



Protecting Local and Regional Water Quality

Stormwater Management in the Metropolitan Washington Region

June 2014

STORMWATER MANAGEMENT — MEETING THE MANY CHALLENGES

This fact sheet provides an overview of the challenges, program drives and financial implications of local government stormwater programs in the Washington metropolitan region, as well as a sense of the regulatory requirements that drive these programs.



CHALLENGES



PROGRAM DRIVERS & GOALS



FUNDING



ANACOSTIA—A LOCAL INITIATIVE

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STORMWATER MANAGEMENT MEETING THE MANY CHALLENGES

Local governments in the region have been working since the 1930s to protect local and regional water quality. Great progress has been made, largely through employment of ever more sophisticated water quality technology at the area's wastewater treatment plants starting in the 1960s. Despite this progress, there

is a need to do even more, particularly in response to the pollution budgets known as **Total Maximum Daily Loads** (TMDLs). In addition to their wastewater efforts, COG's member governments are now also

focused on the challenge of reducing the negative water quality impacts of stormwater runoff.

COG's members have accomplished a lot in the stormwater arena. This includes the pioneering development and implementation of new types of "best management practices," or **BMPs**, known collectively as "low impact development" (**LID**) and "environmental site design" (**ESD**) practices. It also includes implementation of dedicated stormwater program funding mechanisms by most of COG's members. Today, the region's local government stormwater programs continue to adapt in response to changing federal and state regulations. This includes a new generation of municipal **separate storm sewer system (MS4)** permits and the need for new revenues at a time of limited local government funding. And much of this has been happening at a very accelerated schedule over the past 10 years.

MS4 Permit Status of COG's Member Jurisdictions (as of April 2014)



STORMWATER PROGRAM DRIVERS

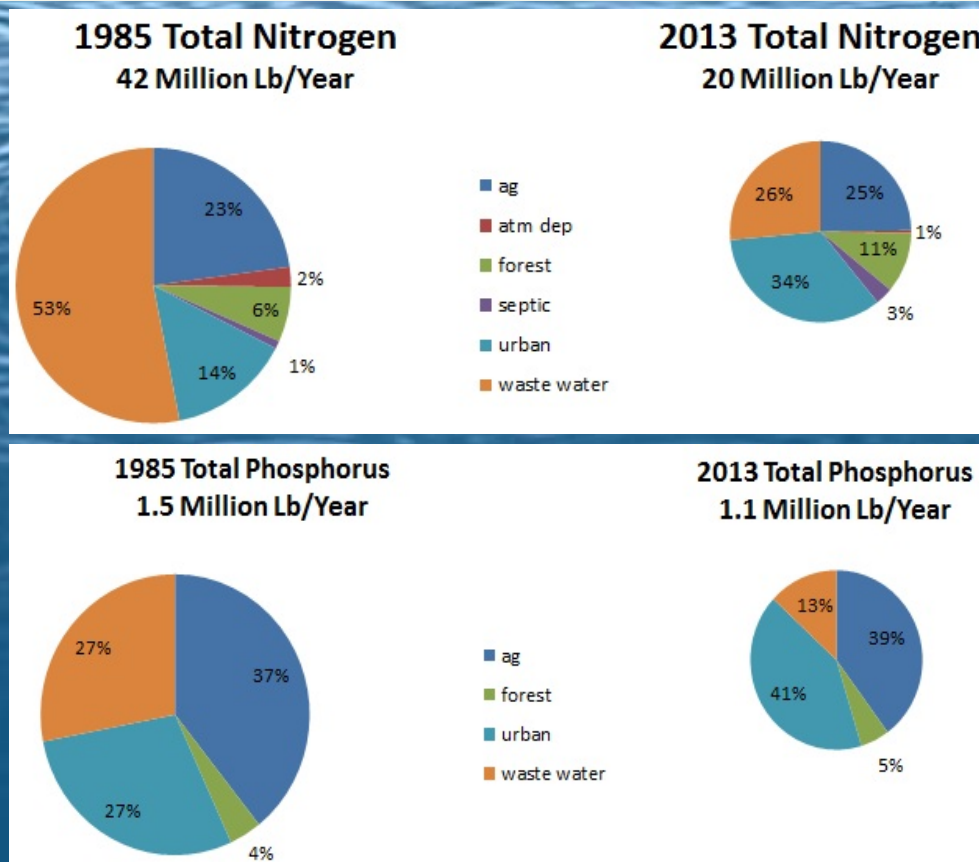
- **State and Local Stormwater Management Regulations** – Outline requirements for erosion and sediment control during the construction process and for the installation of BMPs to address stormwater runoff post-construction.
- **MS4 Permits** – Issued by the states and EPA, these require local governments to implement a variety of programs (ranging from detection and correction of illicit discharges to public outreach and education) to lessen the volume of pollutants carried by their municipal stormwater conveyance systems. These regulatory permits require consistency with the pollution budgets of applicable TMDLs; and have been issued over time (i.e., **Phase I** for larger jurisdictions, and **Phase II** for smaller municipalities—based on population).
- **Local TMDLs** – Established by the states and EPA, these TMDLs set target reductions for pollutants (nutrients, sediment, bacteria, trash and PCBs) in a number of waters in the region that have been designated as ‘impaired’ (e.g. the Anacostia River, Four Mile Run and Seneca Lake).
- **Chesapeake Bay TMDL** – Established by EPA in December 2010, this massive pollution budget requires reductions in nutrient (nitrogen and phosphorus) and sediment pollution throughout the Bay watershed and for major tributaries such as the Potomac River.

