



## 2015-2016 Maryland District Nominee Presentation Form

### CERTIFICATIONS

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#### District's Certifications

The signatures of the district superintendent on the next page certify that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the superintendent's knowledge.

1. The district has been evaluated and selected from among districts within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district is providing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.
6. The district meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

### U.S. Department of Education Green Ribbon Schools 2015-2016 District Sustainability Award

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Name of Superintendent: **George Arlotto, Ed.D.**

District Name: **Anne Arundel County Public Schools**

Address: **2644 Riva Road Annapolis, MD 21401** Telephone: **410-222-5378** Fax: **410-222-5602**

Web site/URL: [www.aacps.org](http://www.aacps.org) E-mail: [garlotto@aacps.org](mailto:garlotto@aacps.org)

Lead applicants: Lisa Seaman-Crawford, [lseaman-crawford@AACPS.org](mailto:lseaman-crawford@AACPS.org)

Melanie Parker, [mdparker@aacps.org](mailto:mdparker@aacps.org)

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

A handwritten signature in black ink, appearing to read "G. Arlotto", written over a horizontal line.

(Superintendent's Signature)

Date: December 23, 2015

## Nominating Authority's Certifications

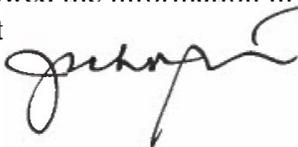
The signature by the Nominating Authority on this page certifies that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The district is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: **Maryland State Department of Education**

Name of Nominating Authority: **Jack R. Smith, Ph.D.**

I have reviewed the information in this application and certify to the best of my knowledge that the school meet



Date: January 27, 2016

(Nominating Authority's Signature)

## SUMMARY AND DOCUMENTATION OF NOMINEE'S ACHIEVEMENTS

Provide a coherent summary that describes how your district is representative of your jurisdiction's highest achieving green school efforts. Summarize your strengths and accomplishments, being sure to cover equally all three Pillars. Then, include concrete examples for work in every Pillar and Element. Only districts that document progress in every Pillar and Element can be considered for this award.

## SUBMISSION

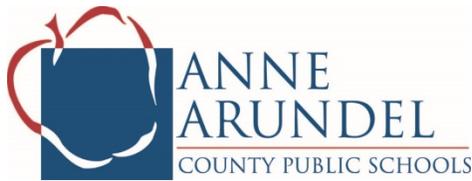
The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to [ed.green.ribbon.schools@ed.gov](mailto:ed.green.ribbon.schools@ed.gov) according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509

Expiration Date: March 31, 2018

### Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.



## Summary Narrative



***To establish and implement procedures for sustainability plans in all Anne Arundel County Public Schools (AACPS) for the purpose of conserving natural resources, protecting the environment, reducing waste, fostering cost containment, and promoting environmental literacy system-wide.***

*2013 AACPS Sustainability Policy*

In 2013, Anne Arundel County Public Schools (AACPS) adopted a Sustainability Policy that officially helped to define what the school system has been practicing for many years. With over 68 of its 120 school facilities Maryland Green School awardees, imbedded environmental literacy curriculum, and system-wide green practices, Anne Arundel continues to be an example for district sustainability. The Sustainability Policy cemented AACPS's commitment to environmental sustainability and put in place a committee to facilitate the development and implementation of sustainability practices and policies.

Suburban Anne Arundel County is Maryland's fifth largest school district, serving over to 80,000 students (34% disadvantaged) and 10,000 employees. We have over 13.4 million square feet of facility space and a \$26 million utility budget making it essential to reduce our energy consumption, explore renewable energy, and be efficient with our energy use.

Chaired by the Director of Facilities and the Coordinator of Environmental Literacy and Outdoor Education, the Sustainability Committee connects the business side of the school system with the instructional side to jointly build what was already in place and set goals for the future. The Committee consists of members from purchasing, finance, technology, food service, human resources, transportation, operations, maintenance, design & construction, logistics, curriculum and instruction, principals and educators.

