subsequent communications between Maine DEP, Portland Water District officials, and representatives from ISWG communities to discuss hydrant flushing policies in the PWD's service area. As part of this process, City staff assisted in disseminating GIS data layers of the most recently delineated Urbanized Areas (2010) as well as establishing dilution factor determinations for acceptable hydrant discharges to local receiving waters. A GIS data layer of PWD hydrants is currently available for the entire City of South Portland (Figure 6).

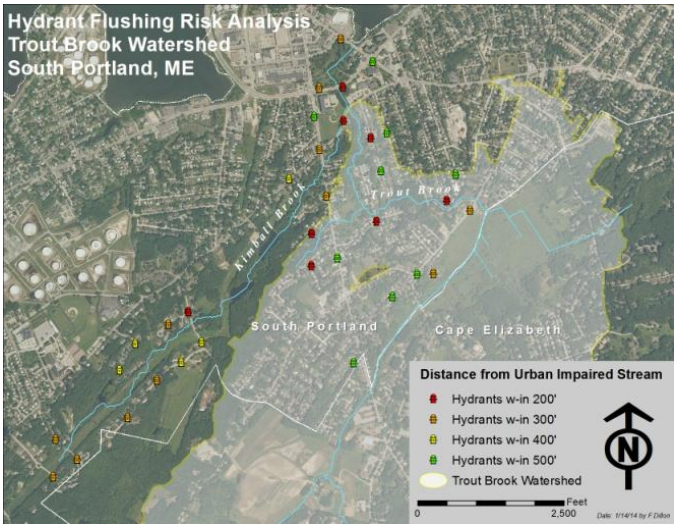


Figure 6: Preliminary hydrant flushing risk analysis for Trout Brook Watershed (Jan. 2014)

The City also continued its partnership with the Maine Healthy Beaches (MHB) Program to conduct an ongoing bacteria source tracking investigation in the Willard Beach watershed. Paired optical brightener and bacteria samples were collected at several strategic locations during the 2013 summer swim beach season to isolate subcatchment areas throughout the watershed. Optical brighteners are used in many household detergents, soaps and cleaning agents. Therefore, a coincidence of high bacteria and optical brightener concentrations in a stormwater system could indicate the presence of human sewage. MHB's report for this effort included a statistical analysis of data from 2012 and 2013 that indicated non-point pollution sources as the most likely contributor to elevated bacteria levels in the Willard Beach storm sewer system (**Appendix 5**). WRP and MHB staff conducted a similar study over the late summer and early fall of 2014 and the findings from this joint effort will be provided in the PY2014-15 report.

In early May 2014, local consulting firms FB Environmental and Environmental Canine Services provided specially trained dogs to help the City determine if human bacteria sources were entering the public storm sewer system. Since there were no overt signs of contamination such as toilet paper or fecal matter and the bacteria levels at which the dogs detected sewage were very low (**Appendix 6**), the assessment indicated that human sources may be exfiltrating from the sanitary sewer system and infiltrating into the storm sewer system. In the fall of 2014, the City will conduct targeted dye testing and storm drain televising to determine whether residential sanitary sewer service lines may be connected to the storm sewer system. The findings from these investigations will be provided in the PY2014-15 report.

BMP 3.3 Continue Implementation of Prioritized Dry Weather Outfall Inspection Program

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

FUNCTION

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

The City continued its dry weather outfall inspection program in the Long Creek and Trout Brook watersheds. No actual occurrences of illicit discharges were detected when conducting the outfall inspections, though there were some indications of apparent impacts from potential discharges (Figure 7). The City's GIS consultant inspected just over half of the stormwater outfalls in the Long Creek watershed using a handheld Trimble device; WRP staff inspected the remainder of Long Creek outfalls and all of the outfalls in the Trout Brook watershed using a SmartPhone and Cloud-based application to collect outfall attribute data. This approach will be used for future inspections since it provides much more flexibility for work flow and data management / sharing. Outfall inspection data can

Figure 7: A privately owned stormwater outfall in the Long Creek watershed with indications of nutrient enrichment (June 2014)

be easily exported in csv, shapefile and Google Earth formats (which readily allows for selective sharing).

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

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

FUNCTION

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

WRP staff inspected and photographed all of the open ditches in the Long Creek watershed using the same cloud-based application as for dry weather outfall inspections. There were no overt signs of illicit discharges observed at the time of inspection though some indications of potential nutrient enrichment as evidenced by algal mats. The Trout Brook watershed was surveyed using a car and the City's GIS data layer to identify any open ditches in the public right-of-way. Given the highly developed nature of the area, no open ditches are located in the South Portland portion of the Trout Brook 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*

FUNCTION

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

Although no actions were required for Permit Year 1, the City refined its GIS data layer of properties on septic systems to identify the location of these parcels on a watershed basis (Figure 8).

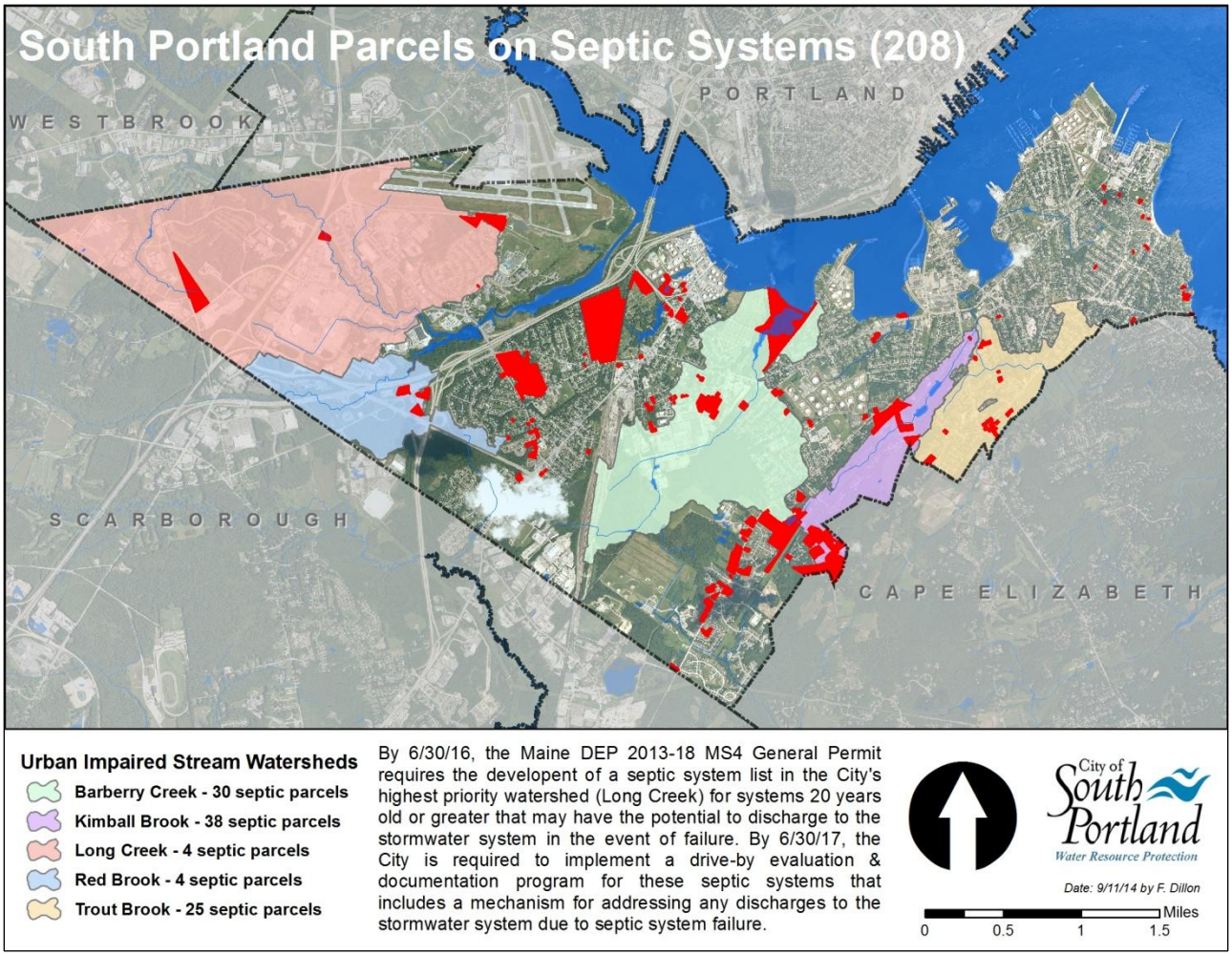


Figure 8: GIS data layer of parcels on septic systems (in red) throughout the City

BMP 3.6 Continue Hosting Annual Household Hazardous Waste Collection Day

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

FUNCTION

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 12, 2013. 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*

FUNCTION

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 PY2013-14.

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

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

FUNCTION

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. Two complaints from South Portland were

filed through the hotline or online reporting system during the permit year. As summarized in Table 2 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*

FUNCTION

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 catch basin cleaning program. 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.

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.*

FUNCTION

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

In response to the Maine DEP audit of the City's stormwater program in September 2013, the requirements for development proposals were revised to emphasize the roles and responsibilities of construction site developers and operators in minimizing or preventing stormwater runoff pollution. Specifically, Planning Board Regulation #2, which is needed for any development proposal requiring Planning Board approval (including any project an acre or larger), now includes a signed 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.

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.*

FUNCTION

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 construction activities disturbing one or more acres through collaborations between the Water Resource Protection and Planning Departments, construction contractors and the Long Creek Watershed Management District (for projects occurring in the Long Creek watershed). Planning Department personnel, general contractors and LCWMD staff routinely submit site inspection report forms with accompanying photos which are then filed electronically in a secure folder on the City's intranet. The City's Engineering Inspector and Stormwater Program Coordinator review the site inspection reports as they are received to confirm proper completion and whether any follow up actions are needed. An Excel file is used to facilitate project tracking and reporting on a watershed basis (see BMP 4.3 below).

