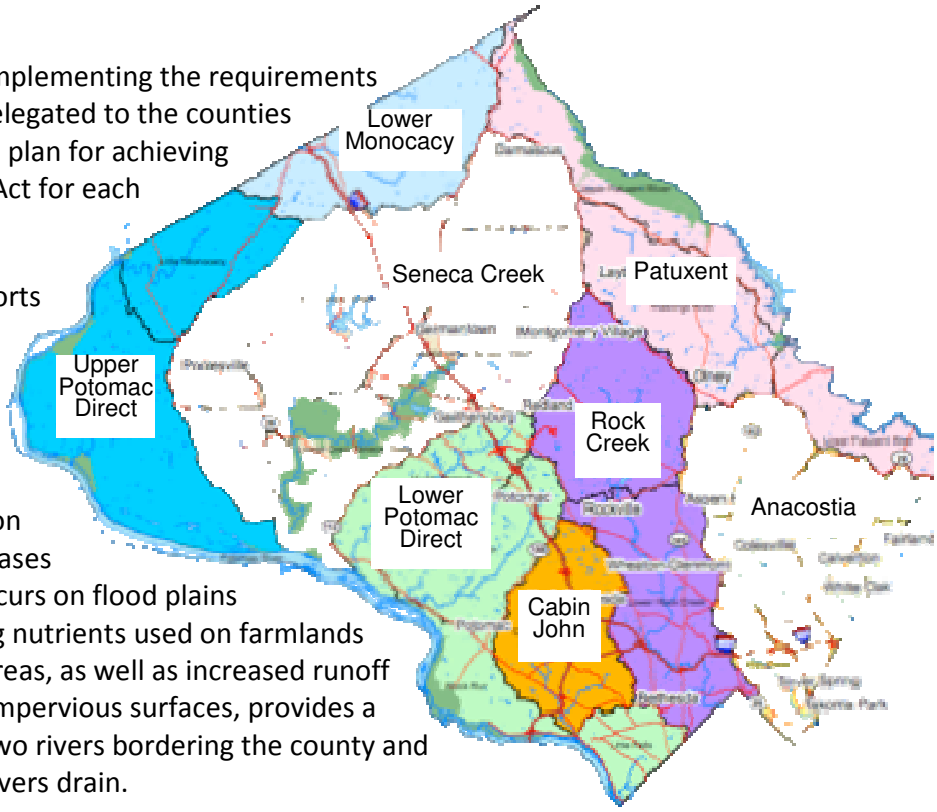
WATER QUALITY IN MONTGOMERY COUNTY

INTRODUCTION

The state of Maryland is responsible for implementing the requirements of the Federal Clean Water Act and has delegated to the counties the responsibility for preparing a strategic plan for achieving the standards set out in the Clean Water Act for each watershed within the county.



As shown in the individual watershed reports below, the overall water quality in Montgomery varies considerably, driven mostly by the degree of urbanized development of the land. Further development in the county constitutes a significant potential for further degradation of the water supply and significantly increases threats of flooding when development occurs on flood plains in the area. Stormwater runoff, containing nutrients used on farmlands and on lawns and gardens in developed areas, as well as increased runoff volume due to the increased creation of impervious surfaces, provides a significant threat to water quality in the two rivers bordering the county and to the Chesapeake Bay, into which both rivers drain.

To successfully meet its regulatory requirements and environmental goals, Montgomery County must complete watershed assessments on all county lands on a 5-year rotation and develop a specific implementation plan to correct deficiencies found. The implementation plan must include plans to meet the requirements of the County's National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) permit to show progress toward meeting the waste-load allocations for the Environmental Protection Agency-approved Total Maximum Daily Load (TMDLs) for various reservoirs within the county and how they will affect the Chesapeake Bay. The plan must also include runoff management of drainage from non-agricultural areas and impervious-covered land not currently managed to the maximum extent practicable. The last stormwater implementation plan in Montgomery County was completed in 2010, and this report will outline the County's progress toward completing its next study, due in 2015.

