

POLICIES AND PROGRAMS

The USACE's primary role related to the Anacostia watershed is the study, design and construction of large-scale restoration projects. Restoration projects, however, are necessarily focused on addressing existing environmental problems in the watershed. The USACE's partners in the restoration, such as USEPA, Maryland, the District of Columbia, Montgomery County and Prince George's County and others have additional roles and responsibilities which allow them to adopt policies and programs that address not only existing problems, but future stressors. These Partners include local sponsors of the project which developed this plan. Both the USACE and its partners understand that bringing all of the available resources and authorities of the Partners to bear is necessary to restore the watershed and protect it from further harm.

Two factors make protection from further harm important. In the future, at least two major conditions will further stress the watershed, unless the members of the Partnership work to mitigate these impacts. First, the Washington National Capitol Region is poised for growth. The Metropolitan Washington Council of Governments predicts that the region's population will increase by 32 percent by 2030, reaching nearly 6.6 million. This will add nearly 1.6 million people to the region, which is only slightly less than the amount of people added during the previous 30-year period. These people will need places to transportation, housing, and places to work and recreate, adding additional development pressure. This development will harm the watershed even more if not managed carefully.

Second, experts now agree that some future climate change is inevitable, regardless of current efforts to reduce greenhouse gasses. Climate change will have an impact on the watershed, most likely causing more frequent heavy rainstorms, and will potentially increase the effects of "urban heat island"—the tendency of urban and suburban areas to get hot enough to harm human health. Adaptation is an essential strategy for reducing the severity and cost of climate change impacts. The green infrastructure solutions proposed in the ARP could be important means of adapting.

Green infrastructure can be seen as not only a way to mitigate future problems but as a means to improve communities and people's lives as well. In addition to cleaner water, green infrastructure could:

- Use trees and vegetation to filter the air increasing air quality, reduce urban heat island effect and improve public health.
- Provide shade and insulation through the use of trees and green roofs, reducing energy use, and over the long term, saving money.
- Improve the aesthetics of urban and suburban communities, increasing property values.
- Create jobs.
- Reduce the cost of infrastructure repair and cleanup associated with flooding.

The USACE and its Partners believe that adopting and implementing the right policies and programs can advance restoration and prevent additional pollution and ecological damage. Also, policies and programs can help create institutional foundations for implementing the projects that were described in Section 6.1. Therefore, it is important to include them in the ARP.

Regulations and incentive programs can shift people's behavior and the ways they do business. Incentive programs can spur businesses and citizens to use rain barrels, install green roofs, disconnect downspouts, replace impervious parking areas with pervious surfaces, and plant and maintain trees and rain gardens. Regulations can deter such problems as building that doesn't adequately control stormwater, littering, poor housekeeping at industrial sites, and illegal dumping.

With 70% of the watershed developed, much of the watershed is ripe for redevelopment. Development and redevelopment policies provide an opportunity for the application of environmental regulations to both public and private lands, can systematically prevent further harm to the watershed, and in the case of redevelopment, can facilitate the correction of existing problems.

While the USACE has some regulatory authorities and programs which are relevant to protecting and restoring the watershed, especially the navigable portions of the watershed and its remaining wetlands, several of its Partners, especially the USEPA, the State of Maryland, the District of Columbia and Montgomery and Prince George's Counties, have additional wide-ranging programs and authorities, which also directly impact what happens on the ground. This section reviews and summarizes the existing programs and policies presently in place, including a brief description of the federal and state laws which have a major bearing on the restoration of the watershed, including the Clean Water Act, that are implemented by the USEPA, MDE and the District of Columbia. The section will also provide detailed information on existing policies and programs of the District of Columbia, Montgomery County and Prince George's County and programs and policies within other jurisdictions that have been cited as being "models."

This section shows that the existing programs and policies being implemented by members of the Partnership and the "model" jurisdictions have their benefits and also their challenges. Finally, based on a brief analysis of these, this section describes the Partnership's goals for new or improved policies and programs. These recommendations for new or improved policies, are not necessarily endorsed by the US Army Corps of Engineers but have been reviewed and approved by USACE's partners (e.g. the members of the Anacostia Watershed Restoration Partnership's Steering Committee).

(a) Federal Laws and Programs

1. The Clean Water Act

Pursuant to the Clean Water Act and relevant Maryland and District of Columbia laws, MDE and DDOE have established "designated uses," for their rivers and streams, such as fishing and swimming, so that the public can enjoy these uses of the waters. They also have set water quality standards, both quantitative and narrative, to establish the amount of pollution that can be present while still protecting the designated uses.

It has been determined by the Maryland Department of the Environment and the District of Columbia Department of the Environment, that the Anacostia's waters do not meet several of these water quality standards and so the Anacostia and its tributaries are deemed to be "impaired," e.g. too polluted for the public to use and enjoy the designated uses of swimming,

fishing and the enjoyment of wildlife. As a result, “Total Maximum Daily Loads” (TMDLs), which are sometimes described as water pollution budgets, have been or will be established for the Anacostia. Once a TMDL is established for an “impaired” water body, stormwater dischargers and other dischargers, including Municipal Separate Storm Sewer Systems (MS4s, which in the Anacostia watershed include the District of Columbia, Montgomery County, and Prince George’s County, and the University of Maryland) must work aggressively toward meeting the Clean Water Act’s requirement of attaining water quality standards.

The following chart shows the designated uses, the water quality standards which are exceeded, and status of the TMDL preparation for the standards that are exceeded. The preparation of TMDLs has been very important for the watershed because the TMDLs have identified most of the sources of pollutants in the watershed, and have highlighted the critical role of stormwater in the control of pollution in the watershed.

Anacostia Watershed Clean Water Act Designated Uses, Impairments, and Total Maximum Daily Load Status			
Designated Uses			
District of Columbia		Maryland	
<ul style="list-style-type: none"> • Primary contact recreation (swimming) • Secondary contact recreation and aesthetic enjoyment (rowing, boating and other activities with only incidental contact) • Protection and propagation of fish, shellfish, and wildlife • Protection of human health related to consumption of fish and shellfish • Navigation <p>Tributaries are not designated for navigation.</p> <p>Watts Branch and Hickey Run are not designated for primary contact recreation.</p>		<ul style="list-style-type: none"> • Contact recreation • Protection of aquatic life • Wholesomeness of fish consumption <p>Two small portions of the Prince George’s County near the border with Montgomery County have designated uses intended to protect existing or potential trout habitat. The designated use for Paint Branch and all its tributaries above the Capital Beltway (I 495) is for naturally reproducing trout populations. The designated use for Northwest Branch and all tributaries above East West Highway (Rt. 410) is for recreational trout, i.e. to provide conditions for survival of stocked trout.</p>	
Principal Impairments and Status of TMDLs (in the watershed generally, may not be in all subwatersheds)			
District of Columbia Water Quality Standard Exceeded	TMDL Adopted	Maryland Water Quality Standard Exceeded	TMDL Adopted
• Bacteria	10/03—TMDL relates to fecal coliform standard not in effect after 12/31/07	• Bacteria	3/07
• Sediment	07/07	• Sediment	07/07
• Biological Oxygen Demand (BOD)	06/08	• Biological Oxygen Demand (BOD)	06/08
• Trash	In progress--2010	• Trash	In progress--2010
		• Biological	Planned for the

			future
		• Nutrients	In progress--2008
• Organics: chlordane, DDD, DDE, DDT, Dieldrin, Heptachlor Epoxide, PAH1, PAH2, PAH3 and TPCBs	10/03	• Heptachlor Epoxide	Planned for the future
		• Polychlorinated Biphenols (PCBs)	In progress
• Metals: Arsenic, Copper, Lead, and Zinc	10/03		
• Oil and Grease	10/03		

a) *Impacts of Implementation of Actions Taken to Restore the Chesapeake Bay*

On May 12, 2009, President Barack Obama signed an Executive Order that recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation's largest estuary and its watershed. The Order requires the USEPA to describe the changes to be made to regulations, programs and policies to implement these actions. USEPA is in the early stages of revising the stormwater regulations that will be applicable to the Bay region, including the Anacostia. In addition, a new Chesapeake Bay TMDL will be established that is likely to have the effect of requiring that pollution dischargers comply with more stringent standards. While it is too early to say what the impacts of these actions will be on the Anacostia watershed, it will be important to make sure that work to implement policies and programs for the Anacostia efficiently align with Bay policy.

b) *Municipal Separate Storm Sewer Systems (MS4s)*

Polluted stormwater runoff is commonly transported through Municipal Separate Storm Sewer Systems or MS4s, from which it is often discharged untreated into local water bodies. Specifically, an MS4 is a conveyance or system of conveyances that is:

- Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.;
- Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.);
- Doesn't carry or treat sewage or combined sewerage and stormwater.