BMP 4.3 Continue Implementation of Construction Site Inspection Program

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

FUNCTION

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 Maine DEP's audit of the South Portland's stormwater program in September 2013 identified a number of concerns with the City's oversight of construction projects that disturb an acre or more of land. Specifically, these included:

- Procedures that clearly define roles and responsibilities for the key municipal staff involved in permit compliance
- Tracking system / check list for key municipal staff to quickly determine the compliance status and deficiencies for each active construction project
- Training schedule and SOP to ensure that key municipal staff are adequately informed about erosion and sediment control (ESC) practices for construction site stormwater runoff management
- SOP for conducting follow-up inspections including any necessary compliance schedules and enforcement proceedings

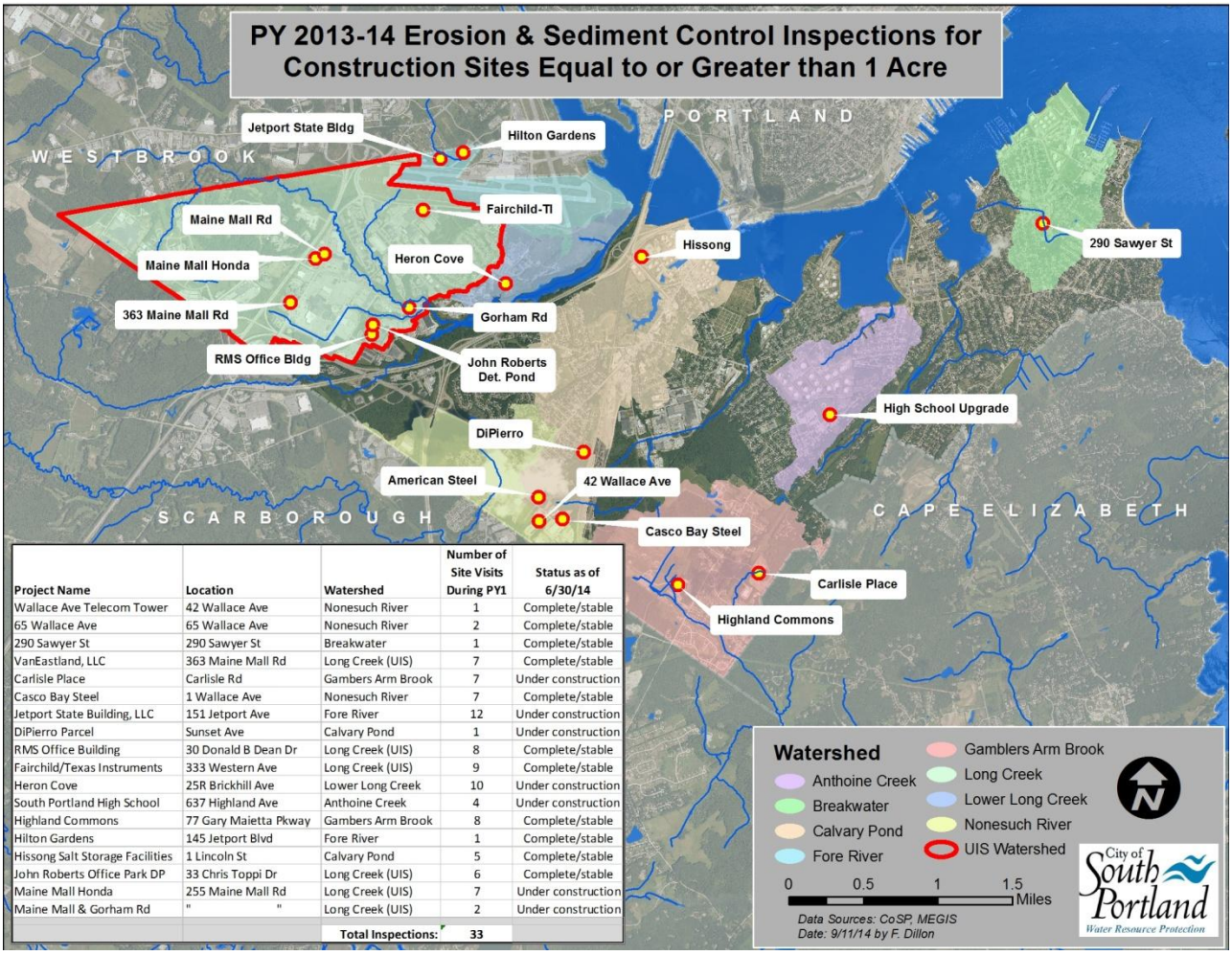
Water Resource Protection and Planning Department staff worked together to address all of these concerns as summarized in the City's 6/27/14 letter to DEP. Also provided were new construction project oversight procedures defining roles and responsibilities for City staff, developers and project contractors to ensure that proper Erosion & Sediment Control (ESC) practices are used on all applicable projects.

Additionally, substantive revisions to the City's Planning Board Regulation #2 were provided with the 6/27/14 letter as discussed above (BMP 4.1). Regulation #2 also specifies varying ESC monitoring requirements depending on the size of construction projects (Table 3). Both documents attached to the 6/27/14 letter are available upon request but are not included here to reduce the overall size of the PY2013-14 report.

Table 3: Planning Board Regulation #2 erosion & sediment control inspection requirements (adopted 6/20/14)

Project Type	Scheduled Inspections[2]	Rain Event Inspections	
		Urban Impaired Stream	Non-Urban Impaired Stream
Large Projects[1] (≥ 1 acre)	Monthly inspections by City-appointed 3rd party inspector with photo documentation; weekly inspection frequency if chronic deficiencies routinely found; return to monthly inspections following satisfactory remediation of deficiencies	Contractor self-inspections within 24 hrs of 0.2" rainfall; photos suggested but not required	Contractor self-inspections within 24 hrs of 1.5" rainfall; photos suggested but not required
	Weekly contractor self-inspections; photos suggested but not required		
Medium Projects (15,000 ft^2 - 1 acre)	Monthly inspections by City-appointed 3rd party inspector with photo documentation; weekly inspection frequency if chronic deficiencies routinely found; return to monthly inspections following satisfactory remediation of deficiencies	Contractor self-inspections within 24 hrs of 1.5" rainfall; photos suggested but not required	Contractor self-inspections within 24 hrs of 1.5" rainfall; photos suggested but not required
Small Projects (<15,000 ft^2)	City's Engineering Inspector will conduct 2 inspections with photo documentation; additional inspections as needed if deficiencies identified	Addressed during Engineering Inspector's visits	Addressed during Engineering Inspector's visits
Incidental[3]	No inspections required	No inspections required	No inspections required

There was a considerable amount of construction projects and corresponding ESC inspections during the PY2013-14 permit year (Figure 9). 33 inspections were conducted for 18 projects throughout the City. (Projects with only 1 inspection are due to the final inspection being done near the beginning of the permit year or to follow up on concerns from the previous permit year). The City's Engineering Inspector and 3rd party inspector conducted all of the inspections for projects outside the Long Creek watershed and most of the inspections in the Long Creek watershed. The remaining inspections in the Long Creek watershed were conducted by the Cumberland County Soil & Water Conservation District's 3rd party inspector.



Project Name	Location	Watershed	Number of Site Visits During PY1	Status as of 6/30/14
Wallace Ave Telecom Tower	42 Wallace Ave	Nonesuch River	1	Complete/stable
65 Wallace Ave	65 Wallace Ave	Nonesuch River	2	Complete/stable
290 Sawyer St	290 Sawyer St	Breakwater	1	Complete/stable
VanEastland, LLC	363 Maine Mall Rd	Long Creek (UIS)	7	Complete/stable
Carlisle Place	Carlisle Rd	Gambers Arm Brook	7	Under construction
Casco Bay Steel	1 Wallace Ave	Nonesuch River	7	Complete/stable
Jetport State Building, LLC	151 Jetport Ave	Fore River	12	Under construction
DiPierro Parcel	Sunset Ave	Calvary Pond	1	Under construction
RMS Office Building	30 Donald B Dean Dr	Long Creek (UIS)	8	Complete/stable
Fairchild/Texas Instruments	333 Western Ave	Long Creek (UIS)	9	Complete/stable
Heron Cove	25R Brickhill Ave	Lower Long Creek	10	Under construction
South Portland High School	637 Highland Ave	Anthoine Creek	4	Under construction
Highland Commons	77 Gary Maietta Pkway	Gambers Arm Brook	8	Complete/stable
Hilton Gardens	145 Jetport Blvd	Fore River	1	Complete/stable
Hissong Salt Storage Facilities	1 Lincoln St	Calvary Pond	5	Complete/stable
John Roberts Office Park DP	33 Chris Toppi Dr	Long Creek (UIS)	6	Complete/stable
Maine Mall Honda	255 Maine Mall Rd	Long Creek (UIS)	7	Under construction
Maine Mall & Gorham Rd	" "	Long Creek (UIS)	2	Under construction
		Total Inspections:	33	

Figure 9: PY2013-14 erosion and sediment control (ESC) inspections for sites greater than 1 acre

Inspectors used the City's field data form to document potential sources of stormwater pollution from inadequate ESC practices and recommend follow up actions. The field inspection forms have been incorporated into an enhanced electronic filing system for record keeping and project compliance tracking. This system consists of a single Excel workbook dedicated to each construction project for a given permit year. Each workbook contains individual ESC inspection report forms that are linked to a compliance summary worksheet. Any deficiencies identified on the inspection forms automatically populate the compliance summary worksheet with color-coded warnings to provide a "dashboard" view of the construction project's compliance history. These Excel files are accessible to all City staff involved with construction project oversight.

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

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

FUNCTION

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 materials (Maine Erosion and Sedimentation Control Law) to contractors as part of the project proposal and site plan review process. City staff also collaborated with ISWG, the City of Portland and MEDEP to prepare private contractors for the erosion and sediment control certification requirements for working in the shoreland zone.

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.*

FUNCTION

To ensure that controls are in place to prevent or minimize water quality impacts.

METHODOLOGY

Continue using 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.

BMP 5.2 Continue Implementing Post-Construction Discharge Ordinance

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

FUNCTION

To ensure adequate long-term operation and maintenance of post-construction BMPs.

METHODOLOGY

Use site plan review process to impose post-construction stormwater BMP inspection and O&M requirements as specified in the Stormwater Management Performance Standards (Sec. 27-1536).

MEASURABLE GOALS

- ***Measurable Goal 5.2.1*** – continue to implement local ordinance Sec. 27-1536.

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

In early June of 2014, the City sent letters to all qualifying property owners not participating in the Long Creek General Permit and City-certified third party inspectors notifying them of the annual post-construction BMP inspection requirements specified in the ordinance (Figure 10). Additional follow-up notifications were sent out to a few property owners (and third party inspectors) for inspection reports that were not submitted by the 7/15/14 deadline. By early August 2014, inspection reports for all but one qualifying property had been submitted to the City (Table 4).