URBAN STORMWATER RUNOFF: A GROWING BAY-WIDE CHALLENGE

As illustrated in the charts below, in 2013 urban (stormwater) runoff accounted for about 33 percent of the nitrogen and 39 percent of the phosphorus amounts that reached the Bay from the COG region, according to estimates from the latest EPA models. This is about the same amount of both nutrients lost from agriculture.

COG REGION: PERCENTAGE OF ANNUAL BAY NITROGEN AND PHOSPHORUS CONTRIBUTIONS BY SOURCE

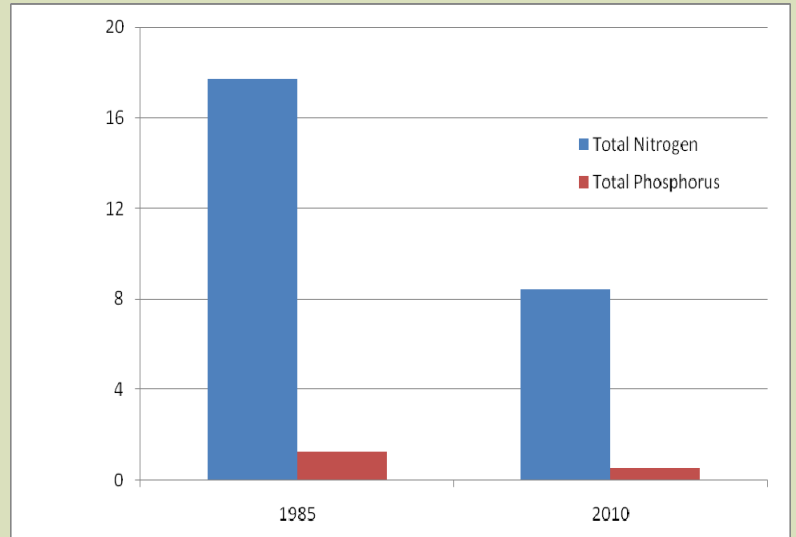
(estimated for 1985 and 2013 by EPA's Chesapeake Bay Watershed Model)



STORMWATER: THE NEED TO ADDRESS LEGACY POLLUTION

Stormwater is often singled out as the only significant source of pollutants to the Bay that has increased in recent years, but this characterization ignores the fact that the overall amount of land devoted to urban uses has increased in recent years both in the region and throughout the watershed. The Chesapeake Bay Program estimates that urban land acreage in the COG region increased 35 percent in the last 25 years. However, **the pollutant loads associated with urban lands have increased at a much lower rate because of the widespread use of stormwater BMPs on new and re-development sites.** This can be seen by looking at the amount of nutrient pollution generated on a per-acre basis by urban land in 1985 compared to 2010 as shown in the chart below (again, as estimated for the COG region as-a-whole by EPA models).