### **Making a Difference**

- Support to schools for Maryland Green School certification is a collaborative effort of instruction and facilities. With a goal to have 100% of our schools certified, resource staff provides technical, instructional and programmatic support to help move schools to a more sustainable future.
- In the Design and Construction Office, all new construction meets a minimum of LEED silver certification. Though this State requirement helped define design characteristics for new construction, all renovated facilities also follow best practices established by LEED. A subcommittee of the Sustainability Committee is also exploring a net zero building for the Arlington Echo Outdoor Education Center site.
- Alternate energy sources are employed at the warehouse for the Logistics Office which is co-located in a County owned facility powered by roof top solar panels. AACPS's fleet garage staff recycles oil from vehicles and utilizes it as a fuel source to heat the garage.

- Food and Nutrition Services have developed a video series highlighting local farmers from which the school system purchases fruits and vegetables as part of their Taste of the Rainbow Program to encourage students to try different fruits and vegetables.
- With the State Environmental Literacy Graduation Requirement and Standards as well as the Environmental Literacy requirement of the Chesapeake Bay Agreement, environmental curriculum and programming has risen to a complete integration of environmental literacy experiences and learning for **all** students. Every grade level has an environmental literacy unit and has students engaged in outdoor learning, issues investigation and environmental action.

### Working Together

Partnerships play an important role in the implementation and facilitation of sustainability practices in Anne Arundel County Public Schools. Within the school system, the county and in the community, these partnerships support each of Pillars of the Green Ribbon, working together to make a more sustainable future.

- Within AACPS, the Wellness Council supports sustainability practices through the construction of a Wellness toolkit for principals and schools, strengthening the school systems focus on **all** aspects of students and staff health. The toolkit supports nutrition, indoor air quality, environmental health, and physical activity. The Wellness Council is led by the Deputy Superintendent together with Board of Education members, school system staff, and employees of the County and State Department of Health.
- Anne Arundel County Department of Public Works (DPW) and AACPS's Facilities Division work together to support the restoration of many streams and rivers throughout our county; meeting quarterly on projects. DPW also supports environmental literacy by providing opportunities for students to be engaged in action projects at these sites as part of their environmental literacy curriculum.
- Non-profits play a significant role in supporting the environmental literacy curriculum implementation. Chesapeake Bay Foundation, Chesapeake Bay Trust, and the Annapolis Maritime Museum provide environmental programming, grants, and professional development for teachers.

Anne Arundel County Public Schools continues to strengthen its commitment and resources for building a sustainable community. As a large school district, environmental practices and implementation can be overwhelming. Anne Arundel County Public Schools has taken on that challenge. Without a specialized office responsible for developing sustainability initiatives, AACPS achieves similar results through its dedicated Sustainability Committee. Together we have built a collaborative and productive sustainable school community that can serve as an example to other districts.

### Green Schools Program Participation



Since the inception of the Maryland Green Schools Program in 1999, schools in Anne Arundel County have strived to achieve this recognition, creating a positive, mission-driven culture in the process. The entire school community works toward a more sustainable future. As other certification programs have become available, schools continue to build their sustainability portfolio and build on the belief that each person can make a difference. In addition, achieving green school recognition reflects positively on the quality of these schools.

### Maryland Association for Outdoor and Environmental Education, Maryland Green Schools Awards

The Maryland Association for Environmental and Outdoor Education (MAEOE) created the Maryland Green Schools Award Program to help schools and their communities evaluate their environmental sustainability. Participating schools encourage sustainability, foster environmental literacy, and empower youth to reduce their environmental impact. As schools re-certify every four years, they continue to integrate and reinforce environmental lessons, resulting in progress toward a more sustainable future. The Maryland

Green School objectives include environmental issue instruction, professional development for teachers, school-wide environmental behavior changes, celebration of green practices, community partnerships and student driven sustainability practices including responsible transportation and reduced emission, healthy living and learning environments, water conservation and pollution reduction, energy conservation, structures for environmental learning, habitat restoration, and solid waste reduction. The AACPS Environmental Literacy and Outdoor Education office (in collaboration with the Division of Facilities) assists schools in the planning and application process, conducts green school presentations, provides environmental curriculum (including the implementation of environmental literacy standards), technical support, instructional outreach into the classroom, and outdoor environmental education instruction.

