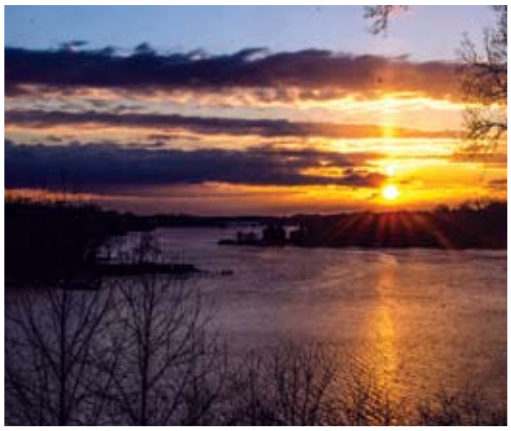
A LAND OF RIVERS






FY 2017 Report

Anne Arundel County
Maryland

Anne Arundel County
WATERSHED
Protection & Restoration
PROGRAM
AARivers.org

Bureau of Engineering
Department of Public Works

A Land of Rivers

Dear Anne Arundel County Resident,

Our 2017 Anne Arundel County, A Land of Rivers report summarizes the watershed protection and restoration actions initiated by the Anne Arundel County Department of Public Works and our partners during fiscal year 2017 (July 1, 2016 – June 30, 2017). In 2012, the County finalized its Watershed Implementation Plan (WIP) to provide targets for improving water quality and watershed health, and to protect and restore natural resources. The County reports annually on progress made towards these goals through innovative and collaborative projects.

Waterway cleanup is a major focus of my administration. To act on that initiative, the fiscal year 2017 capital budget called for $253 million over 6 years to support more than 300 waterway cleanup projects throughout the County. This is the largest investment in waterway cleanup in County history. These investments ensure we will protect and preserve our more than 530 miles of shoreline and will meet our federal permit requirements.

ANNE ARUNDEL COUNTY
MARYLAND

These efforts, along with those of prior years, are having measurable effects. According to Chesapeake Bay Foundation, the Chesapeake Bay and its tributaries hit rock bottom in the 1970s with a rating of less than 23. Since that time, that rating has improved to 34.

The South River Federation report card recently gave the South River a score of 60 percent, up from 56 percent. Recent reports have also indicated that the acreage of underwater Bay grasses has reached its highest level since 1982. I am confident that these ratings will continue to increase as we work to heal our waterways.

While these are encouraging results, there remains much work to be done before we can claim victory for our waterways. Successful restoration and preservation of Anne Arundel County's watersheds takes teamwork. As such, Anne Arundel County has developed a vast network of partnerships with public, private, and non-profit entities to ensure all aspects of the community are involved in helping to improve our quality of life in Anne Arundel County.

Sincerely,

Steven R. Schuh
County Executive

Watershed Health

Watershed Health

Over the last few decades, Anne Arundel County residents have consistently made clear that they want healthy watersheds, rivers, and streams. At the same time, regulatory mandates have increased pressure to address growing ecological problems. As Anne Arundel County continues to grow, it will be possible to protect and restore water quality and habitat and prevent further degradation of our waterways through a watershed-based approach to protection and restoration.

This watershed-based approach reflects and implements core Anne Arundel County values.

Solutions that promote healthy watersheds while also addressing other infrastructure objectives are often the most cost-effective approaches. The County defines a healthy watershed as one where hydrology, water quality, and habitat are suitable to protect human health, maintain viable watershed and other ecological functions and processes, and support healthy populations of native aquatic and wildlife species.

Improving watershed health is truly a county-wide effort. Anne Arundel County is committed to managing County operations in a manner that sustains our quality of life and economy while protecting the viability of our natural resources.

This watershed-based approach reflects and implements core Anne Arundel County values. In addition to protecting and improving watershed functions such as providing clean water and habitat, these projects promote improved public safety, economic vitality, and community stewardship.

We can cost-effectively meet our regulatory obligations while achieving a net benefit to the long-term health and livability of our County.

This approach relies on integrating the activities of multiple County departments, and maximizes the use of limited resources by implementing solutions that meet multiple objectives. The County works with regional watershed groups, community associations, and business organizations to accomplish its goals.

This collaborative approach enables entities to share resources, combine efforts, and address watershed issues that require a comprehensive approach. By prioritizing improvements that achieve multiple benefits to watersheds and infrastructure, we can cost-effectively meet our regulatory obligations while also achieving a net benefit to the long-term health and livability of our County.

Regulatory Drivers & Restoration Plan

Regulatory Drivers

Anne Arundel County's National Pollutant Discharge Eliminations System Municipal Separate Storm Sewer System (NPDES-MS4) permit and the Chesapeake Bay Total Maximum Daily Load (TMDL) set forth rigorous goals for controlling stormwater pollution and improving water quality. The NPDES-MS4 attainment goal tracks the restoration of 20% of Anne Arundel County's impervious surface area, such as roads, sidewalks, and driveways, which have little or no stormwater management. The County's Phase II Watershed Implementation Plan (WIP) tracks the nutrient and sediment load reductions allocated to the County by the State for achieving the Chesapeake Bay TMDL. Progress toward meeting the Chesapeake Bay TMDL is reported as 2-year milestones to the Maryland Department of the Environment.