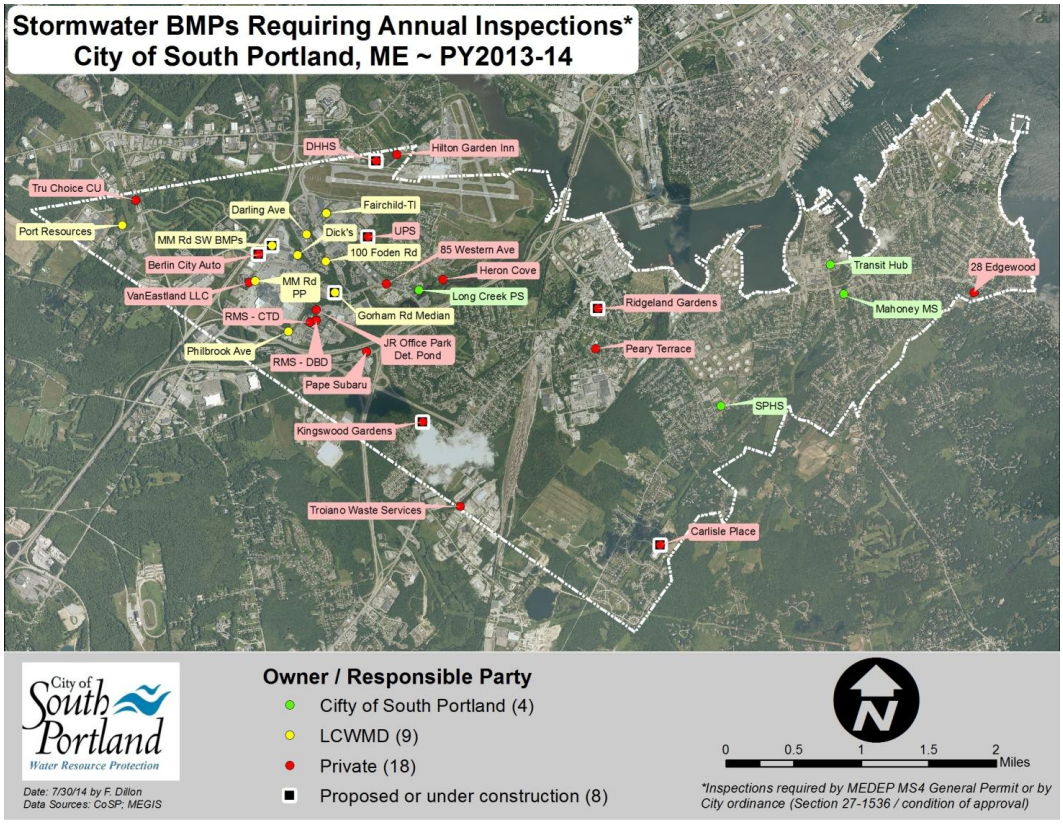


Figure 10: locations of qualifying post-construction structural stormwater BMPs in South Portland for PY2013-14

Table 4: PY2013-14 properties requiring post-construction 3rd party inspections for stormwater treatment BMPs

PROJECTS	3PI Report Received by 7/15/14?	Follow-up Needed?	Comments
Private			
Hilton Gardens	Yes	No	Inspection completed 10/17/13
Pape Subaru	No	No	Report received 8/28/14 following planned maintenance
Peary Terrace	Yes	No	Inspections for all 8 parcel complete 6/13 & 6/16/14
Residential Mortgage Services	No	No	Inspection completed 7/23 & 7/29/14
Troiano Waste Services	Yes	No	Inspection completed 6/11/14
Tru Choice Credit Union	Yes	No	Inspection completed 7/9/14
VanEastland LLC	Yes/No	No	Inspections for new parcel completed 12/30/13; inspections for older parcel completed 7/25/14
Western Ave Crossing	No	No	Report received in July 2013
City of South Portland			
City Hall / Transit Hub	Yes	No	Inspection completed 6/25 & 6/26/14
Long Creek PS	Yes	No	Report received in June 2013
Mahoney Middle School	Yes	Yes	Inspection completed 6/13 & 6/14/14; bioretention bed surface needs to be revegetated with grass; scheduled for completion in Sep2014 and will be subsequently reinspected
South Portland High School	Yes	Yes	Inspection completed 6/13 & 6/14/14; grassed soil filter needs sediment removal; reinspection in Sep2014
LCWMD			
Darling Ave	Yes	No	Tracked by LCWMD through LCWMP
Dick's Sporting Goods	Yes	No	" "
Fairchild-Texas Instruments	Yes	No	" "
100 Foden Rd	Yes	No	" "
Maine Mall Rd Porous Asphalt	Yes	No	" "
Philbrook Ave	Yes	No	" "
Port Resources	Yes	No	" "
City of Portland			
Jetport Deicing Facility	No	No	Tracked by Jetport through MSGP requirements
Jetport Parking Expansion	No	No	" "

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.*

FUNCTION

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.

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*

FUNCTION

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 inventory of municipal properties and facilities has remained unchanged from the previous permit year. All relevant municipal department heads were provided with the O&M procedures developed by

ISWG that include maintenance schedules and inspection protocols to ensure the ongoing and proper functioning of structural and non-structural stormwater pollution controls for the City's entire Urbanized Area.

BMP 6.2 Continue Implementation of Municipal Employee Training Program

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

FUNCTION

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

City staff participated in a number of good housekeeping / pollution prevention training events in PY2013-14. The City partnered with Maine DEP to provide Stormwater Pollution Prevention Plan (SWPPP) training to all 3 School Bus Maintenance facility mechanics and 18 Public Works Department employees on 12/10/13 and 12/12/13, respectively. The Stormwater Program Coordinator held a "tailgate" meeting to discuss the City's O&M procedures for landscaping practices with Parks & Recreation Department grounds keeping staff on 6/3/14. Finally, on 6/19/14 the City hosted an Interlocal Stormwater Working Group

pollution prevention training event at the Community Center that was attended by 50 municipal employees from MS4 communities throughout the greater Portland area. (Also in attendance were representatives from the Maine DEP and Maine Municipal Association). South Portland employees from the Parks, Public Works, School and Water Resource Protection Departments were very well represented (Figure 11).

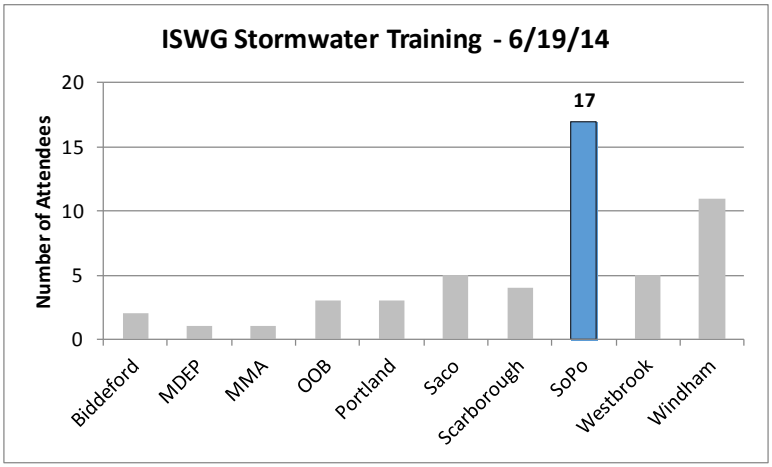


Figure 11: attendees for a 6/19/14 Interlocal Stormwater Working Group training event

BMP 6.3 Continue Implementation of Street Sweeping Program

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

FUNCTION

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 2013 and once shortly after final snow melt in the late winter / early spring of 2014.

BMP 6.4 Continue Cleaning of Stormwater Structures Including Catch Basins

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

FUNCTION

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 continued its ongoing cleaning program for all municipally owned or operated stormwater infrastructure and catch basins. We continued to use a computerized recordkeeping system to track operational costs for catch basin cleaning on a watershed basis. This system collects data for labor hours, fuel consumption and tons of grit removed (Table 5). For the 2013-14 permit year, approximately 225 tons of material was removed and disposed of at Commercial Recycling in Scarborough. The total operational cost to complete this work was just under $22,000.

Table 5: summary of catch basin cleaning activities and associated operational costs for PY2013-14

SUMMARY BY WATERSHED					RELATIVE EFFICIENCIES		
Watershed	Labor Hours	Fuel Use (Gallons)	Grit Tons	Approx. Ops. Cost	Labor Hrs/Ton	Gallons Fuel/Ton	Ops Cost $/Ton
Anthoine Creek	18.50	23.00	12.61	$1,207	1.47	1.82	$95.73
Breakwater	8.00	21.00	5.86	$581	1.37	3.58	$99.09
Calvary Pond	87.25	126.50	68.90	$6,218	1.27	1.84	$90.25
Clarks Pond	20.00	25.00	4.90	$878	4.08	5.10	$179.10
Danforth Cove	3.25	4.00	3.70	$285	0.88	1.08	$76.94
Fore River	19.50	32.00	4.97	$892	3.92	6.44	$179.43
Long Creek	45.50	116.50	32.30	$3,242	1.41	3.61	$100.36
Long Creek Lower	3.00	7.00	3.41	$274	0.88	2.05	$80.38
Mill Creek	20.00	25.50	18.51	$1,546	1.08	1.38	$83.54
Nonesuch River	14.00	21.00	10.51	$973	1.33	2.00	$92.63
Trout Brook	25.50	29.00	21.94	$1,878	1.16	1.32	$85.59
Turners Island	55.50	69.00	29.70	$3,223	1.87	2.32	$108.52
Willard Beach	8.00	17.00	7.72	$658	1.04	2.20	$85.20
Totals:	**329**	**520**	**225**	**$21,892**	**1.46**	**2.31**	**$97.29**

* Assumes $27.50 hourly labor rate; $3.50 / 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*

FUNCTION

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. Excluding equipment replacement and maintenance costs (which are likely considerable), the City spent just over $104,000 – or 46% of the total construction program budget – on a variety of stormwater system repair and replacement activities for the 2013-14 permit year (Figure 12). Examples include catch basin replacement, installation of curb inlets, pipe repair, installation of new storm drain structures, replacement of rip rap, and drainage ditch maintenance, among many others. We will continue to refine our cost accounting systems to more accurately reflect actual expenditures for the City's stormwater program. The City is continuing to investigate the use of a GIS-integrated asset management program that will assist in prioritizing infrastructure repair and replacement projects.

