INTEGRATED STORMWATER MANAGEMENT MASTER PLAN (ISWM-MP)
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Leading Jurisdictions Report

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INTEGRATED SWM-MP
Leading Jurisdictions Report

1.0 INTRODUCTION
Per the work plan submitted for the City of Kitchener Integrated Master Plan, Aquafor Beech and Freeman and Associated have prepared the following scan of Leading Jurisdictions relating to:

- Stormwater Utility Programs
- Water Reuse and Stormwater Regulations

The leading jurisdictions scan is intended to provide context in regards to:

- Best in class policies,
- Programming and
- Initiatives for uptake of at-source stormwater control by property owners in both the residential and ICI sectors.

1.1 Purpose
This scan of leading jurisdictions is a component of the Market Research study tasks and is intended to serve as a background review to inform future study tasks including but not limited to the evaluation and development of SWM Credit Program Enhancements.

1.2 Next Steps
Through discussions with REEP and City staff, market research with residents, key informant interviews with service providers and ICI property owners/managers, and leading jurisdiction research, potential options for program enhancements and beyond will be developed. Based on the aforementioned, screening criteria will be developed and applied. The criteria are anticipated to include:

- return on investment (ROI),
- alignment with corporate policies,
- regulations and objectives,
- water quality improvement,
- reduction in quantity flows and erosion,
- liability reduction,
- infrastructure optimization,
- sub-watershed targets,

The screening criteria and the selected options will be included for consideration under the “Evaluation of Alternatives” as part of the Integrated Master Plan process.

1.3 Report Structure
This report contains two (2) sections which provide tabular summaries relating to the following:

- **Section 2** - Summarizes the leading jurisdictions in regards to Stormwater Utility Programs
- **Section 3** – Summarizes the leading jurisdictions in regards to Water Reuse and Stormwater Regulations
2.0 STORMWATER UTILITY LEADING JURISDICTIONS

In the last decade several municipalities across North America have changed the way municipal stormwater management projects are funded. Progressive municipalities have shifted from allocating portions of property taxes for stormwater projects to stormwater utilities or tiered fee systems based on property size, property type, and/or impervious area.

The City of Kitchener’s 2015 Stormwater Rate Schedule includes thirteen (13) Stormwater Classification Codes which cover Residential, Multi-Residential and Non-residential properties.

- **Residential Single Detached** homes are classified as small, medium or large based on the building footprint. Owners of these properties pay $6.28, $10.48 or $13.77/month respectively. Owners of Townhouses or Semi-Detached homes pay $7.48/month for each unit. Owners of Residential Condominiums pay $4.18/month for each unit.

- **Multi-residential** properties have five (5) classification codes. Owners of duplexes, triplexes, four-plexes, and five-plexes pay between $8.39 and $290.96/month. Owners of Multi-Residential properties with greater than five (5) units pay $2.10/month according to the number of dwelling units.

- **Non-residential properties** fall into six (6) classification codes. These utility rates range from $20.05 to $2,133.07/month. Non-residential classifications are based on impervious area.

According to a May 2010 Memorandum regarding the City of Kitchener Stormwater Rate Implementation, the City’s rates are based on the average impervious area of a single detached home, calculated to be 259 m². This base impervious area is known as the “SFU” (Single Family Unit) and used for scaling stormwater monthly charges on all types and sizes of parcels.

Using the City of Kitchener’s 2015 Stormwater Rate Schedule, a single detached residential home with 259m² of impervious surface would fall into the “Residential Single Detached-Large” Stormwater Classification code which is assigned to detached homes with a building footprint size of 237 m² or more. Stormwater charges assigned to this property would be $13.77/month. To determine how this monthly charges compare to other municipalities, Kitchener’s SFU was used to as a basis for assessing monthly stormwater charges in other municipalities.

**Ontario Municipalities**

Two (2) Ontario municipalities analyzed in this report have dedicated stormwater charges which are applied to all residential parcels regardless of the size or impervious area. These are the Town of Aurora ($4.78/month) and the City of St. Thomas ($7.39/month).

Four (4) Ontario municipalities analyzed in this report including the City of Kitchener have some form of stormwater utility or tiered fee system for residential properties. The City of Waterloo has a stormwater rate schedule similar to the City of Kitchener. In the City of Waterloo the owner of a “Residential-Large” parcel would pay a utility charge of $11.91/month.

The City of London applies a three-tiered “Stormwater Drainage Charge”. Land owners of parcels that are 0.4 ha or less pay a charge of $14.49/month. Parcels that are 0.4 ha or less but
are not within 90 m of a storm drain (typically rural properties) are applied a charge of $10.87/month. Parcels larger than 0.4 ha are applied a charge of $120.57/month per ha.

The City of Mississauga’s new tiered fee system has five (5) classification codes for residential properties. Medium single detached homes will pay a fee of $8.33/month.

Ontario Averages SWM Charges
Based on the analysis, the average SWM Charges were calculated to provide context and a point of comparison in regards to current City of Kitchener SWM Charges:
- Single Family or Residential Flat Rate Average in Ontario = $6.09 /month
- Stormwater Utility or Tiered Fee Average in Ontario = $12.13 /month

Canadian Municipalities outside of Ontario
Two (2) Canadian municipalities outside of Ontario analyzed in this report have dedicated stormwater charges which are applied to all residential parcels regardless of the size or impervious area. These are
- the City of Halifax, Nova Scotia ($6.03) and
- the City of North Vancouver, British Columbia ($25.00).

The City of Regina, Saskatchewan has a tiered stormwater charge. In this municipality, the residential category in which the Kitchener SFU would fall would be applied a daily charge of $0.41, equivalent to $12.30 assuming a 30-day month. The City of Edmonton, Alberta also has a tiered stormwater charge for residential properties with the average residential property owner being charged $8.00/month.

Canadian Averages (outside of Ontario) SWM Charges
Based on the analysis, the average SWM Charges were calculated to provide context and a point of comparison in regards to current City of Kitchener SWM Charges:
- Single Family or Residential Flat Rate Average in Canada (outside Ontario) = $15.52 /month
- Stormwater Utility or Tiered Fee Average Canada (outside Ontario) = $10.15 /month

American Municipalities
Four (4) American municipalities analyzed in this report have dedicated stormwater charges which are applied to all single family residential parcels regardless of the size or impervious area.
- The City of Portland, Oregon applies a monthly charge of $31.89 (Canadian Dollars) to all single family parcels and duplexes.
- The City of Philadelphia, Pennsylvania applies a monthly charge of $16.73 (Canadian Dollars) to all residential parcels.
- The City of Burlington, Vermont applies a monthly charge of $5.58 (Canadian Dollars) to all single family parcels.
- The City of Chesapeake, Virginia applies a monthly charge of $9.11 (Canadian Dollars) to all residential parcels.

Four (4) American municipalities analyzed in this report have a stormwater utility or a tiered fee system applied to residential parcels.
- The City of Washington, D.C. has a six-tiered residential utility system based on parcel size. This would equate to a monthly charge of $7.95 (Canadian Dollars) for a single family detached home.
• The City of Seattle, Washington has a four-tiered residential utility system based on parcel size. This would equate to a monthly charge of $24.27 (Canadian Dollars) for a single family detached home.
• The City of Minneapolis, Minnesota has a three-tiered residential utility system based on parcel size. This would equate to a monthly charge of $18.51 (Canadian Dollars) for a single family detached home.
• The Village of Downers Grove, Illinois has a three-tiered residential utility system based on parcel size. This would equate to a monthly charge of $12.05 (Canadian Dollars) for a single family detached home.

American Averages SWM Charges
Based on the analysis, the average SWM Charges were calculated to provide context and a point of comparison in regards to current City of Kitchener SWM Charges:
• Single Family or Residential Flat Rate Average in America = $15.83/month
• Stormwater Utility or Tiered Fee Average in America = $15.70/month

Overall Comparison
The owners of an average residential property (SFU) in the City of Kitchener currently pay a charge of $13.77/month. This is close to the three-municipality Ontario average of $12.12/month. Based on the sample of municipalities compared in this analysis, Ontario municipalities that have stormwater utilities or tiered fee systems for stormwater are better able to fund stormwater projects than those that charge a single family or residential flat rate.

When compared to municipalities in other regions of Canada, the monthly charge in Kitchener is higher than both Regina ($12.30 /month) and Edmonton ($8.00 /month). The City of Kitchener’s fee system is also higher than two of the four American municipalities surveyed.

However, the City of Kitchener’s fee system is significantly lower than leading SWM jurisdictions including the City of North Vancouver, British Columbia ($25.00/Month), Seattle, Washington ($24.27/month) and Portland, Oregon ($25.27/month). These jurisdictions are considered the leaders in SWM fee systems should be considered the benchmark for establishing effective funding programs.

It should be noted that many factors contribute to establishing appropriate SWM funding within a municipality. This Leading Jurisdictions Report did not consider the age of municipal infrastructure, the desired or mandated level of municipal stormwater service, the size of the municipality, the growth rate of the municipality or other unique factors that might contribute to funding requirements. Municipalities with successful and sustainable SWM funding systems assess these factors before implementing a stormwater fee system.
Table 2.1: Stormwater Charges across North America

Monthly Municipal Stormwater Charges

<table>
<thead>
<tr>
<th>City</th>
<th>Stormwater Utility or Tiered Fee</th>
<th>Single Family or Residential Flat Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas City, MO</td>
<td>$13.77</td>
<td>$18.51</td>
</tr>
<tr>
<td>Waterloo, ON</td>
<td>$11.91</td>
<td>$12.05</td>
</tr>
<tr>
<td>London, ON</td>
<td>$14.49</td>
<td>$16.73</td>
</tr>
<tr>
<td>Mississauga, ON</td>
<td>$8.33</td>
<td>$9.58</td>
</tr>
<tr>
<td>St. Thomas, ON</td>
<td>$7.39</td>
<td>$9.11</td>
</tr>
<tr>
<td>Aurora, ON</td>
<td>$12.30</td>
<td>$10.78</td>
</tr>
<tr>
<td>Regina, SK</td>
<td>$4.78</td>
<td>$6.70</td>
</tr>
<tr>
<td>Edmonton, AB</td>
<td>$6.03</td>
<td>$9.50</td>
</tr>
<tr>
<td>Vancouver, BC</td>
<td>$8.00</td>
<td>$14.50</td>
</tr>
<tr>
<td>Halifax, NS</td>
<td>$7.95</td>
<td>$13.89</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>$12.05</td>
<td>$24.27</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>$18.51</td>
<td>$31.89</td>
</tr>
<tr>
<td>Downers Grove, IL</td>
<td>$12.05</td>
<td>$24.27</td>
</tr>
<tr>
<td>Portland, OR</td>
<td>$5.58</td>
<td>$16.73</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>$9.11</td>
<td>$16.73</td>
</tr>
<tr>
<td>Burlington, VT</td>
<td>$9.11</td>
<td>$16.73</td>
</tr>
<tr>
<td>Chesapeake, VA</td>
<td>$9.11</td>
<td>$16.73</td>
</tr>
</tbody>
</table>

Note: all American cities are shown in Canadian dollars using an exchange rate of $1 US : $1.24 CAN.
In addition, the federal Safe Drinking Water Act (SDWA) of 1974 provides a comprehensive framework to ensure the quality and safety of drinking water supplies. Within the state of Oregon, the Department of Environmental Quality (DEQ) regulates stormwater discharges to underground injection control (UIC) systems under the SDWA. UICs are used to infiltrate stormwater runoff from both public and private properties.

