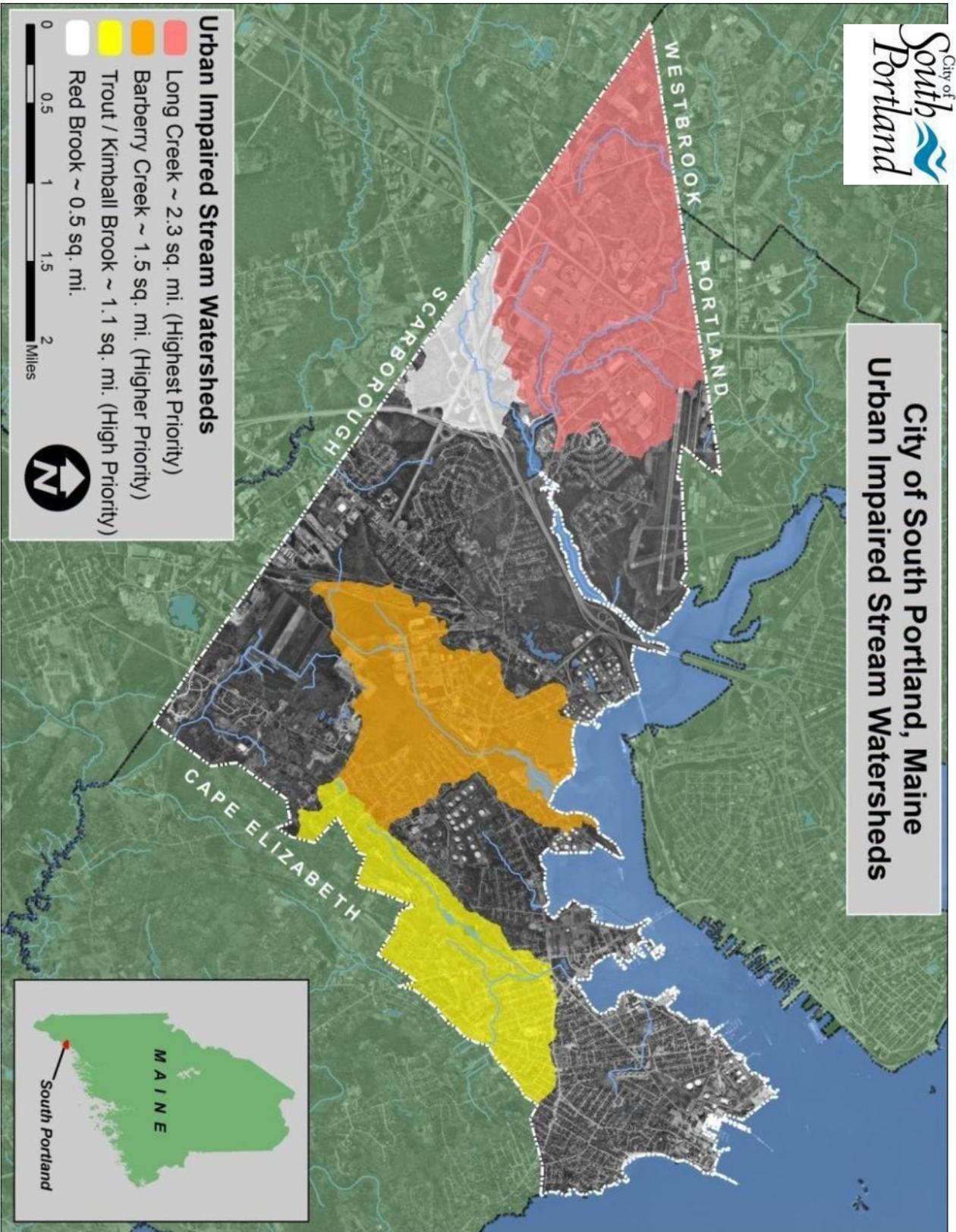


Stormwater Phase II Annual Report for Permit Year 5 (2012-13)





Cover Photo: small brook trout caught with dip net from Trout Brook in April 2013

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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:

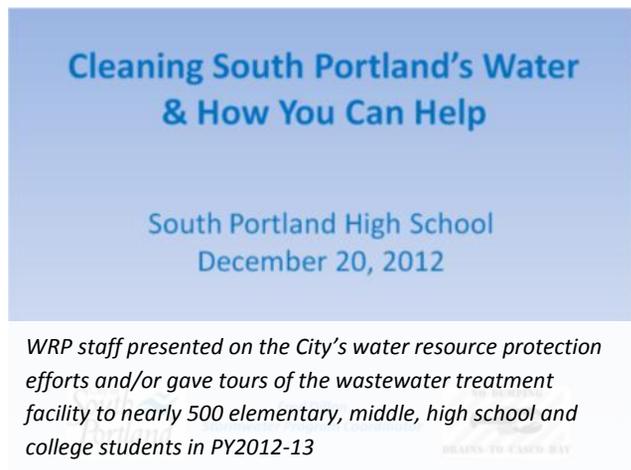
- **James Gailey & Sue Mooney** ~ *City Manager & City Clerk*
- **Tex Haeuser, Pat Doucette, Steve Puleo, & Dave Kasik** ~ *S. Portland Planning & Development Department*
- **Doug Howard, Mark Lorello, & Denise Michaud** ~ *South Portland Public Works Department*
- **Chris Dumais, Tom Carellas & Andrew Hughen** ~ *South Portland Information Systems*
- **Rick Towle, Sarah Neuts & Mary Lou Fathke** ~ *South Portland Parks & Recreation Department*
- **Tony Vigue & Maurice Amaral** ~ *South Portland Community Television*
- **Jon Dore** ~ *South Portland Land Trust*
- **David Critchfield & Bill Sutton** ~ *South Portland Conservation Commission*
- **Curtis Bohlen & Matt Craig** ~ *Casco Bay Estuary Partnership*
- **Tamara Lee Pinard, Jami Fitch & Kate McDonald** ~ *Cumberland County Soil and Water Conservation District*

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 fifth Permit Year (2012-13) in the second five year General Permit Cycle (2008-13).

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 on 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.



WRP staff presented on the City’s water resource protection efforts and/or gave tours of the wastewater treatment facility to nearly 500 elementary, middle, high school and college students in PY2012-13

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 stormwater pollution as a result of increased awareness and utilization of BMPs.

BMP 1.1 Continue Awareness Outreach Efforts from Previous 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

The City continued its collaboration with the Interlocal Stormwater Working Group (ISWG) to increase public awareness of stormwater management issues. Through these collaborations we assisted with the dissemination of education and outreach materials.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 1.1.1** – continue education and outreach efforts from previous permit year by providing [Think Blue Maine](#) and [YardScape](#) links on [City’s website](#).
- **Measureable Goal 1.1.2** – continue outreach efforts from previous permit year through ongoing partnership with ISWG, which continued to use Think Blue Maine ducky logos on all YardScaping materials to reinforce connection between lawn care activities and stormwater issues.
- **Measureable Goal 1.1.3** – continue outreach efforts from previous permit year through ongoing partnership with ISWG by posting informational materials in municipal buildings to raise awareness of stormwater management issues.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued to provide the [Think Blue Maine](#) and [YardScape](#) links on its [website](#) and educational materials in municipal buildings (including schools) to help promote public awareness of local and regional stormwater management concerns. The City also continued its collaboration with the ISWG in a variety of awareness outreach efforts as described in their Permit Year 5 Summary of Minimum Control Measure 1 ([Appendix 1](#)). Water Resource Protection Department staff also worked with the South Portland Land Trust to create and install an interpretive sign for a small restoration project the Trout Brook Nature Preserve (Figure 1). Therefore, all goals associated with this BMP were completed successfully as required.

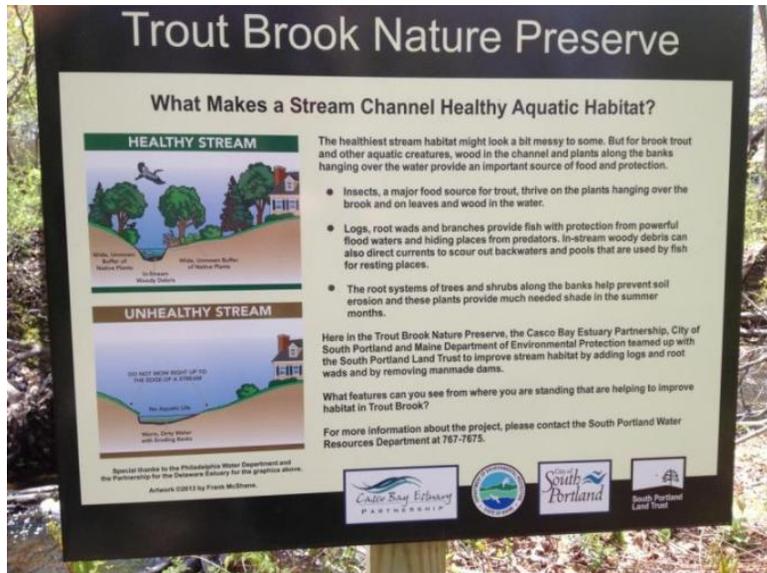


Figure 1: interpretive sign for Trout Brook Nature Preserve highlights detrimental effects of stormwater runoff on streams with inadequate vegetated buffers

BMP 1.2 Continue Working with Existing Partners and Seek Out New Partners to Help Raise Awareness of Stormwater Issues

Responsible Party: ISWG Ed. Coordinator

Additional Party: Stormwater Program Coordinator

FUNCTION

To increase impact and effectiveness of public education and outreach stormwater awareness efforts through enlistment of additional partners.

METHODOLOGY

Collaborate with Interlocal Stormwater Working Group (ISWG) to enlist additional partners such as the Casco Bay Estuary Partnership, Maine Board of Pesticide Control, University of Southern Maine, University of Maine and other organizations to help raise awareness of stormwater management issues.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 1.2.1** – continue to partner with Think Blue Maine, Casco Bay Estuary Partnership, Maine Board of Pesticide Control, University of Maine and Southern Maine Community College.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued its collaboration with the ISWG to enlist new partners for increased public awareness of stormwater issues as described in [Appendix 1](#). The City also continued to promote public awareness through partnerships with various entities committed to addressing stormwater pollution issues. Water Resource Department staff worked directly with UMaine PhD student Thomas Parr to help test his hypothesis that urban stormwater systems may be providing ecosystem services to local water bodies. City staff also offered support to Southern Maine Community College faculty in developing curriculum that explores the relationships between land use development and impacts to water quality. WRP staff submitted several articles for publication in the City’s E-Newsletter, which is sent to most municipal staff and over 2,150 residents in South Portland (Table 1). Finally, the Stormwater Program Coordinator also made several presentations at professional conferences during PY2012-13. Therefore, the goal associated with this BMP was completed successfully as required.

Table 1: Articles submitted by WRP staff to City’s E-newsletter

<u>Date</u>	<u>Article</u>
9/24/12	Trout Brook Habitat Enhancement Project Work
11/2/12	Household Hazardous Waste Collection Day Survey Results
2/1/13	Trout Brook Restoration Project Phase 1
3/1/13	City Participates in International Proposal for Blue Water Project Grant to Help with Trout Brook’s Restoration
4/19/13	Trout Brook: A Stream on the Road to Recovery
6/7/13	\$20K Grant for the Trout Brook Watershed

BMP 1.3 Continue Implementing Stormwater Awareness Plan

Responsible Party: ISWG Education Coordinator

Additional Party: N/A

FUNCTION

To increase homeowner awareness of stormwater issues through the development of a systematic and concerted program among MS4 clusters and other interested parties throughout the state.

METHODOLOGY

Continue participation in and collaboration with the ISWG to develop a variety of educational outreach materials through the implementation of a Stormwater Awareness Plan.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 1.3.3** – continue implementation of Stormwater Awareness Plan including ongoing annual evaluations of process and impact indicators for the remainder of the permit cycle.

ACTIONS COMPLETED DURING PERMIT YEAR 5

Through the City’s continued participation in and collaboration with the ISWG, a Stormwater Awareness Plan was developed and approved by DEP in June 2009 as described in [Appendix 1](#). The report describes an in-depth assessment of both the implementation and impact of the Awareness Plan. Therefore, all goals associated with this BMP were completed successfully as required.

BMP 1.4 Continue Targeted Best Management Practices Adoption Efforts from Previous MS4 Permit Cycle

Responsible Party: ISWG Education Coordinator

Additional Party: N/A

FUNCTION

To increase homeowner awareness about the types of Best Management Practices that can be employed to address stormwater issues at the individual parcel level.

METHODOLOGY

Continue participation in and collaboration with the ISWG to promote the use of Best Management Practices through a variety of educational outreach materials and activities.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 1.4.1** – the ISWG will continue to refine YardScaping materials, as needed, based on either new research or feedback from users. It will offer YardScaping Adult Education classes to change lawn care practices and build local support for implementation of YardScaping practices. ISWG will also develop and streamline the Point of Sale lawn care education program by incorporating lessons learned, developing new or refining existing promotional materials, offering

YardScaping classes at Point of Sale locations, refining tracking methods for products and promotional materials, and building local networks for dissemination of YardScaping materials.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued its collaboration with the ISWG to promote the adoption of Best Management Practices by homeowners and other interested parties as described in [Appendix 1](#). Therefore, the goal associated with this BMP was completed successfully as required.