2016 — 2017 2 Year Milestone Highlights (Stormwater, Wastewater, Septic)

- 150 – linear feet of streams restored
- 487 – linear feet of shoreline restored
- 12 – stormwater management pond retrofits
- 140 – culverts and storm drains repaired or replaced
- 7,128 – curbmiles swept
- 5 – NGO projects installed
- 248 – nitrogen reducing septic systems installed
- 9 – septic systems connected to sewer

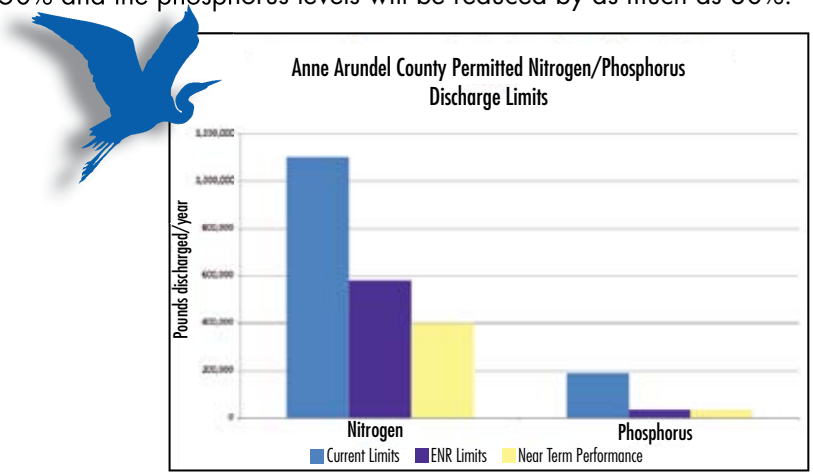
The Restoration Plan

Anne Arundel County's Watershed Implementation Plan enumerated three primary strategies for achieving its required pollution reduction targets: 1) Upgrading, to the current limits of technology, the County's major Water Reclamation Facilities (WRFs); 2) Reducing pollution from urban stormwater by providing treatment for currently untreated impervious areas within the County by 2019 and beyond, and; 3) Converting roughly half (~20,000) of the County's septic systems to more effective, nutrient-reducing wastewater treatment alternatives.

Water Reclamation Facilities – Enhanced Nutrient Removal

Anne Arundel County's $249 million investment to upgrade each of its seven Water Reclamation Facilities (WRF) with Enhanced Nutrient Removal (ENR) technology will pay dividends for our local waterways for years to come. ENR upgrades will enable each plant to remove a far greater amount of nutrients, like nitrogen and phosphorus, from treated wastewater discharged to our rivers, creeks, streams, and Chesapeake Bay after the treatment process.

Excess nutrients like nitrogen and phosphorus are two of the leading causes of our waterway's poor health. When all upgrade work is complete in 2017, levels of nitrogen entering our waterways from the wastewater treatment process will be reduced by up to 50% and the phosphorus levels will be reduced by as much as 80%.



Stormwater Remediation

At the end of FY17, the County had achieved over 25% of the restoration requirements under its current MS4 permit, with the rest of the required work in the procurement, design, and construction pipeline. Additionally, the County's final watershed assessment – of the Middle Patuxent and Herring Bay – was initiated just before the end of fiscal 2016 and will be complete in 2018.

Septic System Conversions

There are approximately 41,000 septic systems in Anne Arundel County. Of these, several thousand are located within the "Critical Area," land within 1,000 feet of tidal waters. The typical septic system does not remove nitrogen, instead delivering about 23.2 pounds of nitrogen per year to the groundwater, which eventually makes its way to our streams and rivers.

The Restoration Plan

The Anne Arundel County Department of Health locally administers the Bay Restoration Fund (BRF). The BRF is a state-supported initiative that provides funding to replace conventional septic tanks with nitrogen-reducing technology. The units reduce the amount of harmful nutrients, such as nitrogen, that septic systems discharge into the Chesapeake Bay and its tributaries. An upgraded, nitrogen-removing septic system generally cuts a system's nitrogen load in half. The Department of Public Works and Anne Arundel County Health Department continue to work closely together to direct Bay Restoration Funds for septic conversions and septic-to-sewer connections, as revenues are available.

In FY17 the Department of Health improved water quality through the BRF, which cost-shared 248 pretreatment units and 9 connections to public sewer. For more information on the grant program, visit AAHealth.org.

In 2018, it is anticipated that that the Maryland Department of the Environment (MDE) will require the County to develop a Phase 3 WIP, further refining the County's plan to achieve the 2025 Chesapeake Bay TMDL goals, a process which the County has already begun.

For latest progress, visit AARivers.org

Funding History

Through fiscal year 2017, the majority of the County's stormwater-related work was funded through the Watershed Protection and Restoration Fee (WPRF), an impervious surface-based fee on properties throughout the County. That work includes not only the County's clean water restoration projects, but also the maintenance and replacement of existing drainage infrastructure, the inspection of public and private stormwater facilities, and key programmatic efforts around environmental education, illicit discharge detection and elimination (IDDE), and monitoring of restoration projects to evaluate their success. As detailed in this report, the WPRF supports staff in the Department of Inspections and Permits, Department of Public Works Bureau of Highways, Anne Arundel County Soil Conservation District, and the Department of Public Works Watershed Protection and Restoration Program working to protect and restore the County's watersheds.

In July of 2016, the WPRP submitted a Financial Assurance Plan to MDE detailing the past, present, and anticipated expenditures required to satisfy its current MS4 permit. That plan is available at AARivers.org and will be updated again in 2019.

How is the fee calculated?