COG REGION: COMPARISON OF ANNUAL AVERAGE URBAN NUTRIENT LOADS TO THE BAY FOR 1985 AND 2010
(estimated by EPA's Chesapeake Bay Watershed Model)
Pounds Per Acre Per Year



Stormwater Retention Pond

Despite these successes, the Bay TMDL and other drivers are requiring stormwater programs to also address pollution from the runoff from urban areas built before 1985, when stormwater BMPs first became widely used. The most common way of addressing this legacy pollution is through what are known as **stormwater retrofits**, in which various modern urban stormwater BMPs are incorporated into older existing urban landscapes. These retrofits, which cost significantly more to install than BMPs on new developments, are now a requirement of MS4 permits in Maryland and the District of Columbia—and they will be necessary for Virginia local governments to meet the nutrient reduction requirements in their permits.

STORMWATER PROGRAM MANAGEMENT GOALS

Broadly stated, the goals of stormwater management are:

- (1) water quality protection;
- (2) stream channel erosion control; and
- (3) flood reduction.

Every jurisdiction, as part of its MS4 permit requirements, has a suite of stormwater management practices in place to accomplish these goals. Examples of the following diverse services are noted below.

Project Design Construction Management & Oversight

- Permitting and plan review for new or retrofit construction, including roads in Maryland and the District of Columbia
- Facility inspection, maintenance and enforcement (public and private Best Management Practices (BMPs))

Physical

- Impervious surface reduction/ disconnect
- Structural BMPs (including environmental site design, such as rain gardens and green roofs)

Education/outreach

- Fertilizer reduction
- Integrated pest management
- Pet waste
- Anti-littering
- Homeowner stormwater management incentives programs
- Trash / litter removal

Mitigation/Restoration

- Installation of riparian buffers and urban tree canopies
- Stream restoration
- Wetland restoration
- Street sweeping/inlet cleaning
- Illicit connection detection and elimination

Water Quality and Aquatic Habitat Monitoring

- Nutrient, Metals, Pesticides, Organics, Bacteria
- Sediment and Physical Habitat



Local government stormwater programs are increasingly focused on infiltration of stormwater in public right of ways.

LOCAL STORMWATER FUNDING IN THE COG REGION

Unlike the wastewater sector, whose nutrient reduction efforts have received significant cost-share monies from state and federal governments—in addition to major local funding investments, stormwater programs are funded almost entirely at the local level, either by developers who install BMPs during construction or through the stormwater programs conducted by local governments. The latter are funded through a variety of means, but more and more local governments have turned to dedicated taxes or utility fees to fund their stormwater management programs.

Where – All but one of COG's member jurisdictions have either established their own dedicated taxes or fee programs or are subject to the tax and fee programs of other jurisdictions.

When – The majority of these local programs have been established in the last 5 years, although at least two of them date back to the late 1980s.