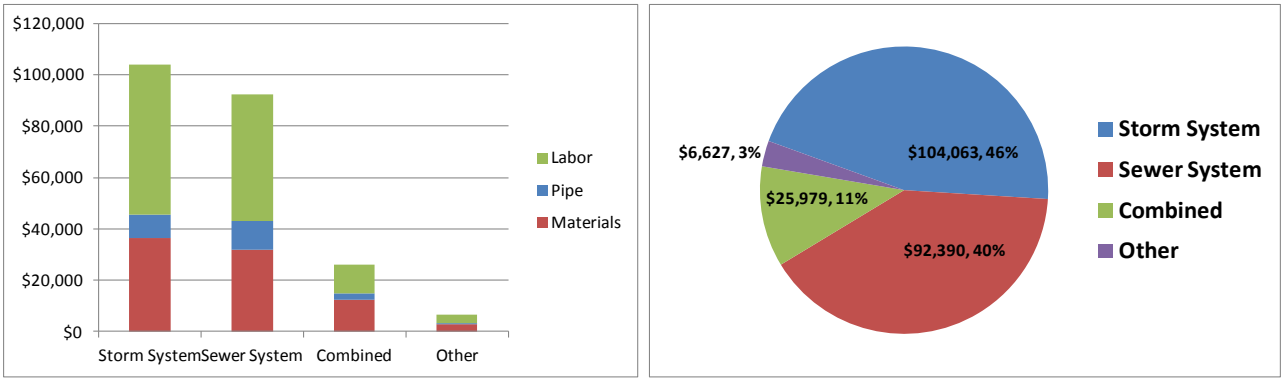


Figure 12: construction program expenses (excluding eq. replacement & maintenance costs) for PY2013-14.

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

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

FUNCTION

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. As described above, City staff from the Public Works and School Bus Maintenance Garage attended facility-specific pollution prevention and good housekeeping training held in December 2013. Staff from a number of City departments attended a more general municipal pollution prevention training provided by ISWG in June 2014. Each SWPPP will be reviewed and revised as needed to reflect any changes or updates to facility operations. Additionally, Maine DEP recently assisted the City in developing Spill Prevention Control and Countermeasure (SPCC) plans for the Public Works Department's O'Neil Street facilities and School Bus Maintenance Garage since both locations have the potential to store more than 1,320 gallons of petroleum products. (The Water Resource Protection Department also developed an SPCC plan for the Front Street Pump Station since it has the potential to exceed the 1,320 gallon threshold).

APPENDICES

Appendix 1: ISWG Permit Year 1 Summary of MCM1

ISWG Permit Year 1 Summary of Minimum Control Measures 1 & 2

APPENDIX A: Permit Year 1 Summary of Minimum Control Measures 1 & 2

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>Develop or revise plan to raise awareness</td><td>complete</td><td>The Cumberland County Soil & Water Conservation District (CCSWCD) worked with representatives from each of the four MS4 clusters and Maine DEP to revise the Statewide Awareness Plan developed under the 2008 permit. The Plan was submitted to Maine DEP on December 16, 2013. The revised Plan was submitted on January 10, 2014, and notice of plan approval was received on January 15, 2014.</td></tr>
<tr><td>Summarize plan implementation to date</td><td>complete</td><td></td></tr>
<tr><td>Conduct awareness media campaign utilizing television and online advertising</td><td>complete</td><td>CCSWCD coordinated a television and online media campaign through Time Warner Cable on behalf of ISWG. The original ducky and devil ducky ads ran two weeks per month from March through June 2014. The ads were shown on cable television stations most likely to reach the target audience (e.g. HGTV, The Weather Channel, ESPN, Fox News, DIY).

The following television campaign data were provided by Time Warner Cable:
<table>
<tr><th colspan="3">Television Airplay</th><th rowspan="2">Est. Reach[2]</th><th rowspan="2">Est. Frequency[3]</th></tr>
<tr><th>Ducky I</th><th>Ducky II</th><th>Total</th></tr>
<tr><td>824</td><td>1240</td><td>2064</td><td>35.9%</td><td>3.8</td></tr>
</table>
CCSWCD developed online ads with a clean water message that directed to www.ThinkBlueMaine.org. 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 2014.

The following online campaign data were provided by Time Warner Cable:
<table>
<tr><td>Impressions</td><td>701,137</td></tr>
<tr><td>Click thru rate</td><td>0.04% (on par with national average)</td></tr>
</table>
Based on analytical software installed on the Think Blue Maine website, hits during the online media campaign increased 72% over the previous four month period. Between March and June 2014, there were 1,365 visits to www.ThinkBlueMaine.org. Between November 2013 and February 2014, there were 794 visits.</td></tr>
<tr><td>Promote and participate in local public event</td><td>complete</td><td>Promotion
ISWG promoted its 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, more than 300 posters were distributed throughout the 14 ISWG communities; two press releases were submitted to local publications; radio ads and an on-air interview aired on 98.9 WCLZ during the month of April; and News Channel 8 WMTW attended and ran a story after the events.</td></tr>
</table>

[1] CCSWCD has a notebook that includes copies of all submissions, DEP responses, final plans, promotional materials (posters, print ads, online ads, email communications, press releases, and postcards), and data regarding website hits, timing of online ads, and results of the media campaign.
[2] Reach is the percentage of the viewing audience that saw the ads.
[3] Frequency is the number of times the target audience saw the ads.

		Participation Representatives from the ISWG municipalities volunteered at the events. Many representatives provided logistical support for the race. In addition, the City of Portland, CCSWCD, and other organizations provided educational activities focused on keeping water clean. Please see the MCM2 summary for more details about the events.

Targeted Best Management Practices Adoption Plan

Task	Status	Details
Develop or revise BMP Adoption Plan	complete	CCSWCD revised ISWG's Targeted Best Management Practices Adoption Plan developed under the 2008 permit. The Plan was submitted to Maine DEP on October 31, 2013. The revised Plan was submitted on December 20, 2013 and notice of plan approval was received on January 15, 2014.
Summarize plan implementation to date	complete	

Point of Sale

Retain 21 Point of Sale locations in the ISWG communities.	complete	Two additional Point of Sale locations joined the program in 2014 (Broadway Gardens in Westbrook and Home Depot in Windham), one store decided to not participate in the program (Radley's Hometown Hardware in Old Orchard Beach) bringing the total number of stores participating in the program to 22. The distribution of the stores is as follows:
		Biddeford: 0
		Cape Elizabeth: 0
		Cumberland: 1
		Falmouth: 2
		Freeport: 1
		Gorham: 2
		Old Orchard Beach: 0
		Portland: 2
		Saco: 1
		Scarborough: 2
		South Portland: 3
		Westbrook: 2
		Windham: 3
		Yarmouth: 3
Establish Point of Sale program in Home Depot stores	ongoing	ISWG began piloting the Point of Sale program in the Windham Home Depot store in the spring of 2014. Program components are being tracked and evaluated to determine an effective program for Home Depot stores. It is anticipated that all Home Depot stores in the ISWG communities will be included in the Point of Sale program in 2015.

Adult Education

Offer a minimum of seven adult education classes per year	complete	Cumberland: 9/21/2013, 5 participants
		Scarborough: 9/25/2013, 7 participants
		Gorham: 9/29/2013, 11 participants
		Falmouth: 3/26/2014, 8 participants (Youth YardScaping teacher training)
		Scarborough: 4/9/2014, 14 participants
		Falmouth: 6/2/2014, 32 participants (Falmouth Middle School Youth YardScaping[4] presentation)
		Falmouth: 6/3/2014, 28 participants (Falmouth Middle School Youth YardScaping presentation)
		Falmouth: 6/4/2014, 38 participants (Falmouth Middle School Youth YardScaping presentation)
		Falmouth: 6/5/2014, 35 participants (Falmouth Middle School Youth YardScaping presentation)
Promote adult education classes	complete	Press releases publicizing the available classes were submitted to local publications, additional information 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 PY5 classes, as well as those practices participants of PY1 classes intend to implement below.

Adult Education Behavior Change Tracking

During the fall of 2013, CCSWCD staff made follow up phone calls with participants of YardScaping adult education classes held in the fall of 2012 and spring of 2013 (PY5 who provided their contact information on class evaluations in order to determine the level of follow through of the YardScaping practices class participants intended to use). As expected, it was difficult to reach people, but the information gleaned from those who were reached provided an anticipated rate of compliance for the YardScaping practices that class participants intended to implement.

Projected Behavior Change from 2008 PY5 classes			
Lawn Care Practice	**Plan to implement**	**Implemented Practice**	**Projected behavior change based on follow up**
Set Mower to a height of 3"	17	17	100.00%
Leave grass clippings	9	9	100.00%
Sharpen mower blades	17	4	23.53%
Aerate	37	20	54.05%
Topdress	37	19	51.35%
Overseed	38	25	65.79%
Use low maintenance seed	39	25	64.10%
Get a soil test	38	5	13.16%
Use nitrogen-only fertilizer	34	9	26.47%
Use compost tea	26	9	34.62%

Follow up phone calls are made six months to one year after the class to allow participants a growing season to

[4] Please see description of Youth YardScaping program on page 10 of Appendix A.

implement the recommended practices. Below are the results of the Permit Year 1 post-class evaluations completed by the YardScaping class participants.

2013 PY1 Post-Class Evaluations			
Lawn Care Practice	Plan to implement	Currently do not implement	% planning to implement
Set Mower to a height of 3"	4	4	100.00%
Leave grass clippings	5	5	100.00%
Sharpen mower blades	10	10	100.00%
Aerate	22	23	95.65%
Topdress	21	22	95.45%
Overseed	16	16	100.00%
Use low maintenance seed	15	16	93.75%
Get a soil test	19	20	95.00%
Use nitrogen-only fertilizer	16	20	80.00%
Use compost tea	20	22	90.91%

CCSWCD staff will contact the class participants from the Permit Year 1 classes in the fall of 2014 to determine which behaviors have been adopted.