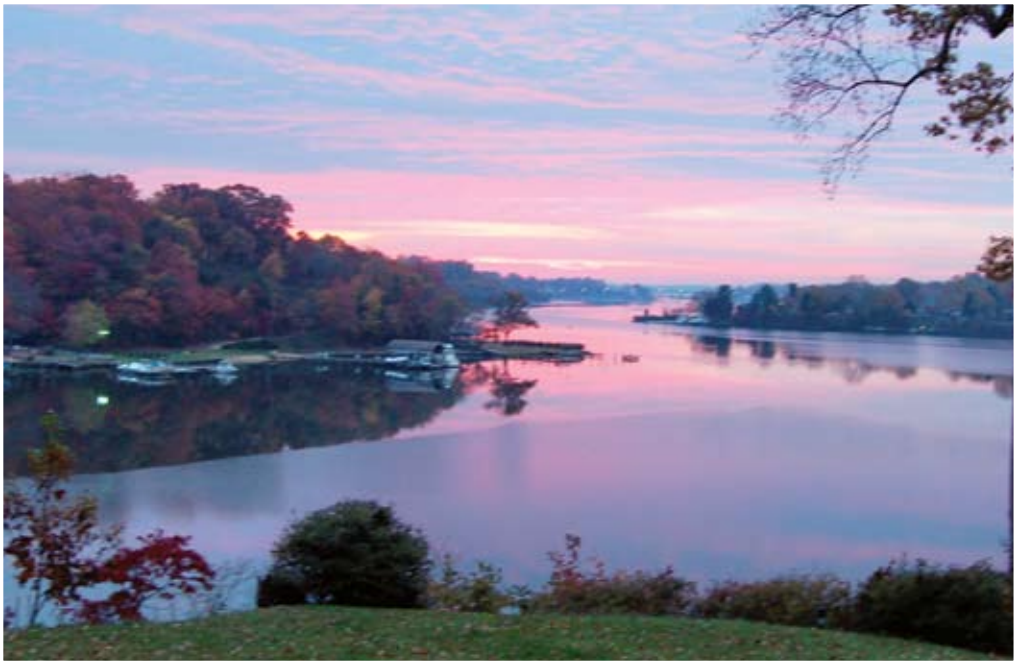
The Department of Public Works utilized Geographic Information Systems (GIS) technology along with parcel data collected from the Consolidated Property File and County Zoning Maps to estimate the imperviousness of residential properties in the various zoning districts. This information was used to determine a baseline Equivalent Residential Unit (ERU) of impervious surface of 2,940 sq. ft. An ERU is the base unit for calculating the annual charge for residential and non-residential properties. Currently the charge is $85 per ERU, per year.

The fee structure varies between land use type and intensity as seen in the table below:

ANNUAL WATERSHED PROTECTION AND RESTORATION FEE RATES		
Zoning	Rate Calculation	FY16 Fee
R10, R15, R22	$85 x .4	$34
R1, R2, R5	$85	$85
RA, RLD	$85 x 2	$170
Non-Residential	Actual sf of impervious surface divided by 2,940 x $85	Varies

To view the WPRF for your property visit AARivers.org.

Healing Our Rivers



The health of Anne Arundel County's waterways is tied to the health of its watersheds. While the health of the Chesapeake Bay itself is integrally tied to inputs from the region's largest waterways, such as the Susquehanna and Potomac Rivers, the health of our rivers and creeks has been demonstrated to be largely driven by activities – both past and present – in our own watersheds. Nutrient discharges from our water reclamation facilities and septic systems, and sediment and nutrient runoff from our businesses and homes are the drivers of our local impairments. Our restoration work, paired with that being required of the other bay jurisdictions, can ensure that our creeks and rivers, as well as the Chesapeake Bay, are on the path to recovery.

Summary of Watershed Restoration Projects

WATERSHED IMPLEMENTATION PLAN (WIP) PROJECTS FUNDED IN FY17	
Bodkin Creek Watershed	$140,400
Little Patuxent Watershed	$1,350,000
Magothy River Watershed	$1,712,000
Patapsco River (Non-Tidal) Watershed	$1,000,000
Patapsco River (Tidal) Watershed	$520,000
Upper Patuxent Watershed	$177,400
Severn River Watershed	$7,254,400
South River Watershed	$1,452,700
County-wide Projects	$6,000,000
TOTAL	$19,606,900

NOTE: Watershed Implementation Plan (WIP) project costs include: Stream Restoration, Stormwater Management Pond Retrofits, and Storm Drain Outfall Enhancements. The funding identified in the above table represents only that portion of the project costs that were funded in the FY17 Capital Budget.

Watershed Protection and Restoration Program – Carrying Out the Plan

The Watershed Protection and Restoration Program develops and delivers technical environmental assessment, restoration planning and implementation information and regulatory support to the Departments of Public Works, Inspections and Permits, and the Office of Planning and Zoning. This support enables these agencies to carry out their responsibilities for successfully managing delegated programs outlined in the County's NPDES-MS4 Permit, the State's Critical Area program, and the State Forest Conservation Act, as well as their responsibilities for land use decisions set forth in the County Code.

Implementation of the WPRP stormwater restoration strategy is focused on three key areas:

Stormwater Pond Retrofits – Existing facilities, such as dry ponds, detention ponds, or infiltration basins that have failed are rebuilt to optimize their pollution reduction capacity and provide an array of ecosystem benefits.

SWM POND RETROFIT/CONVERSION PROJECTS FUNDED IN FY17		
Watershed	Council District	# of Ponds
Little Patuxent	1,4,7	16
Magothy River	5	5
Patapsco Tidal	2	1
Severn River	4	2
South River	6	3
TOTAL		27

Stormwater Outfall Repairs – Eroded or failing stormwater outfalls – locations where drainage systems discharge onto erosive soils – are reconstructed into systems that can both safely convey high flows as well as provide water quality benefits and habitat.

STORMWATER OUTFALL REPAIR PROJECTS FUNDED IN FY17		
Watershed	Council District	# of Outfalls
Bodkin Creek	3	3
Magothy River	5	24
Patapsco Non-Tidal	1	50
Patapsco Tidal	2,3	51
Severn River	4,5,6	76
South River	4,6,7	61
Upper Patuxent	4	2
TOTAL		267

Stream & Wetland Restoration - Stream erosion is the largest contributor of sediment and phosphorus to our local rivers, and the County's strategy to re-hydrate valley bottoms through restoration will provide water quality, floodplain connection, and ecological benefits on a broad scale.