### Oregon

The Clean Water Act of 1972 (amended in 1987) prohibits the discharge of pollutants into waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The permit requirements, published in 1990, require large (Phase I) cities such as Portland to obtain an NPDES permit for their municipal separate storm sewer system (MS4) discharges. Compliance with the NPDES MS4 permit requires cities to establish a comprehensive stormwater management program, including establishing controls on post-development stormwater runoff and source controls for industrial facilities that contribute substantial pollutant loading to the MS4 system.

In addition, the federal Safe Drinking Water Act (SDWA) of 1974 provides a comprehensive framework to ensure the quality and safety of drinking water supplies. Within the state of Oregon, the Department of Environmental Quality (DEQ) regulates stormwater discharges to underground injection control (UIC) systems under the SDWA. UICs are used to infiltrate stormwater runoff from both public and private properties.

### Portland

#### Fee Structure:

Portland finances stormwater management services by collecting public utility fees on developed property, and system development charges (SDCs) on new development.

- **1. Residential Users**
  - a. Single Family or Duplexes
    - Off-site charge $16.17 per user account per month
  - b. 3-Plex and 4-Plex Residences
    - Off-site charge $5.74 per dwelling unit per month
  - c. Developments of 5 or More Units
    - Off-site charge $5.74 per 1,000 square feet of impervious area per month

- **2. Non-Residential Users**
  - Off-site charge $7.11 per 1,000 square feet of impervious area per month
  - On-site charge $3.64 per 1,000 square feet of impervious area per month

- **3. Discounts**
  - Clean River Rewards: User fee discounts of as much as 100% of the monthly stormwater management charge for private on-site facilities that manage stormwater runoff, and 100% of the monthly on-site stormwater management charge for Drainage District residents and businesses. At the end of April 2014, a total of 35,813 utility ratepayers with active accounts have registered for stormwater discounts; 34,481 single family residential ratepayers (accounting for a total of 76,511,888 square feet of impervious area managed for stormwater) and 1,333 multifamily, commercial, and industrial ratepayers (accounting for a total of 69,393,012 square feet of impervious area managed for stormwater).
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#### Marketing:

**Green Streets Program:** A citywide Green Streets Policy and Resolution was developed and approved by City Council, processes were formalized for permitting and integration of Green Streets into city plans, and a fund was established to support construction of green street facilities.

**Green Streets Policy:** The goal is to promote and incorporate the use of green street facilities in public and private development. Key Program Elements:

- Infrastructure Projects in the Right of Way will incorporate green street facilities into all City of Portland funded development, redevelopment or enhancement projects as required by the City’s Stormwater Management Manual. If a green street facility is not incorporated into the Infrastructure Project, or only partial management is achieved, then an off-site project or off-site management fee will be required.

- Any City of Portland funded development, redevelopment or enhancement project, that does not trigger the Stormwater Manual but requires a street opening permit or occurs in the right of way, shall pay into a “S for Green” Street fund. The amount shall be 2% of the construction costs for the project.

**Green Streets Policy:**

- [http://www.portlandoregon.gov/bes/article/402789](http://www.portlandoregon.gov/bes/article/402789)

**% For Green Program:** The City of Portland requires all public and private development projects to manage stormwater on-site to the extent possible. Some right-of-way projects do not trigger application of this requirement. A percentage of the budget of these projects goes to the % for Green Program to help fund green infrastructure projects throughout the city. Two funding sources are combined to fund % for Green projects:

- City right-of-way projects not required to meet the Stormwater Management Manual (SWMM) requirements
- Off-site management fees collected when a private development cannot meet the SWMM requirements due to site conditions

Funds may not be used on a project to meet SWMM requirements, but may be used for projects that go above & beyond the requirements.

**ECO Roof Floor Area Ratio Bonus Option:** The amount of FAR bonus allowed to a developer depends on the percentage of eco roof coverage in relation to the building footprint.
Minnesota

The Stormwater Program is a comprehensive state stormwater program based on the Federal NPDES program and administered by the MPCA with oversight by the USEPA. The program is based on federal Clean Water Act requirements for the preservation of aquatic life and the protection of human health and use of the waters of the state.

Minneapolis

The Minneapolis Stormwater Management Program is based on the Federal Clean Water Act requirements for the preservation of aquatic life and the protection of human health and use of the waters of the state. The program is based on federal Clean Water Act requirements for the preservation of aquatic life and the protection of human health and use of the waters of the state.

10% – 30% coverage earns 1 square foot of additional floor area per square foot of eco roof
30% – 60% coverage earns 2 square feet of additional floor area per square foot of eco roof
60% or greater earns 3 square feet of additional floor area per square foot of eco roof.
http://www.portlandoregon.gov/bes/article/344980

Innovative Wet Weather Program: The program consists of numerous individual projects and activities at locations throughout the City of Portland. The goal is to reduce the peak volume of stormwater entering the combined system and manage stormwater to reduce pollutant concentrations. Funding for projects is in whole or in part by EPA grants. Proposed projects are in five main categories:
• Water quality-friendly streets and parking lots
• Downspout disconnections
• Eco-roofs
• Monitoring and feasibility studies
• Educational Efforts
http://www.portlandoregon.gov/bes/article/63175

Treebate Program: Treebate is an incentive to plant yard trees at Portland residences. Homeowners can receive a credit to water/saver utility bill for half the purchase price per tree up to $15 (small), $25 (medium) or $50 (large) depending on mature tree size and stormwater management potential.
http://www.portlandoregon.gov/bes/article/154187#46654

Downspout Disconnection: In targeted neighborhoods, the City pays homeowners $53 for each downspout they disconnect themselves, or will do the work for free.
http://www.portlandoregon.gov/bes/article/127466

Stormwater Management Plan - January, 2011: The plan identifies Best Management Practices (BMPs) to be implemented to meet the requirements of Portland’s Municipal Stormwater Permit.
http://www.portlandoregon.gov/bes/article/136117

Stormwater Management Plan - Public Involvement: Outreach and education of the public promotes environmental stewardship, pollution prevention, and sustainable stormwater management. The following Strategies have been implemented (see pages 13-18 of the Stormwater Management Plan):
- Community Stewardship Grants Program: in place since 1995, provides up to $10,000 per project to citizens and organizations to encourage watershed protection. Projects must be within the City of Portland, promote citizen involvement in watershed stewardship, and benefit the public. From 1995 through June 2011, the program allocated over $294,000 to 198 projects.
- Clean Rivers Education Programs: free water quality classroom and field science education programs for grades K through 12 within the City of Portland. The goal is to provide outreach to approximately 15,500 K-12 students annually.
- Regional Coalition for Clean Rivers and Streams: a group of agencies and municipalities in the Portland/Vancouver metro area dedicated to educating the public about the impacts of stormwater runoff. The coalition develops an annual region wide public awareness campaign that can reach more than 1.4 million people living in the four-county area.
- Watershed Education and Stewardship: The watershed-based approach stresses comprehensive, multi-objective watershed management through inter-jurisdictional coordination within each watershed. Each program includes public education and stewardship.
- Publication & Signage: Examples include water bill inserts, plant posters with stormwater pollution prevention messages, eco roof question and answer fact sheets, landscape swale posters, a “Stormwater Cycling” brochure and map for a self-guided tour of demonstration projects, erosion control information for street tree plantings, and educational materials for community meetings and events.

Stormwater Management Facilities – Operation & Maintenance Guide for Private Property Owners: Property owners are legally responsible for inspecting and maintaining the stormwater management facilities on their sites. Required maintenance is outlined in the operations and maintenance (O&M) plan for the facility. This handbook supplements the O&M Plan.
http://www.portlandoregon.gov/bes/article/64150


Policy:
Ordinance to establish rates for stormwater management services, Sept, 2012: http://www.portlandoregon.gov/bes/article/41327

Portland Stormwater Management Manual, January 2014: This document outlines stormwater management requirements and the related regulations and policies.
http://www.portlandoregon.gov/bes/article/474044

Stormwater Management Plan for the period 2011-2016: This document outlines the goals and mandates of the program.
http://www.portlandoregon.gov/bes/article/326317

http://www.portlandoregon.gov/bes/article/74490

Utilities

The City of Portland charges a stormwater fee on the three utilities:
- Water
- Sewer
- Utilities

This fee is based on the amount of impervious area on a property. The impervious area was calculated based on the size of the property, as well as the current use. Single family properties are billed using one of the following rates:

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>$14.93</td>
</tr>
<tr>
<td>Medium</td>
<td>$11.94</td>
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The Stormwater Utility Fee was established in 2005. The stormwater utility fee is based on impervious area and is charged on a per unit basis. Each ESU (Equivalent Stormwater Unit) is 1,530 square feet of impervious area on a property. The impervious area was calculated based on the size of the property, as well as the current use. Single family properties are billed using one of the following rates:

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http://www.portlandoregon.gov/bes/article/326317
Impact On Runoff Management

Stormwater charges for all other properties will be based on the following calculation: (Gross Lot Size in sq.ft. X Runoff Coefficient) ÷ 1,530 sq. ft. ÷ # of ESUM of ESU X $11.94 = Monthly Fee

Additional details of the fee structure can be found here:

Storm Water Fund 2014 Budget Financial Plan: The Storm Water Fund is comprised of the Storm Water Collection and Street Cleaning programs. The Fund accounts for street cleaning and the design, construction, and maintenance of the City’s storm drain system. A portion of the Storm Water Fund is used for sanitary water interceptor and treatment services. The Fund also accounts for the Combined Sewer Overflow program. 2014 budget information:
http://www.ci.minneapolis.mn.us/groups/public/@finance/documents/webcontent/arms1p/113446.pdf

The Stormwater Credit system: provides up to 50% credit (reduction) in your stormwater utility fee for management tool/practices that address stormwater quality, and 50% or 100% credit (reduction) in your stormwater utility fee for management tool/practices that address stormwater quantity. Maximum credits are cumulative and cannot exceed 100% credit.

Stormwater Quality Credit Program: offers property owners a credit equivalent to fifty percent of the stormwater charges for the portion of their impervious area that drains to an approved stormwater quality management tool. Examples include, rain gardens, pervious pavers and green roofs.
http://www.ci.minneapolis.mn.us/groups/public/@publicworks/documents/webcontent/convert_276573.pdf

Stormwater Quantity Credit Program: only those properties that can demonstrate the capacity to a 10-year or 100-year rain event can receive a stormwater quantity credit. Property owners must have their applications certified by a state licensed engineer or landscape architect. Property owners can apply for either the “Standard Quantity Reduction Credit” or the “Additional Quantity Reduction Credit.”
http://www.ci.minneapolis.mn.us/publicworks/stormwater/fee/stormwater_waterqualitycredit.minnesota.html

Marketing:

Community Options for Wastewater Financing: an outline of financing options for public entities.
http://www.pca.state.mn.us/index.php/view?hdg=17147

Minnesota’s Stormwater Manual: a valuable resource for professional stormwater managers.

Stormwater Best Management Practices Manual: Although much of the information in the manual is technical, chapters 1, 2 and 3 can help citizens understand the principles and challenges involved.

Public Education and Outreach: Water quality education programs are required as part of the National Pollution Discharge Elimination System (NPDES) permit. These programs are funded through the MPRB and the City of Minneapolis.
http://www.ci.minneapolis.mn.us/publicworks/stormwater/fee/stormwater_waterqualitycredit.minnesota.html

Policy:

Stormwater Fee Ordinance:


Stormwater Management for Development and Re-development Ordinance: The ordinance establishes requirements for projects with land disturbing activities on sites greater than one (1) acre, including phased or connected activities, and for existing stormwater devices. An option is reserved for only those sites that demonstrate that performance of on-site stormwater management is not feasible. With approval of the City Engineer, the Ordinance allows developers to contribute to the construction of a regional stormwater facility in lieu of on-site treatment/management.