Targeted Information Distribution

One neighborhood per ISWG community distributed targeted lawn care outreach materials	complete	YardScaping information was distributed throughout priority neighborhoods in each ISWG community. The following number of households received information:
		Biddeford: 122
		Cape Elizabeth: 79
		Cumberland: 112
		Falmouth: 95
		Freeport: 40
		Gorham: 68
		Old Orchard Beach: 77
		Portland: 203
		Saco: 107
		Scarborough: 110
		South Portland: 86
		Westbrook: 205
		Windham: 92
		Yarmouth: 61

Websites & Free Media

Maintain and monitor CCSWCD YardScaping website	complete	YardScaping classes, socials and point of sale stores were updated on CCSWCD's YardScaping website and social media was used to provide healthy lawn care information to followers and the public. Increased hits were seen after targeted neighborhood outreach efforts, public events, and adult education presentations.
Newspaper coverage of YardScaping activities and healthy lawn care	complete	*Portland Press Herald:* Create a thriving backyard community (May 31, 2014)
		Portland Press Herald: Maine Voices: Clean water can't be taken for granted (April 13, 2014)
		Portland Press Herald: Conventional and organic approaches (April 6, 2014)
		Portland Press Herald: Maine Gardener: Feeling fallish? Your lawn is, too (October 6, 2013)

Additional Activities not Identified in the Plan

Neighborhood Socials	One neighborhood social was held in Portland on 9/20/2013. 10 people participated.

Municipal Permit Awareness Plan

Task	Status	Details
Develop municipal permit awareness plan	complete	CCSWCD developed ISWG's Municipal Permit Awareness Plan and submitted it to Maine DEP on February 7, 2014. The revised Plan was submitted on March 28, 2014 and notice of plan approval was received on April 24, 2014.
Summarize plan implementation to date	complete	

Materials Development

Develop permit awareness materials	ongoing	CCSWCD developed draft municipal fact sheets that are tailored to the appropriate municipal audience. CCSCWD has also created a draft template PowerPoint presentation following the topics and audiences of the fact sheets. Talking points for newly elected municipal officials will be finalized upon completion of the municipal fact sheets.
Develop survey to gauge municipal awareness	ongoing	CCSWCD is in the process of developing a survey for ISWG representatives to determine their municipal councils' awareness of their stormwater program. The survey will be finalized and administered to ISWG representatives in PY2.

Annual Pollution Prevention Training

Provide pollution prevention training for municipal staff	complete	CCSWCD provided a good housekeeping/pollution prevention training for municipal staff on June 19, 2014. The training covered general SWPPP implementation and was made available to staff of public works, parks & rec, facilities, and other relevant departments.

Cooperative Outreach

Reach out to partner organizations	complete	CCSWCD worked with the Maine Chapter of the American Public Works Association (APWA) to coordinate participation in their Highway Congress.
Provide display at APWA's Highway Congress	complete	CCSWCD provided an educational display about proper vehicle washing at APWA's annual Highway Congress, held on June 6, 2014.

MS4 Enhanced Outreach Plan

Task	Status	Details
Develop MS4 enhanced outreach plan	complete	ISWG worked with the York County MS4s to develop a regional MS4 Enhanced Outreach Plan. The draft plan was submitted to Maine DEP on June 25, 2014.
Summarize plan implementation to date	complete	

Summary: ISWG Youth Education Activities

Biddeford
Total students: 250
Total contact hours: 188
Lesson topics: Watersheds, watershed models, water movement, transport of nonpoint source pollution
Schools: Biddeford Middle School
Educator: CCSWCD

Cape Elizabeth
Total students: 150 (CCSWCD: 15, PWD: 135)
Total contact hours: 718 (CCSWCD: 60, PWD: 658)
Lesson topics: Macroinvertebrate sampling and identification & bio assessment, water quality and nonpoint source pollution and prevention, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept, topography, stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices.
Schools: Pond Cove Elementary School, Cape Elizabeth High School
Educator: CCSWCD, PWD

Cumberland
Total students: 336 (CCSWCD: 46, PWD: 290)
Total contact hours: 1,294 (CCSWCD: 119, PWD: 1,135)
Lesson topics: Nonpoint source pollution, watersheds, water quality/testing, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept, topography, Stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices, trout releases at Collyer Brook, macroinvertbrate sampling, streamside assessment.
Schools: Greely Middle School, Greely High School
Educator: PWD, CCSWCD

Falmouth
Total students: 173
Total contact hours: 2,422
Lesson topics: Youth YardScaping program (see description below); Sebago to the Sea filed trip, local watersheds, local history, hydropower, human impact, stewardship, environmentally responsible lawn care research, and students presented their research to a public audience.
Schools: Falmouth Middle School
Educator: CCSWCD, PWD

Freeport
Total students: 32
Total contact hours: 96
Lesson topics: Watersheds, watershed models, water distribution, water pollution, soil as water pollution, stormwater pollution and cumulative impact, nonpoint source pollution, impervious/pervious surfaces, best management practices.
Schools: Mast Landing School
Educator: CCSWCD

Gorham
Total students: 409
Total contact hours: 1,195 (CCSWCD: 102, PWD: 1,093)
Lesson topics: Water quality and bio assessment (in class), nonpoint source pollution and prevention, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept,

topography, stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices, local drinking water.
Schools: Gorham Middle School, Great Falls Elementary School
Educator: CCSWCD, PWD

Old Orchard
Total students: 64
Total contact hours: 192
Lesson topics: Watersheds and water movement, water distribution, nonpoint source pollution, human impact, and stewardship.
Schools: Loranger Middle School
Educator: CCSWCD

Portland
Total students: 464
Total contact hours: 675 (CCSWCD: 300, PWD: 375)
Lesson topics: Watersheds, water cycle and distribution, watershed delineation, nonpoint source pollution, stormwater, stewardship, water quality testing, geology and erosion, soil as water pollution, Forestry Day: forest's ability to filter water, ocean's currents and earth's rotation.
Schools: Lincoln Middle School, State Street Preschool, Presumpscot Elementary School, Catherine McAuley High School, Learning Works program participants at Presumpscot, Ocean Avenue and Reiche Elementary Schools Educator: PWD, CCSWCD

Saco
Total students: 82
Total contact hours: 164
Lesson topics: Water quality and bioassessment, macroinvertebrate sampling and identification.
School: Saco Middle School
Educator: CCSWCD

Scarborough
Total students: 125 (CCSWCD: 75, PWD: 50)
Total contact hours: 462 (CCSWCD: 112, PWD: 350
Lesson topics: Nonpoint source pollution, watersheds, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept, topography, stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices.
Schools: Scarborough High School, Scarborough Middle school, Wentworth Intermediate School
Educator: PWD, CCSWCD

South Portland
Total students: 395
Total contact hours: 1,720 (CCSWCD: 106, PWD: 1,614)
Lesson topics: Water quality and bio assessment (in class), nonpoint source pollution and prevention, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept, topography, stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices, trout releases at Trout Brook, macro-invertebrate sampling, streamside assessment hike.
Schools: Small Elementary School, Dyer Elementary School, Mahoney Middle School, Skillin Elementary School
Educator: CCSWCD, PWD

Westbrook

Total students: 95 (CCSWCD & PWD: 80. PWD: 15)
Total contact hours: 415 (CCSWCD & PWD: 400, PWD: 15)
Lesson topics: Watershed ecology, watershed characteristics, local watersheds (Presumpscot River), water quality and bioassessment with macro-invertebrate sampling, nonpoint source pollution, human impact (site comparisons), best management practices.
Schools: Westbrook High School, Gril Scout Troop 1189 from Westbrook Middle School
Educator: PWD, CCSWCD

Windham
Total students: 509 (CCSWCD: 65, PWD: 444)
Total contact hours: 2,198 (CCSWCD: 146, PWD: 2,052)
Lesson topics: Ground water and surface water interactions, nonpoint source pollution, watersheds, water cycle and distribution, water systems/movement, watershed delineation, local watersheds, nested watershed concept, topography, stormwater, brook trout anatomy, life cycle, habitat and adaptations, native and invasive aquatic species, impervious/pervious surface, best management practices, "Water Maine" book project: Book about various water topics produced by WHS students for a middle school audience (presented at the Maine State Librarians' conference), "Water Day": WHS students create water-related lessons and deliver to WMS sixth grade students over two days at Windham schools.
Schools: Windham High School, Windham Middle School, Manchester Elementary School
Educator: CCSWCD, PWD

Yarmouth
Total students: 102
Total contact hours: 102
Lesson topics: Stormwater, nonpoint source pollution, soil as water pollutant, impervious/pervious surfaces, best management practices.
Group: Yarmouth Elementary School
Educator: CCSWCD

Educator contact information
CCSWCD: Deb Debiegun, District Educator, Cumberland County Soil & Water Conservation District, ddebiegun@cumberlandswcd.org, 207-892-4700 x 101

PWD: Sarah Plummer, Environmental Education Coordinator, Portland Water District, splummer@pwd.org, 207-774-5961 x 3324

Youth YardScaping Program

This year marked the fifth year of Falmouth Middle School's participation in the Youth YardScaping program. This year the program was expanded to include all sixth grade science classes (4 teachers and 8 classes). The program has proven effective at increasing science topic understanding in students, awareness of local stormwater issues, and changing lawn care behaviors.

Through the Youth YardScaping program, clean water lessons with a local focus are interwoven throughout the year-long sixth grade science curriculum. Lessons begin with the basics: the water cycle, water movement, and watershed characteristics. Students then receive reinforcement of these concepts and begin learning about runoff and nonpoint source pollution and its impact on water resources. All classes also participate in long-term experiments to test the effects of different lawn care products on an aquatic ecosystem and use the experiment as part of their research.

In the early spring, the program intensifies to focus on one of the largest threats to local water quality: conventional lawn care methods that use large amounts of pesticides and fertilizer. Students from each teacher's two science classes form a lawn care company and split into groups that are each assigned a lawn care practice to research. As experts on their practice, the students' goal is to fully understand their practice so they are able to make recommendations about the best methods to have a healthy lawn and protect water resources. The practices assigned to students include mowing, aerating, topdressing, overseeding, watering, soil testing, fertilizing, brewing and applying compost tea, and controlling weeds and bugs. Other groups are dedicated to background topics like the soil food web, watersheds, and nonpoint source pollution.

Each group is responsible for researching their practice/topic and answering guiding questions that help direct their research. After researching they implement and experiment with their practice on the school grounds. This step allows students to understand their practice and determine their recommendations from a hands on experience. After implementing their practice, students prepare a public presentation about their topic and make their recommendations. This preparation includes developing visuals and a demonstration.

