

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION



ANNUAL CSO PROGRESS REPORT FOR 2017

Doc Num: DEPLW0059-Q2017 Rev Date: 12/13/2017

Please use the Annual Progress Report Instructions when filling out this report.

Permittee:	City of Portland	Contact Person:	Benjamin Pearson, PE
Address:	389 Congress Street	Telephone No.	207-874-8843
	Portland, Maine 04101	MEPDES Permit No.	ME0101435
		Maine License No.	W 008010-5T-F-R

Indicates Cell Value Calculated By Spreadsheet

Indicates Cell With A Dropdown List

1. Information on Combined Sewer System

A. Current sewered population		66,649
B. Current number of residential users (connections to sewer)		15,328
C. Current number of commercial/industrial users (connections to sewer)		1,720
D. Current average residential user charge for 8000 cubic feet per year, (\$/year)	\$	772.00
E. Median Household Income (MHI), (\$/year)	\$	48,259
F. Current residential user charge expressed as percent of MHI, (%)	%	1.60
G. Original number of CSO locations at beginning of abatement program		39
H. Current number of CSO locations		30
I. Percent reduction of CSOs to date, (%)	%	23

J. List any CSOs removed in reporting year, (list individually)

	<u>CSO #</u>	<u>Name</u>
1.		
2.		
3.		
4.		

K. Total sewer footage, (feet)		1,225,631
L. Original percentage of combined sewer to total sewer, (%)	%	85.0
M. Current percentage of combined sewer to total sewer, (%)	%	58.3
N. Percent reduction of combined sewer, (%)	%	31.4

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2. CSO Progress

- A. Are you on schedule with your approved CSO Abatement Plan? (Please see attached instructions) (Yes, No) No
- B. If existing schedule is behind the approved schedule, list the reasons why and how the permittee proposes to catch up in order to comply with the approved schedule.

The City of Portland has missed deadlines related to Back Cove South storage conduit due to a reanalysis of the most suitable location. Instead of building within Marginal Way, a decision has been

- C. List major accomplishments last year to reduce or abate CSOs, (list individually)

	<u>Project</u>	<u>Estimate of flow reductions</u>
1.	State Street Separation Project	100 acres
2.	Moody-Wilson Separation Project	7.5 acres
3.	Woodford Street Separation Project	49 acres

D. Costs:

1) Total original cost estimate for complete program from initial CSO Master Plan	\$	52,000,000
2) Revised total cost estimate for complete program from Updated CSO Master Plan (includes all prior costs and update costs)	\$	232,870,354
3) Total cost of CSO abatement to date	\$	127,203,594
4) Percent complete by cost, (%)	%	55
5) Cumulative SRF loans for CSO abatement (see instructions for more detail)	\$	53,682,421
6) Total cost of CSO projects in reporting year (see instructions for more detail)	\$	15,306,382
7) Anticipated budget for CSO projects next year	\$	24,158,830
8) Sewer O&M budget in reporting year	\$	9,263,758
9) Anticipated sewer O&M budget for next year	\$	10,936,173
10) Estimated CSO needs for next five years (include cost in no.7)	\$	59,109,660

E. Private inflow sources:

1) Has a house to house survey been done on a sewershed or system-wide basis?		(Yes, No) Yes
2) If yes, when?		2017
3) If no, is one planned?		(Yes, No)
4) If no, when? (For additional space, use the text box in section 2-K)		
5) Number of roof leaders removed to date		141
6) Number of roof leaders removed in reporting year		0
7) Number of known roof leaders remaining in system		0
8) Number of basement sump pumps removed to date		9
9) Number of basement sump pumps removed in reporting year		0
10) Number of known sump pumps remaining in system		
11) Number of known foundation drains to system		
12) Do you charge a surcharge for private sources?		(Yes, No) No
13) If yes, how much and what unit?	\$ 	
		(Each, Per 100 c.f.)