BMP 1.5 Continue Implementing BMP Adoption Plan

Responsible Party: ISWG Education Coordinator

Additional Party: N/A

FUNCTION

To change homeowner landscaping behaviors for decreased usage of lawn fertilizers, pesticides and herbicides; and to promote the adoption of BMPs that minimize stormwater pollution (e.g., higher / less frequent mowing, water conservation, lawn seeding in the fall, etc.).

METHODOLOGY

Continue participation in and collaboration with the ISWG to implement a [MDEP-approved Targeted BMP Adoption Plan](#).

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 1.5.3** – implement MDEP-approved Targeted BMP Adoption Plan that includes annual evaluations of process and impact indicators.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued its collaboration with the ISWG to implement a MDEP-approved Targeted BMP Adoption Plan as described in [Appendix 1](#), which assesses the implementation and impact of the Plan and identifies significant milestones along with any changes made to the Plan. Therefore, the goals associated with this BMP were completed successfully as required.

BMP 1.6 Continue School Outreach Efforts

Responsible Party: ISWG Ed. Coordinator

Additional Party: Stormwater Program Coordinator

FUNCTION

To promote increased awareness about water quality and stormwater pollution issues in the City's public school system.

METHODOLOGY

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

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 1.6.2** – as funding permits, continue the incorporation and implementation of “It’s all connected” school curriculum in elementary and/or middle schools.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued its collaboration with the ISWG to conduct educational outreach activities as described in [Appendix 1](#). WRP staff also continued to build relationships with public school teachers by making presentations about water quality and stormwater concerns to numerous schools in South Portland and Cape Elizabeth (Table 2). Every 4th grade student in the City and several middle school classes (over 300 individuals) had an opportunity to discuss watersheds, water quality, the impacts of various land uses and development on water quality and the City’s stormwater program. In early May 2013, WRP staff also partnered with the Portland Water District and Cumberland County Soil & Water Conservation District on a trout release unit for 4th graders that reinforced the classroom instruction they had received earlier. The event received very favorable coverage from the local press. Therefore, the goals associated with this BMP were completed successfully as required.

Table 2: WRP presentations & tours to schools for PY2012-13

Date	School	Number of Students (approx)
4/3/13	Greater Portland Christian School (grade 4)	15
5/8/13	Dyer Elementary School (grade 4)	25
5/22/13	Skillin Elementary School (grade 4)	60
5/23/13	Skillin Elementary School (grade 4)	60
5/30/13	Kaler Elementary School (grade 4)	45
10/9/12	Memorial Middle School (grade 6)	40
4/10/13	Memorial Middle School (grade 6)	60
12/20/12	South Portland High School (grade 9)	40
12/21/12	South Portland High School (grade 9)	40
Dec 2012	SPHS WWTP Tour (grade 9 science)	40
Dec 2012	SPHS WWTP Tour (grade 9 science)	40
5/15/13	Cape Elizabeth HS (grade 12 AP science)	20
3/12/13	U. Maine Law School (2 nd year)	6
Total Students:		491

BMP 1.7 Continue Broadcasting Water Quality Videos on Community Television

Responsible Party: Stormwater Program Coordinator

Additional Party: N/A

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 quality issues and considerations.

PERMIT YEAR 5 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 5

The City’s Community Television system continued to extensively air educational videos highlighting a wide variety of water quality related topics. During the permit year period, SPCTV broadcast nearly 70 hours of programming related to water quality (Table 3). Additionally, SPCTV produced a [video](#) of the Stormwater Program Coordinator discussing water quality issues with the City’s Parks & Recreation Department Director at Willard Beach (Figure 2). As a result of these activities, the goal associated with this BMP was completed successfully as required.

Table 3: water-quality videos on SPCTV for PY2012-13

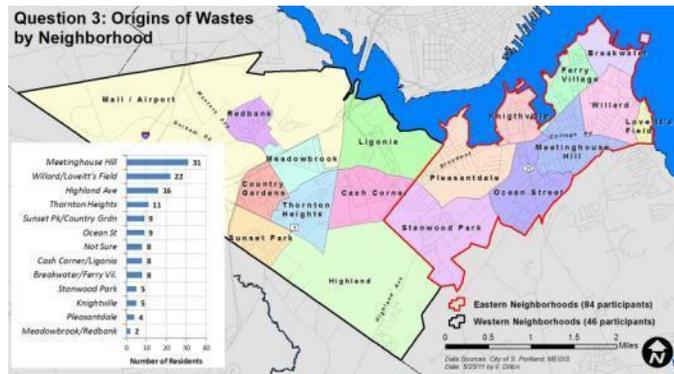
Topic Area	Run Time
General Interest - WQ	17:10:53
Climate Change	14:47:37
Water Quality Issues & Impacts	12:46:36
Stormwater Management	11:14:04
Aquatic Habitat Issues & Impacts	10:06:00
Drinking Water	0:40:20
Wastewater Treatment	0:17:54
Cumulative Time:	67:03:24



Figure 2: SPCTV *Green Scene* discusses water quality concerns at Willard Beach

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 for improving water quality and reducing stormwater quantity. The City's [Urban Impaired Stream](#) watershed restoration efforts and [Stormwater Manual](#) are intended to provide opportunities for meaningful public involvement in helping to protect South Portland's valuable water resources. 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 ([Appendix 2](#)).



City map showing origins and numbers of participants for 2012 Household Hazardous Waste Collection Day

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 Continue Observance of State and Local Public Notice Requirements

Responsible Party: ISWG Stormwater Program Coordinator & LCWMD Executive Director

Additional Parties: Water Resource Protection & Planning Departments

FUNCTION

To provide appropriate public notice for meaningful involvement and participation in the planning and implementation of the City's Stormwater Management Program, Performance Standards (Chapter 27-1536) and Long Creek Watershed Management Plan.

METHODOLOGY

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

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 2.1.1** – ISWG, the City and the Long Creek Watershed Management District will follow state and local Public Notice requirements for Stormwater Program Management Plans and Watershed Management Districts. Copies of the plans are available on the 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 5

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. Additionally, in 2012 the City revised several provisions of the municipal ordinance, including the Stormwater Performance Standards. Finally, the City recently updated the [Comprehensive Plan](#), which broadly addresses stormwater management concerns. In all cases, numerous opportunities have been provided for public input. 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](#).

As a quasi-municipal body, 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](#). As a result of these numerous activities, the goals associated with this BMP were completed successfully as required.

BMP 2.2 Continue Hosting Public Event

Responsible Party: ISWG Education Coordinator

Additional Party: Water Resource Protection Dept.

FUNCTION

To increase public awareness of stormwater pollution issues for a target audience in a segment of the urbanized area.

METHODOLOGY

Provide highly visible opportunities for members of the public to meaningfully participate in activities to reduce impacts from stormwater pollution.

PERMIT YEAR 5 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 5

Household Hazardous Waste Collection Day – October 13, 2012

The City continued to provide an annual Household Hazardous Waste Collection Day for South Portland residents and businesses. This event was held at the Water Resource Protection Department’s Wastewater Treatment Facility and resulted in the collection of a variety of wastes including a variety of petroleum products, paints, solvents, pesticides, batteries (lead acid, nickel cadmium and lithium), fluorescent lights, among other materials. To assist in improving these services to South Portland residents, the City also administered a resident questionnaire. The results from the 218 people who completed the questionnaire indicated that a considerable number of respondents were familiar with Think Blue Maine, the City’s stormwater management efforts and the Long Creek Restoration Project while fewer were familiar with YardScaping and the Interlocal Stormwater Working Group ([Appendix 3](#)). We will continue to administer similar questionnaires at future Household Hazardous Waste Collection Days to improve our services and increase awareness about HHW and polluted stormwater runoff.

Thornton Heights Stormwater Separation Project Public Meeting – May 1, 2013

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 first in a series of informational hearings was held on May 1, 2013 to solicit public input on the project. The meeting was attended by approximately 50 people and recorded for airing on the South Portland Public Access Television channel (Figure 3).

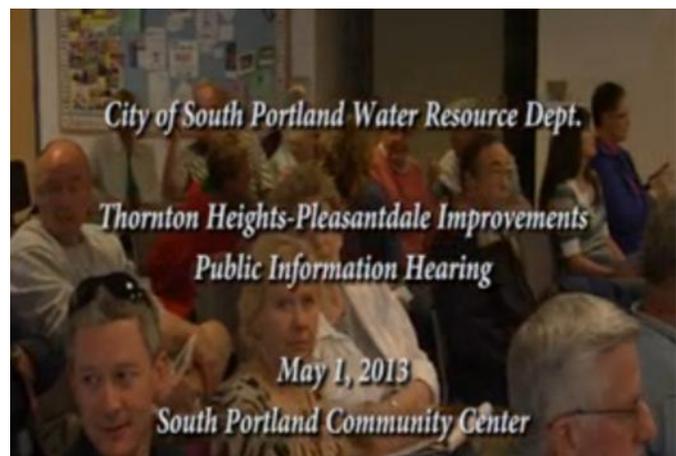


Figure 3: Thornton Heights stormwater separation project public meeting (video recorded by SPCTV in May 2013)

Trout Release – May 23, 2013

Water Resource Protection Department staff once again partnered 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 and over 100 students from the Small School participated in the event (Figure 4), which received considerable local media coverage.



Figure 4: Skillin Elementary School students preparing to release trout fry into Trout Brook

BMP 2.3 Continue Encouragement of Municipal Involvement in Public Outreach

Responsible Party: Stormwater Program Coordinator

Additional Party: N/A

FUNCTION

To increase the role of other City departments in promoting awareness of local and regional stormwater pollution issues.

METHODOLOGY

Continue communications with and provide educational materials to other municipal departments (e.g., Planning & Development, Code Enforcement, Public Services, School, etc.) to disseminate to the public, contractors, developers and other interested parties.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 2.3.1** – continue to participate in public outreach (e.g. serving on local water resource committees, participating in public/school events, writing water quality/stormwater articles) or encourage other municipal involvement, as appropriate.

ACTIONS COMPLETED DURING PERMIT YEAR 5

Members of the WRP staff continued their close involvement in and commitment to local water resource protection concerns by serving in various capacities on the boards of regional organizations. The City’s Stormwater Program Coordinator is currently serving on the Casco Bay Estuary Partnership’s (CBEP) Board. The mission of CBEP is to protect and restore the water quality, and fish and wildlife habitat of the Casco Bay ecosystem, while ensuring compatible human uses.

Additionally, the Collection Systems Division Manager and Stormwater Program Coordinator serve on the Interlocal Stormwater Working Group (ISWG), which consists of 14 communities in the Greater Portland metropolitan area working in collaboration to address stormwater management concerns in the region. In 2012, the Collection Systems Division Manager completed a 3 year term on the Long Creek Watershed

Management District (LCWMD) Governing Board and was replaced by Collection Systems Division Supervisor Jerry Collett. The LCWMD is responsible for overseeing the restoration of Long Creek through the implementation of the Watershed Management Plan. The Stormwater Program Coordinator also serves on the LCWMD's Technical Committee, which provides guidance to the Board on a variety of concerns related to Long Creek's restoration.

Educational brochures are available at several municipal locations throughout the City. The Planning & Development, Code Enforcement and Public Services departments all provide Maine Erosion and Sedimentation Control Law brochures to contractors, construction site owners or operators, members of the general public and other interested parties. The City also provides informational materials on stormwater management and water resource protection at numerous locations throughout South Portland.

Also, as noted above in Table 1 City staff wrote several articles for the City's electronic newsletter on topics related to stormwater management or water quality restoration and made numerous presentations to local schools (Table 2). As a result of these numerous activities, the goals associated with this BMP were completed successfully as required.

Minimum Control Measure 3 – Illicit Discharge Detection & Elimination

The City of South Portland fulfilled its requirements for the Illicit Discharge Detection & Elimination (IDDE) Minimum Control Measure through a variety of activities as described below. The overall goal of this MCM is to implement and enforce a program to detect and eliminate illicit discharges and non-stormwater discharges.



Bacteria source tracking in stormwater system

BMP 3.1 Continue Development of Watershed-Based Storm Sewer System Infrastructure Map

Responsible Party: Water Resource Protection

Additional Party: N/A

FUNCTION

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

METHODOLOGY

Continue to contract with consultant and hire summer intern for GPS data collection and GIS mapping of all stormwater related infrastructure in the City.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 3.1.3** – by the end of Permit Year 5, develop watershed-based stormwater infrastructure map showing the location of all catch basins, connecting surface and subsurface infrastructure with in-flow and out-flow pipe direction, and locations of all discharges of stormwater outfalls.

Each catch basin will be uniquely identified to facilitate control of potential illicit discharges, and to ensure proper operation and maintenance of the structures. For each outfall, the following information will be included: type, material, and size of conveyance; outfall or channelized flow (e.g. 24" concrete pipe); and the name and location of the immediate surface water body or wetland to which the stormwater runoff discharges (or, if an outfall does not discharge directly to a named water body, the name and location of the nearest named water body to which the outfall eventually discharges).

ACTIONS COMPLETED DURING PERMIT YEAR 5

The Water Resource Protection Department has employed a watershed framework to digitally map virtually the entire publicly-owned stormwater infrastructure throughout the City. Unique identifiers have been assigned to all located publicly-owned stormwater outfalls, catch basins and drain manholes for the entire City and flow directions have been established for all located stormwater pipes. Extensive attribute

information has been collected for stormwater outfalls in the Long Creek and Trout Brook watersheds and the City will be collecting similar information for the remaining urban impaired stream watersheds in future permit years.

