AGENDA
Sustainable Storm Water Funding Task Force
April 19, 2011
City Hall, Room 209, 12:00 PM – 1:30 PM

1. Introductions

2. Review Charge of the Task Force

3. Review of Draft Work Plan

4. Introduction to Portland's Storm Water Systems and Performance Obligations

5. Confirm Date for Next Meeting: The next meeting is currently scheduled for May 17, 2011

6. Adjourn

Order 158-10/11
Passage: 9-0 3/21/11

NICHOLAS M. MAVODONES (MAYOR)
KEVIN J. DONOGHUE (1)
DAVID A. MARSHALL (2)
EDWARD J. SUSLOVIC (3)
CHERYL A. LEEMAN (4)

CITY OF PORTLAND

IN THE CITY COUNCIL

JOHN R. COYNE (5)
JOHN M. ANTON (A/L)
DORY RICHARDS WAXMAN (A/L)
JILL C. DUSON (A/L)

ORDER ESTABLISHING THE SUSTAINABLE STORM WATER FUNDING TASK FORCE

WHEREAS, storm water runoff from the urban environment can lead to flooding of public right-of-ways and private property, and the City of Portland operates and maintains an extensive storm water and combined sewage system to convey storm water runoff away from public right-of-ways and private property; and

WHEREAS, the City of Portland is required by law to minimize pollution of water bodies caused by the use of the City's storm water and combined sewer systems and must construct hundreds of millions of dollars in upgrades to the City's storm water and combined sewer systems to mitigate the contribution of urban storm water runoff pollution in stream, rivers, Portland Harbor, and Casco Bay; and

WHEREAS, the City of Portland, in discharging storm water runoff into water bodies, must meet regulatory permit requirements that include storm water runoff pollution source-reduction programs throughout the City such as catch basin cleaning, street sweeping, illicit discharge detection programs, and other requirements; and

WHEREAS, maintaining, operating, and constructing upgrades to the City of Portland's extensive storm water and combined sewage systems represents a significant, ongoing, and increasing cost to City taxpayers and sewer ratepayers;

NOW THEREFORE BE IT ORDERED, that the Sustainable Storm Water Funding Task Force is hereby established to study and consider fair and equitable funding alternatives for operating, maintaining, and meeting the capital cost requirements of the City of Portland's storm water and combined sewer infrastructure systems and storm water management programs; and

BE IT FURTHER ORDERED, that the Task Force shall complete the following tasks:

1. Review and gain an understanding of the City of Portland's storm water and combined sewage systems; the effects of storm water runoff on the City's infrastructure, both public and private; the regulations under which the City must comply; and the maintenance, operational and capital costs the City must undertake to operate and maintain the storm water and combined sewer systems;
2. Review and consider fair and equitable alternative funding options for operating, maintaining, and meeting the capital cost requirement of the City's storm water and combined sewer systems; and
3. Weigh the funding alternatives and make a recommendation to the City Council on fair and equitable alternative funding options.

BE IT FURTHER ORDERED, that Task Force may consider the fiscal and administrative implications and the feasibility of alternative funding, and may develop a policy recommendation; and

BE IT FURTHER ORDERED, that the following positions on the Task Force are hereby created and the indicated individuals appointed to those positions:

Portland City Council
Ed Suslovic

Portland Water District
Ron Miller, General Manager or designee

Business Representative/Property Manager
Todd Dominski, East Brown Cow Property Management

Business Representative/Property Manager
Peter Gellerson, Lathrop Property Management

Business Representative/Property Manager
Vin Veroneau, JB Brown and Sons

Industrial Wastewater Discharge Permit Holder
Bill Bennet or Thomas Brigham, Oakhurst Dairy

Residential Property Owner and Neighborhood Association Organization Representative
Dennis Martin, West End

Residential Property Owner and Capisic Brook Watershed Stakeholder Working Group Member Representative
David E. Robinson

Tax-exempt Property Owner
undesignated

Tax-exempt Property Owner
Carol Potter or Tyler Kidder, Facilities Management Office, University of Southern Maine

Advocacy Representative
Curtis Bohlen, Casco Bay Estuary Partnership

Advocacy Representative
Joe Payne, Casco Baykeeper

Citizen-at-large
Mitchell Brooks

Citizen-at-large
Fred Dillon

Roadway Systems
John Cannell, MDOT

BE IT FURTHER ORDERED, that the Mayor may appoint replacements if necessary; and

BE IT FURTHER ORDERED, that the City Manager shall designate the primary staff person or persons responsible for assisting the Task Force and for the participation of such other City departments as are necessary and appropriate; and

BE IT FURTHER ORDERED, that the Task Force shall provide an update to the Energy and Environmental Sustainability Committee on or before July 7, 2011 and final recommendations to the Council on or before January, 2012.