Combined Sewer Overflow (CSO): The Combined Sewer Overflow project started in 2004. Working with property owners, this project aims to identify and disconnect roof drain overflow from the sanitary system (Flood Mitigation). This is an on-going program. For 2014, $700,000 has been allocated from the operating budget with additional funding available from the Capital programs.
http://www.ci.minneapolis.mn.us/groups/public/@finance/documents/webcontent/arms1p/113446.pdf

CSO Program Outline and Ordinance: http://www.ci.minneapolis.mn.us/publicworks/stormwater/cso/cso_rainleader-ordinance

CSO Disconnection Information for Commercial and Multi-Unit Residential Buildings: http://www.ci.minneapolis.mn.us/publicworks/stormwater/cso/cso_commercial
Pennsylvania

Prohibited Discharge to Sanitary Sewer System Ordinance: Also known as the Rainleader Ordinance. In support of the CSO program, the purpose is to define regulations that will aid the City in limiting infiltration of rainwater to the sanitary sewer system. It authorizes the City to:
- Perform inspections to identify sources of prohibited stormwater runoff discharge into the sanitary sewer system
- Require identified sources to be disconnected from the sanitary sewer system
- Issue Administrative Citations to continuing violators. The first Citation includes a fine of $750, the second Citation includes a fine of $1,500, the third and all subsequent Citations are $2,000.

http://www.ci.minneapolis.mn.us/publicworks/stormwater/nocn_rainleader-ordinance

http://www.ci.minneapolis.mn.us/groups/public/@publicworks/documents/webcontent/convert_253419.pdf

Stormwater Charge Senior Discount:

A 25% Senior Citizen Discount Rate is available. As always, conditions apply….

http://www.phila.gov/waterrev/billsPayments.html

Permeable Pavement Zoning Code Amendment:


Vegetation Management Policy:


Water Resource Ordinances:


Local Surface Water Management Plan: The City of Minneapolis completed its LSWMP in October, 2006. The Metropolitan Area Surface Water Management Act was created by Minnesota legislature to protect surface water resources. It resulted in the creation of Watershed Management Organizations (WMO) that were given the role of managing individual water bodies in the Twin Cities area. There are four in Minneapolis, including:
- Bassett Creek Water Management Commission (BCWMC)
- Minnehaha Creek Watershed District (MCWD)
- Mississippi Watershed Management Organization (MWMO)
- Shingle Creek Watershed Management Commission (SCWMC)

Each municipality creates and implements its own local water management plan, consistent with those of the watershed management organizations within its boundaries.


Comparison of SWMP and LSWMP: The Storm Water Management Program (SWMP) document is a federal requirement. The Local Surface Water Management Plan (LSWMP) is a parallel document that is a State requirement, prepared in response to Minnesota Statute 103B and Rules 8410, governing watershed management organizations in Minnesota. There are many similarities between these two documents. The SWMP specifically focuses on stormwater runoff. The LSWMP has a broader view of surface water management in the City and includes water resource management activities, including management of the sanitary sewer collection system and other surface water management activities. The LSWMP was adopted in 2006 and ultimately was incorporated into the City's comprehensive plan.

Philadelphia

Fee Structure:

Residential Stormwater Charge: Residential customers pay a standard amount based on the average surface area of impervious cover on residential properties throughout the city. SWMS Charge is NOT based on monthly water consumption. The SWMS Charge is based on two parameters: the average Gross Area square footage and the average Impervious Area square footage for all residential properties. The average Gross Area for a residential property is 2,110 square feet. The average Impervious Area for a residential property is 1,050 square feet. Based on this average Gross Area and Impervious Area values, a uniform monthly charge has been defined for all residential properties. All Residential Properties are charged a monthly SWMS Charge and a monthly Billing and Collection Charge. Effective July 1, 2014 - (SWMS) $12.46, Billing & Collection $1.69


Non-Residential Stormwater Charge: the cost to manage stormwater is based on the specific square footage of impervious area covering the property and the total square footage of the property. Effective July 1, 2014 the minimum monthly charges shall be as follows: SWMS $12.46 Billing & Collection $2.19


Stormwater Management Service Charges Transition: effective July 1, 2010, PWD is transitioning from an equivalent meter based SWMS Charge to a parcel area based SWMS Charge. See page 58 of the report:


SWMS Charge CAP: The objective of the SWMS Charge CAP is to enable stormwater customers to mitigate the annual fiscal year increase on their monthly SWMS Charge due to the transition from a meter based to a parcel area based charge. See page 13 of the document:


Stormwater Billing Map Viewer: This web application lets users explore parcels on an interactive map, including high resolution ortho-photography, transparent overlays of impervious surfaces, and tools to make approximate measurements of length and area.


Stormwater Billing Mapping:

This web application lets users explore parcels on an interactive map, including high resolution ortho-photography, transparent overlays of impervious surfaces, and tools to make approximate measurements of length and area.


Stormwater Charge Senior Discount: A 25% Senior Citizen Discount Rate is available. As always, conditions apply....

The City has received five complete streets projects this year, which will include infiltration planters, tree pits, permeable pavement and bioswals. CDOT and DWM are also collaborating to include green infrastructure for approximately 30 traffic calming bumpouts beginning this summer. These projects will contain several green infrastructure components.

Morrill Math & Science Elementary School, Virgil Grissom Elementary School, George Leland Elementary School and Theophilus Schmid Elementary School are currently in the design phase, with construction anticipated to begin this summer. These projects will contain several green infrastructure components, including rain gardens, bioswales and permeable pavement to help absorb runoff. DDOT and DWM are also collaborating to include green infrastructure for approximately 30 traffic calming bumpouts at various locations throughout the City. DWM and DDOT will also incorporate green infrastructure activities - customer must demonstrate that the parcel is subject to an active NPDES permit for industrial stormwater discharge activities.


Marketing:

Stormwater Management Incentives Program: offers non-residential property owners low-interest financing to stimulate investment in and utilization of stormwater best management practices which reduce a parcel’s contribution of stormwater to the City’s system.

Greened Acre Retrofit Program: provides stormwater grants to contractors, companies or project aggregators who can build large scale stormwater retrofit projects across multiple properties. Additionally, upon completion of the project, participating property owners (or customers) will be eligible for credits against their stormwater charges.

Green Roof Tax Credit: The credit is for 25% of the cost of installing the green roof, up to $100,000.
http://philadelphiaeasysite.com/jsp/GreenroofTaxCredit.pdf

Basement Protection Program: This Program provides eligible residents with free installation of backwater valves and modifications to downsputs that help prevent sewage back up in their basements.
http://www.phillywaterworks.org/watershed_issues/Roofing/basement_backup_protection
http://www.phillywaterworks.org/loco/RPP_Summary_Application_2.pdf

Stormwater Management Guidance Manual: created to assist developers in meeting the requirements of the Philadelphia Stormwater Regulations.

Green Guide for Property Management: A guide to help commercial property owners reduce stormwater fees through innovative green projects on their properties.

Homeowners Guide to Stormwater Management: Guide provides actions homeowners can take to improve stormwater management on their property or in the community.

Green Streets Design Manual: http://www.phillywaterworks.org/hsf_wv_design/gsm

Free Assistance Program: The Philadelphia Water Department provides free assistance through site inspections and design recommendations for green retrofits that allow customers to obtain stormwater credits. This program minimizes the up-front costs to customers for preliminary evaluation and concept design, including evaluation of available credits.

Policy:


Illinois

Chicago: As part of the Mayor’s Green Stormwater Infrastructure Strategy (GSI), which is one of the largest voluntary investments in this type of infrastructure by a US City, the Department of Water Management (DWM) has worked with City agencies to identify opportunities to incorporate green infrastructure into existing and ongoing capital projects. For 2014, DWM has identified 39 such projects, which include four schoolyard projects, five complete streets projects and 30 traffic calming projects. In sum, these 39 projects will receive $5.1 million in funding from DWM and will leverage nearly $18 million in additional funding from Chicago Public Schools (CPS), the Chicago Department of Transportation (CDOT), the Metropolitan Water Reclamation District (MWRD) and other partners.

Working with CPS and MWRD, DWM will provide funding to the Space to Grow program, an initiative by Openlands and Healthy School Campaign to convert public school asphalt schoolyards into green playgrounds. Donald Morrill Math & Science Elementary School, Virgil Grissom Elementary School, George Leland Elementary School and Theophilus Schmid Elementary School are currently in the design phase, with construction anticipated to begin this summer. These projects will contain several green infrastructure components, including rain gardens, bioswales and permeable pavement to help absorb rainfall.

CDOT and DWM are also collaborating to include green infrastructure for approximately 30 traffic calming bumpouts at various locations throughout the City. DWM and CDOT will also incorporate green infrastructure into five complete streets projects this year, which will include infiltration planters, tree pits, permeable pavement and bioswale.

The City has received two Shoreline Cities grants from the U.S. Environmental Protection Agency (EPA) totaling $2 million under the Great Lakes Restoration Initiative to support green infrastructure. The grants will be used
for two projects: One to install green infrastructure along a 1-mile segment of a Chicago street (Leland Avenue on the City’s north side) as part of a Neighborhood Greenway project. This work will include the installation of traffic-control measures that will incorporate green infrastructure like bioswales and infiltration planters. It is estimated that, once complete, this project will prevent approximately 868,000 gallons of untreated stormwater from entering the City’s combined sewer system each year, helping to reduce the likelihood of combined sewer system overflows into Lake Michigan.

The second EPA grant will help the Chicago Park District to install green infrastructure, including vegetated bioswales and permeable pavers, at a 200,000 square foot parking lot in a Chicago park (Lincoln Park). Currently, this parking lot discharges its stormwater to more than 25 catch basins and 3,200 linear feet of sewer that flows into Chicago’s combined sewer system. The redesigned parking lot will allow for the retention and infiltration of more than four million gallons of water on average per year, reducing the amount of untreated stormwater that would otherwise be discharged into the City’s combined sewer system and cause sewer system overflows into the Chicago River and Lake Michigan. This resulting reduction in stormwater runoff entering the City’s sewer system will also prevent basement flooding in nearby homes.

Joint venture with Centre for Neighbourhood Technology (CNT) involving a pilot study in 2 Chicago communities. Testing a flood reduction/readiness program (MetroFt), involving auditing of homes and businesses to identify opportunities for infiltrating water on site and retrofitting for flood protection/mitigation. CNT primarily an energy retrofit focused org. but evolving a stormwater program for homes, businesses and communities.

Stormwater program currently not well established and focused on Chicago pilots.

Located 22 miles west of Chicago, Downers Grove, IL is home to nearly 50,000 residents. Several major corporations have their headquarters or other business operations in Downers Grove including Advocate Health Care, Dover Corporation, Pepperidge Farm, and Devry, Inc. In January 2013, the Village implemented a monthly stormwater fee, billed to all property owners in Downers Grove. The fee does not apply to unincorporated Downers Grove parcels.

**Fee Structure:**

The stormwater fee is based on the total amount (in square footage) of impervious area on each parcel. Fees are expressed in Equivalent Runoff Units (ERU). One ERU is equal to 3,300 square feet of impervious area, which is the average for a single family residential property in the Village. Property owners and tenants are jointly responsible for paying the bills. Utility bill payments will be applied toward the stormwater utility fee first, then to any water charges. Outstanding utility bill balances that remain unpaid for 45 days may result in the shut off of water service. The Village may also place a lien against the property.