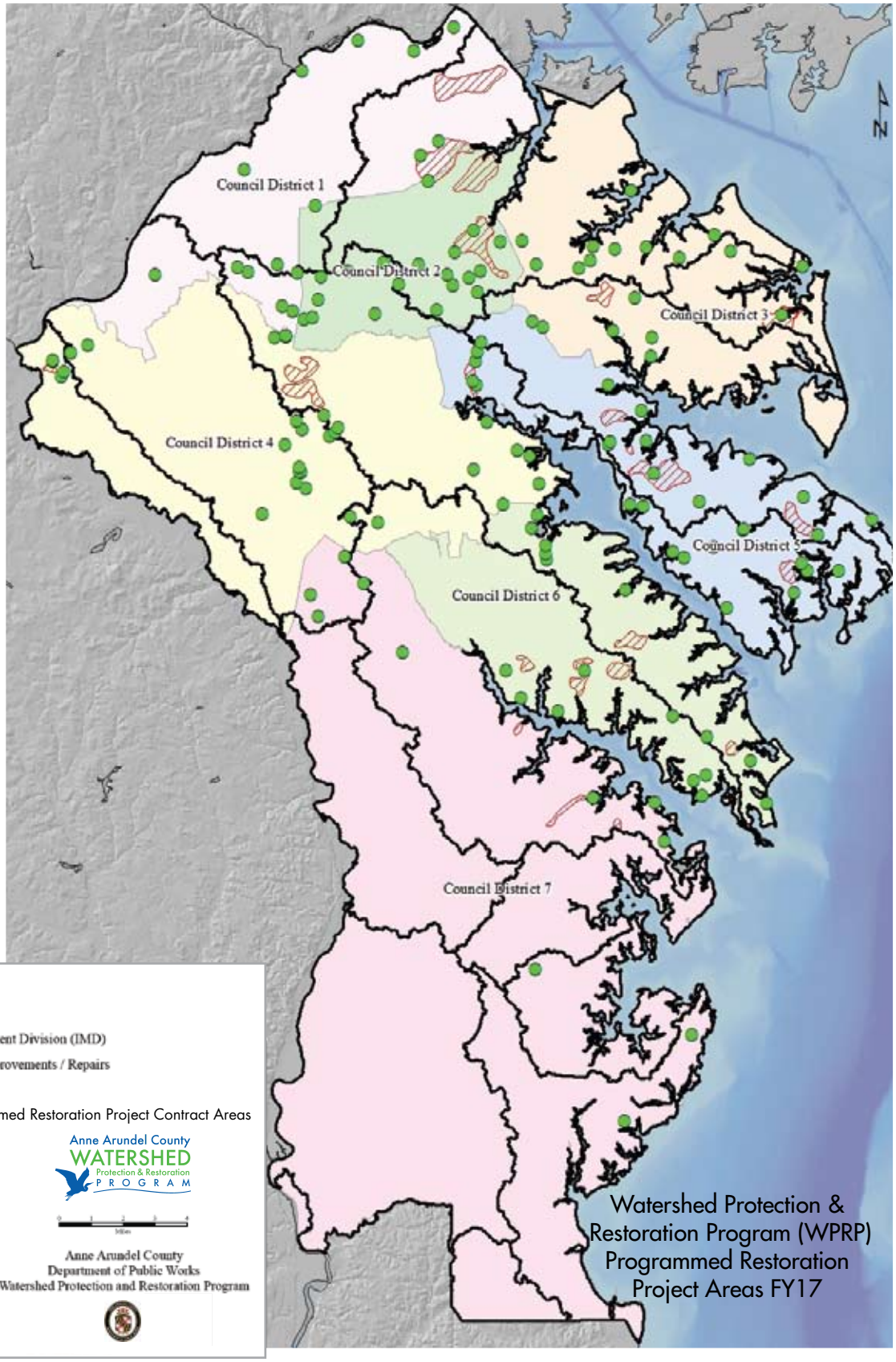
STREAM RESTORATION PROJECTS FUNDED IN FY17			
Watershed	Council District	# of Stream Segments	Stream Length (Linear Feet)
Bodkin Creek	3	2	682
Magothy River	5	5	4,273
Patapsco Tidal	2	7	5,426
Severn River	4,5,6	21	24,253
South River	6,7	21	22,451
Upper Patuxent	4	2	727
TOTAL		58	57,812

NOTE: Stream restoration project costs are programmed in the CIP budget over multiple years.