Currently, 68 out of 120 schools (57%) hold Maryland Green School certification. AACPS's Arlington Echo Outdoor Education facility is a certified MAEOE Maryland Green Center. The Maryland Green Center Program recognizes facilities that model environmental education, conservation and sustainable practices, as well as community engagement. There are two other Green Centers as well as Green Leaders in Anne Arundel County that support schools in becoming Green Schools.

Anne Arundel County Public Schools have been participating in the Green School program since its onset, and many of our schools have continued to be recertified every four years since their original recognition. Two Anne Arundel Schools, Davidsonville Elementary and Shipley's Choice Elementary, are considered Sustainable Maryland Green Schools, a recognition given to schools that have maintained their green school status for 14 years.

#### **U.S. Department of Education Green Ribbon Schools**

Anne Arundel County Public Schools celebrated with Folger McKinsey Elementary School when they were awarded U.S. Department of Education Green Ribbon status in 2012. Broadneck High School is currently applying for Green Ribbon status. Our goal is to have at least one school each year apply for the Green Ribbon Schools Award.

#### **National Wildlife Federation Eco Schools**

National Wildlife Federation's (NWF) Eco-School is an internationally recognized school sustainability program. Schools striving to become an Eco-School can pursue sustainability "pathways" as they progress through a seven-step process. These steps include building an Eco-Action Team, conducting an environmental audit, developing an Eco-Action plan, monitoring and evaluating sustainability efforts, linking to the curriculum, involving the community and creating an Eco-code. Because Eco-Schools follow the Maryland Green School model, schools can co-certify as part of their application to become a MAEOE Maryland Green School. Anne Arundel County Public Schools has 53 certified Eco-Schools.

#### **Other Local, State and National Programs**

Over the years, AACPS schools and other facilities have participated in a variety of environmental programs or have been recognized as environment leaders:

- National Wildlife Federation's Conservation Learning Activities for Science and Social Studies
- Chesapeake Bay Foundation's Bay Schools, which integrates Chesapeake Bay and environmental issues into the curriculum.
- The AACPS facilities management team works to reduce, reuse and recycle. Helping schools keep track of their electricity usage and promoting energy conservation reduces energy use in schools. We are a structurally aging county with many buildings dating back to the early 1960s. As schools are refurbished or rebuilt, there is an emphasis on creating green buildings.
- The AACPS Facilities department uses the EPA Energy STAR Portfolio Manager, participating in the Better Buildings Challenge through DOE (The school system was recognized by BBC in 2015 for completing utilities data benchmarking for all facilities.)
- In 2015, three of our elementary schools achieved the EPA's School Energy Star Rating; one school received this honor two years in a row.
- AACPS is recognized as a Silver Level Business Recycler by Anne Arundel County.
- All facilities workers have been trained in the use of green cleaning products and practices.
- Since 1999, 11 educators have been awarded the Jan Hollman Environmental Education Award, recognizing educators dedicated to making a difference in Anne Arundel County.
- In 2015, AACPS's Arlington Echo Outdoor Education Center was awarded Best Summer Camp by What's Up West County.

#### **Environmental Grants**

Over the past five years Anne Arundel County Public Schools have received over \$1 million dollars to support environmental literacy and green school efforts. Maryland and Anne Arundel County are fortunate to have local and regional grant funds available for environmental literacy, habitat enhancement and professional development. These funders include the National Oceanic and

Atmospheric Administration, through the Bay Watershed Education and Training Grants (\$168,000), Maryland Department of Natural Resources (\$478,000), and the Chesapeake Bay Trust (\$100,000) plus multiple individual school grants from the Chesapeake Bay Trust, Walmart, Unity Gardens and Home Depot.

Through the Chesapeake Bay Trust (CBT), Anne Arundel County Public Schools was awarded over \$68,654.00 in 2014. These awards were in the form of Environmental Education Mini Grants, Environmental Education Grants and Environmental Literacy Planning Grants. The funds were used at the school or district level to support and enhance environmental and green practices including environmental literacy curriculum development, staffing, professional development, schoolyard restoration, community restoration, and supporting meaningful watershed educational experiences. The Chesapeake Bay Trust also sponsors the Chesapeake Conservation Corp (CCC), which places young environmental career professionals with environmental organizations to support their programs. AACPS Environmental Literacy and Outdoor Education Office have sponsored six CCC members to support our programs.