WORK PLAN – SUSTAINABLE STORM WATER FUNDING TASK FORCE

April Meeting 1: Introduction to Storm Water Management

- Review of the Charge of the Task Force
- Review of Draft Timeline
- Introduction to Storm Water Management

May Meeting 2: Review of Storm Water Cost of Services

- Review of Cost of Service, Rate Implications
- Sewer Fund Ordinance
- Case Studies of Funding Storm Water Programs

June Meeting 3: Options for Funding a Storm Water Costs

- General Fund, Sewer Fund, Storm Water Fund, Hybrid
- Pros and Cons of Different Options

****JULY UPDATE TO THE ENERGY AND ENVIRONMENTAL SUSTAINABILITY COMMITTEE****

July Meeting 4: TENTATIVE – Options for Distributing Costs

- Lessons Learned
- Rate Options and Implications

August Meeting 5: TENTATIVE – Exemptions, Adjustments, and Credits

- Exemptions
- Periodic Review
- Credits

September Meeting 6: TENTATIVE – Options for Billing

- Basis of Fee
- Fee Collection
- Data Collection

**** TENTATIVE COMMUNITY FORUM****

October – December Meeting 6, 7, and 8: TENTATIVE – Putting it all together

- Level of Service (What expenses are covered?)
- Rate Structure (How are cost apportioned?)
- Rate
- Organizational Structure Considerations
- Draft Ordinance

****JANUARY UPDATE TO THE ENERGY AND ENVIRONMENTAL SUSTAINABILITY COMMITTEE AND CITY COUNCIL****

January Meeting: TENTATIVE – Start-up strategy

- Phasing

PORTLAND MAINE

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MEMORANDUM

To: Sustainable Storm Water Funding Task Force

From: Ian Houseal, Sustainability Coordinator

Date: April 19, 2011

Briefing: Introduction to Portland's Storm Water Systems and Performance Obligations

The following briefing is provided to introduce the Sustainable Storm Water Funding Task Force to Portland's storm water systems and the regulatory and maintenance obligations the City must meet in providing storm water drainage services to Portland residences, businesses, and government facilities and infrastructure. This briefing is not exhaustive, only introductory and the intent of providing additional resources at the end of this document is to offer additional sources of information to Task Force members to become more knowledgeable on the issues surrounding storm water management.

Infrastructure Summary

Portland's sewer and storm water infrastructure can be summarized as three wastewater conveyance systems including the separated sewer, combined sewer, and storm drains. These systems are comprised of the sewer or storm drain lines themselves, catch basins, manholes, detention ponds, and underground waste water storage facilities. Additional system infrastructure includes sewer pump stations, interceptor lines, force lines, and the Waste Water Treatment Facility (WWTF) located on the East End. Portland operates the entire infrastructure upstream of the interceptors including all separated sewer, combined sewer, and storm drains as well as some sewer pump stations. Portland maintains approximately 134 miles of separated sewer, 133 miles of combined sewer, and 133 miles of storm drains along with catch basins, pump stations and other infrastructure mentioned above. The Portland Water District (PWD) operates all of the infrastructure downstream and including the interceptors as well as the WWTF and pump stations.

Storm Water Conveyance and Discharge

The storm water and combined sewer systems are in existence to *convey* storm water runoff away from private property and public right-of-ways in part to prevent flooding and control erosion. The combined sewer system has a dual function of conveying storm water as well as sewage to the WWTF. Portland ultimately takes responsibility for *discharging* storm water runoff into surrounding water bodies as a result of *conveying* storm water runoff as described as follows:

What is Storm Water Runoff?

Storm water is precipitation from rain or snowmelt that accumulates faster than the ground's *infiltration capacity* (the ability of the ground to absorb water) resulting from:

- Sealed ground surfaces such as paved areas, building, or in some unique situations, non-vegetated soil resisting water infiltration;
- Soils below the surface being fully saturated and unable to absorb more water; or
- Bedrock located immediately below the ground surface not able to absorb water.

Storm water runoff is storm water which then flows across a ground surface or flows just below the ground surface (as a shallow groundwater flow), which is then collected by a City storm water conveyance mechanisms such as roadway, ditch, culvert, storm drain or combined sewer.

What is Storm Water Pollution?

Imagine a RAINDROP falling from the sky: it first flows down from a rooftop, across a lawn down a driveway or parking lot, across a sidewalk, and into the road. At this point, the RAINDROP is no longer traveling alone; it has picked up pesticides and fertilizer from the lawn, bacteria from pet waste, as well petroleum and oil from the driveway or parking lot and sediment, heat, and tire rubber from the roadway or gum wrappers and cigarette butts from the sidewalk and gutters. These additions to the RAINDROP are called *nonpoint source pollution*.

1. If the RAINDROP flows into the **Storm Drain** system it discharges through an outfall, untreated, into a stream, wetland, river or into Casco Bay. This nonpoint source pollution effects *water quality* indicated by:
    - Turbidity (cloudiness of the water);
    - Nutrient levels (such as nitrogen and phosphorous);
    - Levels of heavy metals and organic and inorganic compounds;
    - Acidity, salinity, and temperature levels of water bodies; and
    - Presence of pathogens in water bodies.
2. If the RAINDROP flows into the **Combined Sewer** system, after accumulating the above mentioned nonpoint source pollution, the RAINDROP mixes with sewage as it flows to the wastewater treatment facility where it is discharged after treatment. However, if there is a combined sewer overflow caused by a heavy rainfall or rapid snow melt, the storm water runoff and sewage overflows directly into surrounding water bodies through a combined sewer overflow outfall.