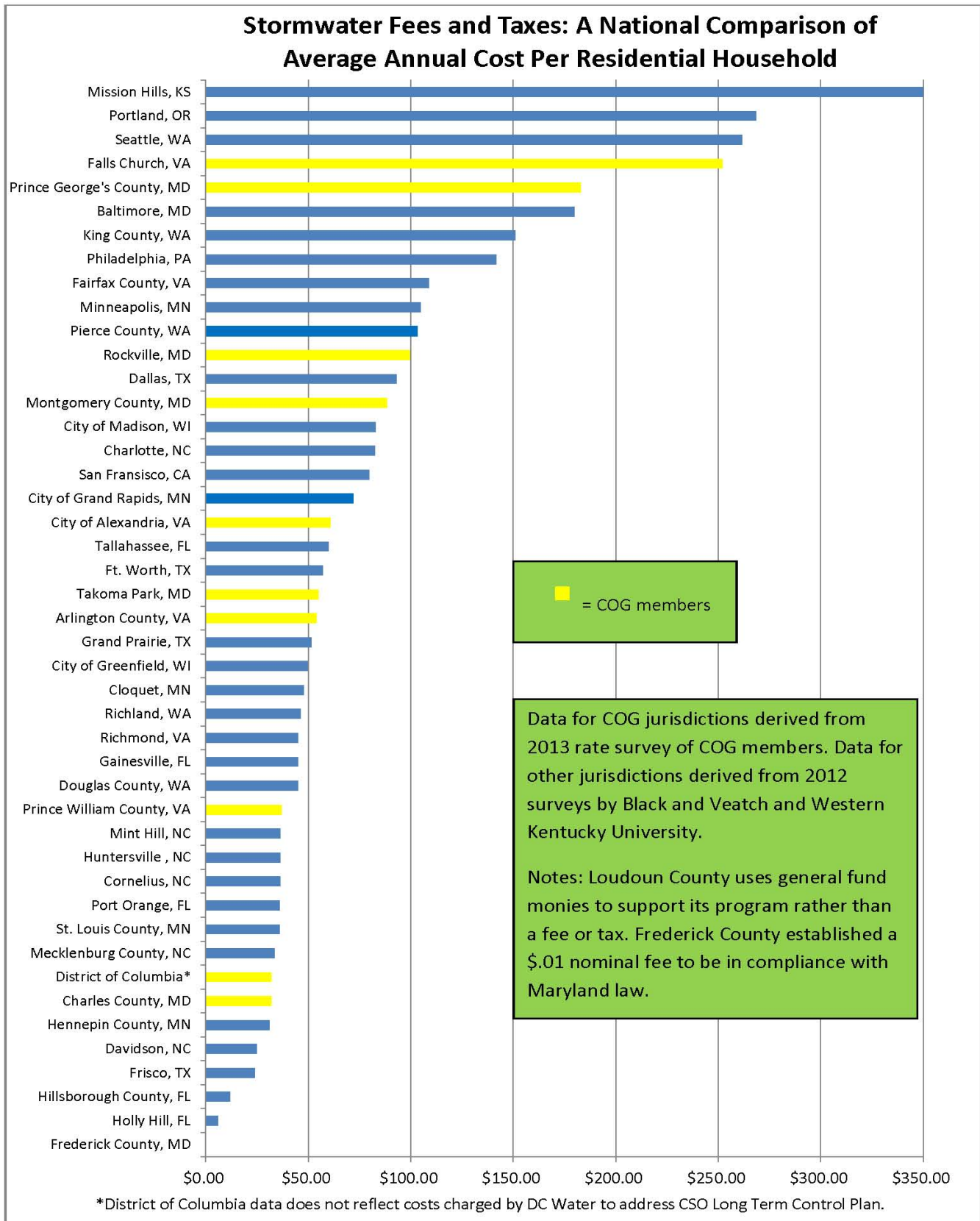
Who Pays – The tax/fee programs cover residential property owners; the majority of programs also cover commercial and multi-family properties.

How Much – The cost per household currently ranges from less than \$1 to \$252 per year; the average cost is about \$90 per household per year. Some of the fee programs are based on a sliding payment scale based on the size of the property or the extent of its impervious footprint. Some programs provide a credit for property owners who voluntarily install BMPs or do not charge non-profit organizations.



While both the extent and cost of the upgrades in stormwater management infrastructure to meet future regulatory requirements is still uncertain, it is clear that local governments will have to do a lot more in terms of both capital projects and annual operations and maintenance programs to meet future permit obligations. In the chart opposite, stormwater program costs in the COG region are compared to a random sample of similar costs from across the country. It is likely that stormwater fees and taxes in the region will continue to rise toward the levels now seen only for local governments in the Pacific Northwest.