Through June 30, 2017

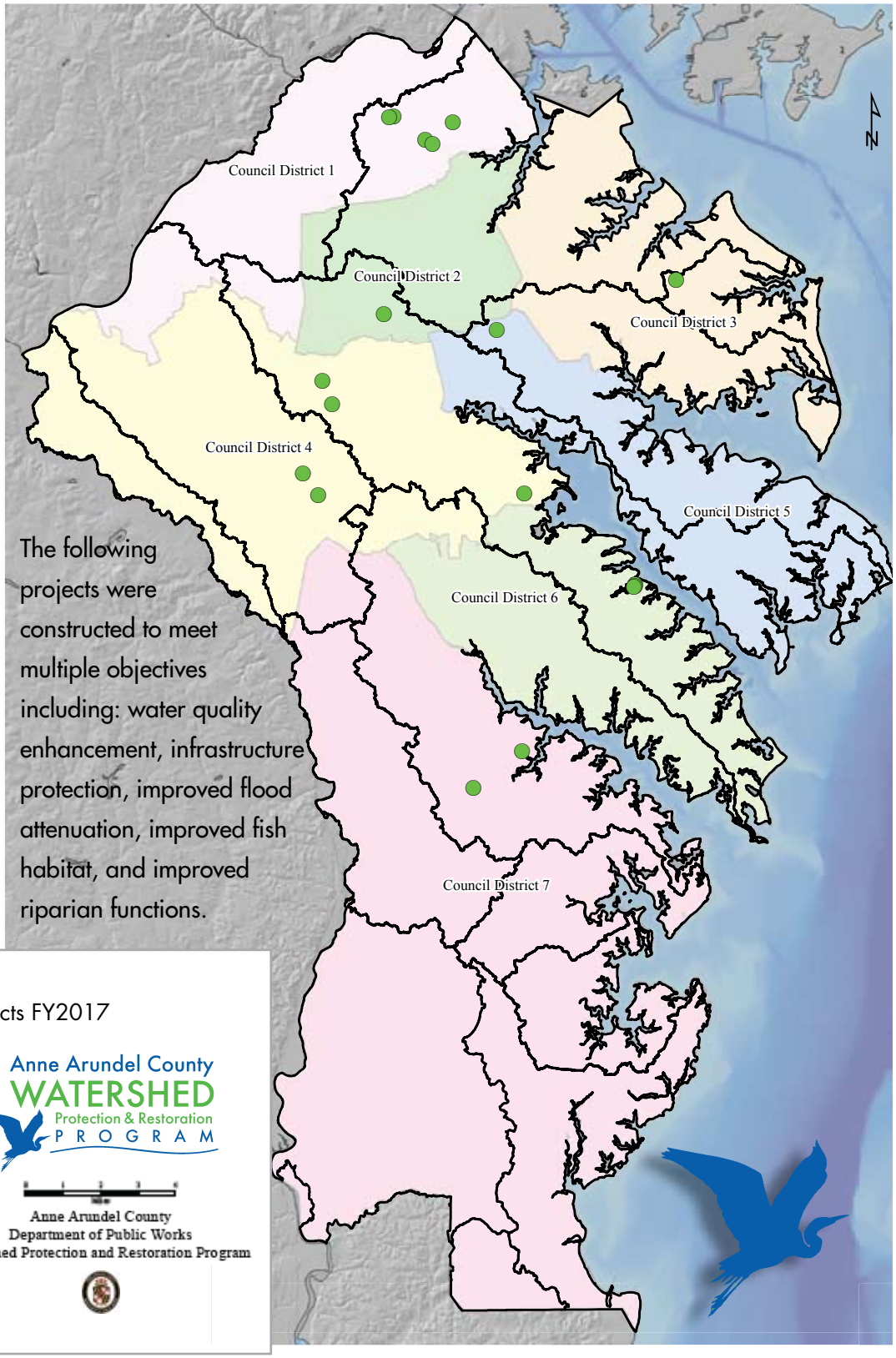
In addition to the work above, funds from the WPRP are used to address a $30+ million backlog of stormwater infrastructure repairs and replacement, ensuring that the County's culverts and drainage infrastructure are functioning properly and are not a threat to public health and safety.

Watershed Protection & Restoration Program Projects Budgeted in FY2017



WPRP Restoration Projects Completed in FY17

The following projects were constructed to meet multiple objectives including: water quality enhancement, infrastructure protection, improved flood attenuation, improved fish habitat, and improved riparian functions.



Outfalls Completed: 4

Ponds Completed: 12

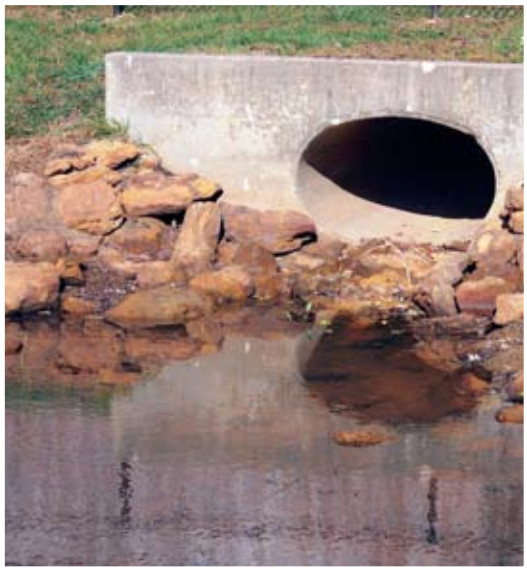
Stream Restorations Completed: 1

Infrastructure Management Division (IMD) — Stormwater Management

Effective operations and maintenance practices are critical to watershed health. The County operates and maintains a wide range of infrastructure to protect public health and safety, water quality, and property. It is important to ensure operations and maintenance activities not only keep those assets in good working order, but also protect water quality and habitat functions.

The Infrastructure Management Division is responsible for managing the inventory, inspection, and development of the County's Stormwater Infrastructure Capital Program. This program aims to repair and/or replace aging, damaged storm drain systems and culverts throughout the County, as well as any associated design and permitting requirements. These projects are normally identified and transferred to the IMD by the Road Operations Division and are scheduled in a worst-first priority order.

Funds from the Watershed Protection and Restoration Program are used to address stormwater infrastructure repairs and replacements, ensuring that the County's culverts and drainage infrastructure are functioning properly and are not a threat to public health and safety.