To prevent harmful pollutants from being washed or dumped into waters of the United States by these systems, the Clean Water Act requires operators of MS4s to obtain NPDES permits and implement a stormwater management program. USEPA issued regulations for MS4s in two phases:

- Phase I, issued in 1990, which addresses medium and large cities or certain counties with populations of 100,000.

- Phase II, issued in 1999, which addressed small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority to obtain NPDES permits.

The Phase I MS4s in the Anacostia watershed must get individual permits from USEPA in the case of the District of Columbia, and from MDE in the cases of Montgomery and Prince George’s Counties. MS4 permits specify what MS4s must do to control stormwater. Further discussion of these permits appears later in this section.

c) *USEPA Clean Water Act Consent Decree Requiring District of Columbia-Water and Sewer Authority Combined Sewer Overflow Improvements*

As noted in the existing conditions section of this plan, approximately one third, or 12,478 acres of the District of Columbia is served by a combined sewer and stormwater system. In the combined sewer system, during dry weather conditions, sewage from homes and businesses is conveyed to the DC-WASA’s advanced wastewater treatment plant at Blue Plains, which is located in the southwestern part of the District on the east bank of the Potomac River. There, the wastewater is treated to remove pollutants before being discharged to the Potomac River. When the capacity of the combined sewer is exceeded during storms, the excess flow, which is a mixture of sewage and stormwater runoff, is discharged to the Anacostia and Potomac Rivers, Rock Creek and tributary waters. The excess flows are called Combined Sewer Overflows (CSOs). These overflows are not permitted under the Clean Water Act.

When DC-WASA was created in 1996, the volume of CSOs discharged into the Anacostia was over 3 billion gallons, being discharged in, on average, 82 discharge events each year.

The “Long Term Control Plan” (LTCP) is a large-scale restoration program being implemented by DC-WASA as required by a USEPA consent decree to address these CSOs. When completed in 2025, CSOs would be reduced by 98%, about two overflow events per year. Very briefly, the LTCP consists of measures that increase the storage of the mixed sewage and stormwater so that the Blue Plain Sewage Treatment Plant is not bypassed during heavy rainstorms. Pursuant to the consent order, DC-WASA has already increased the storage in the existing sewage collection system, and reduced the volume of CSOs by 40%. However, attaining the remainder of the LTCP’s goals involves the construction of over 13 miles of large tunnels the size of Metrorail train tunnels. These tunnels will extremely expensive to build, costing nearly \$2 billion.

In order to generate the revenues to implement the remaining phase of the LTCP (as well as implementation of the District of Columbia’s MS4 permit), the District and DC-WASA created and implemented an impervious surface fee which DC property owners must pay. This fee will soon have to be raised to pay for the construction of the tunnels, nearly doubling over the next 10 years. It will be part of the ongoing work of the Partnership to advocate for these rate increases, to help rate payers understand the need for the increases, and to assist DC-WASA to obtain as much federal funding as possible to ease the burden of these rate increases on District ratepayers.

d) *USEPA, Maryland Department of the Environment-Clean Water Act Consent Decree Requiring Washington Suburban Sanitary Commission Sanitary Sewer Overflow Improvements*

In 2005, a consent decree was entered into by the United States, the State of Maryland and several citizen groups and the Washington Suburban Sanitation Commission (WSSC) which requires the WSSC to undertake inspections and repairs of its sewage system to prevent spills and leaks from its collection system. These spills are called Sanitary Sewer Overflows (SSOs). WSSC is presently making good progress on its efforts to inspect over 1745 miles of its sewer lines, pursuant to the order, and implementing its 12 year, \$350 million plan for repairing sewer lines so that leaks can be eliminated. Similar to the issues of cost related to the LTCP, but not nearly as great in magnitude, the costs of implementing this plan will strain WSSC's budget and the Partnership should assist WSSC to obtain the funding it needs to implement its sewer repairs.

2. Laws relating to Toxic Pollutants

Historic and ongoing toxic contamination continues to degrade the Anacostia River ecosystem. There are known elevated concentrations of polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), and other trace elements in the river sediments. These contaminants pose a risk to humans and aquatic organisms. Studies conducted by the U.S. Fish and Wildlife Service – Chesapeake Bay Field Office have indicated that 50-68 percent of the brown bullhead catfish studied from the Anacostia River have liver tumors and 13-23 percent have skin tumors. The prevalence of liver tumors is the highest recorded in North America. These rates are alarming, as scientists consider an area with a liver tumor rate of more than 5 percent to be highly contaminated. Tests on fish tissues and bottom sediments suggest that exposure to PAHs is likely responsible for the tumors.

PCBs have been shown in animals to cause cancer, as well as serious effects on the nervous, immune, endocrine, and reproductive systems. Studies in humans have shown potential cancerous and non-cancerous effects. The DC Department of Health has posted a Public Health Advisory for fish consumption due to the presence of PCBs and other chemical contaminants that have continued to be found in certain fish species caught in the Anacostia River and its tributaries. Because of these findings, the Department of Health advises the general public to limit consumption of fish from all DC waters and has instructed the public not to consume catfish, carp, or eel. Maryland also has fish advisory in place for Anacostia waters which recommends limiting consumption of most fish caught, and recommends avoiding consumption of any carp. It is important that the Partnership do all it can to communicate about the risk to human health from eating fish caught in the Anacostia watershed.

Laws Relating to Control of Toxic and Hazardous Substances

RCRA is the primary law that governs the disposal of solid and hazardous wastes. The law features three interrelated programs under which states manage non-hazardous solid wastes and municipal waste; regulate hazardous waste production, use, and disposal; and regulate underground storage tanks containing hazardous substances and petroleum products. For the District of Columbia, DDOE has been delegated authority to implement the program; in the District, the implementing agency is DDOE.

Under CERCLA, USEPA and other federal agencies are authorized to clean up and restore sites where hazardous materials have been released and where there is a threat to public health.

e) *Remediating Contaminated Sediments*

Contaminated sediments are relatively widespread within the river. However, a review of historic sampling data in the Anacostia has indicated that chemical concentrations are particularly high in certain areas that can be considered “hotspots”. This pattern suggests that there may be utility in adopting a remedial strategy focusing on hotspots in order to reduce sediment concentrations in hotspots at a lower cost than dealing with the entire area of contaminated sediments. Remedial actions for contaminated sediments generally include dredging, capping, natural recovery, or a combination of these approaches. USEPA recently proposed a combination of capping and dredging the sediments in these hotspots. However, feasibility studies that consider all potential technologies and evaluate them against criteria including short and long-term effectiveness, implementability, permanence, cost, and future use are needed for each hotspot before appropriate remedial actions can be determined. Several sites along the river have been identified as possible point sources of either PCBs, PAHs, or both: Pepco Benning Road, Poplar Point, Kenilworth Landfill, Washington Gas and Light Company, Washington Navy Yard, Southeast Federal Center in the District of Columbia, and Lower Beaverdam. The area of concern Lower Beaverdam is a stretch of that creek in which elevated levels of PCBs have been found, but the source of the contamination has not yet been identified.

f) *Next Steps*

Lead agencies in charge of overseeing toxic cleanups for the various contaminated sites along the river need to extend cleanup actions out into the river to address sediment contamination.

USEPA and DDOE are currently reviewing the steps needed to address toxic sediments and the river and USEPA and MDE are reviewing the steps needed to address toxic problems in the Maryland portion of the watershed.

3. *Energy Independence and Security Act (EISA)*

The recently enacted Energy Independence and Security Act of 2007 (EISA) contains provisions that require the “sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.” In less technical terms, the law requires new and redeveloping federal facilities to be designed and built to manage the volumes of stormwater generated by these facilities on site. While applicable only to federal facilities, the new law can be a help to the watershed.

Executive Order 13514 required the USEPA to issue guidance for federal agencies implementing the federal facility stormwater requirements of EISA, and on December 5, 2009, USEPA issued the guidance along with case studies illustrating the practicability of the approaches to stormwater volume control that they recommended. The guidance and case studies can be found at http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf. The guidance

recommends that federal facilities control the volume of stormwater contained in 95% of all storms events occurring in one year, or about 1.7 inches in the District of Columbia and its environs. The guidance indicates that standard can be met through infiltration, evaporation or transpiration, or reuse, and encourages the use of Environmental Site Design (ESD). (ESD is described in more detail below.)

The EISA requirement is important in the Anacostia Watershed where about 12 percent of all land is owned by the federal government, and especially in Washington, DC, where about 30% of all property is federally-owned. An important aspect of this guidance is that it is just that, guidance, and each federal agency or department is responsible for implementing EISA at its own facilities. Therefore, it may be necessary for the Partnership to monitor important federal facilities to determine whether they are meeting the standards.