At the end of the program students present their research and demonstrate their practices at a public presentation. This year, approximately 30 to 50 parents and community members attended each class' presentation. These presentations foster intergenerational learning and provide anecdotal evidence of this transfer of information. After the program most teachers wrap up by asking the audience if they have learned about a new practice they will now incorporate into their own lawn care. A majority of audience members commented that they will try to implement at least one of the recommended practices. One parent of a student from Mrs. Tammen's 2014 class said that their son would not allow them to use the chemicals they had used in the past on their lawn because of what he had learned during this program.

All four teachers who participated in the program are excited to include this program into their curriculum again for the 2014/2015 school year. They are also feeling more confident about taking on a larger role in the implementation portion of this project.

Appendix 2: ISWG Permit Year 1 Summary of MCM2

MCM2: Public Involvement and Participation

Urban Runoff & Green Neighbor Family Fest

The third annual *Urban Runoff* 5K race and walk and the *Green Neighbor Family Fest* were held on April 26, 2014. The goal of these events was to raise awareness of polluted runoff and support ISWG's school education program. With approval from Maine DEP, the race and festival served as the Public Involvement and Participation event for all ISWG communities.

By all accounts, the event was a huge success. Approximately 600 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 and an on-air interview during the month of April by 98.9 WCLZ and news coverage by News Chanel 8 WMTW. Social media, paid online advertising, posters, and direct mail and email were also used to promote the race and cause. Stormwater awareness messages were included on the event website, social media, eblasts, and other marketing tools that were sent to all registered participants, sponsors, and partners.

Anecdotes as well as a post-race survey completed by race participants demonstrate the success of the race's planning and implementation. Many participants particularly enjoyed the course, which changed this year to end in front of Deering High School. Many survey respondents indicated the cause of the race, clean water education, was a major reason why they chose to participate.

The *Green Neighbor Family Fest* was held after the race in Deering High School gymnasium due to weather. The event ran for three hours and was attended by approximately 700 people. Scheduled events included the awards ceremony and a live music. A total of 21 exhibits were set up by local nonprofit and governmental organizations, universities, and businesses to provide hands-on, educational activities for children. These activities included a marine touch tank, making "seed bombs" (seeds rolled in compost), water quality experiments, "poo bag" toss (about proper disposal of pet waste), and many more. Children also took part in face painting and water related prize giveaways.

The festival was also a great success. Children were engaged, and parents provided feedback that the activities were not only fun, but also educational for both parents and children.

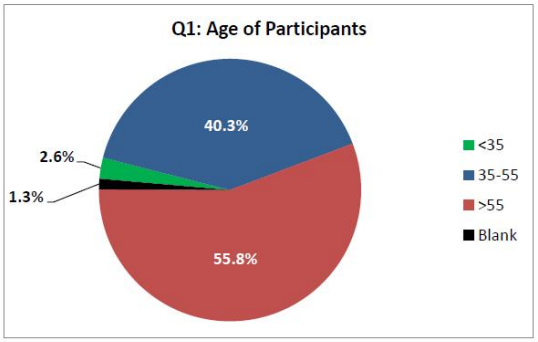
Plans are underway to host the fourth annual *Urban Runoff* 5K and *Green Neighbor Family Fest* on Saturday, April 25, 2015.

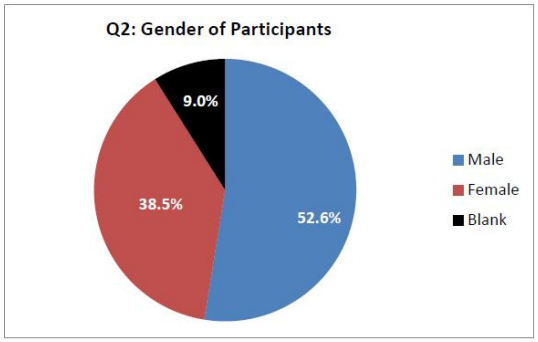
Appendix 3: Household Hazardous Waste Collection Day Questionnaire Results - 10/12/13

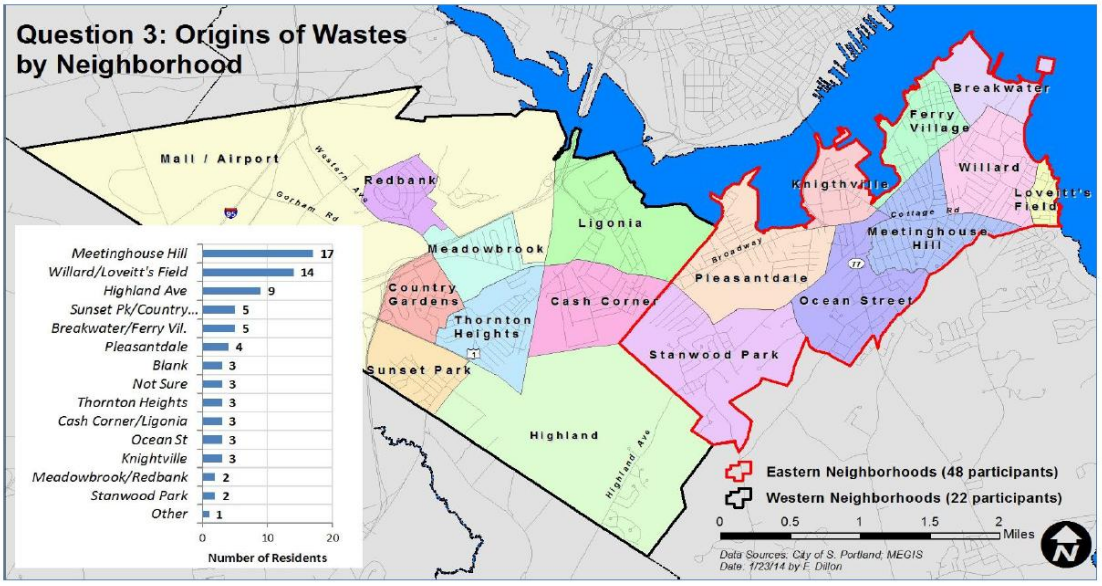
Household Hazardous Waste Collection Day ~ 10/12/13

QUESTIONS *(77 questionnaires were returned - lowest turnout for past 4 years)*

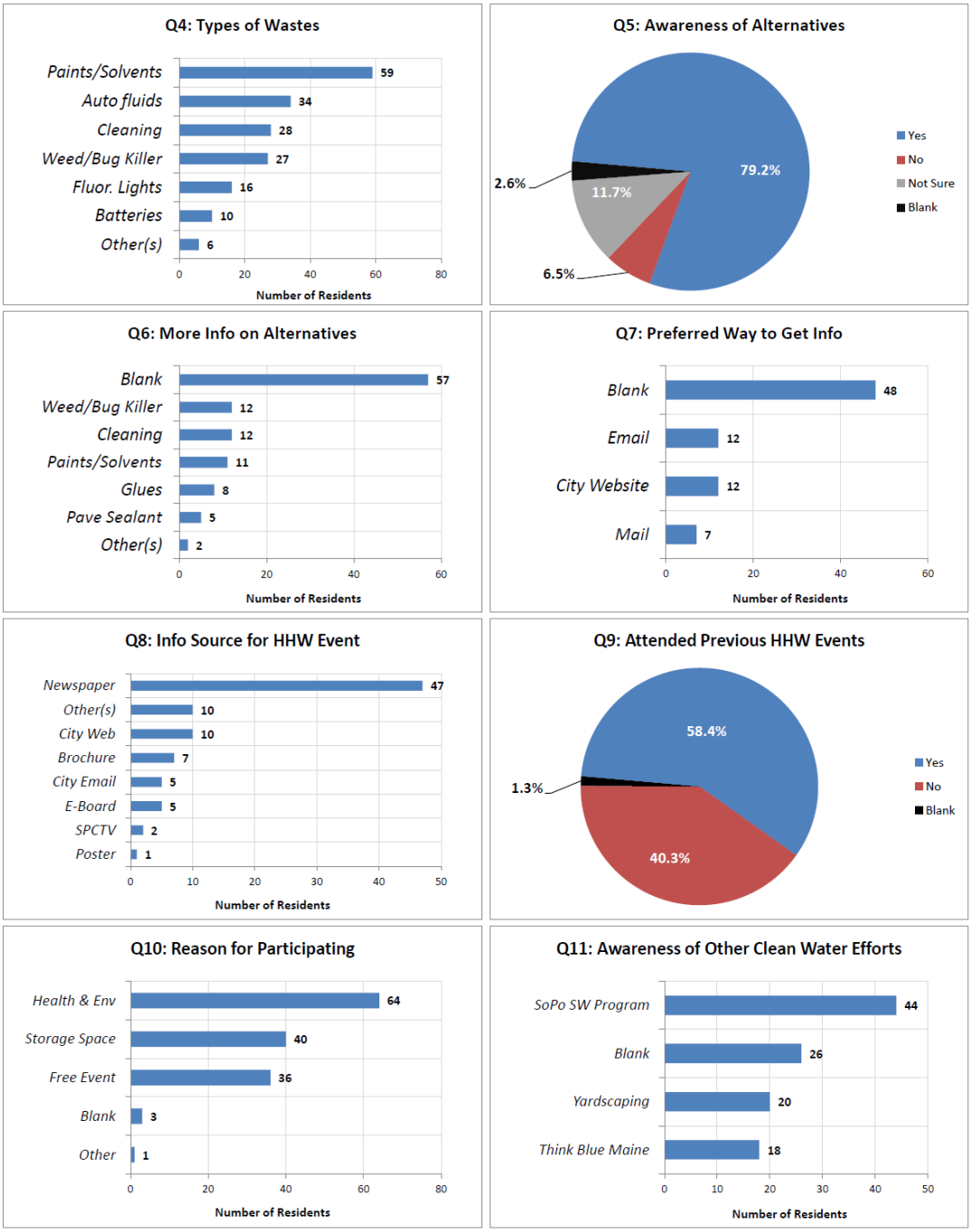
1. What is your age? *Most participants (56%) were over 55 years old (only ~3% of participants were less than 35 years old).*
2. Are you male or female? *~53% of participants were men, 39% were women and ~9% opted not to indicate their gender.*
3. Origins of wastes by neighborhood? *The majority of participants (62%) came from the the City's eastern neighborhoods.*
4. Please indicate the types of wastes you dropped off today. *Paints/solvents were once again the most common type of HHW.*
5. Are you aware of less potentially harmful alternatives? *Most participants (79%) were aware of less harmful alternatives.*
6. Would you like more info on alternatives? *Most participants (57) didn't respond to the question; those who did requested info on multiple waste types.*
7. How would you like to get this info? *Most paricipants (48) didn't respond; those who did want info electronically or by mail.*
8. How did you hear about today's event? *Newspapers were by far the most common source of info for participants.*
9. Have you participated in the City's previous HHW Collection Days? *58% of attendees participated in previous events.*
10. Why did you participate in this year's HHW event? *Environment & health were the most common reasons for participating.*
11. Are you aware of the following SW management efforts? *The City's SW Program was the most common effort with which participants were aware.*







Household Hazardous Waste Collection Day ~ 10/12/13



Appendix 4: April Stools Day Article for City Electronic Newsletter

LOCAL BUSINESS PROMOTES APRIL STOOLS DAY IN SUPPORT OF CITY'S CLEAN PARKS & WATER RESOURCES PROTECTION EFFORTS

After a long, hard winter of frigid temperatures and a seemingly unending series of heavy snow storms, residents from South Portland and surrounding communities flocked to the City's parks this past weekend to enjoy one of the first warm and sunny days of the season. In particular, Hinckley Park and Willard Beach were very popular destinations for dog owners.