INFRASTRUCTURE MAINTENANCE DIVISION PROJECTS BUDGETED IN FY17	
Culvert & Closed Storm Drain Repair	$4,766,6000
Emergency Storm Drain	$600,000
Storm Drain/SWM Infrastructure	$1,015,000
TOTAL	$6,381,600.00

FY17 INFRASTRUCTURE MANAGEMENT DIVISION WPRP CAPITAL PROJECTS		
Council District	# of IMD Projects	Total FY17 Capital Funding
1	14	$511,287
2	20	$1,142,976
3	18	$512,342
4	31	$651,616
5	29	$814,462
6	17	$651,363
7	11	$182,083
	TOTAL	$4,466,129.00

IMD Milestones and Watershed Protection and Restoration Fund

IMD & Road Operations Division Milestones

2017 MILESTONES	
Action	Result
BMP's Inspected	591
Curb Miles Swept	7,128
Tons of Litter Collected (Street Sweeping)	600
Storm Drain Structures Cleared	2447
Linear Feet of Drain Pipe Cleared	49,710
Linear Feet of Ditch Cleaned	172,460
Storm Drains Cleared	6,879

The Infrastructure Management Division is also responsible for managing the inventory, inspection, and maintenance of over 850 stormwater management facilities that are collectively referred to as Best Management Practices (BMPs). In addition, IMD works alongside the Roads Operations Division to sweep County roads to remove loose materials, litter, and other debris that are unsightly, hazardous, or could cause possible drainage obstructions.

Watershed Protection and Restoration Fund Revenue and Expense Report

Expenses Posted as of June 30, 2017

Maryland Environment Code Ann §4-202.1 (2013) requires that a county make a report publicly available, beginning on July 1, 2014, and every two years thereafter. This requirement was amended in FY15 to require annual reporting of operating expenditures. The following report is being issued to meet these revised requirements, and includes revenues and expenses for FY17, the fourth year of implementation for the Watershed Protection and Restoration Fund in Anne Arundel County, Maryland. This report includes expenses incurred beginning July 1, 2016 through June 30, 2017.

Revenues

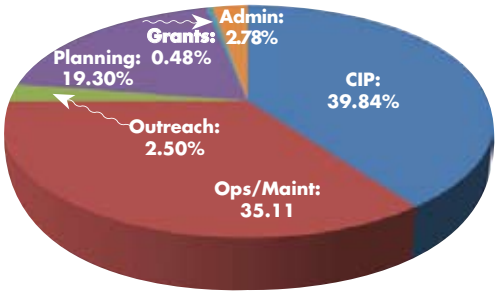
The Stormwater Fee was first billed on property taxes on July 1, 2013. There were 212,980 properties in Anne Arundel County that were subject to the fee. For FY17, Anne Arundel County has received $21,822,000 in revenues as of June 30, 2017. In addition to the Stormwater Fees, the county has received $1,064,000 to fund watershed protection and restoration projects from other sources.

Expenditures

Operating expenditures for FY17 totaled $16,239,000. Of these expenditures, $5,701,000 was spent on operations and maintenance activities for the county's stormwater infrastructure. An additional $3,133,000 was spent for planning for future improvements to these systems. The fund balance of $6,647,000 will be used to pay debt payments associated with the capital improvement projects required to update the aging infrastructure and to construction of best management practices for locations that do not meet current requirements.

Anne Arundel County has received $21,822,000 in revenues as of June 30, 2017.

FY17 Operating Expenditures



Surface Water Monitoring Program and Illicit Discharge Detection Elimination (IDDE) Program

The Surface Water Monitoring Program is responsible for evaluating the in-stream water quality of the County's non-tidal streams for purposes of developing a long-term water quality characterization. The program monitors the health of the County's streams in a variety of ways and for a variety of reasons:

Biological Monitoring – The Countywide Biological Monitoring Program began Round III benthic macroinvertebrate sampling in the spring of 2017 to continue documenting the status and trends within the County's streams. Following an update in the design of the program to better characterize stream health, fish sampling was added to the program. The first round of fish sampling will begin in the summer of 2017.

Monitoring for Restoration Success – Select restoration projects are monitored before and after construction to determine if the project is meeting its water quality design objectives. Pre-construction monitoring has been completed on Cowhide Branch and is underway on Furnace Branch. Post construction monitoring will resume when these projects are complete.

Stormwater Monitoring – The County's NPDES MS4 permit requires the County to maintain two long term monitoring stations on Church Creek in the South River watershed. Both base flow and storm flow are sampled to determine the impacts of redevelopment and watershed restoration on stream water quality.

Illicit Discharge Detection and Elimination (IDDE) Program

The WPRP is responsible for identifying illicit discharges to the County's storm drain system and collaborates with other County agencies having the legal authority to inspect and enforce any identified illicit discharges. The County's IDDE program has been successful in the identification and removal of a wide variety of sources of pollutants, including illicit connections, upland pollutant sources, dumping and spills. During the course of the County's annual outfall field screening, dry weather flow seen flowing from a storm drain outfall is identified for further investigation. In FY16, 14 potential sources of illicit discharges were identified. During FY17, 10 potential sources of illicit discharges were identified. Of these, 5 were confirmed as illicit discharges. The other 5 were naturally occurring low pHs ranging from 5.07 to 6.41 – just below the 6.5 threshold for reporting. The Department of Inspections and Permits continues to pursue resolution of three of these cases; two cases were investigated and the pollutant source could not be readily identified and WPRP continues this investigation.

To report a potential illicit discharge or other environmental violation contact the Anne Arundel County Environmental Hotline at 410-222-7171.

Case Study

While on routine inspection of outfalls, County inspectors will also investigate the surrounding area to determine if there are other issues that could lead to potential illicit discharges to the storm drain system. In April of 2017, County inspectors identified several potential sources of pollutants at an automotive recycling warehouse in Millersville. After a formal onsite investigation, it was determined that the business was not properly storing hazardous materials, which in some cases were exposed to stormwater.

In this particular situation, the County referred the case to the Maryland Department of the Environment (MDE) after it was discovered that previous compliance enforcement actions requested by MDE were not being adhered to by the facility. As such, a joint inspection of the facility was conducted by MDE and Anne Arundel County. After the inspection, it was determined that the facility was in violation of MDE regulations regarding onsite stormwater management practices and operating an industrial facility without the proper stormwater discharge permits. Over the course of several weeks, MDE and the County worked with facility staff to rectify the material storage issues, assisting the facility in obtaining the proper NPDES stormwater permits and the development of an internal Stormwater Pollution Prevention Program (SWPPP).