National Pollutant Discharge Elimination System

Portland is obligated by statute to administer a storm water program aimed at preventing polluted storm water runoff from entering streams, rivers, wetlands, and coastal waters and restoring water quality in urban impaired streams located in Portland including Capisic Brook, Fall Brook, Nason's Brook, Dole Brook, and Long Creek. (An urban impaired stream means a stream that fails to meet water quality

standards because of effects of storm water runoff from developed land.) In addition, Portland is obligated to eliminate combined sewer overflows.

The 1972 Clean Water Act provides the statutory basis for the two National Pollutant Discharge Elimination System (NPDES) permit programs applicable to the City of Portland, administered by the Environmental Protection Agency (EPA). The Clean Water Act requires anyone discharging pollutants into water bodies to first obtain an NPDES permit, or else that discharge will be considered illegal. The Maine Department of Environmental Protection (Maine DEP) has delegated authority from the EPA to administer the NPDES in Maine. Portland maintains two permits through the NPDES program including:

1. Portland's MS4 Permit (Municipal Separated Storm Water); and
2. Portland's Maine Pollutant Discharge Elimination System Permit (MPDES)/Maine Waste Discharge License (Combine Sewer Overflows Abatement).

Separated Storm Water System

Portland's Municipal Separate Storm Sewer System (MS4) is all *conveyances* for storm water including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels or storm drains (other than publicly owned treatment works and combined sewers) owned or operated by the City of Portland, that *discharges* directly to waters of the State other than groundwater as defined by NPDES.

Portland is currently obligated as a MS4 General Permit holder to meet the requirements of the current permit by carrying out the following activities:

- Public outreach & education about storm water pollution and how residents, landowners and businesses can reduce storm water pollution;
- Engaging residents, landowners and businesses in storm water pollution prevention efforts;
- Training City staff about storm water pollution prevention and "good housekeeping" and taking steps to reduce pollution generated by daily municipal operations;
- Mapping, evaluating and properly maintaining the municipal storm water management system including street sweeping, catch basin cleaning, outfall inspections and elicit discharge detection and elimination;
- Adopting and implementing development site standards and inspection procedures that minimize storm water pollution during construction and mitigate the impacts of storm water runoff from a completed project;
- Adoption and implementation of tracking procedures to ensure that approved storm water management systems are inspected, maintained and function as intended;

Combined Sewer System

The combined sewer system is sewers that collect storm water runoff, domestic sewage, and industrial wastewater in the same pipe. During dry weather, combined sewer systems transport all wastewater to a sewage treatment plant, where it is treated and then discharged into Casco Bay; however, during periods of heavy rainfall or snowmelt, wastewater volume in a combined sewer system can exceed the

capacity of the sewer system or treatment plant. As a result, combined sewer systems occasionally overflow and discharge excess wastewater directly water bodies. These combined sewer overflows (CSOs), contain not only polluted storm water but also untreated human and industrial waste, toxic materials, and debris.

Portland is obligated to eliminate CSOs as required by NPDES. Since 1991, the City has undertaken a program of separating storm water drainage from the combined sewer system to reduce occurrences of combined sewer overflows. A long-term control plan to evaluate and cost-effectively abate CSOs in Portland was completed in 1993 outlining a strategy to eliminate 33 of 39 CSOs in three stages of planned construction (Tiers I, II and III) through sewer separation and storage. In 1997, the City prepared a Tier I implementation Plan and in 2003 completed a Tier II implementation plan. Currently, the City has completed Tier I projects and approximately 40% of Tier II projects. The City is currently engaged in the development of the Tier III implementation plan and amendments to the Tier II Plan which is expected to be completed in 2011. The Tier III program will provide temporary waste water storage for the combined sewer system at specific locations in the City such as along Baxter Boulevard and along Commercial Street, in addition to the continuation of the sewer separation program.

More Information on Storm Water Management

City of Portland Resources:

- Sustainable Storm Water Funding Task Force www.portlandmaine.gov/sustainablestormwaterfunding.htm
- Capisic Brook Watershed www.publicworks.portlandmaine.gov/capisicbrookwatershed.asp
- Department of Public Services www.publicworks.portlandmaine.gov
- Portland Water District www.pwd.org

State of Maine Resources:

- Maine DEP Stormwater Program www.maine.gov/dep/blwq/docstand/stormwater
- Maine DEP Watershed Planning and Management www.maine.gov/dep/blwq/watersh.htm

Federal Resources:

- Environmental Protection Agency National Pollutant Discharge Elimination System cfpub.epa.gov/npdes/

Other Resources:

- Cumberland County Soil and Water Conservation District www.cumberlandswcd.org
- Friends of Casco Bay www.friendsofcascobay.org
- Casco Bay Estuary Partnership www.cascobay.usm.maine.edu
- Center for Watershed Protection www.cwp.org
- Think Blue Maine www.thinkbluemaine.org
- Maine Healthy Beaches www.mainehealthybeaches.org

INTRODUCTION:

PORTLAND'S STORM WATER SYSTEMS AND PERFORMANCE OBLIGATIONS

SUSTAINABLE STORM WATER FUNDING TASK FORCE

Infrastructure Summary

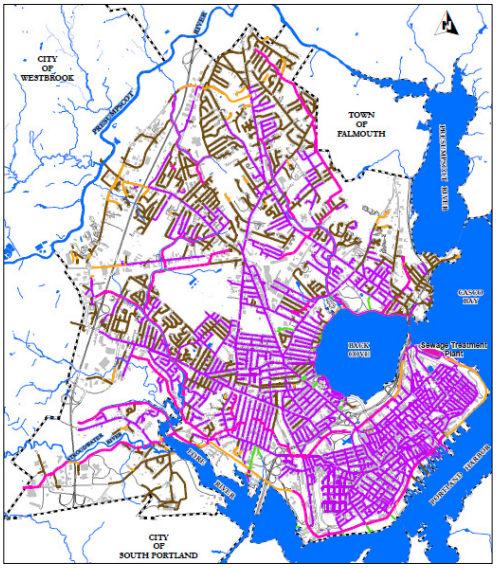
Conveyance Systems

- Separated Sewer (62 Miles)
- Combined Sewer (133 Miles)
- Storm Drains (133 Miles)

Infrastructure

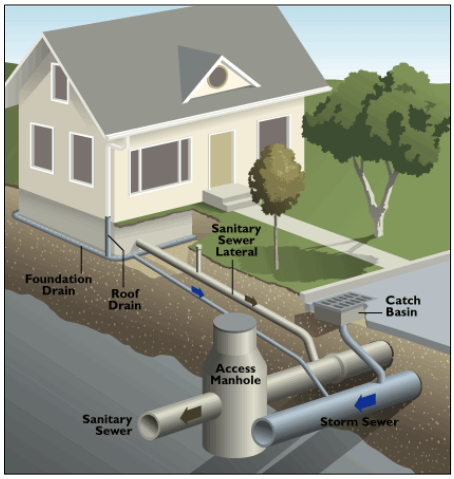
- Sewer Lines
- Interceptor Lines
- Forced Lines
- Catch Basins
- Manholes
- Detention Ponds
- Sewer Pump Stations
- Wastewater Storage Conduit
- Wastewater Treatment Facility

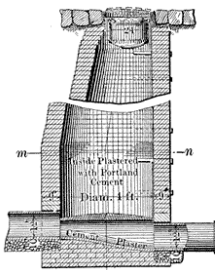
(See Map Attachments)

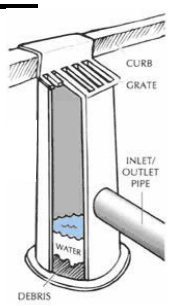


Infrastructure Summary

System Function







Manholes

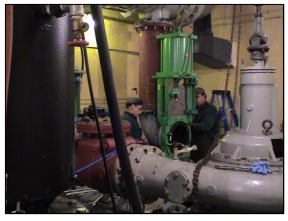
Catch basins

Infrastructure Summary

Wastewater Treatment

Outfalls

Sewer Pump Stations



Infrastructure Summary

Storage Conduit

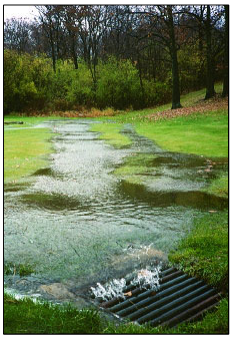
Rain Garden

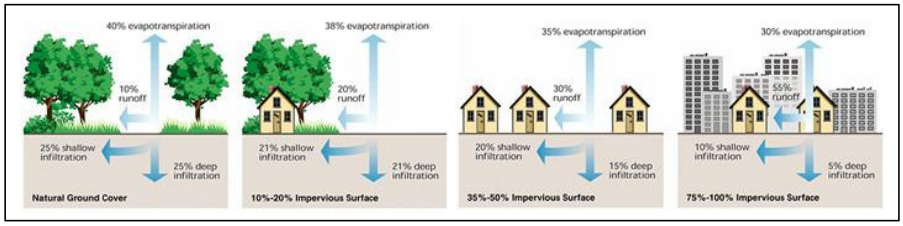
Reasons for Storm Water Conveyance

- The storm water and combined sewer system *CONVEY* storm water runoff away from private property and public right-of-ways to:
  - prevent flooding
  - control erosion

What is Storm Water Runoff?