WRP continued to use the GIS-based asset management system for catch basin maintenance developed in PY2009-10. While cleaning catch basins, maintenance crews use a Toughbook laptop computer to collect key attribute information for each structure that will be integrated into an asset management program to assist in optimizing system performance. As a result of these activities, the City continues to be considerably ahead of schedule for the goals of this BMP.

BMP 3.2 Continue Enforcement of Non-Stormwater Discharge Ordinance

Responsible Party: Stormwater Program Coordinator

Additional Party: N/A

FUNCTION

To prohibit unpermitted or un-allowed 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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 3.2.1** – continue to enforce the Non-Stormwater Discharge Ordinance.

ACTIONS COMPLETED DURING PERMIT YEAR 5

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 passed on September 8, 2004. Therefore, the goal for this BMP was completed as required. (Please see BMP 3.7 for a summary of IDDE inspections conducted for the permit year).

BMP 3.3 Continue Development and Implementation of 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.

METHODOLOGY

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

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.3.6** – continue dry weather outfall inspections in the additional sub-watersheds within the highest priority watershed (Long Creek) and begin inspections in one or more sub-watersheds of the second highest priority watershed (Trout Brook). Outfalls will be added to the inspection list as additional structures are identified or if follow-up is needed. Opportunistic inspections will also be documented.

ACTIONS COMPLETED DURING PERMIT YEAR 5

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. The City’s GIS consultant inspected nearly all of the stormwater outfalls in the Long Creek watershed (except for those that couldn’t be located) using a handheld Trimble device; WRP staff inspected 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 be easily exported in csv, shapefile and Google Earth formats (which readily allows for selective sharing).

In the fall of 2012, WRP partnered with staff from the Maine Healthy Beaches (MHB) Program to conduct a bacteria source tracking investigation in the Willard Beach watershed (Figure 5). Paired optical brightener and bacteria samples were collected at several strategic locations 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. The results of the MHB study ([Appendix 4](#)) did not identify a strong link between bacteria and optical brightener concentrations – primarily due to the relatively small sample size. WRP and MHB staff conducted a similar study over the summer of 2013 and the results from this joint effort will be provided in the PY2013-14 report. Therefore, the City completed the goals for this BMP as required.

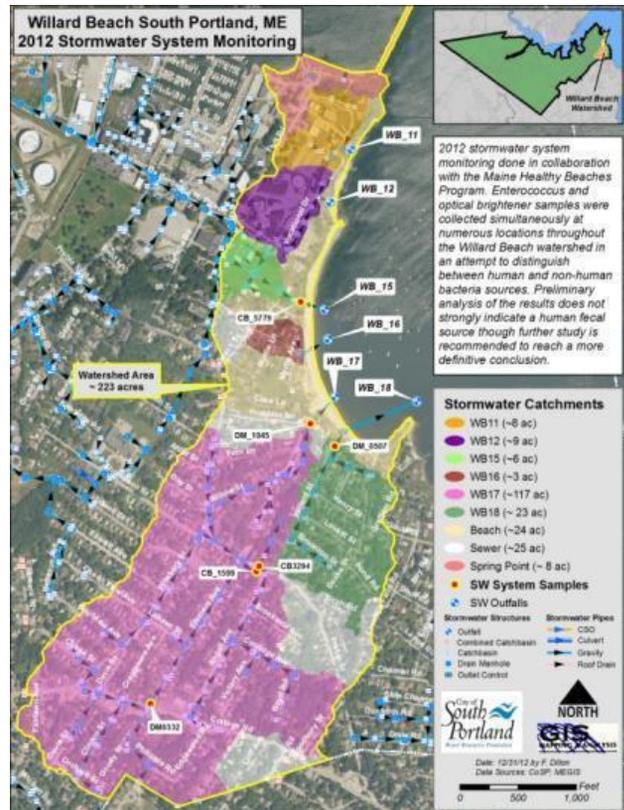


Figure 5: sample locations for 2012 MHB Willard Beach bacteria source tracking study

BMP 3.4 Develop Strategy for Open Ditch Illicit Discharge Program Within the Highest Priority Watershed

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 the Long Creek watershed in relation to the City’s stormwater collection system and develop an IDDE strategy for all relevant ditches.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.4.3** – by the end of permit year 5, implement a strategy for detecting illicit discharges in the open ditch system of the highest priority watershed (Long Creek).

ACTIONS COMPLETED DURING PERMIT YEAR 5

WRP staff identified, inspected, photographed and mapped all of the open ditches in the Long Creek watershed. The same cloud-based application now being used for dry weather outfall inspections will also be employed for ditch inspections for PY2013-14 (Figure 6). The attributes for the data collection fields were derived from the Town of Old Orchard Beach’s ditch inspection program and were also provided to the Interlocal Stormwater Working Group (ISWG) for use by other surrounding communities. As a result of these activities, the goal associated with this BMP was completed successfully as required.

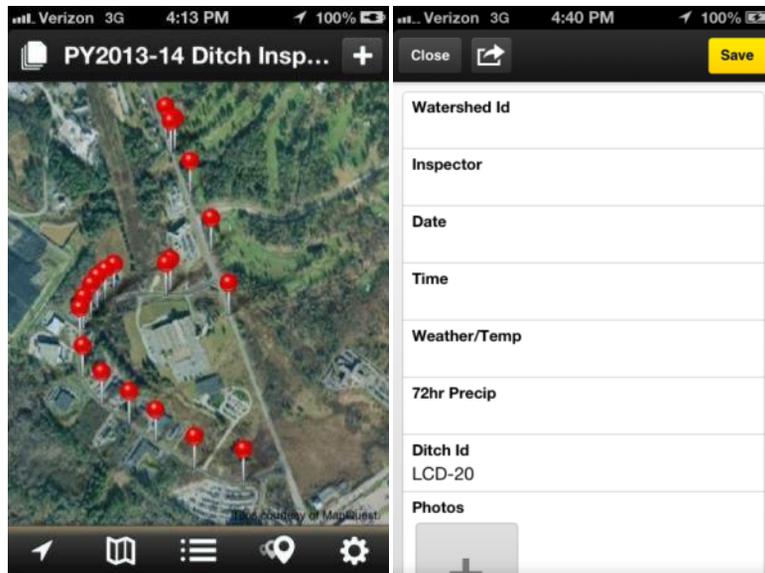


Figure 6: iPhone screenshots of Fulcrum application customized for City’s ditch inspection program

BMP 3.5 Continue Hosting Annual Household Hazardous Waste Collection Day

Responsible Party: Water Resources Protection

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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.5.1** – 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 5

As described for BMP 2.2, the City organized a Household Hazardous Waste Cleanup Day on October 13, 2012. The event was held at the Water Resource Protection Department’s Wastewater Treatment Facility and resulted in the collection of a variety of wastes including pharmaceuticals, batteries (lead acid, nickel cadmium and lithium), fluorescent lights, various solvents, liquid pesticides, and paints, among other materials. The cost to the City for this one day event was approximately \$11,100. The City’s Household Hazardous Waste (HHW) Collection Day for 2013 will take place on October 15th and will include a participant survey questionnaire similar to the one administered last year ([Appendix 3](#)) to measure residential awareness of general HHW considerations and to help gauge the effectiveness of the program. Therefore, the goal associated with this BMP was completed successfully as required.

BMP 3.6 Continue Supporting the Friends of Casco Bay Mobile Vessel Pumpout Service

Responsible Party: Water Resources 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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.6.1** – as funding is available, continue to financially support the mobile vessel pumpout service.

ACTIONS COMPLETED DURING PERMIT YEAR 5

Due to a donation request error, the City did not contribute to the [Friends of Casco Bay’s program](#) for PY2012-13. However, this error has since been corrected and the City will continue providing ongoing

financial support to FOCB in recognition of the valuable role their mobile vessel pumpout service plays for South Portland’s coastal community.

BMP 3.7 Continue Providing Confidential Public Complaint Hotline for Suspected Illicit Discharges

Responsible Party: Water Resources 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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.7.1** – 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 5

The City continued to maintain a [Stormwater Violations Hotline and Online Complaint Report form](#) that allowed concerned citizens to easily and anonymously report any suspected incidents of non-stormwater discharge violations to the publicly owned stormwater system. No complaints were filed through the hotline or online reporting system during the permit year; however, when Illicit Discharge Detection & Elimination (IDDE) incidents are reported by other means (usually by City staff or Public Safety dispatch), inspections are conducted. In the cases where the reported incidents were determined to be actual IDDE events, follow-up or corrective actions are taken. Therefore, the goal associated with this BMP was completed successfully as required.

BMP 3.8 Continue Storm Drain Stenciling Program

Responsible Party: Water Resources 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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 3.8.1** – continue to annually stencil catch basins in conjunction with catch basin cleaning.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued to stencil catch basins as part of its annual catch basin cleaning program (e.g., half of the catch basins that were cleaned were also stenciled). Nearly all of the City's approximately 2,800 catch basins are cleaned on an annual basis and approximately 50% of these are stenciled depending on how worn the paint is from previous stencil applications. The City has 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. Therefore, the goal associated with this BMP was completed successfully as required.

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 greater than or equal to one acre.



Catch basin protected by staked hay bales and silt sack (Nov. 2012)

BMP 4.1 Continue Notification to Construction Site Developers and Operators of Registration Requirements under Maine Construction General Permit or Chapter 500 – Management for the Discharge of Stormwater Associated with Construction Activities

Responsible Party: Water Resources Protection Dept.

Additional Party: Planning 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.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measureable Goal 4.1.2** – annually evaluate current system and modify, if necessary.

ACTIONS COMPLETED DURING PERMIT YEAR 5

During the site plan review process the City confirmed that projects needing 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 MEDEP 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.

Also, all projects that triggered the one acre threshold went through site plan review; these applicants were provided with an information packet on appropriate erosion and stormwater control practices from the City. The City’s Stormwater Performance Standards (Ch. 27-1536) also required any project with more than 15,000 square feet of disturbed area to receive approval from the Planning Board. These projects were subject to a modified site plan approval process, which carefully considered sediment and

erosion control practices.

The City hired third party inspectors to evaluate proposed site plans. Each site plan was reviewed to ensure that proposed construction phasing included 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. As a result of these numerous and varied activities, the goal associated with this BMP was completed successfully as required.

BMP 4.2 Continue Annual Documentation for Every Construction Activity that Disturbs One or More Acres within the Urbanized Area

Responsible Party: Water Resource Protection Dept.

Additional Party: Planning 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) and thereby reduce the amount of stormwater pollution entering the City’s water resources.

METHODOLOGY

Establish documentation procedures to ensure conformance with local and state stormwater laws (South Portland Ordinance § 27-1536 and Maine Construction General Permit and Chapter 500, respectively).

PERMIT YEAR 5 MEASURABLE GOALS

- ***Measurable Goal 4.2.1*** – implement a tracking system to record every activity that disturbs greater than or equal to one acre. 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.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City documents construction activities disturbing one or more acres through a notification process involving the Planning Department, 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 Stormwater Program Coordinator reviews 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). Therefore, the goal for this BMP was completed successfully as required.

BMP 4.3 Continue Implementation of Construction Site Inspection Program

Responsible Party: Water Resources Protection Dept.

Additional Party: Planning Dept.

FUNCTION

To establish a program for conducting regular and consistent construction site inspections to reduce the amount of stormwater pollution entering the City's water resources.

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).

PERMIT YEAR 5 MEASURABLE GOALS

- ***Measurable Goal 4.3.3*** – continue implementing process for tracking and notifying the site developer or contractor of noncompliance issues. Construction site inspectors 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 Planning and Development Department requiring the site to come into compliance within a specified time period. If the violation continues, following the inspection by City staff or a duly designated person, a recommendation to the Planning Board would be made to call (use) the performance guarantee to correct the problem. Continued non-compliance will be reported to the DEP with supporting documentation.
- ***Measurable Goal 4.3.4*** – inspect 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.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued to require erosion and sediment control inspections on construction sites greater than or equal to 1 acre of disturbed area (Figure 7). There were eleven construction projects inspected 78 times over the course of PY2012-13. One of the projects was located at the Portland International Jetport and was routinely inspected by a third party (the Cumberland County Soil & Water Conservation District). The remaining projects were either inspected according to the conditions of approval following the site plan review process or done in response to concerns about potential erosion problems. City and contractor staff conducted inspections for these projects. For the potential problem sites, contractors were informed of proper erosion and sediment control practices at the time of site inspections by City staff.