Watershed Partnerships

Watershed Partnerships

Successful conservation and preservation of Anne Arundel County's watersheds takes teamwork. To that end, in 2014 the Anne Arundel County Department of Public Works, in partnership with the Chesapeake Bay Trust, created the **Anne Arundel County Watershed Restoration Grant Program**, a community grant program to support watershed restoration activities throughout the County in order to improve water quality in local streams and rivers.

The grant program was created to engage local nonprofit organizations, landowners, and communities in efforts to restore the County's waterways, to provide resources to these groups to enable them to implement greening and water quality projects, and to assist Anne Arundel County's efforts to meet the requirements of its State and Federal stormwater pollution permit and local waterway cleanup plan. This program encourages on-the-ground restoration activities that reduce stormwater flow and pollutants and engage Anne Arundel County residents in these activities.

This program encourages on-the-ground restoration activities that reduce stormwater flow and pollutants and engage Anne Arundel County residents in these activities.

ORGANIZATION	PROJECT DESCRIPTION	WATERSHED	FUNDING AMOUNT	MATCH AMOUNT	IMPERVIOUS ACRES TREATED
South River Federation	Bacon Ridge Groundwater Recharge Micro-BMP and Outfall Restoration	South River	$67,901	$197,000	0.55
Anne Arundel Watershed Stewards Academy	Berrywood Community Cattail Creek Restoration	Magothy River	$355,549	$514,890	14.29
South River Federation	Turnbull Estates Innovative Bioretention, Oyster Restoration & Living Shoreline Project	South River	$86,665	$23,050	28.39
South River Federation	Twin Harbors Shoreline & BMP Project	Magothy River	$377,100	$30,400	16.69
South River Federation	United Church of Christ Biorentention Swale and Pond Retrofit	South River	$30,000	$59,020	.39
	TOTAL		$917,215	$824,360	60.31

Above is a list of organizations that were awarded funding from Anne Arundel County for water quality restoration projects in 2017.

More information about the grant program can be found at CBTrust.org

Arlington Echo Outdoor Education Center – Chesapeake Connections

The Arlington Echo Outdoor Education Center is operated by the Office of Environmental Literacy and Outdoor Education Program of Anne Arundel County Public Schools. Arlington Echo Outdoor Education Center offers Anne Arundel County students year-round opportunities to experience the natural environment. The Outdoor Education programs at Arlington Echo use environmental and outdoor learning to enhance, extend, and enrich classroom curriculum. Arlington Echo hosts fourth grade elementary students on day and overnight trips, but also hosts middle, and high school groups.

Chesapeake Connections is the Outdoor Education outreach program of Arlington Echo which connects classroom instruction with a series of relevant hands-on experiences that lead to environmental stewardship. The staff at Arlington Echo Outdoor Education Center provide support and expertise to complete yearlong environmental service-learning projects as part of Chesapeake Connections with many Anne Arundel middle and elementary schools. The service-learning projects are incorporated into each school's curricula and involve using community areas or school grounds for environmental restoration activities.

These projects meet growing environmental needs in our area and help protect the Chesapeake Bay.

The program works to restore and/or create bogs, gardens, and runoff areas on school grounds or in the community to treat stormwater pollution. These projects meet growing environmental needs in our area and help protect the Chesapeake Bay.

The WPRP has partnered with the Chesapeake Connections program to provide hands-on experiences for Anne Arundel County students through the planting of native trees and other vegetation at several restoration projects. In 2017 about 2,900 Anne Arundel County Public School Students participated in planting events at 7 newly restored water quality project sites around the County. Below is a listing of those opportunities that occurred during FY2017:

- Laurel Highlands Pond Retrofit
  320 6th grade students from MacArthur Middle School
  310 6th grade students from Old Mill Middle South

- Golden Oaks Drive Pond Retrofit
  295 6th grade students from Marley Middle School

- Tulip Oak Court Pond Retrofit
  170 6th grade students from Corkran Middle School

- Sharpsburg Drive Pont Retrofit
  420 6th grade students from Central Middle School and
  15 10th grade students from Broadneck High School

- St. Andrews Pond Retrofit
  20 students from Phoenix Academy and
  50 students from St. Andrews Day School

- Waugh Chapel Pond Retrofit
  200 6th grade students from Magothy River Middle School

- Four Season Outfall Repair
  300 6th grade students from Old Mill Middle North and
  350 6th grade students from Crofton Middle School and
  420 6th grade students from Severna Park Middle School

Anne Arundel County Watershed Stewards Academy (WSA)

Partnerships build capacity within communities to reduce pollutants entering our waterways via stormwater runoff.

The Anne Arundel County Watershed Stewards Academy was created in 2009 out of a partnership between Arlington Echo Outdoor Education Center and the Anne Arundel County Department of Public Works to build capacity within communities to reduce pollutants entering our waterways via stormwater runoff. The Watershed Protection and Restoration Program continues to provide critical support in connecting Stewards and communities with watershed studies, planning, and restoration efforts.

WSA trains citizens in Anne Arundel County to help neighbors reduce pollution in our local streams, creeks, and rivers. WSA's hands-on training course gives Stewards the tools to bring change to their communities, by turning knowledge and good intentions into action. Stewards work with communities to install projects such as rain gardens or conservation landscapes that capture polluted runoff. Collectively, these community and individual actions add up to better health for our local waterways and the Chesapeake Bay.