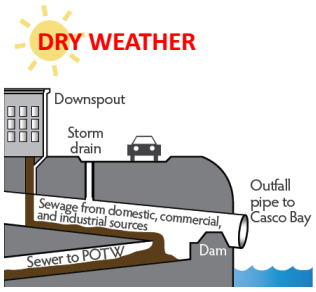
- **Storm Water**: Precipitation from rain or snowmelt that accumulates faster than the ground's infiltration capacity (the ability of the ground to absorb water) resulting from:
  - *Impervious surfaces*: sealed ground surfaces such as paved areas or buildings;
  - Fully saturated soils below the ground surface; or
  - Bedrock.
- **Storm Water Runoff**: Storm water which then flows across the ground surface or flows just below the ground surface.

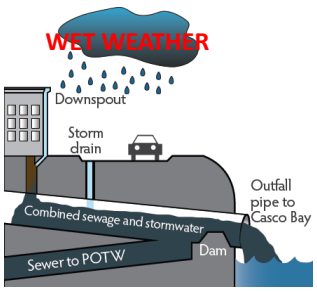




What is Storm Water Pollution?

- **Nonpoint Source Pollution**
  - Turbidity
  - Nutrient Levels
  - Heavy Metals and Organic and Inorganic Compounds
  - Acidity, Salinity, Temperature
  - Pathogens
- **Combined Sewer Overflows**
  - Sewage and storm water discharged caused by storm water runoff





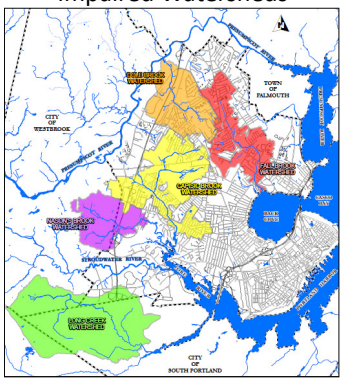
National Pollutant Discharge Elimination System

- Clean Water Act
- Administered by the Federal Environmental Protection Agency (EPA)
- Delegated authority from the EPA to Maine Department of Environmental Protection (DEP)
- Requires permits for any discharge into water bodies
- Portland has two Permits:

NPDES Permits

1. **Municipal Separated Storm Water** (MS4):
   - storm water program aimed at preventing polluted storm water runoff from entering water bodies and
   - restoring water quality in impaired water bodies.
2. **Maine Pollutant Discharge Elimination System Permit** (MPDES)/ **Maine Waste Discharge License**:
   - Elimination of combined sewer overflows.

Impaired Watersheds



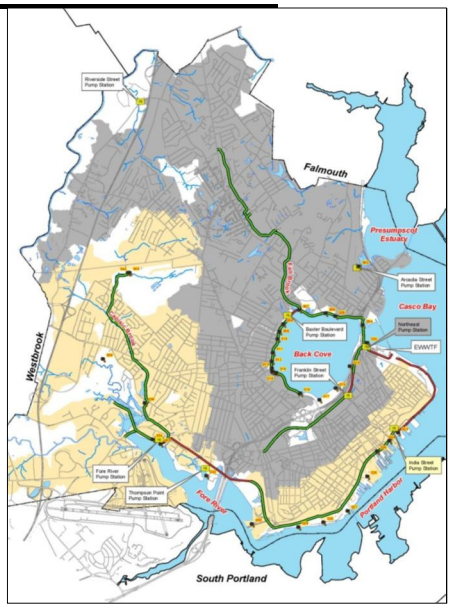
Separated Storm Water System (MS4 Permit)

- All *conveyances* for storm water that *discharge* directly to waters of the State other than groundwater including but not limited to:
  - Roads,
  - Drainage systems,
  - Municipal streets,
  - Catch basins,
  - Curbs,
  - Gutters,
  - Ditches,
  - Human-made channels , or
  - Storm drains (other than publically owned treatment works and combined sewers)

- Portland is obligated by MS4 General Permit to meet the requirements of the permit by carrying out the following activities:
  - Outreach, education, and engagement of residents, landowners and businesses in storm water pollution prevention;
  - Training City staff and reduce pollution by municipal operations;
  - Mapping, evaluating and maintaining the municipal storm water management system including street sweeping, catch basin cleaning, outfall inspections and elicit discharge detection and elimination;
  - Adopting and implementing standards and inspection procedures that minimize storm water pollution during construction and mitigate the impacts of storm water runoff from a completed project;
  - Adoption and implementation of tracking procedures to ensure that approved storm water management systems are inspected, maintained and function as intended.

Combined Sewer System(MPDES Permit)

- Obligated to eliminate CSOs as required by NPDES.
- Since 1991, separating storm water drainage from the combined sewer system to reduce occurrences of combined sewer overflows.
- Long-term control plan to evaluate and cost-effectively abate CSOs in Portland was completed in 1993 outlining a strategy to eliminate 33 of 39 CSOs in three stages of planned construction (Tiers I, II and III) through sewer separation and storage.
  - In 1997, prepared Tier I implementation Plan and in 2003 completed a Tier II implementation plan.
  - Completed Tier I projects and approximately 40% of Tier II projects.
  - Development of the Tier III implementation plan and amendments to the Tier II Plan which is expected to be completed in 2011.
  - Tier III program will provide temporary wastewater storage for the combined sewer system at specific locations in the City such as along Baxter Boulevard and along Commercial Street, in addition to the continuation of the sewer separation program.