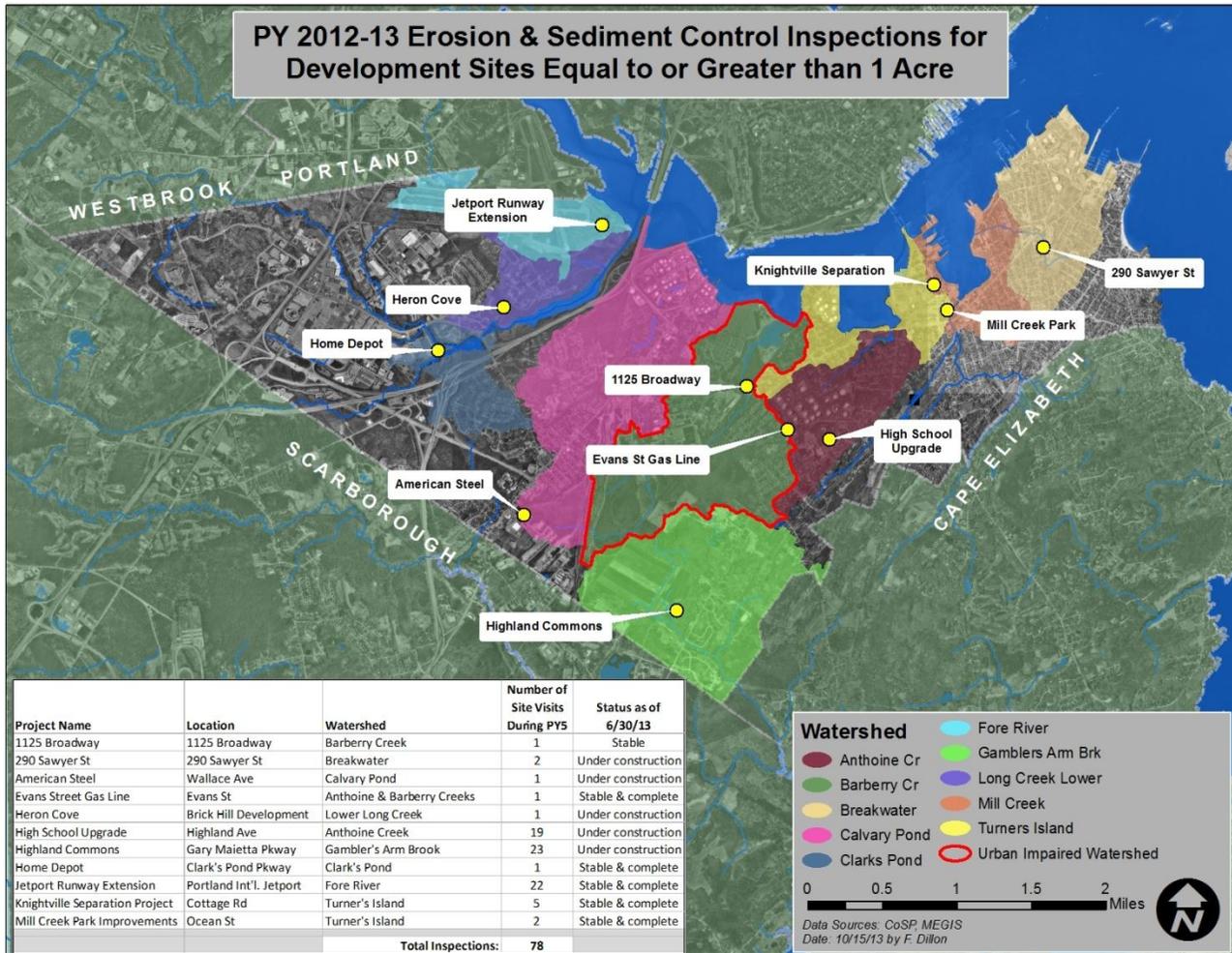


Figure 7: PY2012-13 erosion and sediment control (ESC) inspections for sites greater than 1 acre

Inspectors used the City’s field data form to document potential sources of stormwater pollution and recommend follow up actions. City staff incorporated all field inspection forms into an electronic database for record keeping and project tracking. The inspections identified a variety of erosion and sediment control issues at some sites, including inadequate protection of catch basins, improper installation of silt fence, the presence of sediment-laden track-out from the site entrance / exit, and the inadequate stabilization of stockpiles, among others. All of these issues were eventually corrected by the site contractors following notification from the City.

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

Responsible Party: Water Resources Protection Dept.

Additional Party: Planning 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.

PERMIT YEAR 5 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 5

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. Therefore, the goal associated with this BMP was completed successfully as required.

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

The City of South Portland fulfilled its requirements for the Post-Construction Stormwater Management Minimum Control Measure through a variety of activities as described below. 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 Post-Construction Stormwater Management Ordinance

Responsible Party: Water Resources Protection Dept.

Additional Party: Planning Dept.

FUNCTION

To develop local regulations that support and enhance state stormwater pollution regulations (MEDEP Chapter 500 and *General Permit for the Discharge of Stormwater From Small Municipal Separate Storm Sewer Systems*) by ensuring the appropriate and adequate use of structural and nonstructural BMPs for new development and redevelopment projects.

METHODOLOGY

Create a local regulatory mechanism or ordinance 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.

PERMIT YEAR 5 MEASURABLE GOALS

- ***Measureable Goal 5.1.4*** – implement post-construction stormwater ordinance to ensure long-term operation and maintenance of post-construction BMPs.

ACTIONS COMPLETED DURING PERMIT YEAR 5

The City continued to implement the Stormwater Management Performance Standards (local ordinance Chapter 27-1536) to ensure that post-construction BMPs were being properly operated and maintained. In May of 2013, the City sent out letters to all qualifying property owners and City-certified third party inspectors notifying them of the annual post-construction BMP inspection requirements specified in the

ordinance. Additional follow-up letters were sent out to a few property owners (and third party inspectors) for inspection reports that were not submitted by the 7/15/13 deadline. By early August 2013, inspection reports for all but one qualify property had been submitted to the City (see BMP 5.2).

BMP 5.2 Continue implementation of tracking method for post-construction BMPs installed within the Urbanized Area and continue implementation of tracking system for annual certifications required from the owners or operators of the post-construction BMPs

Responsible Party: Water Resources Protection Dept.

Additional Party: Planning Dept.

FUNCTION

To develop a method to ensure that post-construction BMPs are adequately operated and maintained.

METHODOLOGY

Use site plan review process to impose post-construction BMP inspection and O&M requirements as specified in the recently amended municipal ordinance (Chapter 27-1536).

PERMIT YEAR 5 MEASURABLE GOALS

Measurable Goal 5.2.2 – continue to implement post-construction BMP tracking program with yearly evaluations to modify as necessary.

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

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

ACTIONS COMPLETED DURING PERMIT YEAR 5

Beginning in PY2010-11, the owners / operators of all sites >15,000 ft² with structural stormwater management BMPs constructed after the adoption of the City’s Stormwater Management Performance Standards in April 2009 were required to submit annual third party certified inspections. The City worked closely with the Long Creek Watershed Management District and Interlocal Stormwater Working Group to develop the inspection procedures that address entire qualifying sites through the use of both non-structural and structural BMPs.

There were considerably more properties with structural stormwater BMPs requiring third party inspections in PY2012-13 than in previous permit years (Table 4). There are numerous other sites that were

either proposed for construction or in the process of being constructed that will become subject to the annual inspection requirements in future permit years (Figure 8). For PY2012-13, the City will continue to work closely with the LCWMD and ISWG to further refine post-construction BMP inspection procedures.

Table 4: Post-construction BMP third party inspection and reporting status for PY2012-13

PROJECTS	3PI Report Received by 7/15/13?	Follow-up Needed?	Comments
Private			
28 Edgewood	No	No	Required every 2 years; 1st report due 7/15/14
Pape Subaru	Yes	No	Report received in June 2013
Peary Terrace	No	No	Report for all 8 parcels received in Sep 2013
Residential Mortgage Services	No	Yes	Report not received as of Oct 2013 (parcel <1acre in size and not subject to MS4 permit requirements)
Troiano Waste Services	Yes	No	Report received in July 2013
Tru Choice Credit Union	Yes	No	Report received in June 2013
VanEastland LLC	No	No	Initial inspection on 7/8/13; follow up maintenance completed on 8/5 & 8/6/13.
Western Ave Crossing	No	No	Report received in July 2013
City of South Portland			
Long Creek PS	Yes	No	Report received in June 2013
Mahoney Middle School	Yes	Yes	June 2013 inspection failed due to lack of vegetative cover and inadequate retention time. Installed outlet orifice restriction in late June 2013 and vegetation in Sep. 2013; still need reinspection as of Oct 2013.
City Hall / Transit Hub	Yes	No	Report received in June 2013
LCWMD			
Darling Ave	Yes	No	Tracked by LCWMD through LCWMP
Dick's Sporting Goods	Yes	No	" "
Philbrook Ave	Yes	No	" "
City of Portland			
Jetport Deicing Facility	No	No	Tracked by Jetport through MSGP requirements
Jetport Parking Expansion	No	No	" "

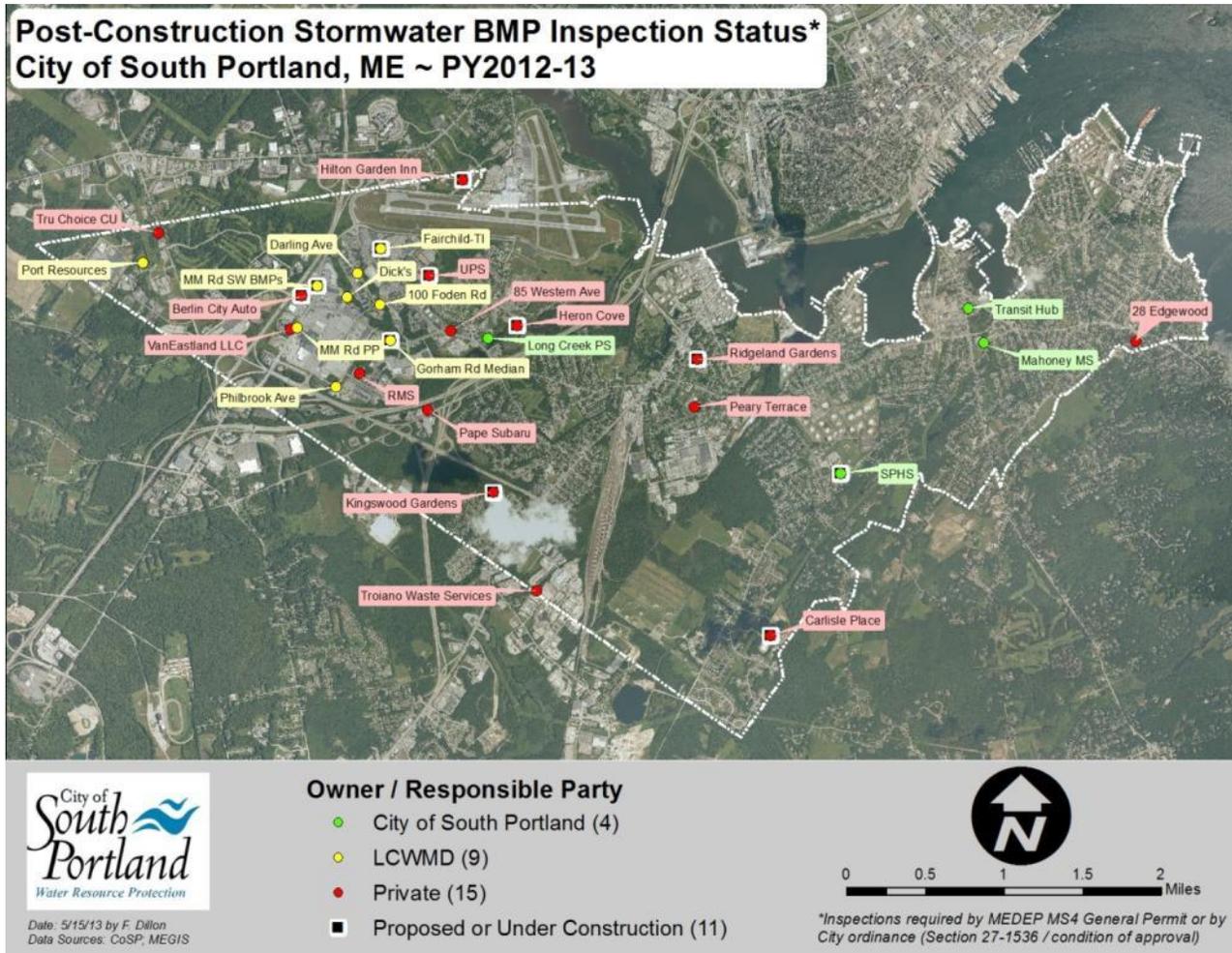


Figure 8: locations of qualifying post-construction structural stormwater BMPs in South Portland

The City continued using of Google Earth to provide key information about properties requiring inspections to prospective third parties. This information includes photos, record drawings and stormwater management plans that can be accessed directly from the web. As a result of these activities, the goal associated with this BMP has been completed successfully as required.

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.



Salt management workshop for regulated MS4 community municipal staff (November 2012)

BMP 6.1 Continue Implementation of Written Operations and Maintenance Procedures at all Municipally Owned Grounds and Facilities for all Watersheds in Urbanized Area

Responsible Party: Stormwater Program Coordinator

Additional Party: N/A

FUNCTION

To identify all applicable activities at municipally owned or operated facilities that have the potential to generate stormwater pollution.

METHODOLOGY

Develop a GIS-based inventory of all City properties with a list of associated municipal activities that have the potential to generate stormwater pollution.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 6.1.3** – develop and implement 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 watersheds in the Urbanized Area. As specified in the General Permit for Small MS4s, the O&M procedures will address, 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 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 5

The Water Resource Protection Department continued to provide all relevant municipal department heads 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 our entire Urbanized Area (Figure 9).