(b) Maryland Law Relating to Environmental Site Design

The Maryland Legislature recently adopted the Stormwater Management Act of 2007. Prior to the passage of this legislation, ESD was encouraged, but not required, by MDE's Stormwater Design Manual. ESD is sometimes also referred to as "Low Impact Development" (LID). The Act requires that ESD be implemented to the maximum extent practicable, and that only as a last resort should conventional stormwater management practices be implemented. MDE's implementing regulations also require that counties and municipalities in Maryland propose revisions to their stormwater regulations by November of 2009 and to adopt revised stormwater regulations by May of 2010.

It is important to note that, in some respects, the relatively recent understanding of the practicability and effectiveness of small ESD stormwater retrofits of existing development, highways and roads make it conceivable that the condition of the Anacostia can be greatly improved. MDE's regulation provides a fairly typical definition of ESD:

"Environmental site design (ESD)" means using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources."

Additionally, the EISA guidance described above notes that traditional stormwater management measures employ extended detention approaches to mitigate the impacts of increased peak runoff rates. Citing the National Research Council's recent exhaustive study of stormwater management, USEPA describes in the guidance why ESD is the best approach to stormwater control, unless extended detention is the only practicable approach. Wet ponds and similar practices are not fully adequate to protect downstream hydrology because of the following inherent limitations:

- Poor peak control for small, frequently-occurring storms;
- Negligible volume reduction; and
- Increased duration of peak flow.

Detention storage targets relatively large, infrequent storms, such as the two and 10-year/24-hour storms for peak flow rate control. As a result of this design limitation, flow rates from smaller,

frequently-occurring storms typically exceed those that existed onsite before land development occurred and these increases in runoff volumes and velocities typically result in flows erosive to stream channel stability.

ESD practices include:

- Preserving and protecting natural resources;
- Conserving natural drainage patterns;
- Minimizing impervious area;
- Using green roofs, permeable pavement, reinforced turf, and other alternative surfaces;
- Limiting soil disturbance, mass grading, and compaction;
- Clustering development;
- Disconnection of rooftop runoff;
- Disconnection of nonrooftop runoff;
- Sheet flow to conservation areas;
- Rainwater harvesting and reuse;
- Landscape infiltration;
- Infiltration berms;
- Dry wells;
- Micro-bioretenion;
- Rain gardens; and
- Swales.

Most of the Anacostia watershed's subwatersheds no longer have the space available (or the space available in the right places) to construct traditional large scale stormwater controls, such as reservoirs and large ponds, but many roads and developments can be retrofitted with some of the smaller ESD practices noted above. Further, these practices can address stormwater pollutants and *volume*.

Stormwater volume is increasingly understood to be a major source of pollutants and erosion damage in the watershed. Studies supporting the Maryland sediment TMDL for the Anacostia watershed indicate that about 75% of the sediments in the waters of Maryland portion of the watershed come from erosion. Most of the streams in the watershed exhibit what is known as "urban stream syndrome." This syndrome has been described in one scholarly paper as follows:

The term "urban stream syndrome" describes the consistently observed ecological degradation of streams draining urban land. Symptoms of the urban stream syndrome include a flashier hydrograph, elevated concentrations of nutrients and contaminants, altered channel morphology, and reduced biotic richness, with increased dominance of tolerant species. More research is needed before generalizations can be made about urban effects on stream ecosystem processes, but reduced nutrient uptake has been consistently reported. The mechanisms driving the syndrome are complex and interactive, but most impacts

can be ascribed to a few major large-scale sources, primarily urban stormwater runoff delivered to streams by hydraulically efficient drainage systems.¹

In less technical terms, during rainstorms, the impervious surfaces in urban areas with no stormwater management carry fast-moving rainwater, along with the pollutants and trash in the rain water's path into the streams, where these heavy volumes badly erode the streams and produce additional sediment and other types of pollution. The Anacostia watershed is a severe example of "urban stream syndrome."

The recognized solution to "urban stream syndrome" is reduction of stormwater volumes. Reduction in stormwater volumes would reduce the amount of pollutants that flow into the river, including trash, and allow restoration of the stream channels. In short, the Maryland Stormwater Act of 2007's focus on using smaller ESD practices, which in many cases are practicable as a means of retrofitting to tight spaces, is very significant for the Anacostia.

(c) Local Laws and Programs

The preceding was a short description of important federal and state laws and orders that benefit the Anacostia. The District of Columbia, Montgomery County and Prince George's County also implement a host of programs and policies that benefit the watershed. As noted above, the implementation of these existing programs, as well as additional policies and programs, is one of the keys to restoration and to the protection of the watershed from further pollution and ecological damage, and to the restoration. The District of Columbia, Montgomery County, and Prince George's County are working diligently within their jurisdictions to improve and implement these programs and policies. The Anacostia Watershed Restoration Partnership is a key forum which can help support and coordinate these efforts.

The following pages present an overview of key District and Montgomery and Prince George's County programs and policies affecting the Anacostia.

¹ C. Walsh, A. Roy, J. Feminella, P. Cottingham, P. Groffman, and R. Morgan, *The urban stream syndrome: current knowledge and the search for a cure*, J. N. Am. Benthol. Soc., 2005, 24(3):706–723 found online at <http://www.biology.duke.edu/wilson/EcoSysServices/papers/WalshEtal2005.pdf>

District of Columbia	Montgomery County	Prince George's County	Benefits and Challenges
Incentives for Private Property ESD Retrofits			
<p><u>RiverSmart Homes</u></p> <ul style="list-style-type: none"> - Incentive based program to install low-cost residential BMPs including downspout disconnection, rain barrel installation, large shade tree planting, impervious surface removal and pervious surface installation, and native plant landscaping practices - Stormwater audits of homeowner's property to identify potential alternatives to reduce stormwater pollution and provide an opportunity for education - Up to \$1,600 per household for landscape enhancements by the District with the homeowner cost of \$75 for a rain garden and \$100 for native landscaping - \$30 cost to homeowner for rain barrel installation - \$50 cost to homeowner for planting a shade tree - DDOE developing methods to remain in contact with program participants to ensure proper care of landscaping enhancements -To date, this program anticipates installing 600 large rain barrels, 200 rain garden or permeable pavement retrofits, and 500 trees by the end of FY 2010. The District will also begin a pilot downspout disconnection program in fall 2009. And has a a 	<p><u>RainScapes Rewards Rebate Program</u></p> <ul style="list-style-type: none"> - Financial rewards granted for the voluntary installation of new rain gardens, native landscaping that replaces turf grass, creation of new urban tree canopy, removal of impervious surface and replacement with pervious surface, green roofs, rain barrels, cisterns, and dry wells. - \$1,200 maximum financial reward to single-family residential property owners depending on project type and actual costs. - \$5,000 maximum financial reward, or \$0.50 per square foot of impervious area treated, for multi-family, commercial, or institutional property. 	<p>N/A</p>	<p><u>Benefits</u></p> <ul style="list-style-type: none"> - Controls stormwater—the critical pollutant source for the watershed. -Incentive for installing ESD at single family homes, which may not be redeveloped in the near term and therefore, would not be subject to redevelopment retrofit requirements. - Homeowner gets assistance with technical issues as well as financial assistance. - Many of the practices are desirable for purpose of improving community aesthetics, decreasing heat island effect and energy use, and increasing biodiversity in the suburban landscape. <p><u>Challenges</u></p> <ul style="list-style-type: none"> - Limited funding budgeted for the programs. -Require considerable staff time to assist homeowners and administer the programs. - Homeowner demand exceeding program capacity.