More Information

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  - Portland Water District www.pwd.org
- State of Maine Resources:
  - Maine DEP Stormwater Program www.maine.gov/dep/blwq/docstand/stormwater
  - Maine DEP Watershed Planning and Management www.maine.gov/dep/blwq/watersh.htm
- Federal Resources:
  - Environmental Protection Agency National Pollutant Discharge Elimination System cfpub.epa.gov/npdes/
- Other Resources:
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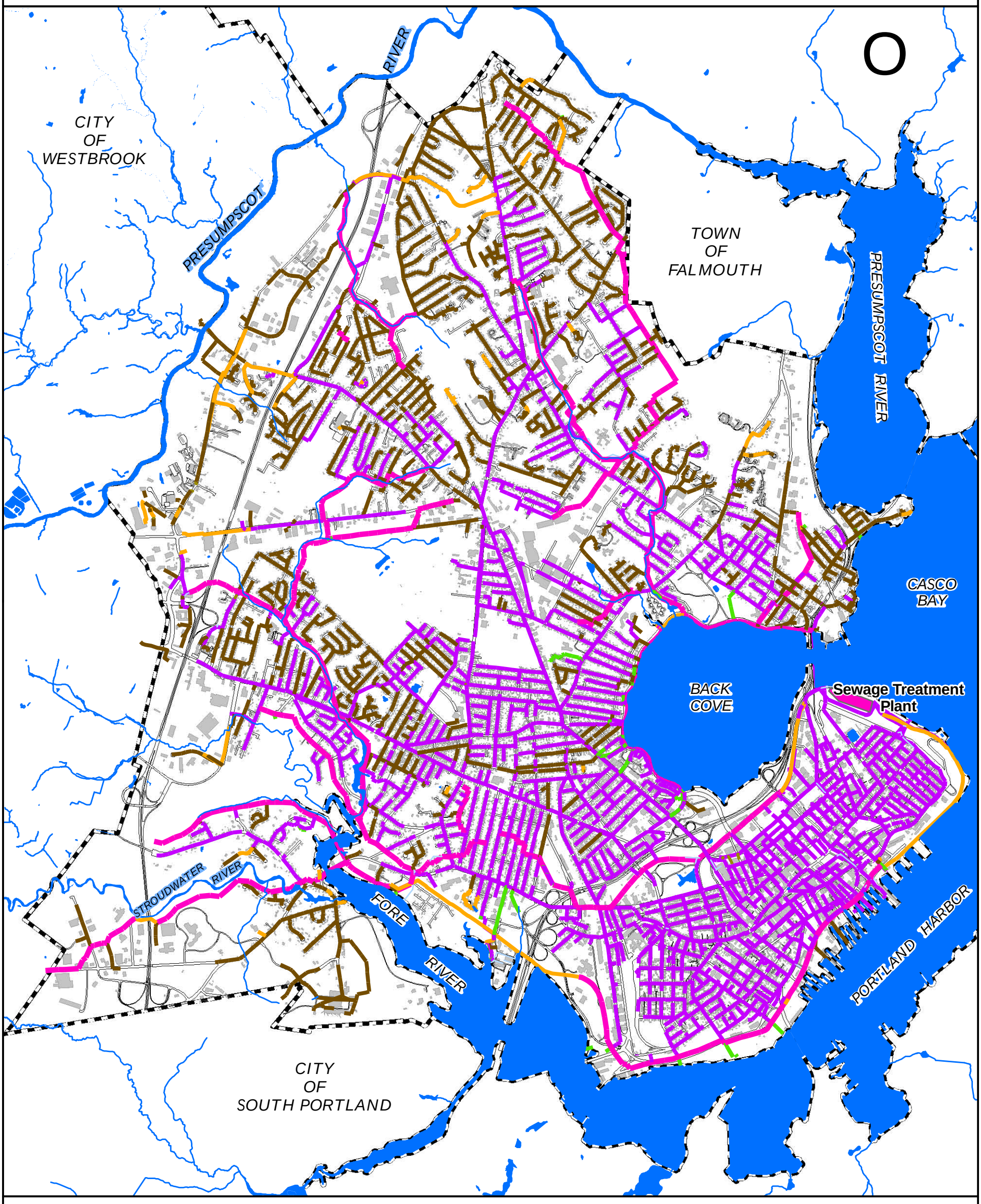
  - Friends of Casco Bay www.friendsofcascobay.org
  - Casco Bay Estuary Partnership www.cascobay.usm.maine.edu
  - Center for Watershed Protection www.cwp.org
  - Think Blue Maine www.thinkbluemaine.org
  - Maine Healthy Beaches www.mainehealthybeaches.org