A typical stormwater management plan identifies the drainage areas and the amount of impervious cover within the area. Land under rural zoning, Maryland-National Capital Park and Planning Commission (M-NCPPC) land, and federal and state property and roads are excluded when calculating the total number of acres to be addressed for a NPDES MS4 permit. Five categories of structural Best Management Practices (BMPs) are available to manage runoff: stormwater ponds, stormwater wetlands, stormwater infiltration, stormwater filtering systems, and open water systems. The first priority for improvement in managing runoff in the watershed is to rebuild, repair, or retrofit existing structural BMPs to improve their performance. In addition to structural BMPs, the stormwater plan will use environmental site design practices to manage the stormwater. The county's stormwater implementation plan must be upgraded every five years for renewal of the MS4 permit.

A list of acronyms used, with definitions, is included at the end of the report.

As part of the county's watershed monitoring program, every five years according to a defined schedule, major and feeder streams are sampled for benthic invertebrates, fish species, and habitat metrics. The streams in Special Protection Areas (SPA) are monitored every year. Water quality monitoring includes assessments of the stream resource conditions--including the structure, flow, and physical condition of the stream itself. The water chemistry of the stream is evaluated as part of the monitoring process. Specific measurements that may be made to determine the quality of a stream may include particulate matter, organic waste, trash, particular chemicals known to be used in the area, and bird, animal and fish activity in the streams and their flood plains.

Bordered on the northeast by the Patuxent River and on the southwest by the Potomac, Montgomery County is divided into eight watershed areas as shown on the map above, each of which ultimately drains into one of these rivers. Three reservoirs are also included within the county: Tridelphia and Rocky Gorge for the area water supply, and Little Seneca as an emergency backup water supply. This report discusses the conditions in each defined watershed and the strategic plans to improve the water quality within them. For each watershed, a summary of its status is provided here--as well as an outline of the management plan that has been put in place by the county. More complete information can be found in the Montgomery County Coordinated Implementation Strategy and the NPDES Municipal Separate Storm Sewer System Permit, as well as in the individual watershed implementation plans, all published by the Montgomery County Department of Environmental Protection (DEP).

It is important that careful oversight of the watershed plans be exercised to help maintain the quality of water in Montgomery County, the Chesapeake Bay, and the rivers that connect the county and the bay and provide a share of the drinking water supply for Washington DC, the Maryland suburbs and Northern Virginia.

ANACOSTIA WATERSHED

Location. The Anacostia River watershed spans areas of Montgomery and Prince George's counties and Washington, DC. A major tributary to the Potomac River, it includes four subwatersheds along the eastern boundary of Montgomery County: Little Paint Branch, Northwest Branch, Paint Branch, and Sligo Creek. The drainage in our county is about 61 square miles, roughly one-third of the total drainage area of the watershed. In 1984 Maryland identified the Anacostia as a state "Scenic and Wild River".

Land Use. Many areas of the watershed are residential and built before modern stormwater controls were required by the State. Particularly in the southern watershed, this has resulted in deterioration of the stream channel habitat. The upper portion of the Northwest Branch subwatershed changes from predominantly agricultural to suburban. The "most scenic and rugged section of the Anacostia watershed" is the beginning of the torrent and gorge section of the Northwest Branch, which begins just below Route 29 and before the fall line. The Sligo Creek subwatershed is one of the county's most urbanized subwatersheds; many of its small streams have been paved over and piped into storm drains.

Water Quality. Stream conditions vary from good in the Upper Paint Branch (a nationally recognized urban trout stream) to the poor conditions found within the urban stream system, Sligo Creek. The Little Paint Branch subwatershed transitions between Piedmont and Coastal Plain ecoregions, with stream life reflecting this transition from faster to slower flow; water quality in its lower tributaries ranges from poor to fair to good. The Northwest Branch carries sediment and nutrients associated with farming activities as it heads into a more urban area with generally poor or fair stream conditions. Inadequate stream buffers are common in the middle section of this subwatershed.

Management Strategies. Interjurisdictional watershed management efforts since the early 1980s can be tracked at www.anacostia.net. A concentrated effort to restore Sligo Creek has been undertaken, controlling urban stormwater runoff and establishing a viable biological community through improvements to sanitary sewers, stream channel restoration, new runoff controls, and retrofitted ponds, and reintroduction of some native fish and preservation of stream-side trees and shrubs. There are downstream blockages that still restrict fish movement.