Employees from the PetLife store in Mill Creek Plaza were on hand to cheerfully greet 2 and 4-legged visitors at both locations. Store Manager Jessie Ellebracht provided "doggie bags" and dog treats to Hinckley Park's visitors while Associate Manager Morgan Kennedy did the same at Willard Beach. (Part-time Associate Kara Oster was stationed at Mill Creek Park, but didn't encounter many dog owners there).

A smiling Jessie Ellebracht greeted dog owners at Hinckley Park's main entrance.

Two and four-legged visitors after a fun-filled romp through the park.

Morgan Kennedy served up dog treats and helpful advice on proper pet waste disposal at Willard Beach.

A cloudless sky and warm temperatures were an irresistible draw for beach goers.

In addition to handing out free goodies, PetLife employees dispensed words of wisdom about responsible pet waste management. They also discussed the potential consequences associated with improper pet waste disposal. Rainwater or snow melt can carry parasites, bacteria and viruses from dog waste left on the ground into nearby surface waters resulting in health risks to canines and humans. Dog waste in surface water can also degrade water quality by decreasing dissolved oxygen levels.

Many of Hinckley Park's trails drain directly to a pair of ponds that flow into Casco Bay via Kimball Brook. At Willard Beach, the connection between mismanaged dog waste and Casco Bay is even more direct. The beach is

a very popular destination for swimmers and sunbathers in the summer. Dog waste left on the beach or in the surrounding neighborhoods has a much greater likelihood of coming into contact with both human and canine swimmers. Fortunately, nearly all of the dog owners at Hinckley Park and Willard Beach appeared to "pack out" what their dogs "packed in."

Portland's Friends of the Eastern Promenade served as the inspiration for the April Stools Day event, which was held for the first time this year in South Portland. Given the importance of the message for cleaner public parks and healthier water quality, the City will continue to partner with PetLife and the Friends of the Eastern Promenade for future April Stools Day events. Keri Kaczor and Meagan Sims with the Maine Healthy Beaches Program also worked with the City recently to develop a very informative pet waste management flyer specifically for Willard Beach. The MHB program has been supporting the City's annual summer water quality monitoring efforts at Willard Beach since 2003.

For more information, please contact Stormwater Program Coordinator Fred Dillon at 207-347-4138 / fdillon@southportland.org.

Appendix 5: Maine Healthy Beaches Program 2013 Willard Beach Bacteria Source Tracking Report

Summary Report of Enhanced Monitoring and Pollution Source Tracking Efforts in the Willard Beach Watershed, South Portland, Maine, 2012-2013

Willard Beach is a popular year-round local recreational area located in South Portland with a history of impaired water quality. Routine beach water quality exceedances on Willard prompted the need to add additional sites to determine the nature and extent of potential bacteria inputs from upland sources. As part of this effort, the City and MHB conducted paired Enterococci (ENT) and optical brightener (OB) monitoring of the stormwater system in 2012 and 2013. There are 6 stormwater outfalls that discharge directly to the beach and drain stormwater from ~ 1 km^2 of residential, commercial and institutional areas (Figure 1). Of particular concern are outfall WB-15, which collects stormwater from the SMCC athletic fields, and outfalls WB-17 and WB-18, which collect stormwater from a predominantly residential area with several interspersed commercial enterprises. Outfalls WB-11, WB-12 and WB-16 typically have very low discharge volumes and were not monitored as part of this study.

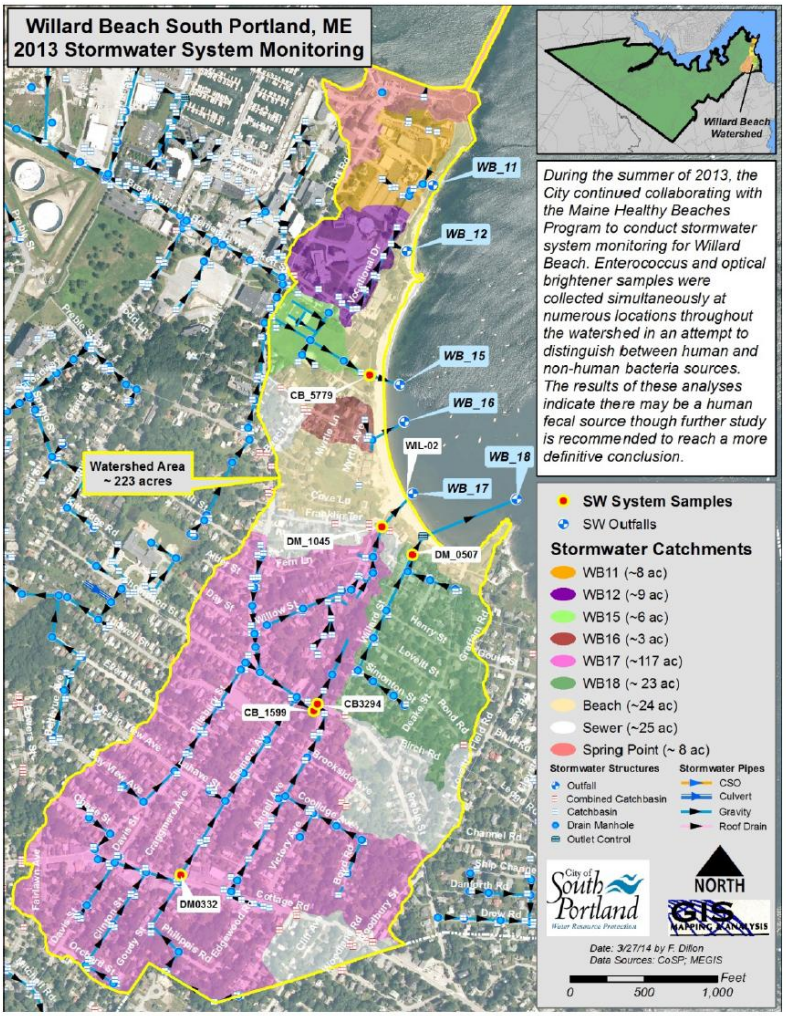


Figure 1. Willard Beach stormwater drainage area (yellow outline) and stormwater sampling stations monitored by MHB and City of South Portland 2012-2013.

Monitoring for the 2012 season targeted wet weather events throughout September and October to ensure presence of adequate water flow, and samples for the 2013 season were collected bi-monthly from June through early September. As a part of this effort, 61 ENT samples and 62 OB samples were analyzed at 8 sites located within the stormwater system. Because this system is entirely subsurface, access to catch basins was provided by the City of South Portland and monitoring was conducted by MHB and the City of South Portland.

ENT geometric mean results ranged from 22-931 MPN/100ml and from 6-98 µg/l for OBs (Table 1). All sites exceeded the US EPA-recommended ENT geometric mean safety threshold of 35 MPN/ml while all sites exhibited OB concentrations below 100µg/l, the level that MHB typically considers as a lower threshold for the potential for human wastewater contamination (Figures 2-3). One site (CB3294) exhibited elevated ENT and OB levels approaching the 100µg/l threshold, suggesting the potential for human-sourced fecal contamination (Table 1).

A Pearson's Product Moment correlation combining data from all sites from 2012-2013 revealed a significant but weak relationship (R^2=0.3684, $p < 0.0000$) between ENT and OB concentrations (Figure 4). While comparison of ENT and OB mean values suggests that non-point sources (wildlife, pets) associated with stormwater are likely the principal contributor to bacterial pollution at 7 of the 8 sites monitored, point sources cannot be ruled out due to the significant (yet weak) correlation between ENT and OBs (Table 1, Figure 2). Additional monitoring of the stormwater system is needed to better delineate the source(s) of bacteria impacting water quality on Willard Beach.

Table 1. Mean Enterococci counts (MPN/100ml), mean optical brightener values (µg/l), and sample size of 8 sites monitored 2012-2013.

Station	GeoMean ENT	Mean OB	Sample Size
DM0507	22	6	11
DM1045	83	34	11
WIL-02	100	11	10
CB5779	76	44	10
CB3294	931	98	7
DM0332	245	83	6
ANGELL-CB*	128**	72	2
WB-17*	201	25	1
Total	**100****	**41**	**58**

*Note small sample size

**Note mean value due to small sample size

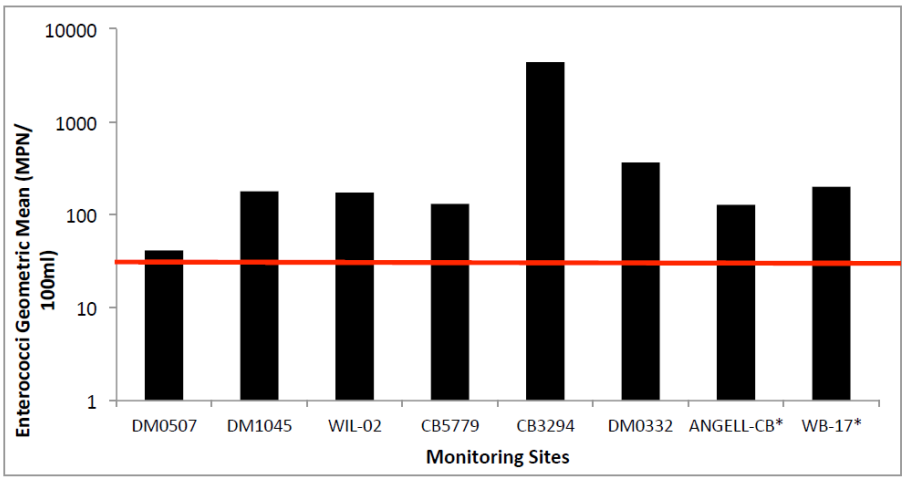


Figure 2. The geometric mean Enterococci (MPN/100ml) values by monitoring site in the stormwater system impacting Willard Beach from 2012-2013. Red solid line indicates the EPA-recommended Enterococci geometric mean safety threshold of 35 MPN/100 ml.