### Single Family Residential

<table>
<thead>
<tr>
<th>Year</th>
<th>Single Family Residential</th>
<th>2014 Monthly Fee</th>
<th>2015 Monthly Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1 (1,200 sq. ft. of impervious area)</td>
<td>$6.73</td>
<td>$7.39</td>
<td></td>
</tr>
<tr>
<td>Tier 2 (2,500 - 4,000 sq. ft. of impervious area)</td>
<td>$6.94</td>
<td>$7.72</td>
<td></td>
</tr>
<tr>
<td>Tier 3 (4,001 - 7,000 sq. ft. of impervious area)</td>
<td>$13.41</td>
<td>$14.58</td>
<td></td>
</tr>
</tbody>
</table>

### Non-Single Family Residential

PARCELS with greater than 7,000 sq. ft. of impervious area will be charged based on the actual amount of impervious area, measured in ERUs, rounded to the next whole $8.

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 Monthly Fee</th>
<th>2015 Monthly Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per ERU (3,300 sq. ft.)</td>
<td>$8.94</td>
<td>$9.72</td>
</tr>
</tbody>
</table>

### Vacant Parcels

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 Monthly Fee</th>
<th>2015 Monthly Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ERU</td>
<td>$2.68</td>
<td>$2.92</td>
</tr>
</tbody>
</table>

### Stormwater Permit Fees & Securities Commercial and Non-Single Family Development:


### Stormwater Permit Fees & Securities Single-Family, Single-Lot Residential:


### Credit Program:

A credit is an ongoing reduction in the amount of stormwater fees assessed to a parcel in recognition of on-site systems, facilities, or other actions taken to reduce the impact of stormwater runoff, in compliance with the Stormwater Credit and Incentive Manual.

### Incentive Program:

A one-time reduction in the stormwater utility fee, applied to a customer’s account balance. It is offered to assist property owners with the cost of materials, construction and installation of qualifying stormwater facilities.

### Marketing:

- **Type**: Rain barrel, rain garden, permeable pavers, etc.
- **Amount**: $25.00 per property
- **Type**: Rain Garden
- **Amount**: $300.00 per property
- **Type**: Permeable Pavers
- **Amount**: $300.00 per property
- **Type**: Other Projects
- **Amount**: up to $400 per property


### Stormwater and Flood Plain Fees:

- **Amount**:
  - Site Run-off Rate Reduction (detention basin): Up to 20%
  - Volume Reduction (retention basins, permeable pavements, bioswales, etc.): Up to 20%
  - Other water charges: The stormwater fee is based on the total amount (in square footage) of impervious area on each parcel. Fees are expressed in Equivalent Runoff Units (ERU). One ERU is equal to 3,300 square feet of impervious area, which is the average for a single family residential property in the Village. Property owners and tenants are jointly responsible for paying the bills. Utility bill payments will be applied toward the stormwater utility fee first, then to any water charges. Outstanding utility bill balances that remain unpaid for 45 days may result in the shut off of water service. The Village may also place a lien against the property.

### Stormwater Incentive Program:

- **Amount**:
  - Site Run-off Rate Reduction (detention basin): Up to 20%
  - Volume Reduction (retention basins, permeable pavements, bioswales, etc.): Up to 20%

### Stormwater Control Activity

<table>
<thead>
<tr>
<th>Other Projects</th>
<th>Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Run-off Rate Reduction (detention basin)</td>
<td>Rain Barrel</td>
<td>$25.00 per property</td>
</tr>
<tr>
<td>Volume Reduction (retention basins, permeable pavements, bioswales, etc.)</td>
<td>Rain Garden</td>
<td>$300.00 per property</td>
</tr>
<tr>
<td>Stormwater Credit</td>
<td>Permeable Pavers</td>
<td>$300.00 per property</td>
</tr>
<tr>
<td>Stormwater Credit</td>
<td>Other Projects</td>
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</tr>
</tbody>
</table>


### Site Run-off Rate Reduction (detention basin): Up to 20%

### Volume Reduction (retention basins, permeable pavements, bioswales, etc.): Up to 20%
Stormwater Improvement Cost-Share Program: offers financial assistance to residents to make stormwater improvements on their private property. To qualify, the proposed improvement must mitigate existing flooding conditions such as structural flooding of a house/porch or non-structural flooding over multiple properties. Flooding conditions must be present on more than one property to receive reimbursement. Once the qualifying criteria are met, reimbursement of up to $1,500 is available for each participating property. The maximum reimbursement per project is $10,000.


Stormwater Improvement Fund: created in 2008 to pay for projects in the Watershed Infrastructure Improvement Plan. The revenue sources for this Fund include: issuance of General Obligation (GO) Bonds A 1/4 cent of the Home Rule Sales Tax Property Taxes

Detention variance fees collected on certain building permits

In 2008, the first round of GO Bonds was issued in the amount of $25 million. Depending on the status of future budgets and market conditions, the Village hopes to issue additional GO Bonds in 2011 and 2014, each in the amount of $25 million, to complete all High Priority projects in the WIP.

http://www.downers.us/novillage-budget/watershed-infrastructure-improvement-plan-wsip

Policy:


Stormwater & Flood Plain Ordinance Update, Dec 2014: The purpose of this item is to introduce changes to the Municipal Code that would lower the threshold for providing on-site stormwater storage for new development. The substantive changes to the Ordinance include Section 26.1005, the reduction of the threshold by which new development would be required to provide on-site stormwater storage from 2,500 square feet of new impervious surface to 500 square feet of new impervious surface.

http://www.downers.us/public/docs/code/agendas/2014/12/02/14/020214ORD00563-54455.pdf

Fee In Lieu Programs for Developers: see page 63 of the Municipal Code.


2014 Stormwater Project Analysis: includes a new approach for prioritizing stormwater capital improvement projects that is consistent with the Village’s fee-based stormwater utility. The goal of this new approach is to establish a minimum service level standard for stormwater management such that the stormwater system will safely convey and store 95% of all rainfall events.


The method for calculating the drainage fee depends on the size and type of property owned.


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Washington

The United States Environmental Protection Agency (EPA) develops the stormwater regulations, in accordance with the Clean Water Act (CWA). The Washington State Department of Ecology (Ecology) develops stormwater regulations in Washington State, in accordance with Chapter 19-01 of the Revised Code of Washington, Water Pollution Control.

Seattle

Seattle charges a drainage fee on all properties in the City, with the exception of certain exempt properties. Drainage fees do not appear on utility bills. Seattle uses King County as its billing agent for the drainage fee. The drainage fee is shown on King County property tax statements as Surface Water Management (SWM) or Drainage. The method for calculating the drainage fee depends on the size and type of property owned.

Single family and duplex properties smaller than 10,000 square feet are assigned to drainage rate categories based on the size of the parcel. All properties in a given rate category pay the same flat rate. This rate is also equal to the total bill, or charge. For example, parcels between 3,000 and 4,999 square feet will be subject to an annual drainage charge of $234.87 in 2014 while parcels between 5,000 and 6,999 square feet will be subject to an annual drainage charge of $318.92 in the same year.

All other properties, including single family/duplex properties 10,000 square feet and larger, are assigned to rate categories based on how much impervious surface is contained on the parcel. Each rate category is assigned a rate which is multiplied by the parcel area (in 1,000s of square feet) to calculate the total charge, or bill.

Low Impact Rates: apply to large residential and commercial parcels with significant amounts of highly pervious surface, such as forested land, unmanaged vegetated areas such as pasturualnds and meadows and athletic fields designed with specific drainage characteristics. This highly pervious surface must cover a continuous area of at least one-half an acre, although this coverage may span more than one parcel. Low impact rates are available for the Undeveloped (0-15 percent impervious), Light (16-35 percent impervious) and Medium (36-65 percent impervious) rate categories.


Drainage Rate Schedule 2014 & 2015:

http://www.seattle.gov/util/MyServices/Rates/DrainageRates/RateSchedule-Index.htm

Exemptions: The following properties, or qualifying portions of properties, are exempt from payment of drainage charges:
Stromwater Facility Credit Program: program offers credits of up to 50 percent for privately-owned systems that slow down stormwater flow and/or provide water quality treatment for run-off from impervious areas, thus lessening the impact to the City’s stormwater system, creeks, lakes or Puget Sound. Stormwater systems are structures such as vaults, rain gardens, permeable pavements and filtration systems. [http://www.seattle.gov/transportation/rowmanual/manual/6_4.asp](http://www.seattle.gov/transportation/rowmanual/manual/6_4.asp)  
Seattle Stormwater Code: [http://www.municode.com/library/wa/seattle/codes/municipal_code?searchRequest={%22searchText%22:%22SMC%2023.66%22,%22pageNum%22:1,%22pageNumber%22:1,%22booleanSearch%22:false,%22stemming%22:true,%22fuzzy%22:false,%22synonym%22:false,%22contentTypes%22:%5B%22CODES%22%5D,%22productIds%22:%5B%5D}&nodeId=TIT22BUC](http://www.municode.com/library/wa/seattle/codes/municipal_code?searchRequest={%22searchText%22:%22SMC%2023.66%22,%22pageNum%22:1,%22pageNumber%22:1,%22booleanSearch%22:false,%22stemming%22:true,%22fuzzy%22:false,%22synonym%22:false,%22contentTypes%22:%5B%22CODES%22%5D,%22productIds%22:%5B%5D}&nodeId=TIT22BUC)  
Green Stormwater Infrastructure Program Background: In July 2013, City Council unanimously passed Resolution 31549:  
•Target to manage 700MG annually with GSI by 2025  
•City Departments shall collaborate with Office of Sustainability & Environment (OSE) to produce Implementation Strategy for  
  Green Stormwater Infrastructure Program.  
Executive Order: 2013-01 Chryeide Green Stormwater Infrastructure Goal & Implementation Strategy: An Executive Order directing City departments to coordinate to develop an implementation strategy for managing 700 million gallons of stormwater annually with green stormwater infrastructure approaches by 2025. To be considered Green Stormwater Infrastructure, it must provide a function in addition to stormwater management  
  such as water reuse, providing green space and/or in the City.  
Discounts of 20 to 41 percent are applied to the rate for undeveloped natural areas of 0.5 acres or greater containing sufficient amounts qualifying “highly infiltrative” surface (i.e. forested areas, unmanaged grasslands, etc.). Certain athletic facilities with engineered designs that mimic the stormwater retention benefits of these large natural areas are also eligible for low impact rates. [http://www.seattle.gov/dpd/groupst/public/@spu/@usm/documents/webcontent/02_008093.pdf](http://www.seattle.gov/dpd/groupst/public/@spu/@usm/documents/webcontent/02_008093.pdf)  
The King County 2012 Surface Water Management Rate Study: [http://www.kingcounty.gov/environment/wlr/surfacewaterratehtml.aspx](http://www.kingcounty.gov/environment/wlr/surfacewaterratehtml.aspx)  
Discounts: 10% or 15% for private parcels with less than ten percent impervious surface, submerged land, houseboats, piers, City streets, State of Washington highways, and other streets that provide drainage services in the same manner as City streets, islands that contain highly infiltrative pervious surface and less than ten percent impervious surface area, oparian corridors that contain highly infiltrative pervious surface and meet certain qualification criteria and wetlands that meet certain qualification criteria effective January 1, 2014. Adjustments to drainage fees are available for low income, elderly or handicapped people that meet qualifications.
District of Columbia

The U.S. Constitution grants Congress "exclusive jurisdiction" over the District of Columbia as it is considered a federal district, and not a state.