CITY OF PORTLAND SEWER SYSTEM



Municipal Boundary | **Building** | **Stream** | **Water Feature**

0 0.5 1 Miles

Scale: 1:35,000

City of Portland
Public Works Department
Land & Infrastructure Management
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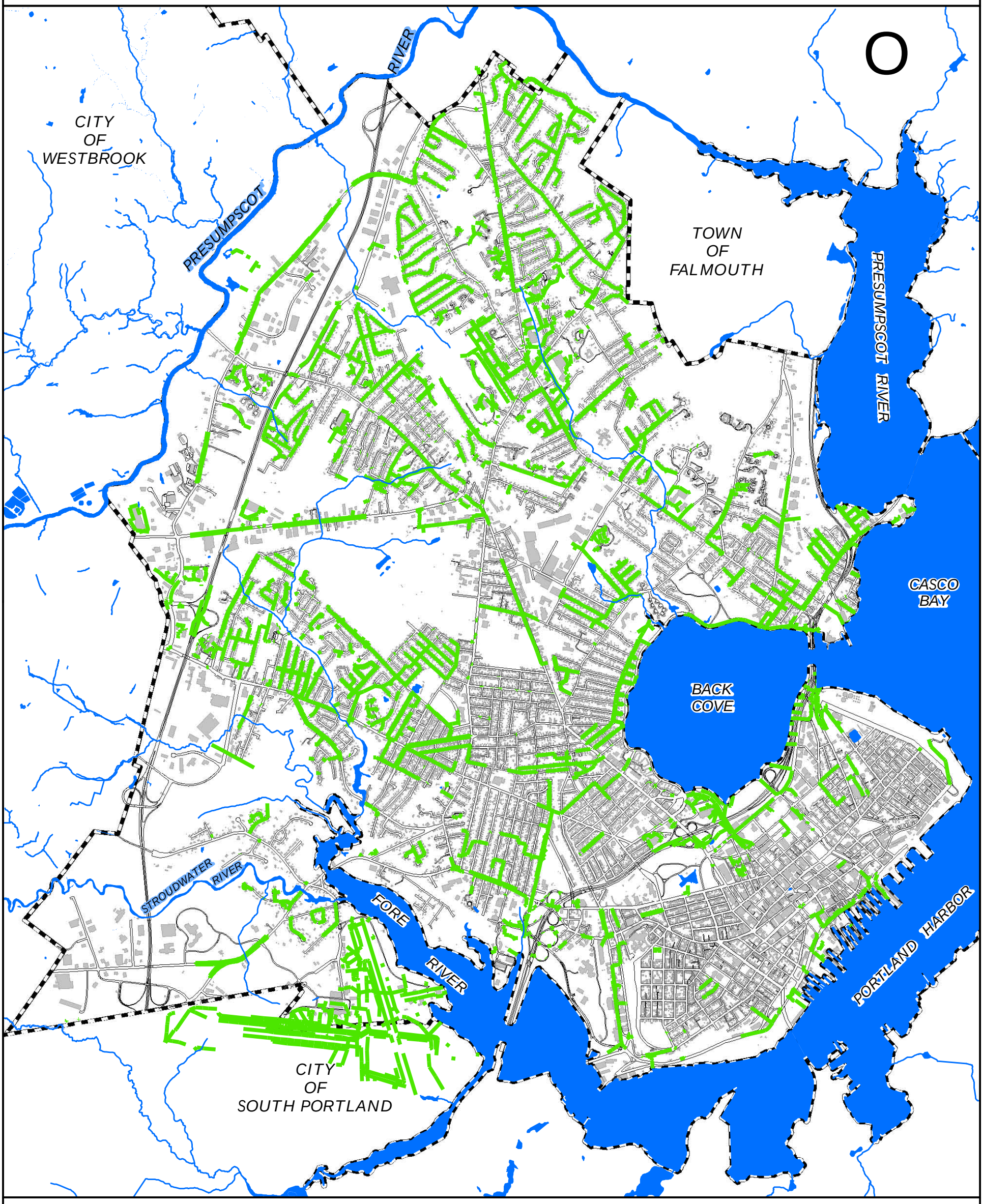
SEWER TYPES:

- Sanitary Sewers carry sewage to the interceptor sewers
- Combined Sewers carry sewage & stormwater to the interceptor sewers
- Interceptor Sewers carry sewage & stormwater to the treatment plant
- Forced Mains carry pumped sewage & stormwater to a sewer
- Overflow Sewers carry sewage & stormwater to a receiving waterbody when flows exceed the capacity of the combined sewer system

CITY OF PORTLAND STORM DRAIN SYSTEM



Municipal Boundary

Building

Stream

Water Feature

STORM DRAINS:

Storm Drains convey the stormwater runoff collected in catch basins to a stream, river, wetland or coastal waterbody.