Other. Several organizations are dedicated to the restoration/improvement of the Anacostia River, including the Anacostia Watershed Society and Anacostia Watershed Citizens Advisory Committee (http://www.anacostiaws.org/ and http://www.anacostia.net/AWCAC.html), M-NCPPC, the Interstate Commission on the Potomac River Basin and the Metropolitan Washington Council of Governments. [Most of the other watersheds discussed in this report also have their citizen associations.]

CABIN JOHN CREEK WATERSHED

Location. Cabin John Creek watershed drains an area of 26 square miles. Its headwaters begin as a piped stream in the heart of Rockville near the intersection of routes 355 and 28. The creek's main stem flows south for 11 miles into the Potomac River above Lock 7 of the C&O canal.

Land Use. High development has negatively impacted Cabin John's eastern tributaries. In contrast, the area around the western tributaries transitions to low-density residential with less commercial development. Residential land use covers 70% of the watershed; municipal/institutional, 13%; roadway, 7%; forest, open water and bare ground, 5%.

Water Quality. The watershed has been strongly affected by development centered on the I-495 and I-270 corridors that began in the 1950s before environmental regulations for stream buffers, sediment and erosion control, and stormwater management were put into effect. Nine stations on the tributaries were sampled for benthic invertebrates, fish species, and habitat metrics in 2008 to assess stream resource conditions. Results show 82% of stream resource conditions assessed fair, with the remaining 18% rated poor.

Management Strategy. Of the total watershed area, 74% is subject to the county's MS4 permit. Within the MS4 permit area the Cabin John Creek Implementation Plan of 2012 through 2015 targets watershed restoration via runoff management and impervious cover treatment. The plan also tracks potential reduction of fecal bacteria loads through watershed restoration practices. Of 196 structural stormwater BMPs, only 32 are considered effective.

To address this, the following projects for new stormwater ponds are in design/implementation: Cabin John Shopping Center and Tuckerman 1. Furthermore, stormwater pond retrofit projects are planned for Executive Boulevard, Fox Hills of Potomac, Pine Knolls, and Washington Science Center. Stream restoration of Booze Creek near I-495 and River Road was completed in 2013. Further stream restorations are planned for Rich Branch Stream and Old Farm Stream. Under the implementation plan, it is expected that 187 acres of impervious cover will be treated, and 1,018 acres of streams will be restored. Pollutant load will be reduced as follows: nitrogen, 21%; phosphorus, 20%; suspended solids, 6%; bacteria, 16%; and trash, 6%.

LOWER MONOCACY

Location. The Lower Monocacy Watershed is located on the northern edge of Montgomery County bordering on Frederick County. Four subwatersheds drain nearly 30 sq. miles of land in a southwesterly direction from the Damascus area towards Frederick County and into the Monocacy River. The watershed includes Bennett and Little Bennett Creeks and Furnace Branch, which starts near Barnesville, as well as Fahrney Branch, which starts west of Damascus near Kempton. Most of Little Bennett Creek is protected by a county park that is accessible off Route 355 north of Clarksburg. The creek supports a cold-water wild brown trout population in its headwaters.

Land Use. The watershed is primarily agricultural with many large forested tracts. Much of Little Bennett is within the County's Agricultural Reserve, which limits density to one dwelling per 25 acres.

Water Quality. In 2009, 13 tributaries in the Lower Monocacy watershed were sampled to assess stream conditions, with a majority of the streams in Lower Monocacy assessed as good and a few as excellent. The fact that there were no poor or fair ratings can be attributed to the low urban development in the watershed.

Management Strategies. In the Lower Monocacy watershed, roads account for the largest percentage of impervious cover: 56%. The rooftops of single family homes account for the second largest impervious surface--just over 19%. Best management practices to reduce trash from entering the Potomac River include structural

stormwater plans, education, municipal support and enforcement. There are also 11 watershed restoration projects under consideration to help meet the county's MS4 permit.

LOWER POTOMAC (INCLUDING MUDDY BRANCH AND WATTS BRANCH)

Location. The Lower Potomac watershed includes two adjacent subwatersheds located in the middle of the county, between Potomac and Gaithersburg, on the southwestern side of I-270, draining into the Potomac River at the filtration plant on River Road. The drainage area is approximately 43 sq. miles and approximately 27,000 acres--of which impervious cover constitutes 4,719 acres. Because of their location above intake piping, the condition of the streams in this area has a great influence on the operation of the water treatment plant on River Road and therefore on our drinking water.