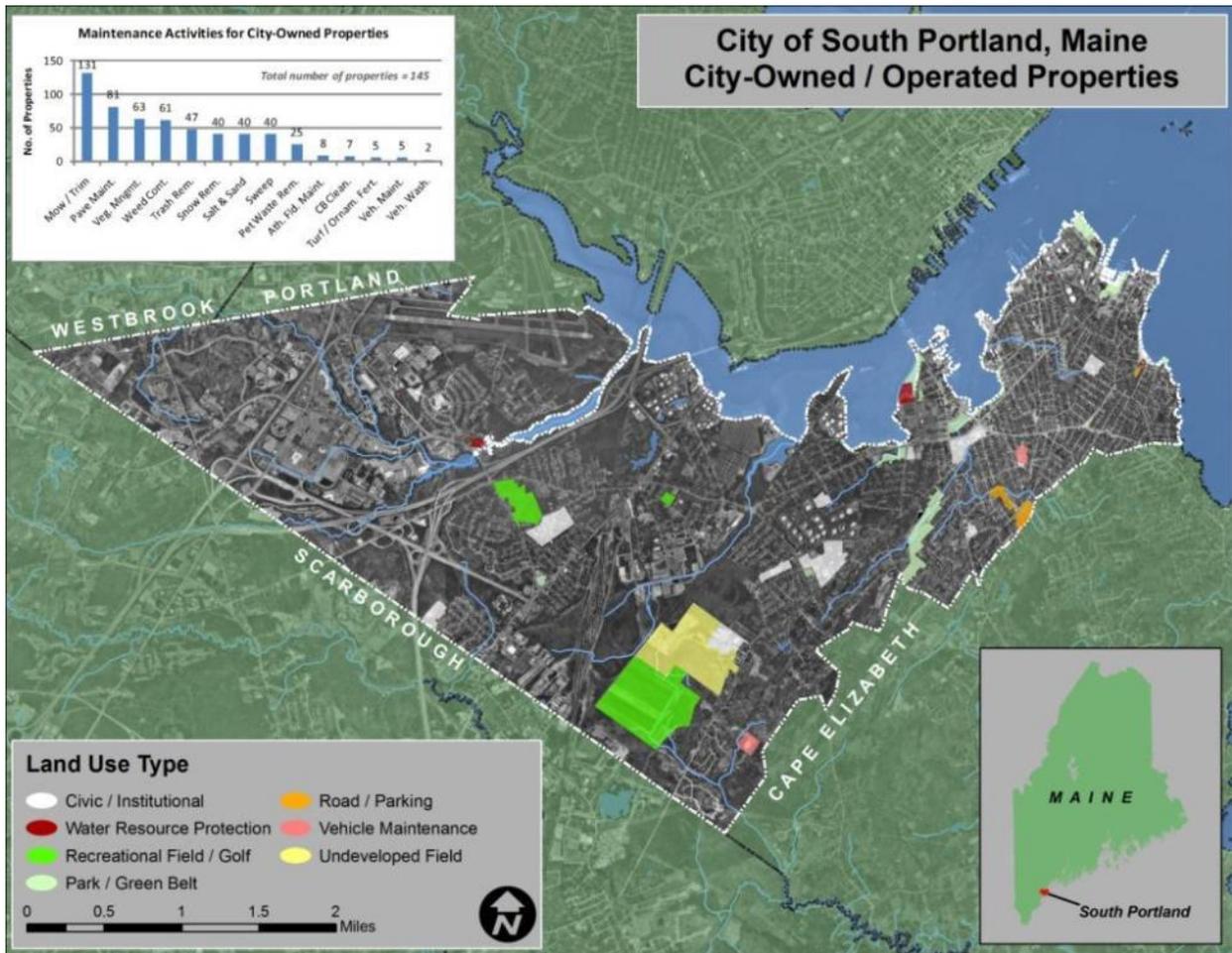


Figure 9: properties owned, operated or maintained by the City (excluding roads)

BMP 6.2 Continue Implementation of Municipal Employee Training Program

Responsible Party: Water Resources Protection

Additional Party: N/A

FUNCTION

To provide relevant and timely training for all applicable municipal employees to assist in the effective implementation of the City's Stormwater Program Management Plan and ultimately the elimination of stormwater pollutants from all municipal operations.

METHODOLOGY

Develop and deliver targeted training materials and resources for all relevant municipal operations (e.g., street and pavement maintenance, landscaping, vehicle maintenance, snow removal, etc.).

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 6.2.2** – during Permit Years 4 and 5, implement 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 5

City staff participated in a number of good housekeeping / pollution prevention training events in PY2012-13. In November 2012, a supervisor and another staff member from Public Works Department attended a DEP training program on winter salt application. The training described how salt-laden stormwater runoff from impervious areas can lead to elevated chloride levels in ground and surface waters and result in adverse impacts to aquatic organisms. It also provided instruction on using best management practices to minimize salt use while still providing the same level of safety for vehicles and pedestrians.

In February 2013, the City's Stormwater Program Coordinator provided two separate 1 hour training events for 16 Public Works Department employees and 2 Transfer Station employees on facility-specific Stormwater Pollution Prevention Plans (Figure 10). The training discussed general good housekeeping & pollution prevention procedures followed by a review of potential facility-specific sources of stormwater pollution and recommendations for corrective actions to minimize them.



Figure 10: facility-specific SWPPP training provided to municipal staff in PY2012-13

BMP 6.3 Continue Implementation of Street Sweeping Program

Responsible Party: Water Resources Protection

Additional Party: N/A

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.

PERMIT YEAR 5 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 5

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 2012 and once shortly after final snow melt in the late winter / early spring of 2013. In late February 2013, the City's Stormwater Program Coordinator initiated discussions with the DEP and LCWMD following research on Seattle's use of sweeping as "absolutely the most cost-effective" stormwater BMP in their stormwater management program toolbox.¹ Water Resource Protection and Public Works Department staff also met in February 2013 to discuss increased sweeping frequencies for

¹ Phone conversation between Fred Dillon and Shelly Basketfield of [Seattle Public Utilities on efficacy of street sweeping for stormwater pollutant load reduction](#) (2/28/13)

other parts of the City, including the Knightville area. Therefore, the goal associated with this BMP has been completed successfully as required.

BMP 6.4 Continue Cleaning of Stormwater Structures Including Catch Basins

Responsible Party: Water Resources Protection

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.

PERMIT YEAR 5 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 5

The City continued its ongoing cleaning program for all municipally owned or operated stormwater infrastructure and catch basins, which amounts to just over 2,800 structures. 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 2012-13 permit year, over 1,600 City-owned catch basins were cleaned and approximately 345 tons of material were removed and disposed of at Commercial Recycling in Scarborough.² The total operational cost to complete this work was just under \$32,000 and the approximate cost to clean each catch basin was \$19.24. We are continuing to develop a method to track maintenance and capital replacement expenses to identify the full cleaning cost for catch basins on a watershed basis. Therefore, the goal associated with this BMP has been completed successfully as required.

² On a calendar year basis, the City is generally able to clean all publicly-owned catch basins.

Table 5: summary of catch basin cleaning activities and associated operational costs for PY2012-13

SUMMARY BY WATERSHED									RELATIVE EFFICIENCIES			
Watershed	Total CBs	CBs Cleaned	% Complete	Labor Hours	Fuel Use (Gallons)	Grit Tons	Grit Tons / CB	Approx. Ops. Cost	Labor Hrs/Ton	Gallons Fuel/Ton	Ops Cost \$/Ton	\$/CB Cleaned
Anthoine Creek	204	107	52%	21.00	20.00	20.83	0.19	\$1,668	1.01	0.96	\$80.08	\$15.59
Barberry Creek	204	105	51%	90.50	109.65	72.07	0.69	\$6,404	1.26	1.52	\$88.86	\$60.99
Breakwater	278	229	82%	48.50	60.50	32.88	0.14	\$3,157	1.48	1.84	\$96.00	\$13.78
Calvary Pond	274	85	31%	20.60	28.50	19.53	0.23	\$1,623	1.05	1.46	\$83.11	\$19.10
Clarks Pond	123	69	56%	4.00	3.00	3.59	0.05	\$296	1.11	0.84	\$82.57	\$4.30
Danforth Cove	21	17	81%	6.00	5.50	4.84	0.28	\$421	1.24	1.14	\$87.07	\$24.79
Fore River	113	42	37%	11.50	6.00	2.90	0.07	\$479	3.97	2.07	\$165.29	\$11.41
Gambler's Arm Bk	227	197	87%	31.00	46.00	27.55	0.14	\$2,363	1.13	1.67	\$85.79	\$12.00
Kimball Brook	27	19	70%	8.50	9.00	7.06	0.37	\$611	1.20	1.27	\$86.57	\$32.17
Long Creek	271	246	91%	48.00	225.00	29.92	0.12	\$3,574	1.60	7.52	\$119.44	\$14.53
Long Creek Lower	110	34	31%	14.00	27.00	11.14	0.33	\$1,025	1.26	2.42	\$92.04	\$30.16
Mill Creek	187	116	62%	46.00	60.99	49.43	0.43	\$3,901	0.93	1.23	\$78.91	\$33.63
Nonesuch River	112	65	58%	14.75	19.00	7.88	0.12	\$858	1.87	2.41	\$108.91	\$13.20
Red Brook	21	3	14%	5.50	6.00	2.78	0.93	\$308	1.98	2.16	\$110.96	\$102.82
Trout Brook	138	103	75%	20.50	27.99	17.29	0.17	\$1,509	1.19	1.62	\$87.27	\$14.65
Turners Island	204	119	58%	36.25	33.50	17.45	0.15	\$1,969	2.08	1.92	\$112.85	\$16.55
Willard Beach	122	86	70%	17.00	18.00	18.28	0.21	\$1,426	0.93	0.98	\$78.02	\$16.58
Totals:	2636	1642	62.3%	444	706	345	0.21	\$31,594	1.28	2.04	\$91.47	\$19.24
			(1642/2636)				(345/1642)		(444/345)	(706/345)	(31594/345)	(31594/1642)

* 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 and Outfalls

Responsible Party: Water Resources 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.

PERMIT YEAR 5 MEASURABLE GOALS

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

ACTIONS COMPLETED DURING PERMIT YEAR 5

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 over \$80,000 – or 40% of the total construction program budget – on a variety of stormwater system repair

and replacement activities for the 2012-13 permit year (Figure 11). 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 also investigating the use of a GIS-integrated asset management program that will assist in prioritizing infrastructure repair and replacement projects. As a result of these activities, the goal associated with this BMP has been completed successfully as required.

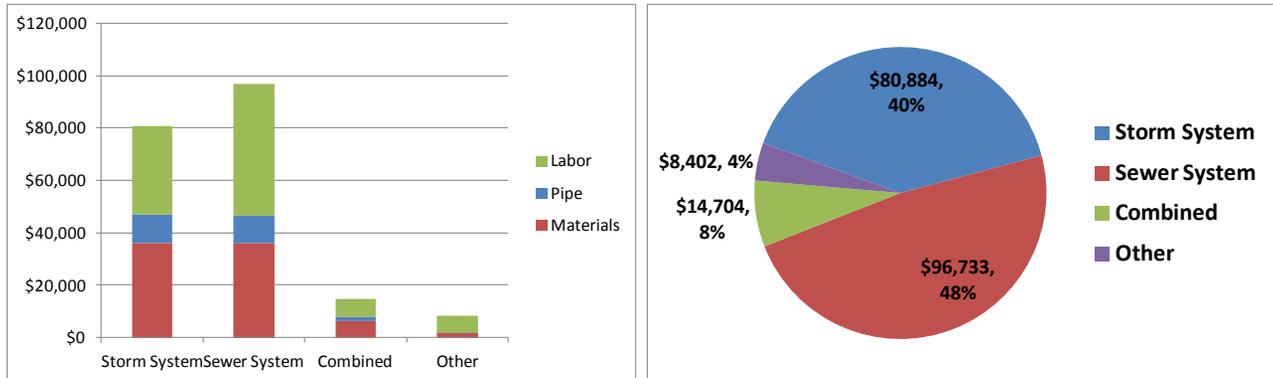


Figure 11: construction program expenses (excluding eq. replacement & maint. costs) for PY2011-12.

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

Responsible Party: Water Resources Protection

Additional Party: N/A

FUNCTION

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

METHODOLOGY

Conduct an inventory of applicable municipal facilities to determine which ones need updated or new SWPPPs. Develop SWPPPs for all applicable facilities.

PERMIT YEAR 5 MEASURABLE GOALS

- **Measurable Goal 6.6.2** – continue to implement SWPPPs for each applicable facility (e.g., public works, school bus maintenance and transfer station) and collaborate with DEP to establish a training program for municipal facility staff to keep them adequately informed of SWPPP requirements on an ongoing basis.

ACTIONS COMPLETED DURING PERMIT YEAR 5

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 Transfer Station facilities attended

pollution prevention and good housekeeping training held in February of 2013. Facility-specific training will also be provided to School Bus Maintenance facility staff in the fall of 2013. Each SWPPP will be reviewed and revised as needed to reflect any changes or updates to facility operations.