On December 24, 1973, Congress enacted the District of Columbia Home Rule Act, providing for an elected mayor and the 13-member Council of the District of Columbia. The Council has the ability to pass local laws and ordinances. However, pursuant to the Home Rule Act all legislation passed by the D.C. government, including the city's local budget, remains subject to the approval of Congress. The official listing of the District of Columbia laws is called the DC Code.

Washington, D.C., had an estimated population of 688,931 in 2014, the 23rd-most populous city in the United States. Commuters from the surrounding Maryland and Virginia suburbs raise the city's population to more than one million during the workweek. The Washington metropolitan area, of which the District is a part, has a population of 5.8 million, the seventh-largest metropolitan statistical area in the country.

NPDES Permit:

2013 Rule on Stormwater Management and Soil Erosion and Sediment Control:

2013 Stormwater Management Rule and Guidbook:
http://ddoe.dc.gov/node/310572


OTHER:

City of Seattle - Stormwater Low Impact Development Practices: A 10 page paper that examines Seattle’s success with GSL.

Washington DC

Fee Structure:

There are two utility charges that apply: The Impervious Surface Area Charge (IAC) and the Stormwater Fee. Both fees relate to improving the District’s water quality. However, the Stormwater Fee and the DC Impervious Surface Area Water Charge address separate pollution control requirements.

IAC Charge:
DC Water implemented the IAC charge in 2009 to recover the cost of the $2.6 billion federally mandated Combined Sewer Overflow Long Term Control Plan to control overflow into the waterways. This includes building large preset tunnels to store overflow until it can be treated at the wastewater treatment plant. The charge is based on a property’s contribution of rainwater to the District’s sewer system. Because charges are based on the amount of impervious area on a property, owners of large office buildings, shopping centers and parking lots will be charged more than owners of modest residential dwellings. All residential and non-residential customers are billed for CRIAC. The FY 2015 monthly charge is $16.75 per equivalent residential unit (ERU).

- Residential: Includes condominum or apartment units where each unit is served by a separate line and is individually metered; multi-family structures of less than 4 units where all are served by a single service line that is metered; and, single family dwellings. There is a six tiered rate for residential customers. The tiers were developed in order to bill residential customers more equitably, based on the size of their properties.

- Non-Residential: The fee is based on the total amount of impervious service area at a property. The total amount of impervious area is converted to ERUs and reduced to the nearest 100 sq feet.


Stormwater Fee:
The federal government requires that the District controls pollution from stormwater runoff. The stormwater fee provides a dedicated funding source to pay for these pollution control efforts. This fee helps to pay for green roofs, rain gardens, tree planting, street sweeping, and other activities that help keep waterways clean. Effective May 1, 2009, the stormwater fee collected from each District of Columbia retail water and sewer customer shall be based upon the Equivalent Residential Unit (ERU). An ERU is defined as 1,000 square feet of impervious area of real property. Each ERU is charged $2.67 per month. A program to assist Low income residents with water bills is under development. The Department of Environment (DOE) manages the fee program.


Summary of FY 2015 Applicable Rates:
an overview of DC Water customer rates

Notice of Final Stormwater Fee Rulemaking:
http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Stormwater%20Fee%20Notice%20of%20Rulemaking.pdf

Stormwater Fee Discount Program, 2013: The RiverSmart Rewards program provides District property owners and tenants who install systems that retain stormwater runoff, with discounts of up to 55% on its stormwater fee. Customers who are awarded RiverSmart Rewards will automatically be enrolled in the Clean Rivers Impervious Area Charge (IAC) Incentive Program, which offers a discount of up to 4% on the IAC.


http://www.aobametro.org/uploads/docs/2012/FINAL%20%20912012%20%20UTILITY%20COMMITTEE%20UPDATED%20UNDERSTANDING%20DC%20WATER%20BILL%20Presentation_2.pdf


http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Stormwater%20Fee%20Notice%20of%20Rulemaking.pdf
RiverSmart Homes Program: Targets single family homes. Offers incentives to District of Columbia homeowners interested in reducing stormwater pollution from their properties. Homeowners receive up to $1,200 to adopt one or more of the following landscape enhancements: Shade tree planting, rain barrels, rain gardens, pervious pavers, bay scalping.


RiverSmart Communities Program: Targets larger Properties (re-apartments, condominiums and businesses). There are two options available to participate in the Communities Program:
- Option 1: Rebate (open city-wide). Offers rebates of up to 60% of the project cost of specific LID practices to multi-family residences such as condominiums, co-ops, apartments, small locally-owned businesses and houses of worship. This program is open city-wide.

- Option 2: Design/Build (restricted to priority watersheds). Properties in designated high-priority watersheds will be considered for fully funded design/build lid projects.

http://ddoe.dc.gov/services/river-smart-communities

RiverSmart Rewards: Property owners can earn a discount of up to 55% off the Stormwater Fee when they reduce stormwater runoff by installing green infrastructure (GI) such as green roofs, bioretention, permeable pavement, and rainwater harvesting systems. DC Water also offers a similar incentive program for its customers to earn a discount of up to 4% off the Clean Rivers Impervious Area Charge (SARC). Using one application, District residents, businesses, and property owners can apply for discounts through RiverSmart Rewards and the Clean Rivers IAC Incentive Program. Discounts are based on the stormwater retention volume achieved and are posted to DC Water bills.

http://ddoe.dc.gov/river-smart-rewards

RiverSmart Roof Tops Rebate: The 2014-2015 green roof rebate program will provide base funding of $10 per square foot, and up to $15 per square foot in targeted subwatersheds. There is no cap on the size of projects eligible for the rebate. Properties of all sizes including residential, commercial and institutional are encouraged to apply. For buildings with a footprint of 2,500 square feet or less, funds are available to defray the cost of a structural assessment. Additional funding may be available for features that further advance environmental goals.

http://ddoe.dc.gov/greenroofs

RiverSmart Schools Program: In addition to installing new schoolyard green space, the RiverSmart Schools Program provides teachers with the training they need to use their conservation site with confidence to teach lessons based on the DCP standards. The gardens serve as a permanent outdoor learning tool that can enhance many areas of study. This year, funding is available for five schools with a minimum of $3,500 and up to $70,000 in gardening and classroom resources, plus additional technical assistance and in-kind support.

http://ddoe.dc.gov/page/riversmart-schools-application

Stormwater Retention Credits (SRC): Major development projects undergoing permitting in the District must now meet river-protecting stormwater retention standards and can use SRCs to meet a portion of their requirement. The SRC trading program, established on July 19, 2013, is the first of its kind in the nation. Property owners generate SRCs by installing green infrastructure that captures and retains stormwater runoff. DDOE certifies SRCs for eligible best management practices and land cover changes. Owners can sell SRCs in an open market to buyers who can use them to meet regulatory requirements for retaining stormwater. The SRC program embraces two key ideas: 1) Allowing regulated projects to achieve a portion of their obligation off-site; and 2) Establishing a private market that pays dividends to property owners for retrofits and improves benefits for District waterbodies in the process.

http://ddoe.dc.gov/services/trading-example

Article - Green Infrastructure Incentives in the Nation's Capital: The article explains the District of Columbia's Stormwater Retention Credit Trading Program. It is reprinted from the September 2013 issue of BioCycle, with permission.

http://ddoe.dc.gov/sites/default/files/dclikes/ddoe/publication/attachments/trading%20Retention%20Credits%20Green%20Infrastructure%20incentives%20in%20the%20Nation%20capital.pdf

Article - Making stormwater retrofits pay: Creating a market for stormwater retrofits to harness self-interest, leverage river protections, and promote sustainable development in the District of Columbia


Stormwater Retention Credit Trading and In-Lieu Fee Analyses: provide compliance options for sites that face retention requirements. The first spreadsheet explains DDOE’s calculation of the in-lieu fee and contains estimates of SRC demand and supply, price to recover the costs for installing projects to generate SRCs, and financial returns from participating in the SRC and stormwater fee discount programs. The other spreadsheet contains a calculator that estimates the financial return from installing a green infrastructure project to participate in DDOE programs.


Stormwater Credit Exchange Program: The Stormwater Credit Exchange (SCE) is a clearinghouse service that allows participants who reduce their stormwater runoff to sell their credits to buyers, including a number of regulatory agencies and local municipalities. The program facilitates the voluntary market for stormwater credits through a trading platform.

http://ddoe.dc.gov/service/riversmart

DDOE has established a public SRC Registry where sellers list their SRCs for sale, including an initial listing price. SRC buyers and sellers negotiate a final purchase price. In 2015, DDOE offered rebates of up to 60% of the project cost of specific LID practices to residents, businesses, and property owners.

http://ddoe.dc.gov/node/822802

Marketing:

Grants for LID Rebates & Environmental Education: program of incentivizing low impact development (LID) implementation on private property in the District and to assist DDOE in providing a meaningful watershed education experiences for every student enrolled in District public schools. The total amount available for this initiative is approximately $1,200,000.00.


Rain Barrel and Cistern Rebate: Homeowners can purchase and install up to two rain barrels or cisterns and receive $50 to $500 back by submitting an application, receipt, and pictures of the installed barrel. The rebate amount is dependent on volume: $1 per gallon stored.

http://ddoe.dc.gov/service/riversmart-rebates
<table>
<thead>
<tr>
<th>Vermont Stormwater Program</th>
<th>Burlington</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.sustainabledc.org/in">http://www.sustainabledc.org/in</a></td>
<td>Background: In 2008, the result of increasing regulatory obligations and the City’s desire for a more sustainable approach towards managing stormwater infrastructure and improving water quality outcomes in Burlington, the City Council established a dedicated Stormwater Program. In order to fund the operation of the program, a stormwater user fee structure and initial user fee rate were adopted by the City Council as part of the program creation and were phased in beginning in 2009. Because the stormwater fee is a user fee and not a tax, all properties regardless of ownership are required to pay for the services provided by the Burlington stormwater management system. This includes non-profit entities such as churches, schools and institutions, as well as properties owned by the City of Burlington, the State of Vermont, as well as the federal government. Only impervious surfaces within the public right-of-way (i.e. streets and sidewalks) are exempt.</td>
</tr>
<tr>
<td><a href="http://ddoe.dc.gov/node/46676">http://ddoe.dc.gov/node/46676</a></td>
<td>Tree Rebate: provides rebates to individuals who purchase and plant a tree on private property, residential or commercial. There is no maximum number of rebates per property. 40 species noted for their large canopy and environmental benefits qualify for rebates up to $100 per tree. Small and medium canopy trees are eligible for rebates up to $50 per tree, as long as the tree reaches 15’ tall and wide at maturity.</td>
</tr>
<tr>
<td><a href="http://ddoe.dc.gov/service/swregs">http://ddoe.dc.gov/service/swregs</a></td>
<td>Stormwater Infrastructure New and Noteworthy: The Vermont Watershed Management Division provides a dedicated Stormwater Program. In order to fund the operation of the program, a stormwater user fee structure and initial user fee rate were adopted by the City Council as part of the program creation and were phased in beginning in 2009. Because the stormwater fee is a user fee and not a tax, all properties regardless of ownership are required to pay for the services provided by the Burlington stormwater management system. This includes non-profit entities such as churches, schools and institutions, as well as properties owned by the City of Burlington, the State of Vermont, as well as the federal government. Only impervious surfaces within the public right-of-way (i.e. streets and sidewalks) are exempt.</td>
</tr>
<tr>
<td><a href="http://ddoe.dc.gov/service/swregs">http://ddoe.dc.gov/service/swregs</a></td>
<td>Fee Structure: The stormwater fee is based on impervious area and is charged on a per unit basis. Each ISU (Impervious surface unit) is 1,000 square feet of impervious area on a property. Single family, duplex, triplex homes, as well as seasonal and mobile homes pay a flat fee based on the average amount of impervious associated with these parcel types. Other types of properties (commercial parcels and vacant lots) are assessed a fee based on the amount of impervious surface on the parcel. Non-residential properties are eligible to apply for up to 50% credit on their stormwater bill if they can document that they have implemented stormwater management practices on their property.</td>
</tr>
</tbody>
</table>
**Stormwater Credit Manual**: Fee credit program for directly assessed properties. The credit program is not yet available for those properties with a flat fee. Multiple credits can be given to eligible properties. The total credit given to any property shall not exceed 50% of the stormwater user fee for that property, and in no event shall a property pay a stormwater user fee less than the flat fee for a detached single family home.