F. Other inflow sources

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- | | |
|--|---|
| 1) Number of catch basins removed this year | 65 |
| 2) Number of catch basins remaining in system | 5,658 |
| 3) Are you aware of any wetlands/bogs draining to sewer? | (Yes, No) Yes |
| 4) Are you aware of any streams intercepted by sewer? | (Yes, No) Yes |
| 5) If yes to 3 or 4, what plans are there to deal with them? | |

Continued implementation of the CSO Master Plan and CMOM programs will result in the reduction and/or removal of direct wetland connections into sewer. A project currently underway on Rowe Avenue will be removing a wetland area from the combined sewer effecting CSO 39. Right-of-Way maintenance on several cross country sewers will allow investigation and repair/rehabilitation

- G. Results of any specific flow monitoring to determine effectiveness of previous CSO abatement projects. Compare actual CSO abatement with projections made during the CSO Master Plan.

A table of CSO Monitoring is available upon request. Monitoring by the PWD in 2017 continues to be evaluated against the SWMM for calibration of the model and population of the attached annual discharge table. Additional monitoring was conducted within the Baxter Boulevard watershed for calibration of the model associated with the Back Cove South Storage Conduit and Back Cove West

- H. Yearly precipitation, CSO events, volumes, or block test data.
(Enter data on Excel spreadsheet: CSO Activity & Volumes.xlsx)

- I. Work done on the Nine Minimum Controls during the year.

- 1) Results of operation and maintenance (O&M) program for the sewer system and combined sewer system overflows during the year.

- a. Who is responsible for combined sewer system O&M?

Name	Christopher Branch, PE	Tel. No.	207-874-8801
Title	Director of Public Works		
Dept.	Public Works		
Size Staff	40		

- b. Inspection schedules

Number of CSO regulators	39	Inspection interval	As Needed
Number of tide gates	9	Inspection interval	Quarterly
Number of pump stations	20	Inspection interval	Daily
Number of CSO outfalls	30	Inspection interval	Annually

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c.

Document the following activities that were performed and include the tons or cubic yards of debris removed last year from catch basins and sewers.

Catch Basin Cleaning

Total # of Basins Last Year <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">5658</div> (Please attach cleaning schedule if available)	# of Basins Cleaned Last Year <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">1492</div>	Debris Removed <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">318</div> <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">Tons</div> (Tons, Cu. Yds.)
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Sewer Cleaning

Total Combined Sewer <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">718,377</div> lin. ft. (Please attach cleaning schedule if available)	Footage Cleaned Last Year <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">78,331</div> lin. ft.	Debris Removed <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">169</div> <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">Tons</div> (Tons, Cu. Yds.)
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Pump Station Cleaning

Cleaning Frequency <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">Quarterly</div>	Inspection Frequency <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">2/Week</div>
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TV Work

Sewer & Storm Footage Televised <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">154,817</div> lin. ft.	TV Frequency <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;">Daily</div>
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Smoke Testing

Sewer & Storm Footage Tested <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;"> </div> lin. ft.	Dates of Smoke Testing <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 0 auto;"> </div> (mm/dd/yy)
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Infiltration/Inflow Study

I/I Study Was Performed On
 Linear Feet Of Sewer

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2) Maximum Use of the Collection System for Storage

Maximum use of the collection system for storage means making relatively simple modifications to the combined sewer system to enable the system itself to store wet weather flows until downstream sewers and treatment facilities can handle them. The municipality should evaluate more complex modifications as part of the long-term control plan.

- a. List any regulators or weirs that were adjusted last year to optimize settings for maximum storage. (list individually)

1.	
2.	
3.	
4.	

- b. Document attempts last year to retard inflows to the system by use of special gratings or flow control type devices.

Number of Special Storm Drain Gratings Installed

Comments:

The City continues to utilize innovative green infrastructure methods to retard inflows such as underdrained soil filters, rain gardens and filterra units on sewer separation projects.