Anne Arundel County Public Schools is a partner in the Maryland Environmental Literacy Partnership (MELP), a consortium of Local Education Agencies, the Chesapeake Bay Foundation, Maryland State Department of Education, NOAA and the University of Maryland to bring together teachers in developing environmental literacy curriculum at the high school levels. This is sponsored through NOAA, Maryland State Department of Education Math and Science Partnership Grant and Howard Hughes Medical Institute. MELP brings together Social Studies and Science teachers in week-long professional development experiences with curriculum professional learning communities. Units for science and social studies have been incorporated into the Biology and U.S. Government curriculums.

AACPS has received several Maryland Department of Natural Resources (DNR) Grants. The DNR grants fund restoration and development projects that take students through the process of identification, research, planning, design and implementation of restoration sites. Most recently, a 2013 DNR stream restoration grant in the amount of \$328,376 was awarded to AACPS two high schools and two grants were awarded to the STEM Office and Environmental Literacy Office for stream and forest buffer restoration with students.

### **Pillar 1: Reduced Environmental Impact and Costs**



#### **Energy Use**

The Energy Conservation Office (ECO) was created in July 2012, to promote energy conservation in all Anne Arundel County Public Schools (AACPS) facilities. Their mission includes promoting energy and utility conservation, cutting waste, exploring the use of alternative and renewable energy sources, and supporting energy education.

One of the first tasks embarked on by the staff was to benchmark all 125 facilities in the EPA's Portfolio Manager. Smart Meters have been installed on 50 facilities to monitor in real time energy use through a web-based program. The use of this energy monitoring system allows AACPS to participate in a grid-friendly Demand Response program during summer months, with a current commitment to reduce 7500 kilowatts (kW) during these events. We also employ this technology to verify after hours and weekend equipment shutdowns at all facilities, saving the school system thousands of dollars.

Since 2009, AACPS has implemented a four-day work week during the summer break for administrative staff, reducing energy use and saving over \$200,000 each year in energy costs.

The ECO regularly conducts utility bill analysis as well as initiates applications for energy rebates for construction and retrofit projects. A credit of approximately \$200,000 has been received for billing errors to date, and over \$363,000 has been received in rebates since 2014.

The school system is pursuing renewable energy resources through the use of solar and ground source geothermal heat pump for heat/cooling.

#### **Solar**

- Currently awaiting Board of Education approval for the design and installation of a one MW net metering solar array project for the Ft. Smallwood Facilities complex.

- Solar panels are installed on the Anne Arundel County Government’s facility where the AACPS’s Logistic Operating Supplies warehouse is co-located.
- Solar panels (175 watts) at Arlington Echo Outdoor Education Center are located on the roof of the main building.
- Solar-powered parking lot lights are being used at the Ft. Smallwood Facilities complex.

### **Geothermal ground source heat pumps**

- Piney Orchard Elementary – Built in 2000, the school continues to outperform its sister school saving the school system thousands of dollars
- Lothian Elementary – Opened in August 2015
- Rolling Knolls Elementary – under construction
- Severna Park Elementary – under construction

### **Energy Efficient Lighting Projects**

A major focus over the last few years is lighting retrofit projects. More than a dozen sites have been completed since the fall of 2012, including most with new LED fixtures. In addition, this fall, a Request For Bid (RFP) has been advertised for lighting upgrades with sensors and sub-meters in selected areas at eight locations.

- Chesapeake and Meade high schools’ main and auxiliary gymnasiums lighting retrofit projects were completed with the Maryland Energy Efficiency Initiative (EEI) Program. The combined projects savings equate to 321,644 kWh and 257 tons of carbon dioxide annually.
- Conversion of the Ft. Smallwood Facility complex to low wattage fluorescent lamps and sensors on the interior, and LED lighting on the exterior, resulting in approximately 20% annual savings.
- Gymnasiums at six middle schools and one elementary school have been retrofitted with LED lights resulting in a reduction of wattage from several hundred to 125 watts.
- All interior and exterior lights were converted to LED lighting at Arlington Echo Outdoor Education Center.