Land Use. The area is 70% residential over all. The development that has taken place in the upper area and along transportation corridors includes commercial and high-density residential as well as research and development centers. The lower area has some lower-density, large residential lots. M-NCPPC has acquired large areas of the stream valleys to maintain stream buffers.

Water Quality. In the upper portion of this watershed, the majority of the streams' natural channels have been over-widened, losing connection to their floodplains. The runoff from impervious areas and high-density developments with inadequate stormwater management has caused stream-bank erosion and sedimentation. The lower portion is predominantly lower-density residential, and streams here still support diverse fish populations. The upper and western portions of Piney Branch and Lower Sandy Branch, major tributaries, contain high-quality, cool-water streams that are important in maintaining water quality further downstream. In 1995, a Piney Branch SPA was designated, with very tight controls.

In 2010, 12 tributaries were sampled. A majority was rated as fair (75%), and the rest were good (25%). The upper watershed received a fair rating due to the increased development near Gaithersburg and Rockville.

Management Strategies. A comprehensive restoration study for Watts Branch was completed in 2006, and one for the Muddy Branch in 2011. Combined projects include 28 stormwater pond retrofits and 19 miles of stream restoration projects for water quality and stream habitat improvement. There are 307 structural stormwater BMPs, ranging in capture from over 200 acres to less than an acre.

Other. Many stakeholders in the watershed are already organized into interest groups, such as the Isaak Walton League, Muddy Branch Alliance, and Watts Branch Watershed Alliance.

PATUXENT

Location. The Patuxent River forms the northeastern border of Montgomery County with Howard County. Damascus and Olney are the largest population centers within the watershed. The major tributary to the Patuxent in Montgomery County is the Hawlings River, which flows through the Rachel Carson Conservation Park and is surrounded by a narrow stream valley regional park until it joins the Patuxent below the Tridelphia Reservoir.

Land Use. The MS4 permit area consists of 14% of the Montgomery County portion of the Patuxent River watershed. Rural land use (horticulture, cropland, pasture, etc.) and forests are the dominant land uses in the Patuxent MS4 permit area, each covering about a third of the watershed. This is followed by low-density residential, which covers 27% of the MS4 permit area. Two reservoirs on the Patuxent, Rocky Gorge and Tridelphia, store a combined surface area of 1,600 acres; this stored water is used as drinking water by Washington Suburban Sanitary Commission (WSSC) customers in Prince George's and Montgomery counties.

Water Quality. In 2009, 23 tributaries in the Patuxent Watershed (9 in the Upper Patuxent, 6 in the Hawlings River, 8 in the Lower Patuxent) were sampled for benthic invertebrates, fish species, and habitat metrics to assess the stream resource conditions. Results of the survey for the entire watershed and the constituent subwatersheds rated 15 miles of stream draining 2,924 acres as excellent, 176 miles draining 31,957 acres as good and 21 miles draining 3,663 acres as fair. The Hawlings River had zero stream miles in excellent condition.

Management Strategies. The applicable target reduction in total phosphorus from the calculated Maryland Department of the Environment (MDE) stormwater wasteload allocation is 15% for both the Triadelphia and Rocky

Gorge reservoirs. The most effective strategy for reduction in total phosphorus in this watershed is the implementation of better lawn-care practices, followed by improving underperforming BMP retrofits. For sediment in the Triadelphia, the Waste Load Allocations (WLA) is zero because the contribution from the MS4 to the reservoirs is negligible compared to other sources. The high-priority projects for the Hawlings River watershed are Environmental Site Design (ESD) at Longwood Community Center and Ross Boddy Recreation Center and stormwater pond retrofit at Sandy Spring Meadows to convert the existing dry pond into an extended detention facility. Otherwise for the Lower Patuxent River, the priority is for ESD at the Burtonsville Park & Ride Lot. For the Triadelphia Reservoir in the upper Patuxent River watershed, the priority project is ESD at the Damascus Library.

The County currently has 173 structural stormwater BMPs within the Patuxent watershed MS4 permit area, each with a contributing drainage area that varies from 421 acres for a regional quality control pond at Olney Family Park to less than 0.01 acres for small, onsite BMPs. Total drainage area treated is 1,299 acres, 337 of which are impervious acres; however, only 47 of the BMPs are classified as effective. In addition to the structural stormwater management BMPs, there is one completed stream restoration site within the county MS4 permit area of the Patuxent watershed on the Hawlings River; this restored a total length of stream equal to almost 2,746 linear feet.