<p>green roof retrofit program for private properties. See www.dcgreenworks.org.</p>			
Existing and Proposed Stormwater Regulations for Development and Redevelopment			
<p>Original Proposal Included:</p> <ul style="list-style-type: none"> - Redevelopment requirements the same as new development. - Development and redevelopment in Anacostia development zone to retain one inch of stormwater onsite and treat 3.2 inches. -Remainder of city to retain ¾ of an inch of stormwater. -Requirements triggered by proposed disturbance of 5000 square feet of land area <i>or a significant alteration of a building</i>. - Onsite stormwater management controls include ESD: green roofs, permeable pavement, cisterns, etc. <p>The District is considering comments that were taken and is in the process of revising its proposal.</p>	<p>Current ordinance includes:</p> <ul style="list-style-type: none"> -Development and redevelopment must control water quality volume and channel protection volume (1 inch and 2.6 inches, respectively), though the channel protection volume requirement is waived for redevelopment if impracticable at a given site. -Requirements triggered by proposed disturbance of 5000 square feet of land area or more. -In November 2009, Montgomery County proposed a revised ordinance as required by the Maryland Stormwater Act of 2007. If adopted, it will continue to require that the volumes cited above will be controlled and that they are controlled through ESD. If adopted, this will be one of the strongest stormwater regulations on the eastern seaboard of the United States, and exceeds Maryland’s requirements under the new law. 	<p>Current ordinance includes:</p> <ul style="list-style-type: none"> -New development must control channel protection and water quality volume. - Redevelopments must reduce existing site impervious areas by at least 20 percent. Where site conditions prevent the reduction in impervious area, then stormwater management practices must be implemented to provide water quality treatment of one inch for at least 20 percent of the site's impervious area. When a combination of impervious area reduction and stormwater practice implementation is used, the combined area shall equal or exceed 20 percent of the site. -Requirements triggered by proposed disturbance of 5000 square feet of land area or more. - In November 2009, Prince George’s County proposed a revised ordinance pursuant to the Maryland Stormwater Act of 2007. If adopted, the revisions will require new development to control the channel protection volume using ESD. <p>Redevelopment will be required</p>	<p style="text-align: center;"><u>Benefits</u></p> <ul style="list-style-type: none"> -Addresses stormwater, the principal source of pollutants in the Anacostia. -Can address volumes of stormwater from development and redevelopment -Can address stormwater from existing development if strong provisions for redevelopment <i>or building rehabs</i> are included. -Can require ESD which has many ancillary benefits in addition to stormwater control. <p style="text-align: center;"><u>Challenges</u></p> <ul style="list-style-type: none"> - Improvement of these ordinances requires amendment of existing ordinances. -Regulated parties (developers and redevelopers) may object to cost of additional requirements. -Need better description of the practicability, and costs and benefits of these types of ordinances -Changing the threshold to cover additional developments and redevelopments will require additional staff to review them.

		to control the water quality volume (1 inch) on half of each redevelopment site. This proposal largely mirrors the state's requirements under the new law.	
Recently Revised MS4 Permits			
<p>The MS4 Permit for the District, dated August 2004 and enhanced in 2007 and 2008, imposes narrative effluent limits to manage stormwater quality and quantity through the use of BMPs and incorporates various LID techniques.</p> <p>-The Permit also requires development of TMDL implementation plans, with controls, BMPs, and other activities consistent with approved TMDL limits.</p> <p>-In the 2007 modifications to the MS4 permit, the District agreed to undertake innovative measures to stem storm water flow and pollution, using natural systems such as trees, green roofs, and vegetated buffers. The District also agreed to implement an enhanced street sweeping program.</p> <p>-Pursuant to the Comprehensive Stormwater Management</p>	<p>The new requirements in Montgomery County's MS4 permit include:</p> <ul style="list-style-type: none"> - Doubling the requirement for retrofitting existing developed land with stormwater management practices to 20 percent, in addition to an existing 10 percent requirement in the previous permit, for a total restoration of 30 percent of impervious surfaces by the end of the permit term in 2013. - Establishing and implementing a trash elimination plan for the Anacostia River to support regional strategies to reduce trash and increase recycling as set forth in the Trash Free Potomac Watershed Initiative 2006 Action Agreement. - Restoring impaired waterways by developing and implementing County plans to reduce stormwater pollutant loading to levels needed to meet water 	<p>Prince George's County's MS4 permit has not been recently amended and will expire in October 2009. Recently, the County announced that the permit that would follow the existing permit that expires in October 2009 would be as stringent as or more stringent than Montgomery County's.</p>	<p><u>Benefits:</u></p> <p>Among other benefits:</p> <ul style="list-style-type: none"> -Requires enforceable requirements for stormwater retrofits. -Requires MS4s to create and implement plans for meeting TMDL limits. -Requires permittees to adequately fund these programs <p><u>Challenges</u></p> <p>-The main challenge involves funding the implementation of the permits.</p>

<p>Enhancement Amendment Act of 2008, DDOE is developing an Environmental Management System to inventory, track, and report on pollution prevention and SWM activities and to hold SW Agencies accountable for meeting performance standards and obligations in SWMP. S. 151(g) and S. 155(g) in S. 2(b)-USEPA will propose a new permit in late February or early March 2010.</p>	<p>quality standards (TMDLs).</p> <ul style="list-style-type: none"> - Establishing a long-term schedule for performing comprehensive water quality assessments that includes identifying sources of pollution and water quality improvement opportunities for all watersheds in the County. - Improving local stormwater management ordinances and regulations, and modifying planning and zoning codes to allow for the implementation of Environmental Site Design (ESD) “green development practices” to the maximum extent practicable. <p>All of these requirements are in addition to existing countywide management programs and ongoing monitoring efforts.</p>		
Stormwater Fees to Pay for Stormwater Improvements			
<p>-The District of Columbia recently adopted a stormwater fee of \$2.57 per month per Equivalent Residential Unit in FY 2010. That is, for each 1,000 square feet of impervious surface on a property, the owner will be charged \$2.57. This applies for home owners, commercial, government and other properties. This fee is expected to raise \$13</p>	<p>-The Water Quality Protection Charge, paid by residents (but not businesses, unless they use a residential stormwater facility) as part of the County tax bill, provides funds for a comprehensive inspection and maintenance program for homeowner stormwater facilities in the County. This program helps to protect streams, water</p>	<p>-The County applies an ad valorem tax of 13.5 cents per \$100 of assessed value, 6.5 cents for certain rural residents, to help pay for stream restoration projects.</p> <p>-This tax is not likely to be sufficient to fund the provisions of the enhanced MS4 permit likely to be required by MDE.</p>	<p style="text-align: center;"><u>Benefits</u></p> <p>-Stormwater utility fees provide a way to charge residents and businesses fees based on the extent of their impervious surfaces, which can be perceived as a fairer approach for funding stormwater needs.</p> <p>-Because property owners are</p>

<p>million per year that will be applied to the costs of meeting the District's MS4 permit. Funds will go toward street sweeping, green roofs, rain gardens, tree planting, etc. Further revisions to this fee structure are anticipated to reward property owners who reduce impervious area on their property.</p> <p>-The DC Water and Sewer Authority is charging an impervious area charge of \$1.24 per month per Equivalent Residential Unit to help pay for the costs of fixing Combined Sewer Overflows. As mentioned above this fee is likely to rise substantially over the coming years to fund the LTCP. Further revisions to this fee structure are anticipated to reward property owners who reduce impervious area on their property.</p>	<p>supplies, and property by keeping stormwater facilities functioning properly so that they remain capable of removing pollution, recharging groundwater, protecting stream banks, and keeping roads and property from flooding.</p> <p>-As of July 2009, the rate is \$45.50 per ERU per year. This means that single family home owners pay a flat rate of \$45.50 and town home owners pay a flat rate of \$15.02 per year.</p> <p>-The fee was not intended and is not adequate to fund general stormwater needs, including the required implementation of the County's MS4 permit.</p> <p>-State legislation requiring counties to adopt stormwater utility fees sufficient to pay for their stormwater programs likely to be introduced into the 2010 session of the Maryland legislature.</p>	<p>-State legislation requiring counties to adopt stormwater utility fees sufficient to pay for their stormwater programs likely to be introduced into the 2010 session of the Maryland legislature.</p>	<p>charged based on the amount of impervious surface they own, the fees may have the benefit of discouraging the increase in impervious surface.</p> <p>-The fees can be designed to incentivize the installation of ESD features such as green roofs, rain gardens, and replacement of impervious surfaces with pervious ones.</p> <p>-District and County stormwater managers have dedicated sources of funding for implementing needed projects.</p> <p style="text-align: center;"><u>Challenges</u></p> <p>-Rate payers and taxpayers may not understand the need for stormwater controls and may oppose increases.</p> <p>-Since each local jurisdiction already has a program of fees or taxes in place, it may be difficult to raise these to the point where they are adequate to fund the needed projects and programs.</p>
Programs and Policies Implementing Road Retrofits Controlling Stormwater			
<p>Among the provisions of the "Comprehensive Stormwater Management Enhancement Amendment Act of 2008") was a</p>	<p>The following "road code" provisions have been adopted by the County on December 9, 2008:</p>	<p>The County has no recent legislation but has been implementing a fairly successful Green Streets Program to mitigate</p>	<p style="text-align: center;"><u>Benefits</u></p> <p>-Addresses the retrofit of a substantial area of impervious</p>