All AACPS middle and high schools compete in an energy savings contests where schools are competing to reduce their energy consumption between themselves. In the 2014-2015 school year, by shutting off equipment and unplugging electrical appliances, AACPS reduced 344,151 kWh and saved \$37,455. Similar contests are in place for the 2015-2016 school year.

### **School-Based Energy Savings Competitions**

- Gobble up Energy Savings – 5-day Thanksgiving break
- The 12 Days of Christmas/Winter Energy Savings – 12-day winter break
- Spring Break Savings Contest – 6-day spring break

AACPS joined USDOE’s Better Building Challenge (BBC) in February 2014. We made a commitment to achieve energy savings of 20% by 2020. The school system was recognized by BBC in 2015 for completing utilities data benchmarking for all facilities. Staff members were invited to present at the Green Build Expo in Washington, DC in November, sharing our accomplishments.

Three of our elementary schools have achieved the 2015 EPA’s School Energy Star Rating with one school receiving this honor two years in a row.

### **EPA Energy Star Rated Schools**

- Belle Grove Elementary
- Deale Elementary
- Quarterfield Elementary

Our mission is to educate students, therefore, our ECO staff supports schools seeking Green School distinction, participates with school green teams, and teaches fifth graders how to use kilowatt meters to accumulate kWh data and record the powered duration time and energy cost. They continue to work with students performing energy audits by energy walkabout, recording, and analyzing the following:

- School lighting
- Computer lab energy
- Kitchen consumption
- Heating and cooling
- Parking lot and outdoor lighting
- Vending machines

High school green clubs are provided with utility data, and our goal is to enable teachers to log on to the AACPS utility database to measure their school's total energy usage and Energy Use Intensity or EUI (kWh/sq.ft., kbtu/sq.ft.).



### Greenhouse Gas Emissions

- The Operations Supply Warehouse implemented a delivery schedule to reduce fuel consumption. Since 2008, delivery schedules were reduced from daily to three times a week during the academic year, and twice a week during the summer months.
- Three hybrid vehicles are included in our fleet, and we continue to monitor pricing to include more as it become fiscally sound.
- Schools promote non-idling zones for the buses and parent carpool lanes.
- The four-day summer work week reduces staff car emissions and energy use. Since 2009, AACPS has implemented a four-day work week during the summer to reduce energy use, saving over \$200,000 in energy costs each year and reducing carbon emissions.

### Water Use

- All new and renovated schools include floor mounted water closets utilizing dual flush 1.6/1.0 gallon per flush valves, pint flush (0.125 gallon per flush) wall hung urinals, and wall hung lavatories with self-closing hot and cold water faucets that supply 0.35 gallons per minute.
- Water fountains and/or water bottle filling stations are installed in all school facilities.
- Artificial turf fields are in place at all 12 high school stadiums, eliminating the use of sprinkler systems. The additional fields at Northeast High School are sprinkled with water from an on-site rain water cistern. Drought tolerant grass species are used for sports fields requiring minimal water to flourish.
- Rain barrels are installed at most of our approximately 200 portable classrooms and the water collected provides water to the gardens.

### Water Quality

- Eighteen of our facilities are on well water, and custodial staff are educated and trained to conduct daily monitoring for pH, iron, and residual chlorine.
- Maryland Environmental Service (MES) is under contract to operate the water treatment plants and wells for our school system. Contracts are in place to conduct monthly bacteriological analyses and annual monitoring for nitrates and lead. Reports are sent directly to the Maryland Department of the Environment (MDE).

- To maintain high quality drinking water, monitoring for disinfection contaminants (DBPR: TTHM & HAA5) is conducted annually and reported directly to MDE.
- Other initiatives include green cleaning products to reduce environmental impacts; including floor finishes that do not require stripping of wax, eliminating water contamination.
- Sixth graders conduct water quality measurements in streams throughout the county, gathering information on biological and chemical factors.