ROCK CREEK

Location. The Rock Creek watershed roughly splits Montgomery County in two, stretching from the northern corner of the District of Columbia, in a north-northwesterly direction to its headwaters near Laytonsville, east of the I-270 corridor. The watershed encompasses a drainage area of 62 square miles over a length of approximately 21 miles before entering the District of Columbia, where the creek drains into the Potomac River near Georgetown. Population centers within the watershed include Bethesda, Wheaton, and Rockville. The stream bed of Rock Creek forms the nexus of Rock Creek Park, which includes that part of the stream within the District of Columbia (Rock Creek National Park) as well as the lower part of the stream in Montgomery County.

Land Use. Aside from the park reservation, most of the lower watershed area has urban-suburban residential and commercial use while the upper watershed is mostly agricultural; however, suburban incursions have increased in this area within the past few decades. Some streams in the north watershed area still contain fish (mostly brown trout), but they are becoming harder to find. About 70% of the watershed area is subject to the county's MS4 permit, about a quarter of which is impervious cover. About 65% of the watershed area is residential; roadways cover 8% of the area, and only 6% is forest, open water, or bare ground.

Water Quality. Following a 2010 study of the stream quality within the watershed, the majority of the stream resource conditions in Rock Creek were assessed as fair, with similar percentages of good and poor streams, and very few excellent streams. The majority of the high-quality streams were found in the Upper Rock Creek watershed, including Pope Farm Tributary (which received the only excellent rating). In contrast, Lower and Middle Rock Creek received the majority of poor ratings, which can mostly be attributed to the increased development in the lower watershed. Despite the extensive impacts on Lower Rock Creek from intensive development and urban runoff conditions, the main stem still supports a warm-water fish community.

Management Strategies. There are 670 structural stormwater BMPs within the Rock Creek MS4 Permit area, each capturing drainage areas that vary from over 700 acres for regional pond BMPs to less than 0.01 acres for small, onsite installations. In addition, there are 12 completed stream restoration sites within the County MS4 Permit area, which have restored about 6 miles of stream beds. An additional 12 miles of stream restoration are planned for the future, but scheduled completion dates are uncertain. Additional planned projects involve 11 ESD projects (14 acres of drainage area, 9 acres of impervious area), 15 new ponds (2,180 drainage and 1,040 impervious acres), 16 retrofits of underperforming or non-performing BMPs (684 drainage and 204 impervious acres). Completed projects have already cost $8.8 million, and an estimated $35.4 million will be needed to finish the planned improvements. An additional 200 BMPs need or will need retrofit in the future, with an estimated cost of $5.8 million.

Restoration opportunities within the impervious regions of the watershed involve about 2,250 acres, or 35% of the total impervious area within the watershed; these will need about $580 million to accomplish, including county parking lots, roofs, schools, roads, and inadequately treated non-residential property. Habitat restoration on the unforested areas along streams, amounting to nearly 1,200 acres, is estimated to cost $24 million. All told, the complete watershed restoration anticipated in the plan is likely to carry a price tag in excess of $600 million. Bacterial load reduction of up to 96% within the watershed area is anticipated to require $600 million more. Finally, trash-load reduction spread over several years is expected to add an additional $600 million to the total cost. Adding all the numbers here amounts to a cost of nearly $2 billion. These are costs for only one of eight major watersheds; the DEP website on watersheds provides similar details for others.

SENECA CREEK

Location. The Seneca Creek watershed, the largest in Montgomery County, drains approximately 130 square miles. Originating near Damascus in the northwestern portion of the County, it flows about 27 miles south, through the City of Gaithersburg, until it joins the Potomac River. The watershed includes some areas of steeply rolling topography, including portions of the Clarksburg Town Center and Clarksburg Special Protection Area. The subwatersheds of Seneca Creek are Great Seneca (72 sq. mi.), Dry Seneca (19 sq. mi.), and Little Seneca Creek (38 sq. mi.).