<p>requirement that by January 23, 2010: the Director of the Department of Transportation (“DDOT”) shall submit to the Director an action plan recommending policies and measures to reduce impervious surfaces and promote LID projects in the public space. The action plan shall incorporate:</p> <p>(1) New DDOT policies to reduce impervious surface and employ other LID measures in right-of-way construction projects and retrofit projects;</p> <p>(2) A revised DDOT public space permitting process and the development of a mechanism to minimize stormwater runoff from the public right-of-way;</p> <p>(3) Requirements and incentives for private developers to reduce impervious surface and employ LID measures when their projects extend into the public right-of-way;</p> <p>(4) Policies, including fees, for the use of public space to manage stormwater runoff from private property;</p> <p>(5) Policies to address ongoing</p>	<p>New road construction and roadway renovation projects must control the channel protection volumes (2.6 inches) and water quality treatment of 1 inch of stormwater.</p> <p>All roadways must incorporate “vegetated integrated management practices” with a goal of treating ¼ of an inch of the rain water for water quality purposes.</p>	<p>water pollution at various locations around the County. Trash abatement techniques as well as Low Impact Development structural techniques are employed to improve water quality (Prince George’s County, 2007). Examples of projects implemented as part of the Green Streets Program include the following: trash traps to collect floatable pollutants, bioretention, rain gardens, and filter swales.</p>	<p>surface within the watershed: 39% of the watershed is covered with highways and roads.</p> <p>-Addresses an existing source of stormwater pollution when retrofit is involved, addressing an existing source of pollution.</p> <p style="text-align: center;"><u>Challenges</u></p> <p>-Road departments are faced with multiple goals related to roads and highways and the safety of the roads must be the paramount goal.</p> <p>-Often there is limited space in road right of ways and adjacent areas to construct ESD retrofits</p> <p>-Funding for retrofits is limited.</p>
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<p>maintenance of LID or stormwater best management practices installed in public right-of-way areas adjacent to private property;</p> <p>(6) Strategies to remove impediments to LID projects on residential properties relating to public space; and</p> <p>(7) Costs for each recommendation and a recommended timeline for funding in the Mayor’s proposed budget. The Mayor shall incorporate these recommendations in the next and subsequent proposed annual budgets.</p>			
Disposable Shopping Bag Fees			
<p>On June 16, 2009, the District of Columbia passed legislation that places a fee on disposable shopping bags, as of January 1, 2010.</p> <p>-Places a 5-cent fee, paid by consumer, on all disposable recyclable plastic and paper carryout bags from Retail Food Establishment license holders (including grocery stores, food vendors, convenience stores, drug stores, and restaurants) and Class</p>	<p>State legislation was introduced in 2009 and reintroduced in 2010. See the Chesapeake Bay Restoration Consumer Retail Choice Act of 2010, House Bill 351 sponsored by Delegate Al Carr and others (http://mlis.state.md.us/2010rs/billfile/hb0351.htm) and crossfiled Senate Bill 462 filed by Senator Raskin and others (http://mlis.state.md.us/2010rs/billfile/sb0462.htm)</p>	<p>State legislation was introduced in 2009 and reintroduced in 2010. See the Chesapeake Bay Restoration Consumer Retail Choice Act of 2010, House Bill 351 sponsored by Delegate Al Carr and others (http://mlis.state.md.us/2010rs/billfile/hb0351.htm) and crossfiled Senate Bill 462 filed by Senator Raskin and others (http://mlis.state.md.us/2010rs/billfile/sb0462.htm)</p>	<p style="text-align: center;"><u>Benefits</u></p> <p>-In other jurisdictions where disposable bag fee legislation has been passed, bag litter has been greatly reduced.</p> <p>-Revenue from bags can be applied to restoration projects.</p> <p>-Businesses benefit by being able to charge for something (disposable bags) that used to be a cost--bags.</p>

<p>A & B liquor licensees.</p> <p>-Bans non-recyclable plastic carryout bags; requires that if a plastic carryout bag is offered, that it must be recyclable and clearly labeled as such.</p> <p>-The retail establishment will get 1 cent of fee returned tax exempt to the retailer.</p> <p>-Retailers who choose to offer a carryout bag credit program will retain an additional cent, for a total of 2 cents per bag.</p> <p>-The remaining fee per bag will be deposited into a new Anacostia River Cleanup & Protection Fund.</p>			<p><u>Challenges</u></p> <p>-Grocery chains and other retailers may oppose this type of legislation, making it difficult to pass.</p>
Anti litter and dumping ordinances			
<p>-The Anti-Littering Amendment Act of 2008 went into effect at the end of March 2009, addressing, rubbish, waste matter, refuse, garbage, trash, debris, dead animals, and other discarded material. The penalty is \$75, and \$100 if from a vehicle.-The District also has anti-dumping laws. See District Official Code 8-902. There are initial penalties of \$5,000 and/or 90 days in jail and \$10,000 for second offenses. Knowingly disposing of</p>	<p>-Montgomery County Code, Chapter 48, Section 11 provides both criminal and civil violations against dumping or littering on property and roadways. A criminal violation carries a penalty of up to six months in jail and/or a \$1,000 fine. A civil violation carries a penalty of up to \$500. Under Chapter 38, littering in parking lots is prohibited.</p> <p>-Further, Maryland State Law CR</p>	<p>-Maryland State Law CR 10-110 provides stipulations against disposing or dumping of items under 100 pounds, over 100 pounds, and over 500 pounds. Littering or dumping of items under 100 pounds is a misdemeanor and carries a penalty of up to \$1,000 and/or 30 days in jail.</p> <p>- Maryland Motor Vehicle Law 21-111 states that it is illegal to drop or place an injurious</p>	<p><u>Benefits</u></p> <p>-Laws help deter litter which winds up in streams</p> <p><u>Challenges</u></p> <p>-Enforcement of these laws appears to be very lax.</p>

<p>hazardous or medical waste has a penalty of up to \$40,000 and/or 5 years in jail.</p>	<p>10-110 provides stipulations against disposing or dumping of items under 100 pounds, over 100 pounds, and over 500 pounds. Littering or dumping of items under 100 pounds is a misdemeanor and carries a penalty of up to \$1,000 and/or 30 days in jail. -Maryland Motor Vehicle Law 21-111 states that it is illegal to drop or place an injurious substance on a roadway. It is also illegal to throw, deposit, or discharge refuse from a vehicle onto the roadway. A citation for throwing any type of trash can result in a fine up to \$140 and two points. A littered substance that results in injury carries a penalty of a fine up to \$280 and three points.</p>	<p>substance on a roadway. It is also illegal to throw, deposit, or discharge refuse from a vehicle onto the roadway. A citation for throwing any type of trash can result in a fine up to \$140 and two points. A littered substance that results in injury carries a penalty of a fine up to \$280 and three points.</p>	
Ban on Coal Tar Parking Lot Sealant			
<p>The District's Comprehensive Stormwater Management Enhancement Amendment Act of 2008 (DC Law L17-0371) prohibits the use of coal tar pavement products (e.g. pavement sealants) in the District of Columbia. Dust from parking lots sealed with coal tar pavement sealants contains toxic polycyclic aromatic hydrocarbons (PAHs) at concentration levels more than 3</p>	<p>N/A</p>	<p>N/A</p>	<p style="text-align: center;"><u>Benefits</u></p> <p>-Eliminates an unnecessary source of pollutants in the watershed (alternate products are widely available)</p> <p>-Scientific studies are clear that when this product is used a substantial amount of toxic pollutants are washed into nearby rivers and streams.</p>

<p>times the levels of undiluted used motor oil, one of the leading urban sources of PAHs. Estimates are that PAH loads from parking lots may be reduced by as much as 90% by leaving them unsealed.</p>			<p style="text-align: center;"><u>Challenges</u></p> <p>-It is somewhat difficult to make the case for the legislation since it is not clear how much these products are used in the Anacostia watershed.</p>
<p>Laws and Ordinances Requiring Industrial Site Housekeeping</p>			
<p>N/A</p>	<p>N/A</p>	<p>-Prince George's County recently implemented a program by which it provides citations to industrial parks for poor housekeeping at industrial parks rather than requiring</p>	<p style="text-align: center;"><u>Benefits</u></p> <p>-The County no longer needs to go to court to enforce good house- keeping laws for industrial parks.</p>

Examples of Innovative Programs from other Parts of the United States

A review of existing programs and policies applicable to the Anacostia watershed preceded this section. The next section is a brief examination of innovative programs and policies adopted in other parts of the United States to address watershed stressors and problems.