**Water Quantity Reduction Credits**: available to properties whose peak stormwater runoff rate is restricted and/or controlled through onsite structural control facilities such as detention and retention ponds or chambers. If a higher level of detention is provided than required by the Vermont Stormwater Manual, then additional credits may be granted. The credit will be granted for the portion of impervious area that drains to the BMP. The maximum water quantity credit is 50%. Approved water quality reduction credits can be applied in addition to any other approved credits.

**Water Quality Treatment Credits**: offered to properties that discharge a portion of the runoff to approved structural BMPs (which significantly reduce pollutants in stormwater runoff). The goal for water quality practices is to control 80% of total suspended solids (TSS) for 90% of all Vermont storms, estimated as a 0.9 inch 24 hour event. Approved water quality credits can be applied in addition to any other approved credits. The maximum water quality credit for a property is 25% reduction in stormwater user fees for BMPs with 80% TSS removal. Credit for BMPs with lower TSS removal shall be prorated using the following formula: % Credit = 0.31 x (Estimated % TSS Removal). The credit will be granted for the portion of impervious area that drains to the BMP.

**Non-Structural Practices**: In some instances the ability to strictly meet the requirements may not be possible, feasible or desired in an urban landscape. As such, the City encourages the use of alternative management practices and technologies as a way to both satisfy the requirements of this Division, to give flexibility to design and to encourage Green Infrastructure (green), Best Management Practices (BMP), Low Impact Design (LID) or other innovative practices that satisfy the requirements. Such practices include but are not limited to, green roofs, alternative detention practices, water reuse, including stormwater use, infiltration practices, including permeable and porous pavements and pavers. Application of Non-Structural Practice Credits are identical to those offered under Water Quantity Credits and Water Quality Credits.

**MS4 Permitted Facilities**: Eligible MS4 entities can receive a 10% reduction in the total stormwater fee assessed to their property. If the MS4 entity owns multiple properties located in Burlington and currently receives multiple water/sewer bills, the 10% credit will be applied to every property within the MS4 permit boundaries. The total credit given to any property shall not exceed 50% of the stormwater user fee for that property, and in no event shall a property pay a stormwater user fee less than the flat fee for a detached single family home.

**Water Education Credit**: Approval of the credit application will result in a 10% credit to the assessed stormwater fee.

**Marketing:**

**Stormwater Friendly Driveways**: A stormwater friendly driveway can reduce the amount of coverage calculated for zoning permit purposes and may allow property owners to construct additional building space elsewhere on their lot. Currently "strip driveways" provide this benefit, but soon other stormwater drive types may provide up to 50% coverage credit if proposed amendments to zoning regulations are approved in early 2014.

**LET IT RAIN STORMWATER BEST MANAGEMENT PRACTICE GRANTS**

Private and public property owners are eligible for funds through this program. This includes all residents, non-profits, businesses, corporations, churches, private schools, homeowner associations, lake associations and municipal entities located within the Vermont portion of the Lake Champlain Basin.

- **Downspout Disconnection**: up to $20
- **Rain Barrel**: up to $25
- **Rain Garden**: up to $250
- **Cistern**: up to $500
- **Permeable Pavers**: up to $1 per square foot
- **Other (dependent on practice)**


**Adopt-a-Drain Program**: encourages community awareness of stormwater management.

Policy:

Wastewater, Stormwater and Pollution Control Ordinance – Chapter 26
The Burlington City Council adopted a revised Chapter 26, December 15, 2008. The effective date is April 1, 2009.

Decision to pursue municipal delegation of wastewater permitting: Chapter 26
The wastewater sections of Chapter 26 will be revised to reflect the decision to pursue municipal delegation of wastewater permitting. Wastewater permits are presently administered by the state. Beginning July 1, 2007, every parcel of land comes under the authority of the state's on-site wastewater & potable water supply system program. As a result, a state permit is needed for most repairs, upgrades, and new construction of on-site wastewater treatment and disposal facilities, and connections to municipal water distribution and wastewater collection systems. Delegation of the state's regulatory program means that the state would transfer administration of its wastewater permits program to the city if the city makes a request in writing and meets specific criteria. Currently the city participates in project review and the writing of letters of sufficient capacity or allocation for the water and wastewater systems. Assuming the additional responsibility of permit administration is feasible if incorporated into a package with the proposed stormwater program. It will capture permit fees presently going to the state and will provide one-stop shopping for applicants.

How does Chapter 26 affect new development and redevelopment in the City?
Chapter 26 contains standards for construction site erosion control. The standards are basically split between large and small projects. Large projects include all “major impact,” “subdivision,” and “planned unit developments” as defined in the City’s Comprehensive Development Ordinance. Small projects are all others with at least 400 square feet of disturbed earth involved in the construction process.

Chapter 26 also contains standards for post-construction stormwater management plans. All projects that result in greater than or equal to ½ acre of clearing, grading, construction or land disturbance activity, and create greater than or equal to ½ acre of impervious surface are required to have a post-construction stormwater management plan.

Chapter 26 includes provision for City administration of wastewater permits upon delegation by the State of Vermont. Previously, all wastewater permits were issued by the State of Vermont DEC Wastewater Division. City administration of wastewater permits will allow one stop shopping for applicants upon implementation.

Burlington Comprehensive Development Ordinance:
http://www.burlingtonvt.gov/PZ/CDO

Backwater Valve Ordinance:

Other:

Stormwater Infrastructure Mapping Update Project: Locations of all known manholes, catch basins, water valves and hydrants have been collected. A database associated with GIS mapped features allows better prioritization of maintenance activities.
http://www.burlingtonvt.gov/DPW/Stormwater-Infrastructure-Mapping-Update-Project

Street Sweeping occurs on each street at least twice each month from June to September plus Spring and Fall cleanups of heavy debris.
http://www.burlingtonvt.gov/DPW/Street-Sweeping-FAQs

Nova Scotia

Halifax

Nova Scotia

Site Generated Flow Structure:
On July 12, 2015, the Nova Scotia Utility and Review Board (NUSARB) approved rates for water, wastewater and stormwater services effective July 1, 2013, and April 1, 2014. The approved rate structure also separated the stormwater charge from the combined wastewater/stormwater charge to provide a more equitable user pay system.

For the Site Generated Flow component of the stormwater fee, residential properties (up to three units) are charged based on an impervious area of 224.5 square metres, which is the average for all residential properties within the Stormwater Service Boundary. For this customer group, effective July 1, 2013, the annual stormwater charge is $20.68/year (or $0.175/month). Effective April 1, 2014, the annual stormwater charge is $33.39/year (or $2.81/month).

Multi-residential, industrial, commercial and institutional properties are charged based on the impervious area specific to each individual property. The rate effective July 1, 2013 is $0.133/square metre. The rate effective April 1, 2014 is $0.140/square metre.

As directed through the March 2014 HRM Regional Council motion, the HRM Right of Way portion of the stormwater charge of $39 will be billed through the Halifax Water billing process as an additional line item commencing in January 2015. The HRM Right of Way stormwater charge will apply to all properties receiving the Halifax Water Site Generated Flow stormwater charge.

Stormwater Service is funded 100% by two charges – the Site Generated Flow Charge, and the HRM Right Of Way Charge.

There are two primary cost drivers for the stormwater services Halifax Water provides, and two distinct benefits received by customers:

- Site Generated Flow Charge – is based on the stormwater that flows from each private property into the Halifax Water stormwater system. This charge is calculated based on the stormwater rate times the impervious area on the property. For all Residential properties a standard flat rate has been used.
- HRM Right of Way (ROW) Charge – is based on stormwater that flows from the public (HRM) street right of way into Halifax Water’s stormwater system. Roads/streets are impervious areas that create stormwater runoff into Halifax Water’s stormwater drainage system. The stormwater charge for roads/streets (impervious area) within the municipality is billed to HRM, as directed by the NUSARB, because HRM owns the...
municipal roads and streets.


Water, Wastewater/Stormwater Rates & Fees: Halifax Water is regulated by the Nova Scotia Utility and Review Board (NSUARB). The following amended water, wastewater, and stormwater rates have been approved by the NSUARB and will apply on water consumed on and after April 1, 2014.

http://www.halifax.ca/hrwc/RatesAndFees.php

Regional Development Charge: http://www.halifax.ca/hrwc/documents/HWfinalNOCROP.pdf


Marketing:

Stormwater Inflow Reduction (SIR) Program: to assist customers in identifying measures that can be taken on their properties. The goals of the SIR Program are to:
1. Raise awareness to reduce overflows and protect the health of HRM residents and our environment.
2. Inspect private properties (indoor and outdoor) for potential sources of Stormwater Inflow. (Inspection is mandatory and the first inspection is free)
3. Require customers to disconnect sources of Stormwater Inflow.

http://www.halifax.ca/hrwc/wastewaterinfiltration-inflow.php

Wet Weather Management Program: currently running 3 pilot projects to validate what Rainfall Derived I&I (RDII) reduction can be accomplished via various reduction strategies.

http://www.halifax.ca/hrwc/wastewaterinfiltration-inflow.php#StormwaterInflow

Policy:

Framework for Area Rates – Stormwater Right-of-Way Costs: In the 2013 Rate Hearing Decision, the NSUARB directed that the portion of stormwater costs related to the street right of way should be billed to HRM. In March 2014 HRM Regional Council passed a motion to request that Halifax Water collect the Right of Way portion of the stormwater charge for HRM through the Halifax Water billing process. The motion established a Stormwater Right of Way Charge of $39 to be levied commencing in 2014/15 against any properties receiving the Halifax Water stormwater charge. Beginning in January 2015, all properties receiving the Halifax Water stormwater charge will be billed for the HRM Right of Way stormwater charge retroactive to April 1, 2014.

http://www.halifax.ca/council/agendasc/documents/140114ca1122.PDF


Halifax Water Rules and Regulations:
http://www.halifax.ca/hrwc/wastewaterinfiltration-inflow.php#StormwaterInflow

Integrated Resource Plan (IRP): defines water resource needs for the next thirty years (2013 - 2043). The IRP responds to the combined requirements of regional growth, present and expected regulatory compliance and asset renewal.

http://halifax.ca/hrwc/documents/IRP2013.PDF


Halifax Regional Municipality Charter: http://nslegislature.ca/legc/bills/60th_2nd/3rd_read/b179.htm

Case Study: Innovative Stormwater Management Standards and Mitigation: The Arlington County Department of Environmental Services has developed pollutant removal requirements for all development sites, as well as a watershed management fund to which developers may contribute in lieu of actual BMP implementation.