Land Use. Besides rural areas with farms and large residential lots, there are high-density uses in Germantown and I-270 corridor communities in both Clarksburg and Germantown. The latter contain existing and planned development related to housing and jobs. Development can lead to channel erosions and instabilities downstream, which in turn can affect fish populations. The County MS4 Permit area comprises 41% of the total Great Seneca subwatershed area and 11% of the Clopper Lake drainage area; the permit area has 18% impervious cover within the Great Seneca subwatershed and approximately 14% impervious cover within the Clopper Lake subwatershed. The Dry Seneca Creek subwatershed, which covers 12,398 acres and includes Poolesville, is dominated by agriculture (60% of land cover) followed by open urban land (32%). The Little Seneca Creek subwatershed is more than twice as large (25,222 acres) with agriculture at 71% of land cover. The remainder is primarily made up of open urban land and medium-density residential, with areas of more intense development associated with Germantown and the Clarksburg Town Center.

Water Quality. Great Seneca Creek is the largest subwatershed located entirely within Montgomery County. Almost every species of fish found in Montgomery County can be found here. However, the quality of the stream channel is significantly degraded as one moves down the stream. In the 2012 implementation plan, the majority of the stream resource conditions in Great Seneca were assessed as fair, with 35% good, and no excellent streams. The stream conditions in Dry Seneca Creek are generally good although habitat conditions tend to be influenced by high levels of sediment deposits. The towns of Beallsville and Poolesville are located on the western edge of the drainage and influence conditions in the Upper Dry Seneca Creek and Russell Branch. Little Seneca Creek watershed drains a significant part of the western county–from slightly south of Damascus through areas of Clarksburg, Germantown, and Boyds, where the Little Seneca Lake serves as an emergency water supply source. Water quality in Little Seneca and Dry Seneca ranges from excellent to fair.

Management Strategies. The Germantown and Clarksburg master plans aim to protect stream quality via density limitations, stream valley park acquisition, reforestation, and designation of part of Clarksburg as an SPA. Many water restoration projects (e.g., storm ponds) are completed or planned, particularly in the Germantown area. Available online, a Great Seneca implementation plan, dated January 2012, evaluates alternative BMPs and their costs, and a 2011 Pre-Assessment Plan for Dry Seneca and Little Seneca was identified as preceding a future restoration plan.

UPPER POTOMAC

Location. The Upper Potomac Direct watershed is located in rural western Montgomery County and includes the subwatersheds of Little Monocacy and Broad Run. These two subwatersheds drain directly into the Potomac River.

The border between the two subwatersheds is roughly demarcated by Route 28 beginning in Beallsville. Due to generally well-drained underlying Triassic sandstone, the upland streams here tend to experience low base flow during the summer months. The combined drainage area within Montgomery County for the two subwatersheds is approximately 60 square miles. Only 9% of the watershed is within the MS4 permit area.

Land Use. Neither watershed has any high-density residential land use. The Little Monocacy subwatershed, which covers 12,291 acres, is dominated by agricultural operations (55%), followed by forest, open space, and institutional property, which cover 38% of the watershed. Low-density residential land use is the next most common land use group at 4% of the drainage area. At 27,436 acres, the Broad Run subwatershed, which includes some of the municipality of Poolesville, is more than two times larger than the Little Monocacy. Again, land use is dominated by agricultural operations, which occupy half of the subwatershed acreage. Almost all of the remainder, at 45%, is comprised of the land use grouping of open urban land, forest, and institutional property. Low-density residential is the next most common land use at 2% of the drainage area. Wetlands are concentrated in the southern section of the Broad Run subwatershed.

County roads and single-family residential roofs are the primary constituents of imperviousness in both subwatersheds. Forest cover covers more than one third of the watershed. The two subwatersheds contain 15,328 acres of forest in total -- 11,207 acres or 41% of the total land area in Broad Run and 4,120 acres or 33% of total land area in the Little Monocacy.

Water Quality. Most monitored sites showed excellent, good, or fair stream resource conditions, with only one site in Broad Run having a poor rating. The Benthic Index of Biological Integrity scores are mostly good, but there is one poor rating in Broad Run. Not as many sampling sites were rated for fish, but those that were showed good and excellent scores, except for some fair scores along the main stem of Broad Run.