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Type of Policy or Program and Example Jurisdiction Where it Has been Implemented	Description of Program or Policy	Benefits and Challenges
Innovative Regulatory Approach		
<p>Requirement that Stormwater Requirements be Met with Green Features</p> <p>Seattle, WA</p>	<p>The Green Factor is a landscape requirement designed to increase the quantity and quality of planted areas in Seattle while allowing flexibility for developers and designers to meet development standards. It currently applies to new development in commercial and neighborhood commercial zones outside of downtown, and is proposed for multifamily residential zones and the South Downtown planning area.</p> <p>Permit applicants in affected zones must demonstrate that their projects meet the Green Factor by using the Green Factor Score Sheet. The scoring system is designed to encourage larger plants, permeable paving, green roofs, vegetated walls, preservation of existing trees, and layering of vegetation along streets and other areas visible to the public. Bonuses are provided for food cultivation, native and drought-tolerant plants, and rainwater harvesting. As designers add landscape features, the score sheet automatically calculates a project's Green Factor score, allowing the applicant to easily experiment with different combinations.</p> <p>Green Factor helps maintain and improve livability in growing neighborhoods. In addition to being attractive, green elements in the landscape improve air quality, create habitat for birds and beneficial insects, and mitigate urban heat island effects. They also reduce stormwater runoff, protecting receiving waters and decreasing public infrastructure cost.</p> <p>For more information: http://www.seattle.gov/dpd/Permits/GreenFactor/Overview/</p>	<p><u>Benefits:</u></p> <p>-Insures that stormwater volume standards applied to new development are met using green features and not just stormwater storage devices such as tanks and cisterns.</p> <p><u>Challenges:</u></p> <p>-It is not clear that the Maryland Stormwater Act's requirement that ESD measures be "exhausted" before traditional BMPs are used would not result in a similar emphasis on green features of development</p>
Developer Incentives for Green Development and Redevelopment		

<p>Expedited Permits for Green Development</p> <p>Chicago, IL</p>	<p>The Chicago Department of Construction and Permits (DCAP) Green Permit Program provides developers and owners with an incentive to build green by streamlining the permit process timeline for projects which are designed to maximize indoor air quality and conserve energy and resources. Projects accepted into the Green Permit Program can receive permits in less than 30 business days or in as little as 15 business days. The number of green building elements included in the project plans and project complexity determines the length of the timeline.</p> <p><i>For more information:</i> http://www.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/GreenPermitBrochure_1.pdf</p>	<p><u>Benefits:</u></p> <p>-May provide a substantial incentive where permitting backlogs are long</p> <p><u>Challenges:</u></p> <p>-May not provide much of an incentive if permitting backlogs are not severe.</p>
<p>Density Bonus for Green Building</p> <p>Arlington, VA</p>	<p>(This program relates to incentivizing LEED construction, but the concept of density bonuses and fees that are refunded could be applied to extraordinary stormwater retrofits.)</p> <p>Arlington County's Green Building Incentive Program, adopted in 1999 and expanded in 2003, allows commercial projects and private developments earning LEED Silver certification to develop sites at a higher density than conventional projects. All site plan applications for commercial projects are required to include LEED Scorecard and have a LEED Accredited Professional on the project team regardless of whether or not the project intends to seek LEED certification.</p> <p>All projects must contribute to a green building fund for county-wide education and outreach activities. The contribution is refunded if projects earn LEED certification.</p> <p>The County offers "front-of-the-line" plan review, site signs, and publicity to program participants who achieve a given number of points as outlined by Arlington's Green Home Choice program.</p>	<p><u>Benefits:</u></p> <p>-Could provide an incentive that does not involve lost revenues to local jurisdictions (as tax rebate incentives do) or payments by local governments (in the case of incentive payments).</p> <p><u>Challenges:</u></p> <p>-Since all developments and redevelopments will be required to achieve better control of stormwater under the Maryland Stormwater Act implementing ordinances and under the District of Columbia's proposed stormwater ordinance, the stormwater controls of those receiving the density bonus would have to be extraordinary</p> <p>-Requires cooperation of planning and zoning authorities in addition to stormwater regulators</p>

	<p><i>For more information:</i></p> <p>http://www.co.arlington.va.us/departments/EnvironmentalServices/epo/EnvironmentalServicesEpoIncentiveProgram.aspx</p>	<p>-Planning and zoning authorities may be so anxious to have infill developments with high densities that they may not be willing to restrict such development to those with extraordinary stormwater controls.</p>
Private Property BMP Retrofit Incentives		
<p>Green Roof Tax Credit</p> <p>New York, NY</p>	<p>Building owners in New York City who install green rooftops receive a significant tax credit. Those who install green roofs on at least 50 percent of available rooftop space can apply for a one-year property tax credit of up to \$100,000. The credit would be equal to \$4.50 per square-foot of roof area that is planted with vegetation, or approximately 25 percent of the typical costs associated with the materials, labor, installation and design of the green roof.</p> <p><i>For more information:</i> http://www.nyc.gov/html/dob/html/guides/green_roof_faq.shtm 1</p>	<p><u>Benefits:</u></p> <p>-Encourages a key type of ESD</p> <p>-May encourage green roof retrofits sooner than would ordinarily occur (ordinarily these types of retrofits would only be required when property is eventually redeveloped, triggering application of stormwater laws), which has the effect of improving water quality sooner</p> <p><u>Challenge:</u></p> <p>-Lost revenue for jurisdiction giving the rebate</p>
<p>LID Incentives</p> <p>Anne Arundel County, Maryland</p>	<p>Permanent Stormwater Management Practices Tax Credit - \$10,000</p> <p>On January 7, 2008, the Anne Arundel County Council passed Bill 85-07. This legislation provides an opportunity for property owners to apply for a credit to their property taxes if they implement stormwater management techniques that reduce the overall runoff of stormwater on their property. This property tax credit is available to owners of residential or commercial properties in the County. The legislation provides for:</p> <p>1. A property tax credit up to 10% of the cost of the material and installation of an approved stormwater management</p>	<p><u>Benefits:</u></p> <p>-Incentivizes “early adoption” of stormwater controls</p> <p><u>Challenge:</u></p> <p>-Lost revenue for jurisdiction giving the rebate</p>

	<p>practice. The total amount of the credit is limited to \$10,000.00 extended over a five-year period.</p> <p>2. The management practice is not to be used to meet any requirement for stormwater management by state or county law.</p> <p>3. The acceptable practices are approved by the County's Office of Planning and Zoning, such as:</p> <ul style="list-style-type: none"> - The removal of 20% of the existing impervious surfaces on the property. These could be done through the use of rain gardens, green roofs, and permeable pavers. - The use of rain barrels. - Any pre-manufactured best management practice that the Maryland Department of the Environment has approved. <p><i>For more information:</i> http://www.aacounty.org/CountyCouncil/Resources/85-07.pdf</p>	
<p>Downspout Disconnection</p> <p>Portland, Oregon</p>	<p>As part of its efforts to reduce combined sewer overflows, the City of Portland shares the cost of downspout disconnection with homeowners in its combined sewer areas. Homeowners can receive a one-time payment of \$53 for disconnecting their downspouts or can choose to have the disconnection work completed by approved City contractors. Through the program, the City has disconnected over 50,000 downspouts and has reduced the amount of stormwater that enters the combined sewer system by over 1.2 billion gallons per year.</p> <p><i>For more information:</i> http://www.portlandonline.com/bes/index.cfm?c=43081</p>	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> -Easy, quick and cheap reduction of stormwater volumes. -Addresses single family homes, which may not be regulated under redevelopment ordinances <p><u>Challenges:</u></p> <ul style="list-style-type: none"> -Funding needed
<p>Rain Barrel Incentive Programs</p> <p>Various jurisdictions</p>	<p>Philadelphia, PA: Free rain barrels to residents who attend workshops</p> <p>Austin, Texas: Rebates of \$30 per barrel are available for rain barrels purchased outside of the city's sales program.</p> <p>Milwaukee, WI: Metropolitan Sewerage District sells rain barrels for \$45 each at various locations</p>	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> -Relatively easy, quick and cheap reduction of stormwater volumes. - Addresses single family homes, which may not be regulated under redevelopment ordinances

	<p><i>For more information:</i> http://www.phillywatersheds.org/rainbarrel/ http://www.ci.austin.tx.us/watercon/rbrebates.htm http://v3.mmsd.com/RainBarrels.aspx</p>	<p>-Incentive programs help landowners to learn about stormwater issues because it can benefit them</p> <p style="text-align: center;"><u>Challenges:</u></p> <p>-To be effective, homeowners much be vigilant about using the rain barrels</p> <p>-Funding needed</p>
<p>Rain Garden Reimbursement Program Rock Island, IL</p>	<p>The City of Rock Island, Illinois reimburses citizens who plant rain gardens on their property based on the total square footage of the rain garden at the rate of \$4.00 per square foot. If the rain garden owner wants to incorporate the use of a rain barrel into his or her rain garden, the City will supply one free of charge.</p> <p><i>For more information:</i> http://www.rigov.org/citydepartments/publicworks/raingarden.html</p>	<p style="text-align: center;"><u>Benefits:</u></p> <p>- Addresses single family homes, which may not be regulated under redevelopment ordinances</p> <p>- Incentive programs help landowners to learn about stormwater issues because it can benefit them</p> <p style="text-align: center;"><u>Challenges:</u></p> <p>-Homeowners will need technical assistance in how to build these</p> <p>-Funding needed</p>
Stormwater Fees		
<p>Stormwater Utility Fee with Incentives Rockville, MD And Various Others</p>	<p>Adopted in 2008, the City of Rockville has established a stormwater utility fee applied to all developed property owners, including single family, multifamily and non residential developments. The rate is \$55.80 per Equivalent Residential Unit (ERU) in the first year with 8% increases annually through 2017. ERU size is 2330 square feet. Credits exist for properties that have onsite stormwater management facilities</p>	<p style="text-align: center;"><u>Benefits:</u></p> <p>- Addresses single family homes, which may not be regulated under redevelopment ordinances</p> <p>-Incentive programs help landowners to</p>