### Stormwater Runoff

Anne Arundel County adopted the Maryland’s Erosion and Sediment Control Law passed in 1970 to control runoff from construction sites, and the Stormwater Management Law passed in 1982 that requires best management practices (BMPs) to maintain after development the pre-development runoff conditions as closely as possible. Since that time, Maryland has adopted the Stormwater Management Act of 2007 and the revision to the state’s stormwater program requiring environmental site design (ESD). Anne Arundel County in 1993 laid the foundation for a comprehensive approach to controlling runoff, and continues to provide regulation to protect its over 500 miles of tidal shoreline.

- All AACPS new and renovated projects include permanent stormwater management facilities such as bio-retention, rain gardens, and/or infiltration trenches at strategic locations that are both functional in design, aesthetically pleasing to the overall site, and provide learning opportunities to our students, and improving water quality.
- Pervious concrete is used for mandated fire lanes around new and renovated buildings.
- At Edgewater Elementary School, a joint venture between Anne Arundel County and the school system helped design and construct a 1.6 acre bio-retention facility to manage stormwater runoff in the community. This area also serves as an outdoor living classroom.

### Ecologically Beneficial Uses of the Grounds

Schools throughout the district have long worked to restore habitat on their school grounds.

- Over 20 acres of grass has been converted to native plant habitat gardens, forest buffers, and meadows over the past 10 years.
- Many of our schools have blue bird nest boxes and trails on their school sites.
- As part of the first grade curriculum all 80 elementary schools have added Monarch butterfly habitat with native pollinator plants. In addition, all new construction includes bio-retention areas that contain native plantings.
- As part of all construction, there are dedicated reforestation areas.
- Arlington Echo Outdoor Education Center has a 200-foot living shoreline with plans to expand to a total of 450 feet in the next year.



### Solid Waste/Recycling

AACPS began its recycling program in the early 1990s before its transformation to a single stream program with the help of the county. Some of the many items recycled include glass, plastic, metal paper, eating utensils, juice boxes, grass, leaves, wood

materials, batteries, magazines, cardboard, electronics, tires, antifreeze, waste oil, lamp tubes and bulbs. Many schools participate in the Abitibi Paper Retriever, Terracycling and other fundraiser recycling programs.

Other initiatives include green cleaning products such as floor finishes that do not require stripping of wax, eliminating waste. Use of microfiber floor and cleaning cloths that are washed and reused saves money and reduces waste. During demolition and construction, 75% of materials are diverted from landfills through recycling or salvaging. The vehicle maintenance staff salvages engine oil from the fleet and uses it to heat the garage.

**Recycling program highlights**

- 200,000 lbs. of electronic and metal materials since 2014
- Over 100,000 lbs. of paper materials since 2014
- Cafeteria tables, desks and chairs are refurbished through a program with the correctional facility
- On-line auction of obsolete kitchen and industrial equipment, laptops, and vehicles
- Recycle printer, copier, and fax cartridges through a cartridge recycler
- Recycle books to the Rotary International for distribution to children around the world
- Recycle text books back to textbook vendor for redistribution to other school systems

<u>Recycled</u>	<u>Weight (Tons)</u>
Brush and Branches	8200
Food Waste Composting	2
Glass (Mixed Glass)	166
Aluminum Cans	47.6
Lead Acid Batteries	.25
Mixed Paper	504
Newspaper	332
Corrugated Cardboard	1429
Text Books	125
Mixed Plastics	47
Electronics	26
Tires	2
Antifreeze	1
Construction & Demo Debris	160
Scrap Metal	8.2
Lamp Tubes	11

The recycling efforts of paper, plastic, aluminum, glass and cardboard alone conserved the following resources:

- 8,345,154 kWh of electricity - Enough to power 695 homes for a full year
- 184,215 gallons of oil - Enough energy to heat and cool 912 homes for a full year
- 42,603 gallons of gasoline - Enough gasoline to drive 1,192,880 miles
- 26,861 mature trees - Enough to produce 332,805,566 sheets of newspaper
- 12,425,838 gallons of water - Enough to meet fresh water needs of 60,171 people for a year
- 7,039 cubic yards of landfill airspace - Enough airspace to meet the disposal needs of a community of 9,849 people

All of our fifth graders monitor the recycling in their schools, making them a part of a recycling community.