Stormwater Management in the Great Lakes and St. Lawrence Basin: This 2011 report summaries the results of the Green CITS survey. This report demonstrates the range of issues facing municipal stormwater practitioners (ie government regulation, financing, drivers & barriers), and the wide range of best practices already adopted by them in the face of
these pressures. It also points to ten areas where improvements would result in more effective stormwater management and significant cost savings.


Grand Rapids, Michigan Stormwater Master Plan, 2013: This report addresses the new paradigm shift in stormwater and provides a comprehensive plan for future management of the system, and recommendations for implementation.


Victoria, British Columbia: City of Victoria is moving to a stormwater utility model with rainwater management incentives and rewards in 2015/2016.


Portland, Maine: The city of Portland is preparing to implement a stormwater fee program in 2016.


http://stormwater.wef.org/2014/09/innovative-financing/

Green Infrastructure Boosts Property Values: New UWM 2013 study indicates that stormwater management features have economic benefits


Federal Agencies Announce 5-Year Great Lakes Restoration Action Plan: The GLRI Action Plan summarizes the actions federal agencies plan to implement during Fiscal Years 2015 through 2019 using GLRI funding.

http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceec88525735900400400c7/5fe612baa85466282517510049184f0!OpenDocument

Federal Silver Jackets Flood Risk Reduction Program involves collaborative state-led interagency teams working together to reduce flood risk at the state level. Through the Silver Jackets program, the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, additional federal, state and sometimes local and Tribal agencies provide a unified approach to addressing a state’s priorities:

http://www.nfrmp.us/state/about.cfm

Ohio – Stormwater Fee Program Suspension: The fee went into effect at the beginning of 2013. Collection was suspended after the Eighth District court’s ruling. The Northwest Ohio Regional Sewer District is taking its case for a stormwater fee to the Ohio Supreme Court.


Other:

Stormwater Charges: A Fee or a Tax? And Does It Matter?: This column outlines the dominant arguments attached to each perspective and what various courts have said on the matter.

http://www.stormh2o.com/SW/Articles/Stormwater_Charges_A_Fee_or_a_Tax_And_Does_It_Matt_251.aspx
3.0 LEADING JURISDICTIONS: WATER REUSE & SWM REGULATIONS

<table>
<thead>
<tr>
<th>State</th>
<th>Regulations/Incentives</th>
<th>City</th>
<th>Regulations/Incentives</th>
</tr>
</thead>
</table>
Arizona Department of Environmental Quality: Regulations regarding permits for reclaimed and grey water (see chart at bottom)

Arizona Administrative Code, Title 18, Ch. 9, Article 7. Direct Reuse of Reclaimed Water:
(See page 93)

Arizona Department of Environmental Quality - Grey Water Brochure:

Arizona Department of Environmental Quality - Permits: Reclaimed Water

AZ H 2630: This bill allows the governing body of a city or town to establish an energy and water savings account that consists of a designated pool of capital investment monies to fund energy or water savings projects in public facilities, including rainwater harvesting systems. (Arizona Revised Statutes §9-495.18)

A2H 2683 (2012): Established a joint legislative study committee on macro-harvested water. The committee shall study, analyze and evaluate issues arising from the collection and recovery of macro-harvested water, including reviewing scientific data on surface water, rainwater harvesting, methodology costs and benefits, potential impacts on water rights, downstream users, and potential aquifer management issues and groundwater management issues.

Corporate & Individual Tax Credit for Implementation of Water Conservation Systems: Arizona had a tax credit for water conservation systems that included collection of rainwater; however, the credit expired on Jan. 1, 2012. The credit is equal to 25 percent of the cost of the system. The maximum credit in a taxable year could not exceed $1,000. From 2007 to 2010, over $360,000 was credited to homeowners that purchased a water conservation system.
http://www.azed.gov/azsir/ezclick.aspx?file=citc%bf%bd%bf%a%bb%b%e%bc%e%b%f

Oro Valley Stormwater Utility Ordinance:

New Mexico

New Mexico Rainwater/Snowmelt Harvesting Policy: The New Mexico Office of the State Engineer supports the wise and efficient use of the state’s water resources; and, therefore, encourages the harvesting, collection and use of rainwater from residential and commercial roofs and surfaces for on-site landscape irrigation and other on-site domestic uses. The collection of water harvested in this manner should not reduce the amount of runoff that would have occurred from the site in its natural, pre-development state. Harvested rainwater may not be appropriated for any other uses.
http://www.nmstee.nm.us/acwp.policy.html

New Mexico AC Title 20 Chapter 6 Part 2: Ground and Surface Water Protection:
http://www.mrmar.state.nm.us/docs/laws/lb/lb-020-2108-0002.html

Brochure outlining the requirements for Harvested Rainwater, Gray Water and Black Water:

New Mexico Plumbing Code 2009:
http://www.mrmar.state.nm.us/docs/laws/lb/lb-020-2114-04-08-0002.html

Above Ground Use of Reclaimed Domestic Wastewater, 2007:

New Mexico Greywater Code:
http://www.thegreywaterguide.com/new-mexico.html

New Mexico – Using Greywater in Residential Landscapes:

Santa Fe County

Santa Fe County Rainwater Catchment Ordinance: Residents with 2,500 sq ft or more area must install an active rainwater catchment system comprised of cisterns. All commercial developments are required to collect all roof drainage into cisterns to be reused for landscape irrigation.

Albuquerque & Bernalillo County:

Albuquerque & Bernalillo County: Residences with 2,500 sq ft or more area must install an active rainwater catchment system comprised of cisterns. All commercial developments are required to collect all roof drainage into cisterns to be reused for landscape irrigation.

Tucsan

Tucson Commercial Rainwater Harvesting Ordinance, June 2010: Applies to new commercial construction. Facilities subject to the ordinance must meet 50% of their landscape demand using harvested rainwater, prepare a site water harvesting plan and water budget, meter outdoor water use and use irrigation controls that respond to soil moisture conditions at the site.
http://www.tucsonaz.gov/envs/sustainability/rainwater

Tucson Residential Grey Water Ordinance, 10579: (See page 4)

Building Code Order 1188R – Residential Grey Water, July 2013: All new single family and duplex residential dwelling units shall include either a separate multiple pipe or a diverter valve, and outside "stub-out" installation on clothes washing machine hook-ups, to allow separate discharge of gray water for direct irrigation. All new single family residential dwelling units shall include a building drain or sanitary sewer for kitchens, showers, washers, and bathtubs, segregated from drains for all other plumbing fixtures, and connected a minimum three (3) feet from the limits of the foundation, to allow for installation of a distributed gray water system.
http://www.tucsonaz.gov/files/legis/laws/1188R

Tucson Reclaimed Water Service Charges:

Tucson Reusewater Incentives Rebate Program: Tucson Water will rebate qualifying residential water harvesting system costs under two levels of maximum $2,000.
http://www.tucsonaz.gov/water/changes

Oro Valley

Oro Valley Rainwater Harvesting Plan, May 2012: This document outlines the required specifications.
http://www.orovalleyaz.gov/sites/default/files/media/files/Planning%20Division/docs/2012/rainwater_harvesting_plan-content.pdf

Oro Valley Rainwater Landscape Code, June 2010: Both active and passive rainwater harvesting systems are permitted. Only passive systems are required. See page 26.

Oro Valley Backflow Prevention Ordinance:

Oro Valley follows the Arizona Department of Environmental Quality regulations for all types of reclaimed water.
http://www.orovalleyaz.gov/linn/departments/water/utility/grayerwater-information

Oro Valley Stormwater Utility Ordinance:
Ohio


OAC 3701-26-15: Criteria are required to be installed with continuous disinfection and cyp reduction filtrations. http://codes.ohio.gov/oac/3701-26-15


Ohio Wastewater Permit-to-Install (PTI) Program: http://www.epa.state.oh.us/dsw/rules/3701_344.asp


Ohio EPA Stormwater Program: http://www.epa.state.oh.us/portals/35/rules/3745_39.asp


Private Water Systems Advisory Council within the Ohio Dept of Health. The nine member council is appointed by the governor with the advice and consent of the Senate. The purpose is to advise the director regarding the rezoning or nonrenewal of the registration of a private water systems contractor and to make recommendations to the director regarding the amount of surety bond required of private water systems contractors. http://codes.ohio.gov/oac/3701-344

GREAT LAKES—ST. LAWRENCE RIVER BASIN WATER RESOURCES COMPACT, Dec 2005: The Compact is a binding agreement among the Great Lakes states to protect the water resources of the Great Lakes Basin from diversions and excessive withdrawals. Together with a similar agreement between the states and the Great Lakes Canadian proviors, the Compact set minimum requirements for water use across the Basin. Each state agreed to implement the Compact by meeting a series of deadlines over five years, subject to regional oversight. http://www.epa.gov/region5/stlaw/12-13-06/Great_Lakes_ST_Lawrence_River_Basin_Water_Resources_Compact.pdf

Cincinnati

Cincinnati has recently approved rainwater harvesting for non-potable use. Ordinance not available on web site as of Nov 27/14. See paragraph 2 on page 2 of: http://www.epa.gov/AirTools/PSF/PSF00G4TF.pdf

Cincinnati is working on developing an ordinance for rainwater harvesting for non-potable use (toilet flushing), although they are encountering difficulties: http://www.cityofcincinnati.com/2012/09/cincinnati-aims-to-reuse-plumbing-code-to-allow-for-rainwater-harvesting-by-november/


Cincinnati officially enacts form-based zoning code: Cincinnati City Council unanimously approved an ordinance enacting Cincinnati’s Form-Based Code. A Form-Based Code is a regulatory document that unites zoning, subdivision and traffic regulations into a user-friendly code for land development. As defined by the Form-Based Code Institute: “Form- Based Codes foster predictable results and a high-quality public realm by using physical form (rather than the separation of uses) as the organizing principle of the code.” http://www.planarworks.com/wmews/general/news.shtml


Cincinnati’s 2004 consent decree (CD) to control sewer overflows was amended in 2010, providing opportunities to incorporate green infrastructure solutions by substituting “green for grey” on a project by project basis. The city is currently evaluating potential green infrastructure projects and has a three year study and detailed design period to examine green solutions in the Lick Run Watershed, in Mill Creek Valley on the west side of Cincinnati. One promising project in the Lick Run drainage area, a corridor that includes an environmental justice community, would remove storm water flows from the combined sewer system and create a new above-ground drainage feature with surrounding park land. Cincinnati will be meeting with EPA throughout 2011 to discuss green infrastructure plans, and proposals for “green for grey” substitutions are likely to be submitted in 2012. http://www.epa.gov/npdes/pubs/gi_memo_protectingwaterquality.pdf

Glenford


Glenford Grey Water Project 2013: A complete collection system will be installed in the Village to collect sewer from all 69 households. The existing septic tanks will be abandoned. A complete collection system using small diameter pipe will collect sewer from all 69 households within the Village. The system is a cluster type system where the homes are collected in a gravity sewer and transported to a community septic tank for solids settling and digestion. Then the grey water is conveyed to the recirculating sand filter for final treatment. The treated water is then sent to an ultraviolet disinfection unit prior to discharging to Jonathan Creek. (see Appendix A, page 11) http://www.nmenv.state.nm.us/OOTS/gray%20water%20irrigation%20guide1.pdf

Village of Glenford

Texas HB 3301, 2011: Rainwater Harvesting Bill. This is one of the most far-reaching and comprehensive pieces of legislation regarding rainwater harvesting in recent years. Among the provisions:

- Requires rainwater harvesting system technology for potable and nonpotable indoor use and landscape watering be incorporated into the design and construction of each new state building with a roof measuring at least 50,000 square feet that is located in an area of the state in which the average annual rainfall is at least 20 inches.