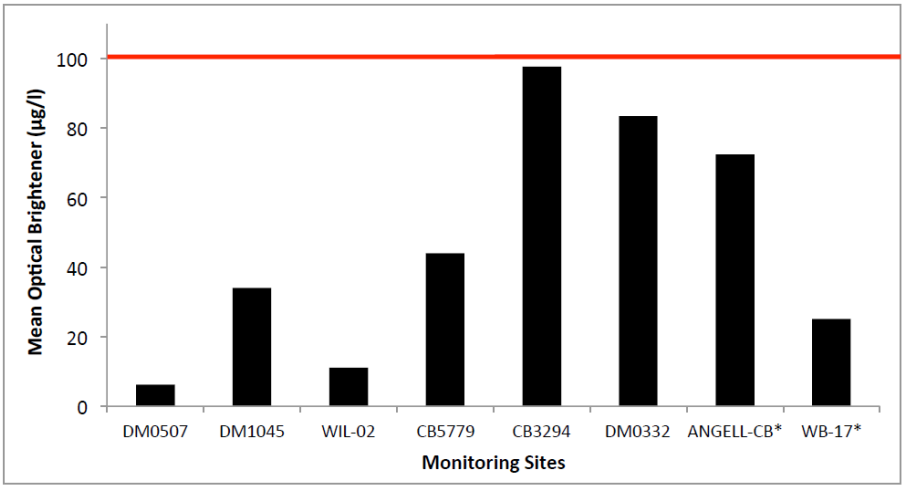


Figure 3. Mean optical brightener (µg/l) concentrations by monitoring site in the stormwater system impacting Willard Beach from 2012-2013. Red solid line indicates the lower threshold level considered by MHB as a "red-flag" for potential human wastewater contamination.

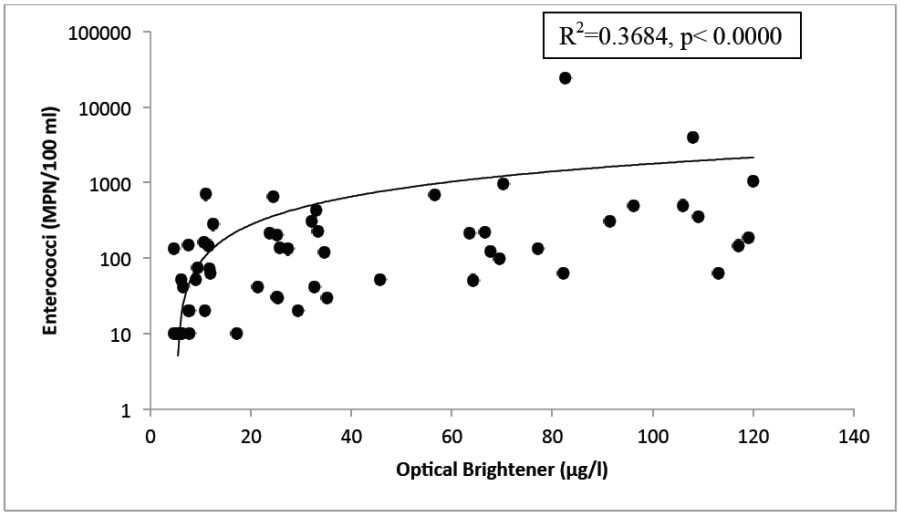


Figure 4. Relationship between Enterococci (MPN/100ml) and optical brighteners (µg/l) for all sites monitored throughout the stormwater system impacting Willard Beach from 2012-2013.

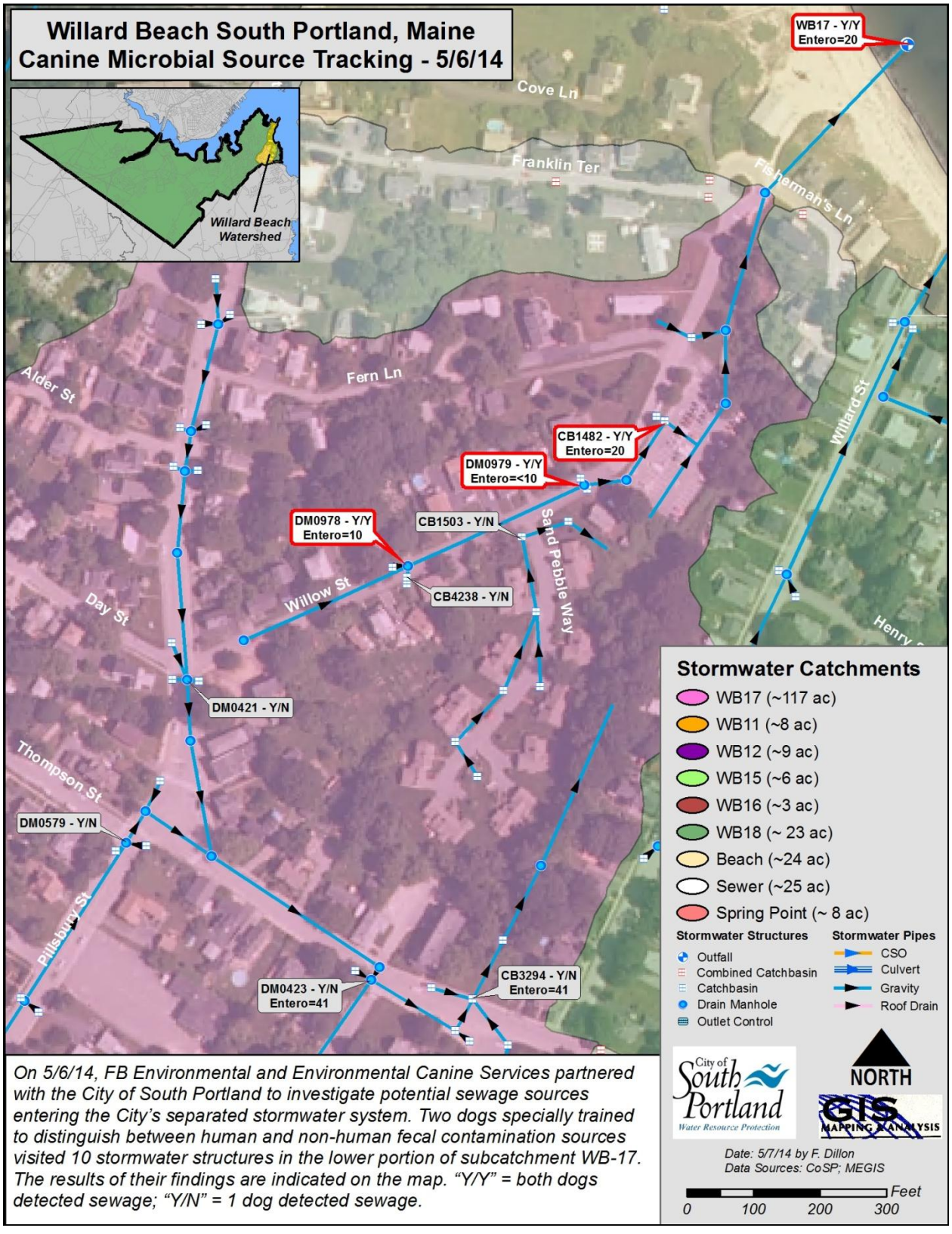
While results suggest primarily non-point sources impacting Willard Beach with the potential for point source contributions, it is important to consider that the Willard Beach watershed is a densely developed residential area. Impervious surfaces, such as roads, houses and driveways cover approximately 41% of the total watershed area. The prevalence of impervious surfaces has been strongly correlated to bacteria concentrations in downstream surface waters. Therefore, educating residents about the effects of land use activities on water quality will be a critical component in any attempts to reduce bacteria loadings to Willard Beach (Figure 5).

Figure 5. Willard Beach watershed drainage area (yellow outline) and percent impervious coverage within the watershed.

The South Portland Water Resources Protection (WRP) Department will post this study on the City's website. In addition to beach water quality monitoring, the City will also continue to collect bacteria and optical brightener samples from the stormwater system during the summer months. Regardless of the status of future monitoring efforts, the City will assess the feasibility of a public outreach campaign within specific stormwater catchment areas (particularly those contributing the highest bacteria loads). This effort will seek to educate property owners about how their activities potentially affect Willard Beach's water quality and will suggest best management practices to reduce polluted stormwater runoff from residential properties.

Additionally, the town of South Portland will partner with FB Environmental and Environmental Canine Services in May 2014 to "sniff" out human sources contributing to elevated bacteria impacting Willard Beach. This will include collecting Enterococci data in tandem with employing 2 sewage-sniffing dogs who are trained to alert their trainers to the presence of human sources at distinct locations or in water samples collected from suspect areas. Additionally, MHB will partner with South Portland to continue enhanced monitoring and to launch a pet waste and water quality campaign within the watershed in 2014.

Appendix 6: May 2014 Canine Bacteria Source Tracking Results for Willard Beach



On 5/6/14, FB Environmental and Environmental Canine Services partnered with the City of South Portland to investigate potential sewage sources entering the City's separated stormwater system. Two dogs specially trained to distinguish between human and non-human fecal contamination sources visited 10 stormwater structures in the lower portion of subcatchment WB-17. The results of their findings are indicated on the map. "Y/Y" = both dogs detected sewage; "Y/N" = 1 dog detected sewage.

SPCTV "Clean the Creek" video