**Paper Use**

AACPS has increased the use of computer based programs to reduce paper use. Several years ago, the Purchasing Office and the Planning, Design, and Construction Office instituted a virtual plan room, eliminating the need to distribute thousands of full set plans

to bidders. Contractors and subcontractors review the plans, and if they would like to bid on a project, print only the information they require.

Human Resources eliminated paper applications and resumes, and all potential hires are required to use an online program to upload documents, allowing AACPS staff to review applicants without hard copies.

#### **Paper reducing initiatives**

- AACPS is digitizing student records and AACPS records
- Operations has converted to an internet-based reporting system for monthly fire drills and weekly oil readings
- Facilities is implementing an online work order system for work orders, preventative maintenance scheduling, and inventory
- Teachers and administrative staff access curriculum through the Blackboard program and use Microsoft Office 365 for file storage and exchange
- Students have access to Office 365 and Edmodo for learning and to submit assignments

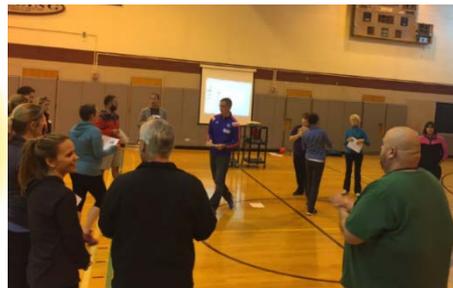
#### **Hazardous Waste**

AACPS has eliminated all non-essential hazardous waste from schools (mercury, formaldehyde, etc.). Capital projects include asbestos removal and lead paint abatement as we continue to eradicate these hazards. A yearly memo is sent to all schools to clean out and request hazardous chemicals pick-up for science labs materials no longer in use. Students and staff are trained regarding safe storage and handling of all hazardous materials such as batteries, paint, and science materials.

#### **Transportation**

- The Transportation Division defines appropriate walking distances for elementary, middle, and high school students to encourage walking to school.
- In new and renovated capital projects walking paths are added to provide direct access from the surrounding communities. An offsite sidewalk capital project in Anne Arundel County’s DPW budget was established to assist us with providing walking routes to all of our schools, further demonstrating our partnership in safe routes to school.
- Using a recently purchased software program designed to optimize bus routes, staff continue to evaluate the number of buses required, therefore, reducing costs, energy use, and carbon emissions.
- The fleet management staff has installed GPS on most of our vehicles. This real time data is provided to educate staff on the value of reducing speed and idling time.
- Bike racks have always been available at our schools for student and staff use. Also, our school system participates in the yearly International Walk to School Day in October. As part of Green School initiatives, many schools encourage regular “bike and walk to school” days.
- Transportation is partnering with one of our bus contractors and piloting our first ever (and maybe first LEA in Maryland) propane powered bus which is much friendlier on the environment, does not require underground storage tanks, and possible is more fuel efficient and reliable.

### **Pillar 2: Improve the Health and Wellness of Students and Staff**



#### **Health and Wellness**

AACPS recognizes that the health and wellness of all staff and students is paramount in creating a positive atmosphere conducive to learning, productivity, and creativity. Many of the components of Pillar II are incorporated into the regulations and policies of Anne Arundel County Public Schools. For example:

#### **Wellness Policy**

*“To ensure that Anne Arundel County Public Schools (AACPS) promotes a Coordinated School Health Program that includes health education, physical education, health services, nutrition services, mental health, healthy school environment, employee wellness, and community and family involvement.”*

### **Green Product Cleaning Supplies Policy**

*“Establishes a Green Product Cleaning Program for the purpose of providing a clean, safe and healthy indoor environment for our students, faculty, staff, and community. The implementation of the Green Product Cleaning Program will help to ensure that the occupants of facilities do not suffer adverse health effects as a result of these practices. Further, program goals are to reduce the potential negative effects that cleaning products may have on the environment and to reduce product waste system-wide.”*