Number of Flow Control Type Devices Installed

Comments:

A tide gate was installed in the new stormwater outfall as part of the State Street Separation project. The City continues to utilize innovative green infrastructure methods to retard inflows such as underdrained soil filters, rain gardens and filterra units on sewer separation

- c. Describe any tide gate maintenance and repair to eliminate tidal intrusions. (list individually)

	<u>Tide Gate</u>	<u>Maintenance/Repair</u>
1.	Preble Street Outfall	New installation as part of State Street Separation Project
2.		
3.		

Attach a schedule for implementation of any minor construction associated with maximizing the collection system for storage.

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- 3) Review any Modification of the Industrial Pretreatment Program to Assure that CSO Impacts Are Minimized

The municipality should determine whether nondomestic sources are contributing to CSO impact and, if so, investigate ways to control them. The objective of this control is to minimize the impacts of discharges into combined sewer systems from significant nondomestic sources (i.e., industrial and commercial sources during wet weather events, and to minimize CSO occurrences by modifying inspection, reporting, and oversight procedures within the approved pretreatment program.

Fill in this section only if you have nondomestic source of wastewater.

Do you have an industry that significantly impacts a CSO? (Yes, No) No

What measures or modifications were taken last year to insure that nondomestic sources are not contributing to CSO impacts. (Examples of measures: Inventory of nondomestic discharges to the combined sewer, assessment of nondomestic discharges on CSOs, evaluation of feasible modifications)

The City of Portland Industrial Pretreatment Program continues to work with significant Industrial/Commercial dischargers to focus their efforts in reducing their water use and to recover POTW plant capacity during storm events.

- 4) Maximization of Flow to the POTW for Treatment

Maximizing flow to the POTW entails simple modifications to the combined sewer system and treatment plant to enable as much wet weather flow as possible to reach the treatment plant. The objective of this minimum control is to reduce the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters.

- a. List any change completed or planned last year to maximize flow to the POTW. (list individually)

PLANNED PHYSICAL CHANGE	ESTIMATED COST (\$)	ESTIMATED COMPLETION DATE (MM/DD/YY)	ESTIMATED YEARLY DECREASE IN EVENTS	ESTIMATED YEARLY DECREASE IN VOLUME (MG)

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5) Prohibition of CSO Discharges During Dry Weather

This control includes all measures taken to ensure that the combined sewer system does not overflow during dry weather flow conditions. Dry weather overflow control measures include improved O&M as well as physical changes to regulator and overflow devices.

- a. Did you have a dry weather CSO discharge during the last year? (Yes, No) Yes
If yes, explain (list individually). Do not report Sanitary Sewer Overflows (SSOs) below.

1.	An intense rain event caused a combined sewer overflow which continued after the rain
2.	
3.	
4.	
5.	

6) Control of Solid and Floatable Material in CSO Discharges

The intent of this control is to document that low cost control measures have been implemented which reduce solids and floatables discharged from CSOs to the maximum extent practicable.

- a. List any of the following control measures that were implemented last year to reduce solids and floatables discharged from CSOs. If control measures were implemented, list their Success.

Baffles in Regulators or Overflow Structures:

Number of Baffles Installed:

Success:
(Good, Fair, Poor)

Trash Racks in CSO Discharge Structures:

Number of Trash Racks Installed:

Success:
(Good, Fair, Poor)

Catch Basin Modifications:

Number of Modifications:

Success:
(Good, Fair, Poor)

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End of Pipe Nets:

Number of Nets Installed:

Success:

(Good, Fair, Poor)

Litter Controls:

Litter Control:

(Yes, No)

(Good, Fair, Poor)

Other Controls:

Type of Control

Success:

(Good, Fair, Poor)

- b. The estimated amount of solids and floatables removed last year by implementing the above control measures.

(Tons, Cu. Yds.)

(Attach any schedules and associated costs for implementation of this control.)

7) Pollution Prevention Programs That Focus on Contaminant Reduction Activities

The seventh minimum control, pollution prevention, is intended to keep contaminants from entering the combined sewer system and thus receiving water via CSOs.