Management Strategies. Although much of the upper Potomac region is in good shape, there are issues with impervious surfaces on lots with commercial, industrial, and church structures. Residential areas are small in number and low priority for BMP retrofit. The Mirant Power Plant appears to merit special consideration of a low priority nature.

TERMINOLOGY AND ACRONYMS

BMPs – structural best management practices for stormwater management include ponds, wetlands, infiltration (trench or basin), filtering systems, and open channel systems (wet or dry swales [swale are low tracts of land, whether natural or man-made, and often moist or marshy]). ESD is also a BMP.

DEP – Department of Environmental Protection (of Montgomery County)

ESD – Environmental Site Design - Practices and techniques include **alternative surfaces** [such as (1) Green Roof, (2) Permeable Pavements, and (3) Reinforced Turf (grassed or gravel area with open, load-bearing matrix for structural integrity)]; **nonstructural practices** [such as (1) disconnection of rooftop runoff, (2) disconnection of non-rooftop runoff, and (3) sheetflow to conservation areas (permeable pavers, rain gardens and buffers through overland flow); and **micro-scale practices** [such as (1) rainwater harvesting, (2) submerged gravel wetlands, (3) landscape infiltration, (4) infiltration berms, (5) dry wells, (6) micro-bioretention, (7) rain gardens, (8) swales, and (9) enhanced filters]. These practices intercept and store rainfall for future use.

Index of Biotic Integrity – IBI (with a benthic or fish focus) is a scientific tool used to identify and classify water pollution problems; it uses a quantitative method for determining and comparing the biological condition of streams. DNR has a 62-page document (see http://www.dnr.state.md.us/irc/docs/00001535.pdf) about this type of streams condition index. Sampling is done for benthic invertebrates, fish species, and habitat metrics. The survey data can be used to classify both instream conditions and overall quality of the watershed. The drainage area summary can be used to indicate the condition of water quality draining from the watershed.

MDE – Maryland Department of the Environment

M-NCPPC – Maryland-National Capital Park and Planning Commission

MS4 permits – Municipal Separate Storm Sewer Systems (MS4) permits: Municipal operators of separate storm sewer systems must obtain an NPDES permit by developing and implementing a stormwater management program to reduce the contamination of stormwater runoff and prohibit illicit discharges. The issuing agent specifies allowable loads (TMDLs) for sediments, bacteria, nutrients, impervious surfaces, and trash—for reservoirs and waterways.

NPDES permits – National pollution discharge elimination system permits. As authorized by the Clean Water Act of 1972, the National Pollutant Discharge Elimination System permit program controls water pollution by regulating point sources that discharge pollutants into U.S. waters. Until the past few years, these were issued only for point sources; but now, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

Point sources – Point sources are discrete conveyances such as pipes or man-made ditches.

SPA – Special Protection Areas - An SPA is a geographic area that has high-quality or unusually sensitive water resources and environmental features that would be threatened by proposed land development if special water quality protection measures were not applied.

TMDL – total maximum daily load is a calculation of the maximum amount of a pollutant that a waterbody (e.g. Tridelphia Reservoir) can receive and still safely meet water quality standards – usually referring to nitrogen, phosphorus, and/or sediments/suspended solids. MDE has determined TMDLs for Montgomery County reservoirs and major streams.

Watershed – A watershed is any area from which water above and below ground drains to a specific stream, river, lake, bay, or ocean. All of the water that flows over or through a watershed ends up in the body of water it drains to, including whatever this water may pick up along its way. Learn more about county watersheds at http://www.montgomerycountymd.gov/DEP/water/watershed.html .

WIP -Watershed Implementation Plans identify areas for stormwater management control and watershed restoration projects; estimate how much stormwater control and pollutant reductions would be achieved by the projects; determine the restoration potential of each watershed and evaluate its ability to meet the applicable TMDLs and provide a schedule and cost estimate for meeting the WLAs set by the TMDLs.

WLAs – waste load allocations

WSSC – Washington Suburban Sanitary Commission

This Fact Sheet was prepared by the League of Women Voters of Montgomery County, MD based upon research conducted by the Natural Resources Committee. Contributing members include Linda Silversmith and Lorna Post, co-chairs, and Nancy Carpenter, Margaret Chasson, Sylvia Diss, Helen Gray, Hugh Haskell, Sue Jacobson, Iris Malloy and Alyce Ortuzar.