2017 WSA Successes (Reported on Calendar Year Basis)

- CERTIFIED over 180 Master Watershed Stewards since 2009
- REMOVED over 58,958 square feet of invasive vegetation
- PLANTED over 6,888 native plants and trees
- INSTALLED 55,826 square feet of rainscaping projects
- CONNECTED 75 rain barrels & cisterns
- ENGAGED over 6,765 people in Anne Arundel County through community presentations and rainscaping events

More information about WSA
visit AAWSA.org

Engaging the Private Sector – A Win-Win Situation

In FY17, the Watershed Protection and Restoration Program entered into a public-private partnership to clean up the Severn Run, Patapsco, and Patuxent waterways. The partnership with Resource Environmental Solutions (RES) is a first of its kind agreement to utilize cutting edge technology for required stormwater capital projects and pollution reductions at no risk to the County. The $3.8 million "Full Delivery of Water Quality Improvements" contract is uniquely structured to help the County better satisfy its Municipal Separate Storm Sewer System (MS4) and Chesapeake Bay Total Maximum Daily Load (TMDL) permits and goals.

The suite of water quality protection and improvement practices proposed by RES includes more than 3,500 linear feet of stream and outfall restoration in the Severn Run watershed and new, cutting edge optimization technology applied to three large, private stormwater facilities in the Patapsco and Patuxent River watersheds. RES's work will focus on sites that had not initially been targeted for restoration by the County.

res
Resource
Environmental
Solutions

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

Anne Arundel County
WATERSHED
Protection & Restoration
PROGRAM

The partnership with Resource Environmental Solutions (RES) is a first of its kind agreement to utilize cutting edge technology for required stormwater capital projects and pollution reductions at no risk to the County.

Anne Arundel Soil Conservation District

Helping the County Meet its Chesapeake Bay Cleanup Commitments

Goals outlined in the County's Watershed Implementation Plan

For more than 70 years, farmers have turned to the Anne Arundel Soil Conservation District as a trusted source of knowledge and technical expertise in managing and protecting soil and water resources on their farms. Today, farmers, developers, businesses, environmental groups, and government agencies rely on the District to help them meet nutrient and sediment reduction goals outlined in the county's Watershed Implementation Plan to protect and restore the Chesapeake Bay by 2025.

Agricultural Programs

Agriculture is making tremendous strides on behalf of the Bay, accounting for more than 46 percent of all nutrient and sediment reductions in the county. This success is largely due to the on-the-ground efforts of our soil conservation professionals, who work with farmers to develop Soil Conservation and Water Quality Plans (SCWQPs) that address natural resource and environmental concerns for their farms. These plans usually include a menu of best management practices (BMPs) that can be installed to protect soil and water resources. Cover crops and streamside buffers are often recommended to prevent nutrients from crop fields and nurseries from entering waterways. Livestock fencing, watering facilities and improved pasture management practices help farmers protect streams from livestock impacts.

In FY 2017, the Anne Arundel Soil Conservation District developed/updated 44 SCWQPs for county farms. These plans included more than 81 BMPs. The design, installation and construction supervision of these practices are the responsibility of the District's technical staff.

Urban Programs

Construction and road building projects can have a significant impact on water quality. The district is authorized to review and approve erosion and sediment control plans for projects in the county. This ensures that environmental safeguards are in place to minimize soil erosion, nutrient runoff and sediment buildup in local waterways. In FY 2017, the District reviewed 2,364 erosion and sediment control plans for construction projects on 15,359 acres. Approximately 52 percent of these plans were approved. To further protect the county's valuable natural resources, the District provides planning, design and management services for local stream restoration projects, shoreline stabilization projects, and drainage management projects.

Conservation Partners

The Anne Arundel Soil Conservation District works with a number of local, state and federal agencies to carry out its mission, including the Maryland Departments of Agriculture, Environment and Natural Resources, USDA Natural Resources Conservation Service and Farm Service Agency, University of Maryland Extension, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and U.S Navy.

ANNE ARUNDEL SOIL CONSERVATION DISTRICT AGRICULTURAL BEST MANAGEMENT PRACTICES (BMPS) PLANTED/INSTALLED FISCAL YEAR 2017		
Best Mangement Practice	Status	Percent of WIP Goal Achieved
Cover Crops (acres)	5,779	198%
Soil Conservation & Water Quality Plans (acres)	11,380	76%
Forest Buffers (acres)	1.5	28%
Livestock Fencing (linear feet)	4,097	7%
Retirement of Highly Erodible Land (acres)	159	722%
Watering Facility (number)	4	894%

Soil Convervation District – 2017 Highlights

Students learn directly from natural resource professionals and compete at the local, state, and national levels.

Farmer Education

In April, the District co-hosted a pasture walk at Lead Off Farm in Friendship. More than 12 guests learned about environmentally-friendly equine management practices, including how to manage pastures and provide good nutrition for horses, how to control weeds using rotational grazing, and how to manage and compost horse manure.

Envirothon

Each year, the Anne Arundel Soil Conservation District sponsors a local Envirothon competition for high school students interested in learning about natural resources and gaining a better understanding of today's complex environmental issues. Designed by soil conservationists, foresters, wildlife experts and other natural resource professionals, the Envirothon moves students beyond the classroom to solve real life environmental problems in field settings. Students learn directly from natural resource professionals and compete at the local, state and national levels. In 2017, Maryland will host the prestigious national competition at Mount St. Mary's University. More than 40 teams from the United States, Canada, and China are expected to compete.

Naval Academy Dairy Farm

The Anne Arundel Soil Conservation District has a longstanding relationship with Maryland Sunrise Farm, operator of the former US Naval Academy Dairy Farm in Gambrills to provide ongoing technical and financial assistance to install practices that protect and enhance the farm's natural resources. Best management practices installed over the years include livestock fencing to protect waterways from animal impacts, nutrient management practices to safeguard water quality, the creation of two wetland areas to filter runoff and provide wildlife habitat, and the construction of a sediment control pond to capture runoff. Other project partners include U.S. Fish and Wildlife Service and the Chesapeake Bay Foundation.

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