- a. Document any of the following efforts last year to implement this control.

Public education or increased awareness programs that encourage water conservation and could decrease dry weather sanitary flow to the POTW and increase the volume of wet weather flows that can be treated at the POTW.

Public informational meetings to discuss CSO projects and their impacts on the environment. Portland Water District continues education through our website and environmental coordinators. The Portland Water District has distributed several pamphlets describing items which should not be flushed down the sewer and the affects they can have on the treatment plant and the environment. The Water Resources Division of Public Works

Strategic placement of garbage receptacles, more efficient garbage collection.

The City of Portland is using a single source collection of recyclables to allow for quicker and more efficient collection. The Public Works Department, thru the waste management division, manages this program, tied to improvements to the ecomaine MRF. The City has begun using Big Belly's which are solar powered compactors. The City has also placed recycling containers in parks to reduce the amount of recycling found in the trash.

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Street sweeping efforts with estimate of material removed (tons/yr, cy/yr).

The entire city is swept at least once per year and additional sweeping is completed frequently in several areas. In 2017, a total of 2,728 tons of material was removed from street sweeping operations.

Anti-litter campaigns; campaigns through public outreach and public service announcements employed to educate the public about effects of littering, over fertilizing, pouring used motor oil down catch basins, etc.

Public outreach continues with the e-card system at the Riverside Recycling Center. This better tracks individual household waste production and allows for universal waste recycling. Public Works has a household hazardous waste drop-off program at the Riverside Recycling Center.

Efforts to eliminate illegal dumping. Programs such as law enforcement and public education aimed at controlling illegal dumping of litter, tires, and other materials into water bodies or onto the ground.

The City continues to distribute public letters to inform and curtail dumping of yard waste within Capisic Brook and Fall Brook watersheds. A concerted effort is also made in areas found during outfall inspections exhibiting dumping.

b. Does the community have a hazardous waste collection program? (Yes, No) **Yes**

If yes, how often is it collected?

Monthly

If yes, how much hazardous waste is collected?

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- c. List the individual(s) responsible for your community's stormwater management program, their title and contact information.

Christopher Branch, PE - Director of Public Works - cbranch@portlandmaine.gov
Nancy Gallinaro - Water Resources Manager - neg@portlandmaine.gov
Benjamin Pearson, PE - Compliance Coordinator - bnp@portlandmaine.gov

- d. List and describe stormwater pollution prevention measures and BMPs (e.g., biofilters, bioswales, rain gardens) completed or planned for implementation. Attach any schedules and cost estimates associated with this control.

The City is utilizing baffle boxes, vortex concentrating manholes, Filtera boxes and rain gardens on storm drain systems to reduce sediment and pollutants load entering the receiving waters. The City utilizes hoods in the catch basin sumps to reduce floatables from entering system. The City requires a 3 foot sump on all catch basins to collect sediment and they are

- 8) Public Notification to Ensure That the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

The objective of this control is to ensure that the public receives adequate notification of CSO impacts on pertinent water use areas. Of particular concern are beach and recreational areas that are affected by pollutants discharged in CSOs.

- a. Locations where signs are posted.

Are all CSO outfalls locations marked with a sign in accordance with your permit?

(Yes, No) Yes

List any other locations where CSO signs are posted (public beach, information center, town office, etc.).

- b. List dates of CSO informational public hearings or meetings last year. (list individually)

1.

3.

2.

4.

- c. List any other measures to inform the public that occurred last year (e.g. radio announcements, flyers, social media, dedicated webpage).

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Project informational letters during construction. Monthly project updates to Council. The Portland Press Herald wrote an article regarding Combined Sewer Overflow based on

9) Monitoring to Effectively Characterize CSO Impacts and the Effectiveness of CSO Controls

The ninth minimum control involves visual inspection and other simple methods to determine the occurrence and apparent impacts of CSOs. This minimum control is an initial characterization of the combined sewer system to collect and document information on overflow occurrences and known water quality problems and incidents, such as beach or shellfish bed closures, that reflect use impairments caused by CSOs. Changes in the occurrences of such incidents can provide a preliminary indication of the effectiveness of the Nine Minimum Controls.