- Requires the development of rules regarding the installation and maintenance of rainwater harvesting systems that are used for indoor potable purposes and connected to a public water supply system, prior to this bill it could only be used for nonpotable purposes. The rules must

Richardson
City of Richardson – Rainwater Harvesting Ordinance: http://www.cityofrichardson.net/Departments/ParksRec/Rainwater/Ordinance.pdf
City of Richardson – Rainwater Harvesting Brochure: http://www.cityofrichardson.net/Departments/ParksRec/Rainwater/Brochure.pdf

The New Landscape of Rainwater Harvesting and the Impact to Municipalities: a report examining the changes made by the Texas Legislature to implement a rainwater harvesting program that serves a dual purpose of complying with state law and benefitting the municipality and its residents.
http://newlandscapeofrainwaterharvestingandimpacts.com/
Wisconsin regulations currently allow for the development of new supplies. Reclaimed water could be considered to be a new supply and hence a potential water management strategy. Chapter 283.13(1), Wisconsin Statutes. In Wisconsin, WPDES permits are issued by the Department of Natural Resources based on a holistic, innovative approach to discharge permitting. WBPs extend to the natural boundaries of watersheds rather than being confined to pol

The Department is responsible for the issuance, reissuance, modification, and enforcement activities. The Department is responsible for the issuance, reissuance, modification, and enforcement of all WPDES permits issued for discharges into the waters of Wisconsin (except discharges occurring on Native American lands which are regulated directly by EPA).

Wisconsin: The Wisconsin Pollutant Discharge Elimination System (WPDES) permit program was established by Wisconsin Statutes. In Wisconsin, WPDES permits are issued by the DNR Bureau of Water Quality, with federal oversight from the US EPA. The permit program is administered by the Department, with the Office of the Attorney General providing legal resources for the Department in enforcement activities.

-pound water flow down the sewers to the treatment plant where it is treated and then released back into the environment. This process is called wastewater treatment. Wastewater treatment involves several steps, including:

- Collection: This is the process of gathering wastewater from various sources, such as homes, businesses, and industries. The wastewater is then conveyed to a wastewater treatment plant.

- Treatment: At the treatment plant, the wastewater undergoes various processes to remove contaminants and make it suitable for discharge into the environment. These processes may include:
  - Primary treatment: Removal of large solids and floating materials.
  - Secondary treatment: Removal of nutrients (such as nitrogen and phosphorus) and organic matter.
  - Tertiary treatment: Additional treatment steps, such as denitrification and disinfection.

- Discharge: The treated wastewater is then released back into the environment, typically into a nearby river, lake, or other body of water. This discharge is regulated to ensure that it meets certain water quality standards.

- Monitoring: The quality of the wastewater is monitored at various points in the treatment process to ensure compliance with regulations. These monitoring efforts help identify and address any issues that may impact water quality.
In 2009, Illinois created the Green Infrastructure for Clean Water Act which relates to water conservation, efficiency, infrastructure and management while promoting rainwater harvesting. Illinois Revised Statutes Chapter 415 §56.

The Illinois Green Infrastructure Study: Findings and Policy Recommendations:

Amendments to the Illinois Plumbing Code, August, 2012: “Plumbing” shall include rainwater harvesting distribution systems, as regulated by the Illinois Department of Public Health’s code of standards, such that rainwater harvesting distribution systems and rainwater harvesting collection systems may be used for non-potable uses.

EPA Consent Decree: The consent decree is a legal agreement between the city, state and federal government to fix problems with Lexington's stormwater and sanitary sewer systems within the next 11-13 years. In 2006, the U.S. Environmental Protection Agency and the Commonwealth of Kentucky filed a lawsuit against Lexington for violations of the Clean Water Act. The consent decree agreement, which was finalized in January, 2011, requires the study, design and implementation of numerous construction projects to repair sewer pipes and to improve the stormwater system. The agreement also requires Lexington to make operational and managerial changes to prevent future problems.

Maryland

In order to meet the requirements of the federal Clean Water Act to restore water quality and protect public health, local implementation of stormwater utility fees is mandated by the Watershed Protection and Restoration Program (House Bill 987) passed in the 2012 session of the Maryland General Assembly. This law, sponsored by sixteen members of the House of Delegates, passed by the full Legislature and signed into law by the Governor last year, requires nine Counties and Baltimore City to establish local fee systems by July 1, 2013, to address water pollution that occurs when rainfall carries sediments, nutrients from fertilizers and pet wastes, and toxic chemicals from rooftops, roads, urban and suburban lawns and institutional grounds into local storm drains, streams, rivers and drinking water reservoirs of the State, and ultimately to the Chesapeake Bay.

Maryland’s Stormwater Management Program:
Massachusetts
National Pollutant Discharge Elimination System: (includes stormwater management plan):
http://www.massdot.state.ma.us/highway/Departments/EnvironmentalServices/Stormwater/ManagementUnits/NationalPollutantDischargeEliminationSystem.aspx

Massachusetts Stormwater Handbook:

Fosterborough
Gillette Stadium – Water Reuse System: The objective was to provide water and wastewater infrastructure to allow reconstruction and expansion of the stadium, while providing for economic growth in the area. The project was funded by the developer and the town. Through public finance bonds, the town provided funding for portions of the system that provided direct benefits beyond Gillette Stadium. The town’s portion included a new potable water storage tank and other associated appurtenances. The Kraft Group, developers of the stadium, privately financed the water reuse plant and associated distribution piping and recharge fields. The system was permitted through the MADEP under the State Pollution Discharge Elimination System program. It is administered and enforced by the MADEP, which requires monthly monitoring, and the completion of Discharge Monitoring Reports.

Idaho
Idaho Administrative Code, Title 01, Chapter 17, IDAPA 58.01.17 - Recycled Water Rules:

Nevada
Nevada Administrative Code, Chapter 455A, Sections 274-280; WTS-1A General design criteria for reclaimed water irrigation use:
http://www.leg.state.nv.us/nac/nac-455A.html#WAC455ASec274

North Carolina
15A North Carolina Administrative Code Subchapter 02U - Reclaimed Water
http://reports.oah.state.nc.us/ncac/title%2015A%20environment%20and%20natural%20resources/chapter%2002%20environmental%20management/subchapter%20u/subchapter%20u%20rules.html

Oregon
Oregon Administrative Rules, Division 35 - Recycled Water Use

Virginia
Virginia Administrative Code Agency 25, Chapter 740 - Water Reclamation and Reuse Regulation:
http://lis.virginia.gov/000/reg/TOC09025.HTM#C0740

Washington
Chapter 90.46 Revised Code of Washington - Reclaimed water use
http://apps.leg.wa.gov/rcw/default.aspx?cite=90.46&full=true

Hawaii
Senate Concurrent Resolution 228, March 2008: Request for the Water Boards in each county study the feasibility of launching a water conservation program that promotes the installation of rainwater catchment systems on residences for non-potable use.

Rainwater catchment systems on individual homes are not regulated by the Department of Health (DOH), February 27, 2014: However, the state does provide information for interested citizens.
http://health.hawaii.gov/labels/raincatchment/

No incentive programs are available.

Australia


National Urban Water and Desalination Plan: This plan is helping major towns and cities to secure their water supplies and reduce their reliance on rainfall dependent sources by supporting infrastructure projects and research in desalination, water recycling and stormwater harvesting and reuse. A list of government funded projects including funding amounts: http://www.environment.gov.au/topics/water/water-cities-and-towns/national-urban-water-and-desalination-plan

Regulation Impact Statement: National Water Initiative pricing principles: The set of principles for recycled water and stormwater reuse have been developed to assist states and territories meet NWI paragraph 6(1)ll(iii) commitment to develop pricing policies for recycled water and stormwater reuse that are consistent with pricing policies for potable water. Feb, 2010 http://www.environment.gov.au/system/files/resources/78883fe04dec44c045a615d0/files/water-recycling-guidelines-impacts-principles.pdf


Queensland

Queensland: The Queensland Government has repealed its mandatory requirements for rainwater tanks as of February 2013, giving local governments the choice of “opting in” if there is a net benefit. The State Government introduced the changes in an effort to reduce the overall costs of new building construction. http://www.hpw.qld.gov.au/site/ContentDocuments/BuildingAndPlumbingNewBuilding14.pdf

The New Optional Codes are:

The Old Mandatory Codes are:


Victoria


EPA Victoria - Code of Practice for Onsite Wastewater Management. Feb, 2013: This Code applies to all onsite wastewater (sewage) systems which treat up to a maximum peak daily flow (not average) of 5,000 l of toilet wastewater and/or greywater generated from domestic (including multi-dwelling) and/or commercial premises on a single land title in unsewered or sewerless areas. http://www.epa.vic.gov.au/~/media/Publications/B91%20pdf


New urban water policy Melbourne’s Water Future December 2013: In part, the new policy would see Melbourne make smarter use of rainwater and recycled water. $15 million in funding for projects that will drive the transformation of the city’s water system is also available.


Melbourne requirements for sizing stormwater drains and eaves gutters.


Australia is set to roll out intelligent rainwater tank systems that can be controlled through smart phones and automatically control the release of water.


Georgia: Water Contingency Planning Task Force Appendix B: Detailed description of options evaluated including rainwater harvesting and grey water reuse (including rationale, cost, yield, timing, and implementation feasibility December 2009; see page 35


Direct Potable Water Reuse for Sustainable Water Supply: A paper of DPR & DPR water reuse in Australia


http://www.waterreuse.org/sites/default/files/ab/DPR_Case_Studies_and_Issues.pdf

The Water Sustainable City of the Near Future, January 2014: A Canadian report on a vision for a Water Sustainable City. This report is intended to help practitioners and decision makers build a business case for advanced and integrated water management.

http://waterbudget.ca/wp/files/2014/01/Water_Sustainable_City.pdf

Virginia - The Public-Private Education Facilities and Infrastructure Act of 2002: Legislation that has been used by other states as a model

http://leg1.state.va.us/cgi-bin/legp504.exe?ses=021&typ=bil&val=sb681

Private Water On The Rise As Public Utilities Face Growing Debt


Other

Private Activity Bonds (PABs) The Way To Fund Municipal Water Infrastructure Projects, April, 2013:


Performance Contracts: Shaking Up The Municipal Water Market? (June 2012) - Performance contracts promise to shake up the municipal water market — and to open the drinking water and wastewater sectors to new heights of innovation, efficiency, and funding opportunities.


Water Policy and Governance Group: A Canadian Website dedicated to the research of Water Policy and Governance.

http://www.wpgg.ca/publications

Technologies and Innovative Solutions for Harvesting and NonPotable Use of Rain & Stormwater in Urban Settings, April 2013:

http://newsg.epa.gov/node/20541996057

Model Ordinance for Establishing Citywide Green Stormwater Infrastructure: In March 2013, the City of Seattle’s Mayor Michael McGinn issued an executive order aimed at developing and implementing a strategy for managing an annual total of 700 million gallons of stormwater using green stormwater infrastructure (GSI) by 2025. Among the benefits of GSI, cited in Mayor McGinn’s ordinance, are: improved water quality and flood resilience; more green space and urban tree canopy; and increased mitigation and adaptation to climate change. This model ordinance provides a template for directing a coordinated municipal effort to establish a municipal green-stormwater infrastructure.


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Chicago does not have a stormwater utility but has focused significant resources on stormwater management and mitigating combined sewer inflow.