	<p>that meet current standards:</p> <ul style="list-style-type: none"> • 25% rebate for Quality • 25% for Quantity • 10% for Recharge <p>Some facilities may qualify for multiple credits</p> <p><i>For more information:</i> http://www.rockvillemd.gov/residents/swm/</p> <p>Other jurisdictions with stormwater utility fees with credits for onsite stormwater control:</p> <ul style="list-style-type: none"> • Portland, OR: Up to 100% discount off on-site fee, or 35% of total stormwater charge. Single-family home discount based on roof runoff management. Commercial, industrial, multi-family home discount based on runoff managed from roof and paved areas. Partial credit for tree planting, ecoroofs and less than 1000 sq ft imperviousness • Philadelphia, PA: 50% discount in stormwater fee for residents and businesses. Credit for decreasing directly connected impervious areas using specified practices (rain gardens, infiltration islands, porous asphalt and sidewalks, vegetated swales, green roofs). • Minneapolis, MN: Up to 50 percent credit (reduction) in stormwater utility fee for management tools/practices that address stormwater quality, 50 percent or 100 percent credit (reduction) in the fee for management tools/practices that address stormwater quantity <p><i>For more information:</i> http://www.portlandonline.com/bes/index.cfm?c=43444& http://www.phila.gov/water http://www.ci.minneapolis.mn.us/stormwater/fee/index.asp</p>	<p>learn about stormwater issues because it can benefit them</p>
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Programs and Policies Implementing Road Retrofits Controlling Stormwater

<p>Natural Drainage System (SEA Street) Retrofits Program</p> <p>Seattle, WA</p>	<p>The City of Seattle has implemented a program to retrofit streets with antiquated or nonexistent stormwater controls. The first of these projects, the SEA street, narrowed the street pavement, installed rain gardens in the street right of way, and captured the runoff from both the street and the adjacent houses. The flagship project eliminated 98 percent of the wet season runoff, and was designed to attenuate the runoff volume produced by approximately 0.75 inch. With the retrofit of the Highpoint development, a project that covers 34 blocks, Seattle now has 65 blocks of retrofitted streets</p> <p><i>For more information:</i> http://www.seattle.gov/UTIL/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/index.asp</p>	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> -Addresses roads and streets, a sector which may not be addressed by incentive and regulatory programs -The rain gardens constructed under this program beautify the communities they are in. -Some of the green streets are narrowed, reducing the amount of impervious surface that must be treated. -Some green streets were designed to manage runoff from the adjacent housing in addition to the street -Citizens with property adjacent to the street's rain gardens have sometimes adopted them and maintain them -However, if the citizens were not to maintain them, the green street features are accessible for local government staff to maintain unlike some features like rain gardens on private property <p><u>Challenges:</u></p> <ul style="list-style-type: none"> -Funding needed -Green streets must be designed for the site involved. -Program staff must work with citizens to
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		<p>understand how to maintain the rain gardens and other features</p> <p>-Neighborhood concerns about loss of parking spaces must be addressed.</p>
<p>Portland Green Street Retrofit Program and Policy</p> <p>Portland, OR</p>	<p>Portland has retrofitted over 475 green streets and is planning to construct 920 more over the next five years through a new funding initiative called “Grey to Green.” Portland also has a policy that says that all public infrastructure investments must incorporate green streets. Portland believes that these streets cost 40% less than conventional streets.</p> <p>The City of Portland Green Street Policy, adopted by the Portland City Council in April 2007, created a One Percent for Green fund. The Bureau of Environmental Services collects one percent of the construction budget of City of Portland projects within the city right-of-way that are not subject to the requirements of Portland's Stormwater Management Manual. The One Percent for Green fund supports construction of Green Street facilities.</p> <p><i>For more information:</i> http://www.portlandonline.com/bes/index.cfm?a=192797&c=31094</p>	<p><u>Benefits:</u></p> <p>-Addresses roads and streets, a sector which may not be addressed by incentive and regulatory programs</p> <p>-The rain gardens constructed under this program beautify the communities they are in.</p> <p>-Some green streets were designed to manage runoff from the adjacent housing in addition to the street</p> <p>-Some of the streets are narrowed, reducing the amount of impervious surface that must be managed.</p> <p>-Citizens with property adjacent to the street’s rain gardens have sometimes adopted them and maintain them.</p> <p>-However, if the citizens were not to maintain them, the green street features are accessible for local government staff to maintain unlike rain gardens and other features on private property.</p> <p>-Portland’s program has the additional feature that one percent of public infrastructure investments goes by law to</p>

		<p>green streets, which provides a dedicated source of funding.</p> <p style="text-align: center;"><u>Challenges:</u></p> <ul style="list-style-type: none"> -Funding needed. -Green streets must be designed for specific sites. -Program staff must work with citizens to understand how to maintain the rain gardens and other features. -Community concerns about loss of parking spaces must be addressed.
<p>Green Alley Retrofit Program</p> <p>Chicago IL</p>	<p>Chicago's Green Alley program incorporates a number of approaches to retrofitting alleys including:</p> <ul style="list-style-type: none"> • Permeable pavements (asphalt, concrete or pavers) that allow stormwater to filter through the pavement and drain into the ground, instead of collecting on hard surfaces or draining into the sewer system. The pavement can be used on the full width of an alley, or simply in a center trench. • Open bottom catch basins--installed in alleys to capture water and funnel it into the ground <p>Other green alley techniques include using proper grading and pitch to facilitate drainage.</p> <p>Green Alleys are part of Chicago DOT's "green infrastructure" - which includes recycled construction materials, permeable pavement, recycled rubber sidewalks and other efforts.</p> <p>The program began as a pilot in 2006, and through 2008, more than 80 Green Alleys have been installed.</p>	<p style="text-align: center;"><u>Benefits:</u></p> <ul style="list-style-type: none"> - Addresses alleys, a sector which may not be addressed by incentive and regulatory programs -Beautifies areas that can be blighted -Developers who cannot achieve stormwater volume controls on their sites could be required to address adjacent alleys -Alleys can accept more types of pervious pavement than other areas because of lower traffic volumes <p style="text-align: center;"><u>Challenges:</u></p> <ul style="list-style-type: none"> -Funding needed

	<p><i>For more information:</i> http://egov.cityofchicago.org/</p>	
Trash Reduction		
<p>Beverage Container (Bottle) Deposit Fee Laws</p> <p>11 states</p>	<p>California, Connecticut, Delaware, Hawaii, Iowa, Massachusetts, Minnesota, Michigan, New York, Oregon and Vermont have “bottle bills.” The US Senate Committee on the Environment and Public Works found in 2002 that beverage container litter had been reduced by 69 to 84 in six states that had enacted container deposit fees.</p> <p><i>For more information:</i> http://www.bottlebill.org/legislation/usa/allstates.htm</p>	<p><u>Benefit:</u></p> <p>-Great reduction of bottle litter</p> <p><u>Challenge:</u></p> <p>-Extremely difficult to implement from a political perspective.</p>
Pet Waste Pick-up Requirements		
<p>New Jersey</p>	<p>The New Jersey Department of Environmental Protection requires some of its MS4s to adopt and enforce an ordinance to ensure that pet owners and keepers (walkers or pet sitters) immediately and properly dispose of their pet’s solid waste deposited on any property, public or private, not owned or possessed by that person. This means that someone walking a pet needs to immediately pick up after the pet and properly dispose of the solid waste, except on the property they own. Municipalities must also distribute informational handouts to individuals when they receive a pet license.</p> <p><i>For more information:</i> http://www.state.nj.us/dep/stormwater/tier_A/pdf/Chapter%206.pdf</p>	<p><u>Benefit:</u></p> <p>-Addresses a likely source of bacteria pollution.</p> <p><u>Challenge:</u></p> <p>-Difficult to enforce.</p>

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(d) Programmatic and Policy Conclusions

The projects identified by this plan are by themselves, insufficient to achieve full restoration of the Anacostia River and compliance with TMDL requirements. Additional programmatic and policy changes will be required to achieve these objectives. They need to include regulatory changes, incentives to encourage behavior changes, and programmatic funding. Based on the USACE and Partnership's evaluation of current plans and programs, the following conclusions and recommendations are made. The Partnership will work to implement these programmatic and policy recommendations along with the projects identified in the Plan.