- a. Check off and fill in information on the following monitoring methods used in overflow structures: (list individually)

Flow Meters

Locations

1.	Remote Daily Reading at 29 CSO
2.	
3.	
4.	

Frequency Data Collected

After Rain Event

Blocks

Locations

Visual as needed at 1 location

Inspection Frequency

After Rain Event

Chalklines

Locations

Inspection Frequency

Other monitoring methods?

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- b. Has a hydraulic/hydrologic model been developed? (Yes, No) Yes
 Is the model used to report CSO discharge occurrences? (Yes, No) Yes
 Has it been updated to reflect collection system asset changes: (Yes, No) Yes
 If yes, when was the model last updated? (mm/dd/yy) 02/26/18

- c. CSO impacts to swimming beaches and shellfishing areas.

List any swimming beaches that may be impacted by your CSOs. (list individually)

1. East End Beach
2.

Does your community or other entity test the water quality at beaches or near your CSOs?

(Yes, No) Yes
 Frequency? 3/week

If yes, list dates of test and results

Dates	Results						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">See website:</td> <td style="padding: 2px;">(mm/dd/yy)</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">(mm/dd/yy)</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">(mm/dd/yy)</td> </tr> </table>	See website:	(mm/dd/yy)		(mm/dd/yy)		(mm/dd/yy)	http://www.maine coastdata.org/public/monitoringData.aspx
See website:	(mm/dd/yy)						
	(mm/dd/yy)						
	(mm/dd/yy)						

- Any beach closing last year? (Yes, No) Yes
 Were they caused, in whole or in part by CSOs? (Yes, No) Yes

What are the procedures for notifying the public of beach closures?

Public posting at entrance to beach and flying a colored flag. Public posting of the information is also available on the Maine Healthy Beaches website located at <http://www.mainehealthybeaches.org/>

List any shellfishing areas that may be impacted by your CSOs. (list individually)

	<u>Open</u>	<u>Conditionally Opened</u>	<u>Closed</u>
1.			Portland Area 13-A
2.			
3.			
4.			

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Any shellfish areas closed last year?

(Yes, No) Yes

If yes, list dates individually:

(mm/dd/yy)	Permanently Closed
(mm/dd/yy)	
(mm/dd/yy)	
(mm/dd/yy)	
(mm/dd/yy)	
(mm/dd/yy)	
(mm/dd/yy)	
(mm/dd/yy)	

If yes, were the closures caused, in whole or in part by CSOs?

(Yes, No) Yes

Please provide a map showing any swimming beaches or shellfish area that may be impacted by your CSOs.

Please provide results of any receiving water quality tests or CSO sampling tests done last year.

- J. List any sewer extensions and new commercial or industrial flows added during the year, along with any mitigating measures implemented to prevent these flows from contributing to CSO flows.

A table presenting new residential, commercial or industrial developments that were issued sewer capacity letters allowing connection to the sewer system is available upon request. As part of the development review process and the City's Stormwater Ordinance, new development is required to connect into separate storm drains when available. The City also requires pre- and post- volume and flows to either be equal or reduced to limit the impact to the Combined Sewer system.

- K. Please add any other information on CSOs that you feel is important, but the form did not allow for.

In 2017, an estimated 211,460,000 gallons of wet weather flow was conveyed and treated at the East End WWTF. This volume represented 56.4% of the total wet weather flow generated by the City's collection system. This flow received primary treatment followed by disinfection.

Section 1: Population and income data is from the United States Census Bureau. Sewer user information is gathered from an account profile provided by the Portland Water District. The GIS is continuously being updated based on field investigation and projects that are currently under construction and past projects. This results in updated and revised numbers of sewer footage, manholes, and catchbasins.