APPENDICES

Appendix 1: ISWG Permit Year 5 Summary of MCM1

Stormwater Awareness Plan Implementation

Status (x = complete)

Outreach Tool	PY1 ³	PY2	PY3	PY4	PY5	PY5 Details	
<p>PY5 requirement: to be in compliance, implement A5 and one additional activity (A2, A3, A4 or A6). If A3 has not been implemented in this permit cycle, it should be selected as the additional activity for communities where public receptacles are visible.</p>							
A1 - Run the Ducky II ad for 3 weeks (required in PY 2&3)		x	x				
A2 - Distribute posters at municipal offices, libraries, local hotspots (required in PY 2-4)		x	x	x	x	A total of 275 stormwater-related posters were displayed in local establishments in the 14 ISWG communities.	
A3 - Affix stickers to waste receptacles (required in PY5)					x	Stickers featuring the Think Blue Maine logo, website, and the message “Don’t trash our water!” were developed and affixed to public trash cans in schools, municipal buildings, libraries, and parks/public areas in ISWG communities ⁴ . Communities received stickers in the following quantities:	
						Biddeford	500
						Cape Elizabeth	500
						Cumberland	500
						Falmouth	500
						Freeport	500
						Gorham	500
						Old Orchard Beach	500
						Portland	500
						Saco	500

³ PY1 was dedicated to developing the awareness plan. No public awareness outreach was required.

⁴ 500 stickers were also provided to the Maine Turnpike Authority to be distributed at their administrative building in Portland, maintenance facilities, and toll booths.

						Scarborough	700
						South Portland	500
						Westbrook	700
						Windham	500
						Yarmouth	500
A5 - Ducky ad + <i>After the Storm</i> , a video co-produced by EPA & the Weather Channel on local cable access stations (required in PY 4&5)						Each ISWG community's public access television station was provided with a copy of the Ducky II ad and <i>After the Storm</i> . The following information was received from the stations regarding air play:	
						Biddeford	No data provided
						Cape Elizabeth	No data provided
						Cumberland	No data provided
						Falmouth	<i>After the Storm</i> was aired daily in May and June; the Ducky ad played frequently between programming.
						Freeport	No data provided
						Gorham	<i>After the Storm</i> and the Ducky ad aired daily.
						Old Orchard Beach	No data provided
						Portland	No data provided
						Saco	No data provided
						Scarborough	No data provided
						South Portland	Between 7/1/12 and 6/30/13, South Portland Community Television aired over 281 hours of water-related programming (including <i>After the Storm</i> and the ducky ad).
						Westbrook	No data provided

						Windham	No data provided
						Yarmouth	No data provided

PY5 requirement - to be in compliance, implement B1 & B4 and one additional activity (B2, B3 or B5).							
B1 - Prominent links established on municipal and partner websites (required in PY 2-5)			x	x	x	x	
B2 - Article in local newspaper and/or town newsletter (required in PY 2-5)			x	x	x	x	A press release about stormwater and the <i>Urban Runoff</i> 5k was submitted to the following publications: <i>Forecaster</i> (all editions; covers Cape Elizabeth, Cumberland, Falmouth, Freeport, Portland, Scarborough, South Portland & Yarmouth), <i>Portland Daily Sun</i> (Portland), <i>Independent</i> (Windham), <i>American Journal</i> (Gorham & Westbrook), <i>Courier</i> (Biddeford, Saco & OOB), <i>Portland Press Herald</i> ; The <i>Portland Press Herald</i> featured the Urban Runoff in their "In the City" blog (April 19, 2013).
							WGME 13 featured the Urban Runoff in their news broadcast (April 20, 2013)
B4 – Run online web ads for three months (required in PY 4&5)					x	x	<p>Online ads that directed viewers to www.thinkbluemaine.org ran on news and outdoor-focused websites and on the Time Warner Cable RoadRunner email log-in page in all ISWG communities for the months of March – May 2013.</p> <p>Using Time Warner Cable’s online ad service, ISWG was able to specifically market to our target audience (homeowners, aged 35-55) primarily within the ISWG communities (residents of outlying communities potentially saw the ads as well).</p> <p>According to the summary report provided by Time Warner Cable, the ads were seen by our target audience more than 400,000 times and had a “click through rate” (the number of times</p>

						<p>the ads were clicked) of 0.07%. ISWG’s click through rate was higher than the industry average of 0.04%.</p> <p>There was a 214% increase in hits on the Think Blue Maine website over this three-month period compared to the previous three three-month periods (June 2012 – August 2012, September 2012 – November 2012, December 2012 – February 2013).</p>
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PY5 requirement - to be in compliance, implement C1 and one additional activity (C2, C3, C4 or C5).						
C1 - Email newsletter/blurb to municipal employees (including school department), university employees, etc. (Required in PY 3-5)			x	x	x	An email promoting the <i>Urban Runoff</i> and <i>Green Neighbor Family Fest</i> was sent to all employees ⁵ in ISWG communities. The email included information about stormwater, as well as promoting the events.
C2 – Informational materials developed as part of awareness tool distributed in each ISWG community.				x	x	General stormwater 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: 64
						Gorham: 68
						Old Orchard Beach: 79
						Portland: 1797
						Saco: 111
Scarborough: 110						

⁵ The City of South Portland was unable to distribute the email to all municipal staff. A stormwater-related article was included in a municipal newsletter.

						South Portland: 86
						Westbrook: 111
						Windham: 96
						Yarmouth: 61

PY5 Evaluation

The Interlocal Stormwater Working Group partnered with other MS4 clusters and the University of Maine (UMaine) to complete an evaluation survey of our target audience. The survey instrument was based on Maine DEP’s intercept survey (developed by Market Decisions, 2007), the Bangor Area Stormwater Group’s 2011 intercept survey instrument, and the Cumberland County Soil & Water Conservation District’s (CCSWCD) 2012 Capisic Brook landowner survey (developed by UMaine and CCSWCD, 2012). A summary report is included in Appendix C.

Best Management Practices Adoption Plan Implementation

Status (x = complete)

Task	PY1⁶	PY2	PY3	PY4	PY5	PY5 Details
Reporting						
Summarize plan implementation to date	x	x	x	x	x	

Point of Sale

Expand number of stores participating in the Point of Sale program; goal is to have 21 participating stores.	x	x	x	x	x	In PY5 the number of stores participating in the program was maintained at 21. The distribution of the stores is as follows:
						Biddeford: 0
						Cape Elizabeth: 0
						Cumberland: 1
						Falmouth: 2
						Freeport: 1
						Gorham: 2
						Old Orchard Beach: 1
						Portland: 2
						Saco: 1
						Scarborough: 2
						South Portland: 3
						Westbrook: 1
						Windham: 2
Yarmouth: 3						

⁶ Behavior change plan development occurred in PY1. The YardScaping program was still in the pilot stage during PY1, and not all tasks were required.

Adult Education

Offer a minimum of six YardScaping classes per year	x	x	x	x	x	9/12/12: UMaine Cooperative Extension Master YardScaper class (Scarborough), 20 participants
						9/26/12: Scarborough Adult Ed, 17 participants
						3/6/13: Scarborough Adult Ed, 15 participants
						3/11/13: Youth YardScaper teacher workshop (Falmouth): 8 participants
						3/23/13: Biddeford Pool Improvement Association winter meeting, 25 participants
						4/2/13: Citizens of a Green Gorham sponsored training, class cancelled due to low registration
						4/13/13: Skillins Greenhouse spring class (Falmouth), 47 participants
						6/4/13: Falmouth Middle School Youth YardScaping public presentation, 39 participants
						6/5/13: Falmouth Middle School Youth YardScaping public presentation, 42 participants
Promote adult education classes	x	x	x	x	x	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 networking websites, and through host locations.
Track behavior change	x	x	x	x	x	CCSWCD staff documented class evaluations and contacted past adult education class participants to determine which YardScaping practices were adopted. Please see summary of behavior change reported by participants of PY4 classes, as well as those practices participants of PY5 classes intend to implement, below.

Targeted Information Distribution

Distribute information to priority neighborhoods		x	x	x	x	YardScaping information was distributed throughout priority neighborhoods in each ISWG community. The following number of
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(minimum of 50-100 households in size) in each ISWG community.					households received information:
					Biddeford: 122
					Cape Elizabeth: 79
					Cumberland: 112
					Falmouth: 95
					Freeport: 64
					Gorham: 68
					Old Orchard Beach: 79
					Portland: 1797
					Saco: 111
					Scarborough: 110
					South Portland: 86
					Westbrook: 111
					Windham: 96
				Yarmouth: 61	
Distribute YardScaping information to local establishments (e.g. pet stores, veterinarian offices, pediatrician offices). (Required in PY 3-5)			x		Note: With approval from Maine DEP, this task was removed from ISWG's BMP Adoption Plan in PY4.

Websites & Free Media

Maintain CCSWCD YardScaping website	x	x	x	x	x	CCSWCD maintained the YardScaping website and tracked hits. Increased hits were seen after targeted neighborhood outreach efforts, public events, and adult education presentations.
Newspaper coverage of YardScaping activities	x	x	x	x	x	Portland Press Herald: Maine Gardener: Eradicating weeds takes patience, persistence and hard work (July 22, 2012)

and healthy lawn care						Portland Press Herald: Maine Gardener: <u>A</u> lawn, with his thoughts (September 9, 2012)
						Portland Press Herald: Maine Voices: Act now to get some protection from pesticide spraying (December 21,2012)
						Portland Press Herald: Concern over pesticide use at schools rises (January 1, 2013)
						Portland Press Herald: Pesticide forum may have both sides buzzing (January 13, 2013)
						Portland Press Herald: Maine Gardener: Biocontrols are hot (January 27, 2013)

Neighborhood YardScape Socials

Hold a minimum of zero neighborhood socials in the ISWG communities	x	x	x	x	x	Zero neighborhood socials were held in the ISWG communities in PY5.
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Adult Education – Behavior Change Tracking

During the fall of 2012, CCSWCD staff made follow up phone calls with participants of YardScaping adult education classes held in the fall of 2011 and spring of 2012 (PY4 class participants) in order to determine the level of implementation of the YardScaping practices. As expected, it was difficult to reach people, but the information gleaned from those who were reached provided an anticipated rate of compliance.

Follow up phone calls from Permit Year 4 YardScaping Classes (behavior change tracking)			
Lawn Care Practice	Planned to implement	Implemented practice	% behavior change
Set Mower to a height of 3"	17	17	100.00%
Leave grass clippings	3	3	100.00%
Sharpen mower blades	12	9	75.00%
Aerate	21	7	33.33%
Topdress	20	9	45.00%
Overseed	19	15	78.95%
Use low maintenance seed	21	15	71.43%
Get a soil test	18	10	55.56%
Use nitrogen-only fertilizer	11	7	63.64%
Use compost tea	18	6	33.33%

Cumulative Behavior Change (PY1-4)⁷			
Lawn Care Practice	Planned to implement	Implemented practice	% behavior change
Set Mower to a height of 3"	84	84	100.00%
Leave grass clippings	51	49	96.08%
Sharpen mower blades	71	58	81.69%
Aerate	128	69	53.91%
Topdress	135	79	58.52%
Overseed	130	88	67.69%
Use low maintenance seed	145	108	74.48%
Get a soil test	128	87	67.97%
Use nitrogen-only fertilizer	115	79	68.70%
Use compost tea	112	41	36.61%

Follow up phone calls are made six months to a year after the class to allow participants a growing season to implement the recommended practices. Below are the results of the Permit Year 5 post-class evaluations.

Permit Year 5 Post-Class Evaluations			
Lawn Care Practice	Plan to implement	Currently do not implement	% planning to implement
Set Mower to a height of 3"	17	17	100.00%
Leave grass clippings	9	10	90.00%
Sharpen mower blades	17	21	80.95%
Aerate	37	38	97.37%
Topdress	37	41	90.24%
Overseed	38	40	95.00%
Use low maintenance seed	39	40	97.50%
Get a soil test	38	44	86.36%

⁷ Behavior change resulting from PY5 classes will be documented in the fall of 2013.

Use nitrogen-only fertilizer	34	40	85.00%
Use compost tea	26	38	68.42%

CCSWCD staff will contact the class participants from the Permit Year 5 classes in the fall of 2013 to determine which behaviors have been adopted.

ISWG Classroom Education Activities

The following is a summary of education activities completed in each ISWG community during the 2012-2013 school year. Activities were provided by the following:

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

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

Totals

PY5 total students: 3,358

PY5 total contact hours: 2,040

Cumulative (PY 1-5) total students: 14,033

Cumulative (PY 1-5) total contact hours: 57,354.25

Biddeford

PY5 total students: 165

PY5 total contact hours: 124

Lesson topics: Watersheds, water movement, and transport of nonpoint source pollutants.

Schools: Biddeford Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 363

Cumulative (PY 1-5) total contact hours: 299

Cape Elizabeth

PY5 total students: 178

Total contact hours: 950

Lesson topics: Soil as water pollution; erosion; watersheds. Nonpoint source pollution, erosion, water flow, and best management practices; buffers and their ability to mitigate pollution; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices.

Schools: Cape Elizabeth High School, Pond Cove Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 845

Cumulative (PY 1-5) total contact hours: 4,370

Cumberland

PY5 total students: 237

PY5 total contact hours: 1,263

Lesson topics: Watersheds, nonpoint source pollution, and water quality parameters; in-class water quality testing; major global ocean currents and local Gulf of Maine circulation, how trash and pollution is transported; how our actions affect water quality in freshwater and marine resources; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices.

Schools: Greely High School, Greely Middle School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 920

Cumulative (PY 1-5) total contact hours: 6335.5

Falmouth

PY5 total students: 123

PY5 total contact hours: 2040

Lesson topics: Watersheds and water flow, local water bodies, and watersheds; stormwater pollution and cumulative impact; nonpoint source pollution and behavior change; experiments and independent research projects where students formed a yard care company based on the YardScaping program (healthy lawn care without the use of chemicals) and presented their research to the public.