COMPARISON OF STORMWATER FEES AND TAXES AS OF JUNE 2014



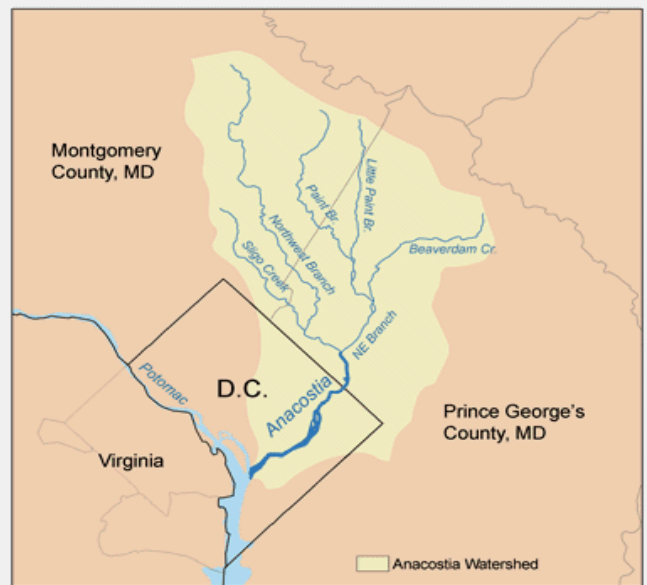
■ = COG members

Data for COG jurisdictions derived from 2013 rate survey of COG members. Data for other jurisdictions derived from 2012 surveys by Black and Veatch and Western Kentucky University.

Notes: Loudoun County uses general fund monies to support its program rather than a fee or tax. Frederick County established a \$.01 nominal fee to be in compliance with Maryland law.

Anacostia Restoration – A Local Example

The Anacostia Watershed Restoration Steering Committee (SC) was established by COG Board Resolution R28-06 in June 2006; and created the Anacostia Watershed Restoration Partnership (Partnership). The Partnership's role is to oversee the accelerated restoration of the Anacostia River and its tributaries. The membership is drawn from the District of Columbia, Montgomery and Prince George's counties, the state of Maryland, the Anacostia Watershed Citizens Advisory Committee (AWCAC), academia, federal agencies, foundations, businesses and NGOs. While the Partnership was created through COG Board of Directors action, and is administered through COG; it functions as an independent entity in terms of adoption of policy, as well as work program, budget and other financial matters. Since the Partnership was reconstituted, its members have accomplishments include:



- **Anacostia Restoration Plan** – Includes 1,781 stormwater retrofits
- **Trash TMDL** - The second enforceable trash limit implemented in the Nation
- **Strongest Stormwater Ordinances & Permits** – Local requirements lead the Nation
- **Focus on Green Streets** – Six new green streets projects planned for the watershed
- **Designation as 'Urban Water of National Significance'** – Partnership's strong coordination function was a strong factor in receiving this designation
- **Stakeholder Involvement** - Developers, environmental groups, municipalities and funders are all engaged in a regular dialog with governmental agencies and entities
- **Bag Fee** – Strong bag fee bills have been adopted to help reducing trash in the waterway

More information is available at the Partnership's web site at <http://www.anacostia.net/>

Summary

The overall picture of stormwater management in the COG region will change dramatically in the next few years as local government programs adapt to the challenges posed by new permits and regulations. More efforts will be made to retrofit older developed areas. And COG's member governments will gain further experience with LID and ESD techniques that are being promoted by state and federal regulation. Stormwater funding mechanisms at the local level will also continue to evolve. COG expects to continue to work with its members and integrate efforts with other jurisdictions (see Region Forward section on the left) to collect and update cost and performance data that will help shape the future direction of stormwater management. COG and its members will also continue to evaluate the potential implications of climate change impacts on the frequency, duration, and intensity of precipitation patterns and runoff volumes which is the basis of stormwater management.



Region Forward Greater Washington 2050

As part of COG's Region Forward sustainability goal, a target has been set to achieve 100% of the Chesapeake Bay Program's Water Quality Implementation Goals by 2025. Visit www.mwcog.org for more information.

COG's Water Resources Program

The Department of Environmental Programs (DEP), Water Resources Program assist COG's local government members, and affiliated wastewater treatment and drinking water utilities, with protecting, restoring, and conserving the region's water resources as well as addressing the policy and technical implications of various state and federal initiatives that have water quality. Visit our [Web Site](#) for additional information about our program and regional activities (including the Anacostia Program).