1. DC WASA Long Term Control Plan for Combined Sewer Overflows:

As noted above, DC WASA has had good success to date in implementing its Long Term Control Plan and has adopted an impervious surface fee which it will enable it to fund the plan. In certain years, however, rate increase of up to 13% would be required to fund the Plan. DC WASA should continue to implement the plan and to seek federal funding to help DC WASA to offset large fee increases that might cause the plan to be slowed or abandoned. The Partnership will continue to assist DC WASA to communicate the need for implementation of the Plan. The District of Columbia should also continue to seek to supplement the gray infrastructure strategies of the plan with low impact development approaches that will offload stormwater from the CSO system, reducing CSO storage and treatment costs.

2. WSSC Implementation Plan for Sanitary Sewer Overflows:

Since controlling sanitary sewer overflows is key to helping make the watershed swimmable, the WSSC should continue to implement its consent order, working toward eventual elimination of SSOs as a significant source of pollution into the Anacostia River and its tributaries. Partners should continue to work with WSSC to achieve compliance with the consent decree any other Clean Water Act requirements.

3. Stormwater Regulation of Development and Redevelopments:

The watershed's regulatory jurisdictions are beginning a shift from conventional BMPs to ESD and LID. It is clear that control of the volumes of stormwater flowing (and not just the "first flush") are responsible for the "urban stream syndrome" experienced by most streams in the watershed, and each jurisdiction should adopt the highest volume controls using ESD that it believes are achievable. These regulations should require development and redevelopment to retain stormwater on site to the maximum extent practicable and provide for off-site mitigation for stormwater that cannot be infiltrated, evapotranspired, or re-used on site. The EISA standards and Montgomery County's proposed stormwater ordinance are two examples of very strong approaches to this issue. In order to adopt these standards, it will be necessary to work with developers and provide them with the information necessary to show that the standards are achievable.

Care should be given in the effort to retrofit existing structures, however, that storage facilities, such as tanks and cisterns, aren't the only stormwater approach. The Seattle "Green Factor" approach should be evaluated to see if it has relevance for the Anacostia's jurisdictions, or whether the ordinances' requirement that ESD be implemented to the maximum extent practicable addresses this issue.

Finally, the District of Columbia has proposed that major rehabilitations trigger the redevelopment requirements of its proposed stormwater ordinance. Montgomery County and Prince George's County should consider this idea as they adopt their regulations.

4. Developer Incentives Addressing Existing Commercial and Multifamily Construction:

Some ESD practices, particularly green roofs, are so expensive that it is unlikely that a great number of existing building owners will retrofit their buildings until they are required to by the redevelopment requirements in the ordinances described above, or until they are given incentives. Incentives reviewed above included: stormwater fee reductions, expedited permitting, density bonuses, and fairly sizeable tax credits. Developer incentives should be adopted by each jurisdiction to help to speed retrofits, especially for buildings not likely to be redeveloped in the near term.

5. Anacostia MS4s

Montgomery County's MS4 permit contains a number of provisions and innovations which will be key to the jurisdiction's advancement in the stormwater arena. Prince George's County has indicated that it will adopt an MS4 permit at least as strong as the Montgomery County permit. The following requirements should be included in each of the Anacostia jurisdictions MS4s:

- TMDL implementation plans designed by the MS4 jurisdiction.
- Implementation of these plans once developed.
- Requirements for systematic retrofits of areas without adequate stormwater controls
- Programs to assist homeowners to disconnect downspouts, install rain barrels or cisterns, and build rain gardens
- Evaluation of any county or district code obstacles to the implementation of ESD and work to eliminate these

6. Stormwater Utility Fees and Taxes

Each of the Anacostia watershed's jurisdictions has made progress in implementing stormwater charges to fund stormwater programs. However, these funds are not likely to be sufficient to implement the new requirements of revised MS4s or to implement the other projects and programs recommended by this plan. Stormwater utility fees have been shown to be good sources of revenue for stormwater control, as well as being a more fair way of funding

stormwater needs, as they are based on the amount of impervious surface at a given development. Additionally, they can be designed to provide credits to property owners who implement good stormwater practices including but not limited to reducing impervious surfaces. Each local jurisdiction should have utility fees sufficient to fund the implementation of the Anacostia Watershed Restoration Plan in their jurisdiction, MS4 and other stormwater programs and should include incentives for retrofits.

7. Programs for Systematically Retrofitting Streets and Alleys

The District of Columbia and Montgomery County have made progress in the area of retrofitting streets. Prince George's County has made substantial progress in this arena. However, none of these jurisdictions has an established program for *systematically* retrofitting streets and alleys (it has typically been a practice that is implemented when the jurisdictions can obtain grant or other ad hoc funds) and none has a portion of its transportation funds reserved for retrofits, as Portland does. The ARP has identified many projects that will address stormwater flows from streets and parking lots, but the means to systematically implement these projects may be lacking until the Departments of Transportation or Public Works consider it their responsibility to either implement retrofits as they reconstruct roads and streets, or to at least assist the environmental departments to do so. USEPA has indicated that it will soon issue a "green streets" manual which may be useful in institutionalizing this approach. Establishing green street *programs* and dedicated funding should be a goal of the Partnership.

8. Better Housekeeping at Industrial Parks and other Locations which are Likely to Introduce Toxics into the Watershed

Prince George's County has recently adopted an approach by which it issues citations to industrial facilities that do not practice good housekeeping measures, an approach that should be considered by both Montgomery County and the District of Columbia.

9. Ban on the Sale and Use of Coal Tar Sealants and Other Hazardous Chemicals

The intentional and unnecessary application of hazardous chemicals on parking lots, where they are likely to be washed into the Anacostia's streams and rivers should be halted. The District of Columbia has halted the sale and use of coal tar sealants. The Partnership should ask the Maryland legislature to do so as well, or Montgomery and Prince George's Counties should explore bans similar to the District's. All three jurisdictions should take action to reduce the use of other chemicals used on roadways, parking lots, or lawns that are toxic to wildlife and for which less toxic substitutes are available.

10. Fees on Disposable Shopping Bags

The District of Columbia has imposed a fee on the use of disposable shopping bags and it is reported that in less than two months the fee has reduced bag use by 50%. The Partnership should support ongoing efforts in the state of Maryland to implement plastic bag fees, and Montgomery and Prince George's Counties should consider their own fees if statewide legislation is not passed.

11. Litter Law and Pet Cleanup Enforcement

Each jurisdiction should not only prohibit littering and require cleanup of pet waste, but should also facilitate compliance by providing abundant trash cans with tight fitting lids, small plastic bags for pet waste, and vigorous enforcement. The Partnership should consider working with local police departments to educate officers on the importance of the enforcement of these laws.

12. Trees and Stream Buffers

All three jurisdictions should invest in enhancing tree canopy through expanding street tree boxes, refilling empty boxes, taking care of existing street trees, requiring large trees to be protected, prohibiting unnecessary tree removal for development, and requiring trees lost to development to be mitigated through planting and/or preservation.

Land acquisition along streambanks should be a priority for all three jurisdictions, and building should not be allowed in the 100-year floodplain, within 100 feet of streams or delineated wetlands, or in existing stream buffers.

13. Climate Change Adaptation Planning

The green infrastructure solutions that will mitigate stormwater impacts will also mitigate “urban heat island effect” and other impacts of climate change. As local jurisdictions gear up to implement improved stormwater controls, they should also undertake planning for adaptation to climate change, as some climate change adaptations are likely to be similar to the stormwater improvements.

14. USEPA’s Nonpoint Source Implementation Grant Program

The USEPA’s administers a Nonpoint Source Implementation Grant Program known as the Section 319 program. In Maryland, this funding is passed through to counties and other applicants through MDE. The District of Columbia receives this money directly. The 319 program is the most important federal source of funding for stormwater projects. Current requirements state that recipients must have a watershed plan that shows how the plan will achieve water quality standards. This means that applicants in extremely polluted watersheds are unlikely to receive grants. Even with the ARP, which will make vast improvements in water quality, it will be very difficult for the Anacostia’s local jurisdictions to easily produce plans that can be proven to achieve water quality standards in the near future. This is due, in part, to unavoidable scientific uncertainty--the fact that even the best modeling cannot predict with certainty whether proposed actions can achieve specific results. The USEPA should review this policy in relationship to much polluted waters like the Anacostia.

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