Schools: Falmouth Middle School, REAL school

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 600

Cumulative (PY 1-5) total contact hours: 6599

Freeport

PY5 total students: 44

PY5 total contact hours: 176

Lesson topics: Watersheds, watershed models, water in the world; defining water pollution, soil as pollutant in water; stormwater pollution and cumulative impact; direct and indirect uses of water; nonpoint source pollution, impervious/pervious surfaces, runoff, and best management practices.

Schools: Mast Landing School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 220

Cumulative (PY 1-5) total contact hours: 619

Gorham

PY5 total students: 267

PY5 total contact hours: 817

Lesson topics: Storm drains, runoff, non-point source pollution, water movement; watersheds, non-point source pollution, and water quality parameters; nonpoint source pollution, impervious/pervious surfaces, runoff, and best management practices; in-class water quality testing, water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; vernal pools and local frogs.

Schools: Gorham Middle School, Sunny Days Summer Camp, Great Falls Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 993

Cumulative (PY 1-5) total contact hours: 3,866

Old Orchard

PY5 total students: 57

PY5 total contact hours: 171

Lesson topics: Amount of water in the world, conservation, and the water cycle; watersheds and water movement; nonpoint source pollution, stormwater, storm drains, cumulative impact, and wastewater.

Schools: Loranger Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 251

Cumulative (PY 1-5) total contact hours: 1,103

Portland

PY5 total students: 192

PY5 total contact hours: 356

Lesson topics: Watersheds, water cycle, water movement; nonpoint source pollution, stormwater, storm drains, cumulative impact; water locations; drinking water treatment and distribution; “Make a Splash” Festival featuring various Project WET water activities.

Schools/Groups: Lincoln Middle School, Riverton Elementary School, State Street Preschool

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 2,519

Cumulative (PY 1-5) total contact hours: 5,865

Saco

PY5 total students: 75

PY5 total contact hours: 290

Lesson topics: Water cycle, where water is found, watersheds, point and nonpoint source pollution, soil as pollutant in water; bioassessment process to determine water quality (classroom activity).

Schools/Groups: Saco Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 339

Cumulative (PY 1-5) total contact hours: 1,045

Scarborough

PY5 total students: 187

PY5 total contact hours: 463

Lesson topics: Amount of water in the world; nonpoint source pollution, stormwater, storm drains, cumulative impact; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; groundwater.

Schools/Groups: Girl Scouts (Brownies), Wentworth Intermediate School, Scarborough High School, Scarborough Middle School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 1,100

Cumulative (PY 1-5) total contact hours: 2,547

South Portland

PY5 total students: 313

PY5 total contact hours: 1,945

Lesson topics: Group investigation of water topics and sampling inflow to pond; macroinvertebrate sampling and fish traps at Clark's pond outlet; Watersheds, water cycle, water movement; bioassessment process to determine water quality (classroom activity); nonpoint source pollution, soil as pollutant, impervious/pervious surfaces, runoff, and best management practices; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; macroinvertebrate sampling and water quality testing.

Schools: Small Elementary School, Memorial Middle School, Mahoney Middle School, Skillin Elementary School, Dyer Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 2,609

Cumulative (PY 1-5) total contact hours: 12,237

Westbrook

PY5 total students: 94

PY5 total contact hours: 102

Lesson topics: Discussion of hydropower pros and cons, history of Presumpscot River and dams, role play discussion on pros and cons of dam removal.

Schools: Westbrook Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 465

Cumulative (PY 1-5) total contact hours: 1,705

Windham

PY5 total students: 263

PY5 total contact hours: 1,340

Lesson topics: Macroinvertebrate sampling; “Water Maine” collaboration with PWD; amount of water in the world, water cycle; watersheds, water movement, watershed models; bioassessment process (classroom activity); stormwater, nonpoint source pollution, storm drains, cumulative impact; mixtures and turbidity water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; macroinvertebrate sampling; relating macroinvertebrates to flyfishing and river ecology and food systems; “Water Maine” book project (book written by high school students for middle school audience about various water topics).

Schools: Windham High School, Windham Middle School, Manchester Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 1,494

Cumulative (PY 1-5) total contact hours: 10,395

Yarmouth

PY5 total students: 107

PY5 total contact hours: 129

Lesson topics: Water pollution, nonpoint source pollution, soil as pollutant, impervious/pervious surfaces, runoff, and best management practices; stormwater, storm drains, cumulative impact.

Schools: Yarmouth Elementary School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 270

Cumulative (PY 1-5) total contact hours: 368.75

Appendix 2: ISWG Permit Year 5 Summary of MCM2

Urban Runoff & Green Neighbor Family Fest

The second annual *Urban Runoff* 5K race and walk and the *Green Neighbor Family Fest* were held on April 20, 2013. The goal of these events was to raise awareness of stormwater and funds for ISWG's school education program. With approval from Maine DEP, race and festival served as the Public Involvement and Participation event for all ISWG communities.

By all accounts, this second annual event was a huge success. A total of 589 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 radio sponsorship during the month of April by 98.9 WCLZ. Online advertising through Facebook and Active.com was also used to promote the race and cause.

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 uniquely features both suburban neighborhood streets as well as about a mile long section of trail in an urban area of Portland. Many survey respondents indicated the cause of the race, clean water education, was a major reason why they chose to participate.

To meet the goal of increasing stormwater awareness, CCSWCD designed and placed signs along the course focused on runoff, pollution, and water movement. These messages were also included on the race website, which at its peak received over 2,000 hits on one day, with an average of 300 hits per day. Stormwater awareness messages were also included in the six eblasts that were sent to all registered participants, sponsors, and partners.

The 2013 post-race survey included questions related to awareness of stormwater issues. More than 200 people responded to the post-race survey. Ninety percent of those who responded stated that stormwater runoff impacts local waters in some way, with 72% said that stormwater runoff has a major impact on the cleanliness of Maine's waterways, and 18% said it had somewhat of an impact. In addition, many respondents were able to identify common water pollutants, including: lawn care products (56%); oil (52%); pet waste (38%); trash (36%); road salt (20%); soil (17%); cigarette butts (9%); metals (9%); car exhaust (6%); and bacteria (3%).

The *Green Neighbor Family Fest* was held after the race on the front lawn of Deering High School. The event ran for three and a half hours and was attended by approximately 750 people. Scheduled events included the awards ceremony and three child-focused, environmentally-themed live performances, including music, theater and magic. A total of 17 displays were set up by local nonprofit and governmental organizations, and businesses to provide hands-on, educational activities for children. These activities included water quality testing, "poo bag" toss (about proper disposal of pet waste), stormwater maze, and many more. Children also took part in face painting.

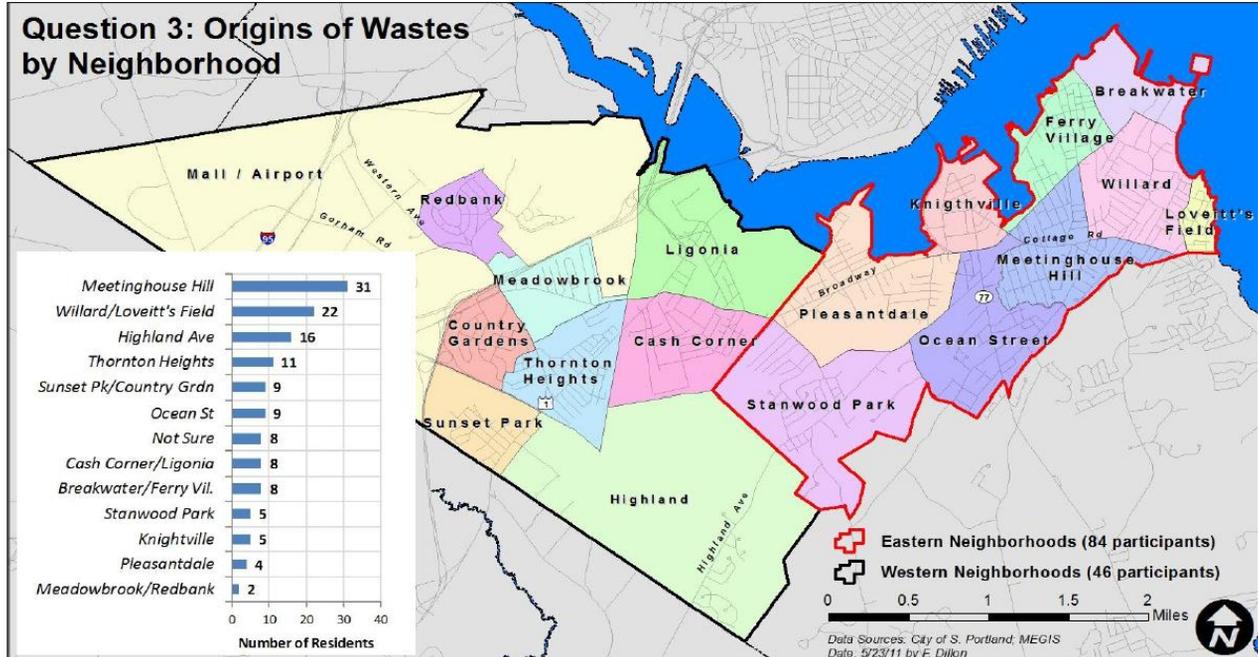
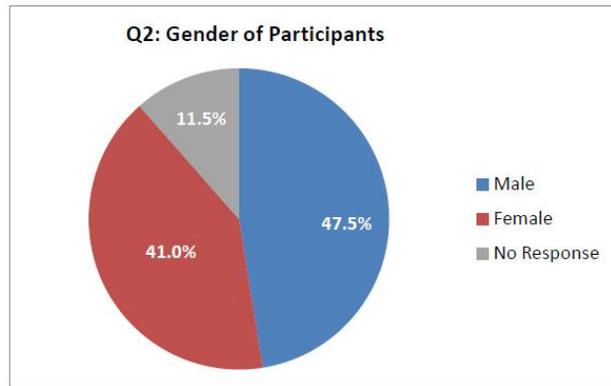
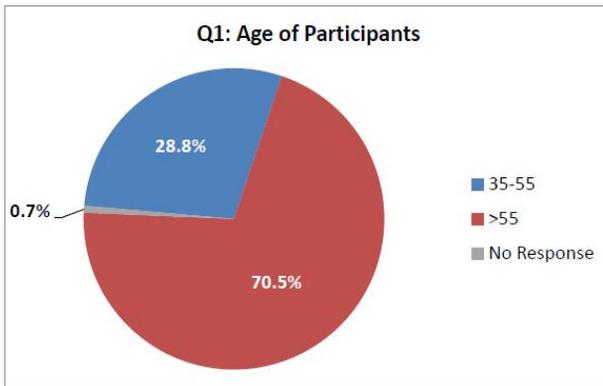
The festival was also a great success. Children were engaged, and parents provided feedback that the activities were not only fun, but also educational for both parents and children.