- Storm drains are sometimes connected to combined sewers, particularly during phased sewer separation projects.
- Culverts are pipes that allow streams, wetlands and rivers to flow beneath paths, streets, railroad tracks and property

0 0.5 1

Miles

Scale: 1:35,000

City of Portland
Public Works Department
Land & Infrastructure Management
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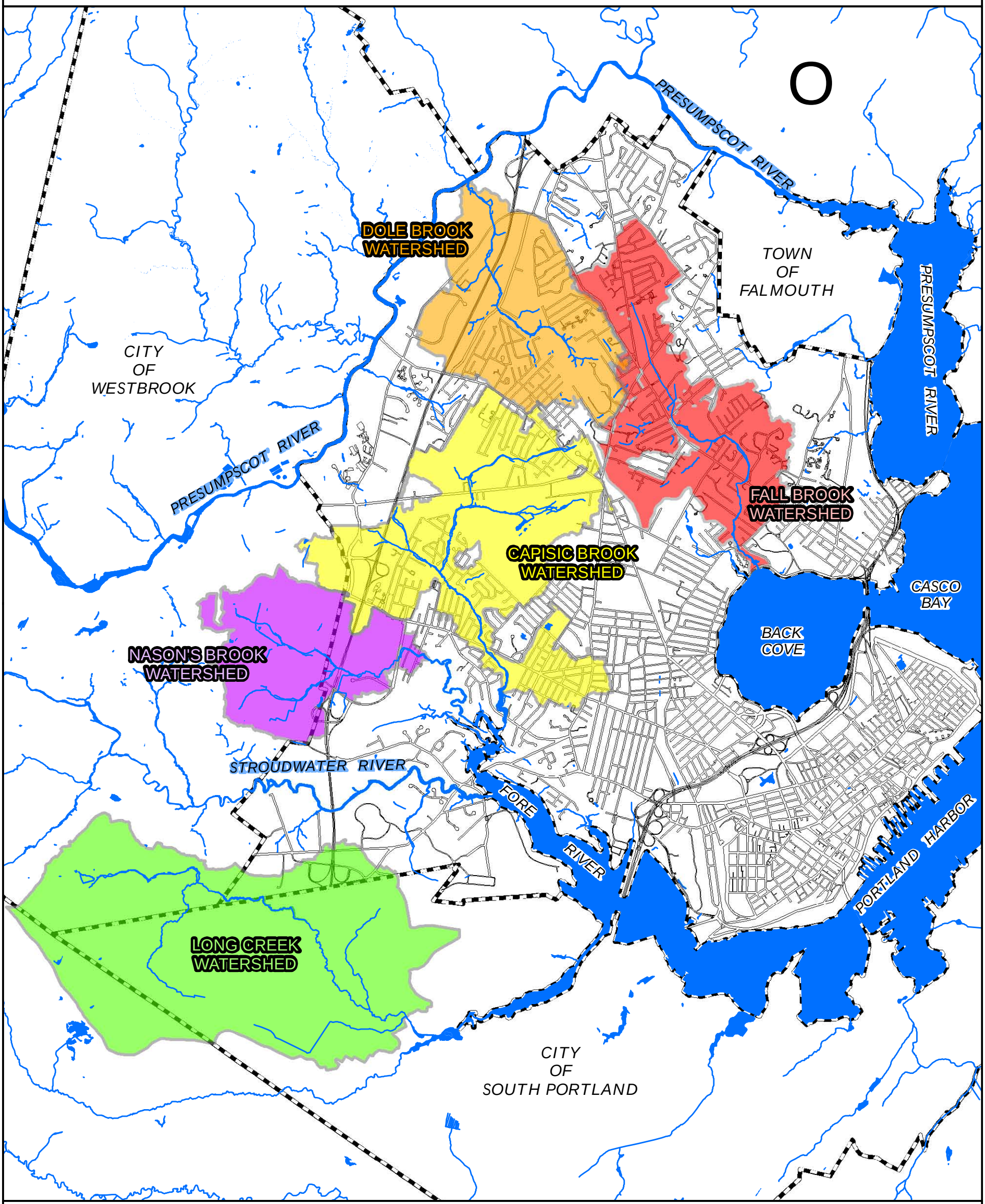
MAJOR STREAM WATERSHEDS & RIVERS OF PORTLAND, MAINE



Engineered Watershed Boundaries

Municipal Boundary

Stream

Water Feature

0 0.5 1 Miles

Scale: 1:43,560

City of Portland
Public Works Department
Land & Infrastructure Management
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A Watershed is . . .

The land area that drains (or sheds) water to a particular stream, river, lake or coastal waterbody. Ridges of higher ground generally form the boundaries between watersheds. All land is in a watershed.*

An Engineered (or Functional) Watershed is . . .

The developed land area and drainage systems (surface & subsurface) that drain water to a particular stream, river, lake or coastal water body.

* From Major Watersheds of Portland, Maine 4-19-2006 by The Cumberland County Soil & Water Conservation District

City of Portland Elevations

- Railroad
- Highway
- Major Roads
- City Boundary
- Street

Town of Falmouth

City of Westbrook

City of South Portland

Miles
0 0.125 0.25 0.5 0.75 1

Feet
0 500 1,000 2,000 3,000 4,000 5,000

Map prepared by the City of Portland's Information Services Department. April 2007