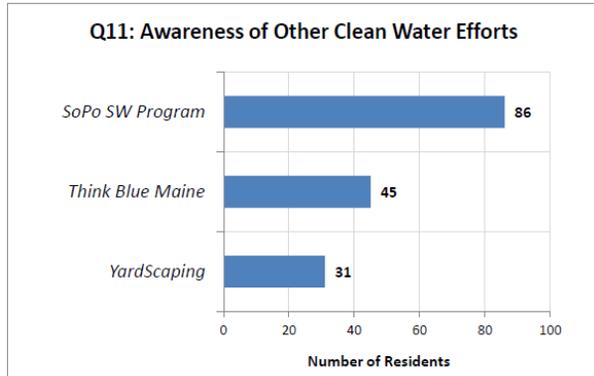
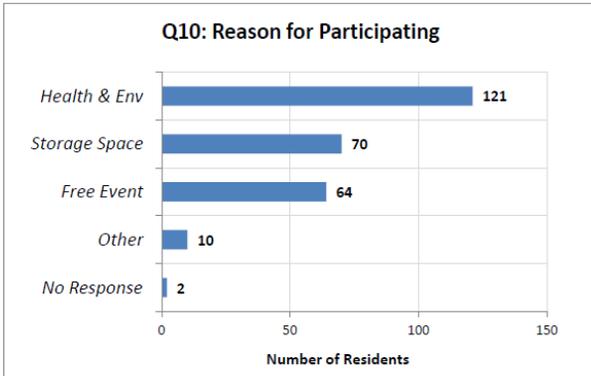
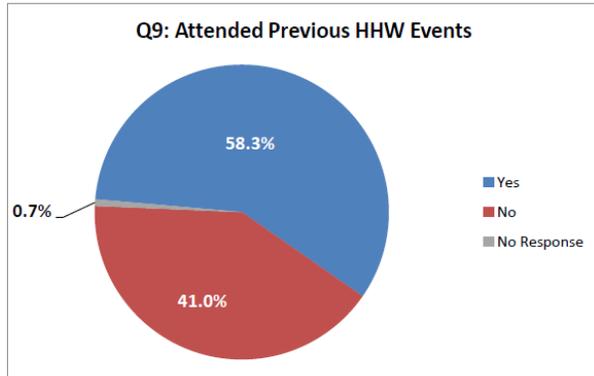
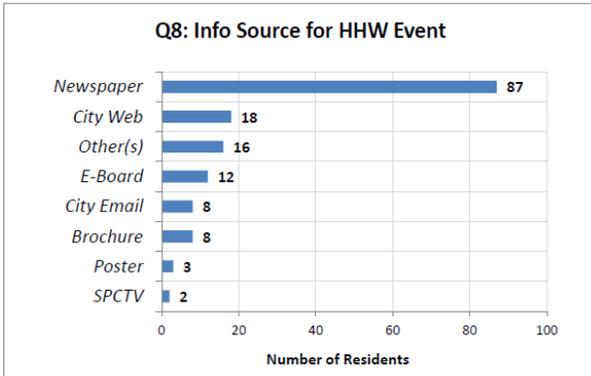
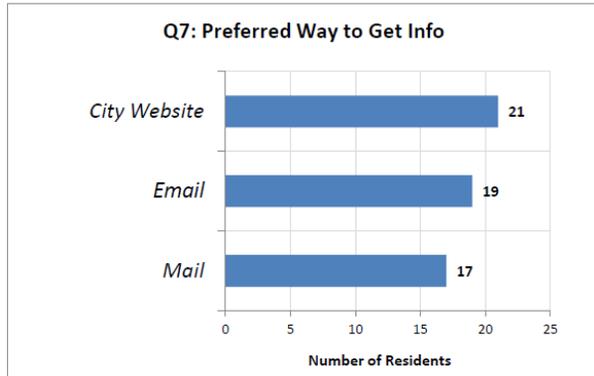
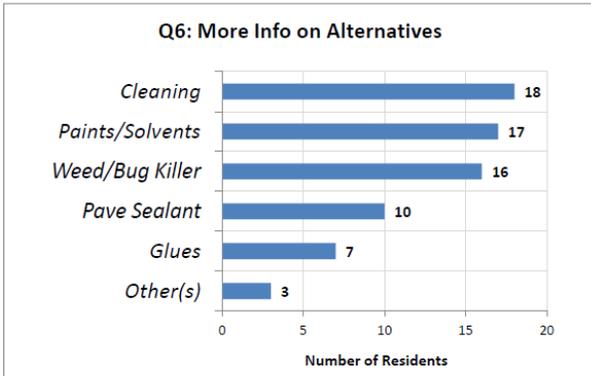
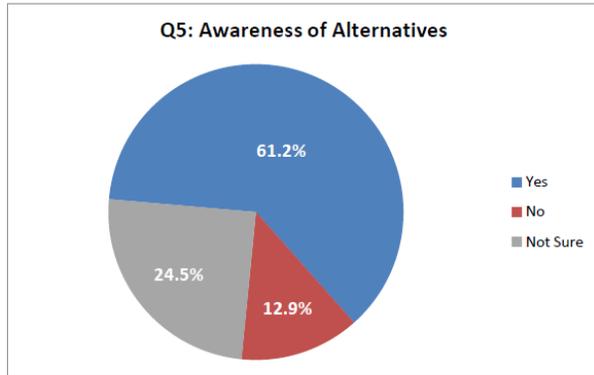
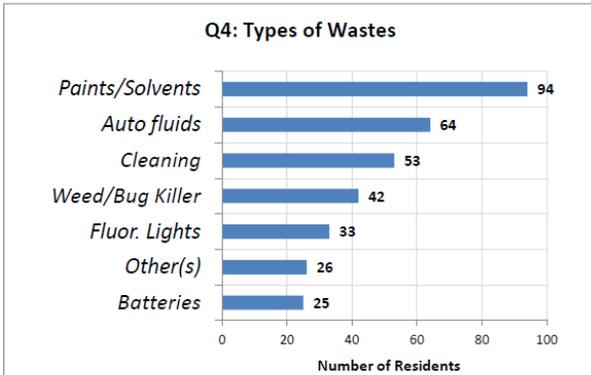
Plans are underway to host the third annual *Urban Runoff* 5K and *Green Neighbor Family Fest* on Saturday, April 26 2014.

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

QUESTIONS (164 questionnaires were provided to participants and 139 were returned)

1. What is your age? *Most participants (71%) were over 55 years old (and no participants were less than 35 years old).*
2. Are you male or female? *~48% of participants were men, 41% were women and ~11% opted not to indicate their gender.*
3. Origins of wastes by neighborhood? *The majority of participants (65%) came from the the City's eastern neighborhoods.*
4. Please indicate the types of wastes you dropped off today. *Paints/solvents were the most common type of HHW.*
5. Are you aware of less potentially harmful alternatives? *Most participants (61%) were aware of less harmful alternatives.*
6. Would you like more info on alternatives? *Most participants (107) 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 respondents would prefer to get info on alternatives from the City's website.*
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? *Environmental concerns were the most common reason for participating.*
11. Are you aware of the following SW management efforts? *Most participants were aware of at least 1 of the efforts listed.*





Appendix 4: Maine Healthy Beaches Program 2012 Willard Beach Bacteria Source Tracking Report

Willard Beach, South Portland

Willard Beach, located in South Portland, has a history of impaired water quality. Of particular concern is the 6 stormwater drainage pipes discharging directly to the beach, draining stormwater from ~ 1 km² of residential and commercially developed areas (Figure 1). As a part of this effort, 32 Enterococci samples and 35 optical brightener samples were analyzed at 7 sites located within the stormwater system. Because this system is entirely subsurface, access to catch basins was provided with the assistance of South Portland. To ensure the presence of adequate water, monitoring targeted wet weather events throughout September and October of 2012.

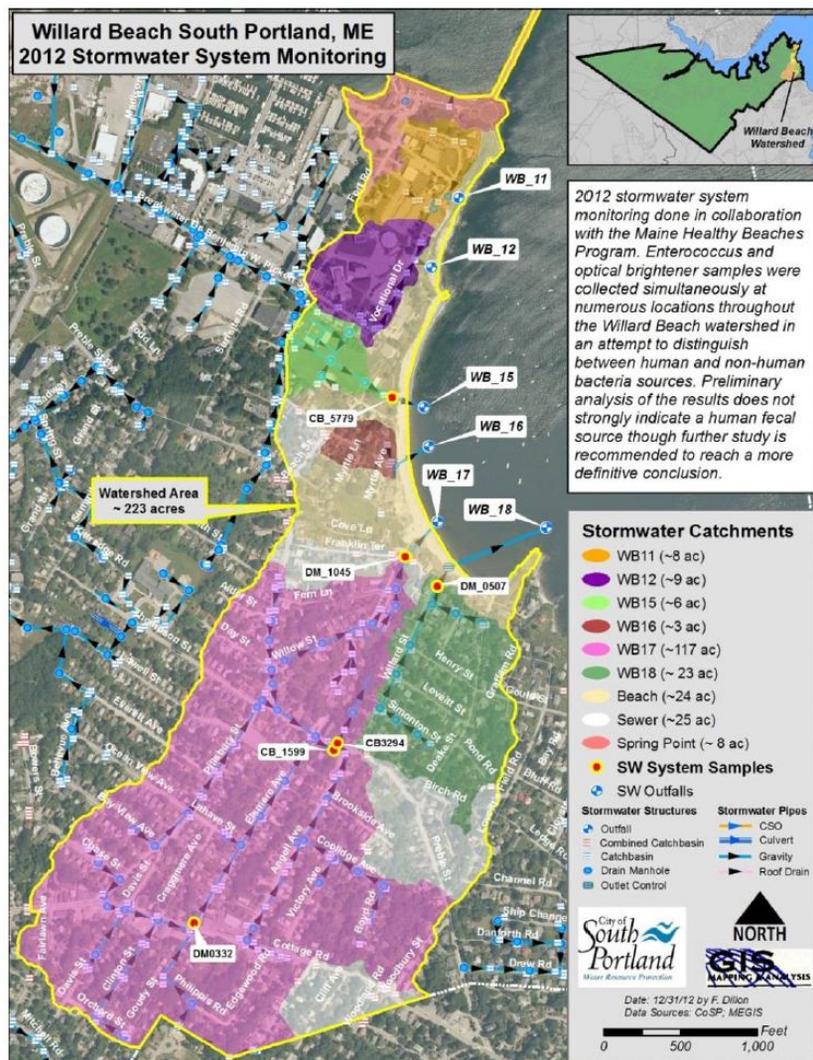


Figure 1. Willard Beach stormwater drainage area (yellow outline) and stormwater monitoring stations monitoring by MHB and the City of South Portland Water Resource Protection Department in 2012.

Enterococci mean results ranged from 43-511 MPN/100ml and from 6-108 µg/l for optical brighteners. One site (CB3294) exhibited elevated Enterococci *and* optical brightener levels, suggesting the potential for human-sourced fecal contamination. A Pearson’s Product Moment correlation combining data from all sites revealed a significant but weak relationship ($R^2=0.2517$, $p= 0.0040$) between these parameters (Figure 2). While comparison of Enterococci and optical brightener mean values suggests that non-point sources (wildlife, pets) associated with stormwater are likely the principal contributor to bacterial pollution at 6 of the 7 sites monitored, point sources cannot be ruled out due to the significant (yet weak) correlation between Enterococci and optical brighteners (Table 1, Figure 2). A more robust data set is needed to better understand the source(s) of bacteria impacting water quality on Willard Beach. In 2013, MHB plans to partner with South Portland to conduct additional monitoring and to launch a pet waste and water quality campaign within the watershed.

Table 1. Mean Enterococci counts (MPN/100ml), mean optical brightener values (µg/l), and sample size of 7 sites monitored in 2012.

Station	Mean ENTERO	Mean OB	Sample Size
DM0332*	511	76	2
CB3294*	336	108	2
WIL-02	168	9	6
CB5779	146	33	6
DM1045	136	22	7
ANGELL-CB	128	72	2
DM0507	43	6	6
Geomean/Mean	69	31	31

*Note Small Sample Size

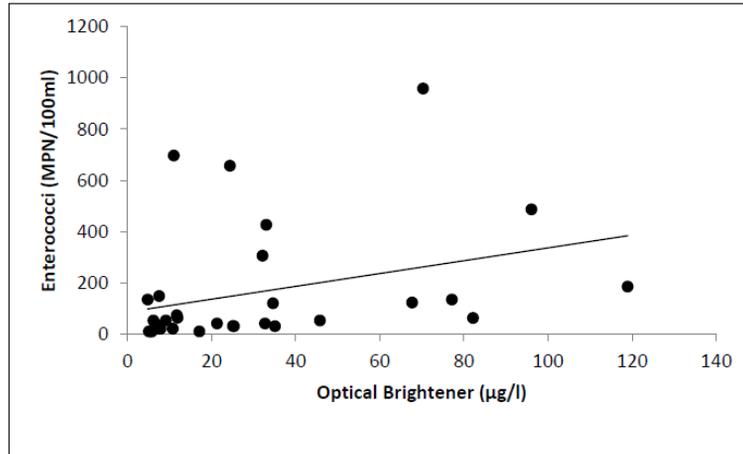
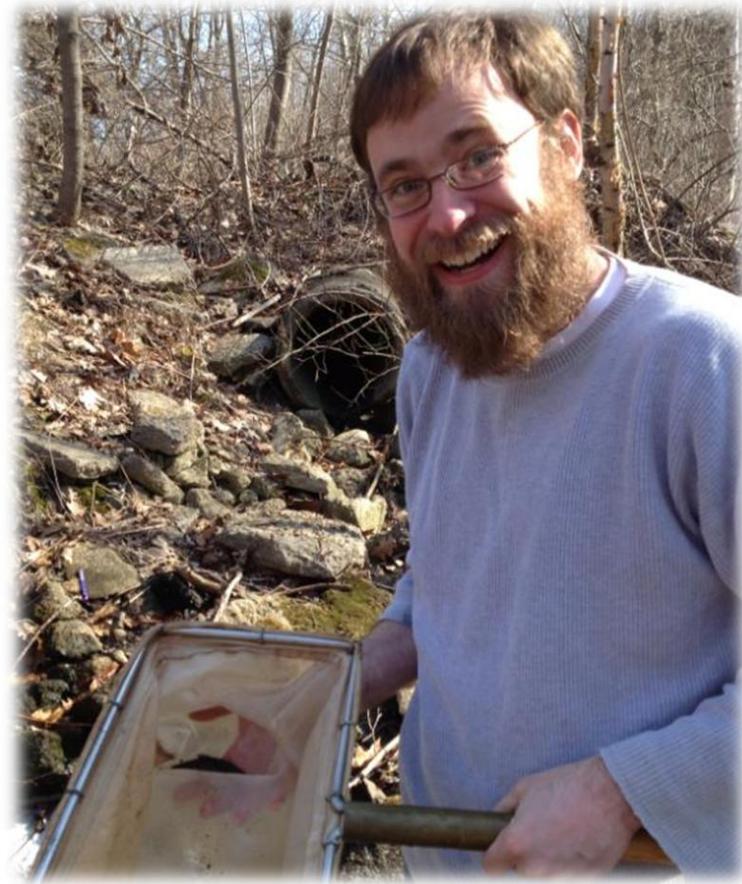


Figure 2. Relationship between Enterococci (MPN/100ml) and optical brighteners (µg/l) for all sites monitored at Willard Beach in 2012.

The South Portland Water Resources Protection Department (WRPD) plans to make the results of this study available via their town website. Moving forward, future sampling would be beneficial to the area. Regardless of the status of future sampling efforts, the town plans to assess the feasibility of a public outreach campaign within the stormwater catchment area to educate property owners on how their stormwater system impacts their beach directly and the best management practices for homeowners in managing stormwater runoff.



UMaine PhD student Thomas Parr with small brook trout from Trout Brook (April 2013)