### **Healthy School Environment Policy**

*“To ensure AACPS provides and maintains safe and healthful work and learning environments in accordance with known, applicable standards, laws, regulations and guidelines. AACPS strives to eliminate or control foreseeable hazards, which may result in personal injuries or illnesses, damage to property, or the environment.”*

The Wellness Council, comprised of school system representatives and community members, is a catalyst for developing and implementing many of these policies. As part of their mission, the council developed a Wellness Toolkit for principals to share and provide resources. The Wellness Toolkit is modeled after the Coordinated School Health Program developed by the CDC, which recognizes 10 unique but complementary components, each encompassing and enhancing school instruction, services, physical and social environments, as well as addressing employee needs.

These guiding components ensure that the curriculum, staff, facilities and schools in Anne Arundel County improve the health and wellness of their community. Schools that demonstrate a high priority for the health and well-being of students, staff, and school supporters by going beyond the curriculum to produce positive outcomes for the entire school community can be recognized by the AACPS Wellness Schools of Distinction Award. Since 2011, 11 schools have acquired this award.



### **Healthy School Environment Pesticide Use**

The AACPS Integrated Pest Management (IPM) Plan was recognized as the fourth school system **in the nation** to be IPM STAR Certified beginning in 2004 by the IPM Institute of North America. The Plan has been continuously revised and updated to reflect current best practices, most recently in 2015. This is a program for controlling pests that stresses occupant education, zone monitoring and establishing action thresholds, improved sanitation, structural controls and repairs, and universal notification to all parents, teachers, and staff. Chemical pesticides are used as a last resort, and the least hazardous materials capable of controlling the pest are selected.

- Infestations are prevented through a regular school inspection program conducted by Maryland State Certified Pest Applicators on the AACPS Operations staff.
- Use of pesticides is avoided unless absolutely necessary. Non-chemical approaches avoid the risk of environmental exposure. Only USEPA registered pesticides are used to mitigate problems of immediate concern to students, staff, and visitors.
- In compliance with Maryland Department of Agriculture regulations, 24-hour written notice is given to students, staff, parents, and visitors when pesticide application does occur.
- Safety Data Sheets are maintained for each pesticide/insecticide product used in the county and are available upon request.
- A bulletin board with the notifications regarding any pesticide applications is maintained and displayed in the lobby of each school near the main administrative office.

### **Hazardous Contaminants**

Abatement of potentially hazardous materials including asbestos and lead paint is governed by federal regulations and managed by certified Facility staff members. Faculty and students are notified in writing when removal is planned, and substances are eliminated according to methods regulated by federal law.

### **Chemical Management**

- All chemicals are reviewed by the AACPS environmental manager and the safety data sheets are maintained and accessible online.
- Schools are requested to report annually any chemicals, including hazardous materials, that need proper disposal. These materials are picked up from schools by a certified contracted service that specializes in waste removal.
- AACPS has adopted a "Green Cleaning Program" in conformance with Maryland Law to ensure the safety and health of all school staff, students, and visitors.
- Green Seal certification is required for all cleaning products and waxes applied to school properties.
- Green floor finish reduces the need for stripping and re-waxing floors thus reducing caustic byproducts.
- Our Green Cleaning program also includes details regarding storage, requirements for disposal, and specific methods for cleaning custodial equipment.

### **Green Cleaning for Schools**

The Maryland Legislature charged Maryland K-12 public schools to implement green cleaning programs. Qualified cleaning products must have positive environmental attributes including but not limited to biodegradability, low toxicity, low VOC content, reduced packaging, and low life cycle energy use. Cleaning products must be recognized by the U.S. EPA Design for Environmental Formulator program, Environmental Choice and Green Seal. Environmentally preferable means "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Comparison applies to raw materials, manufacturing, packaging, distribution, use, reuse, operation, maintenance, and disposal."

### **Asthma Management**

For over 20 years, Anne Arundel County Public Schools has partnered with the Anne Arundel County Department of Health to provide school health services to all county public schools.

School nurses are dedicated to meeting the medical needs of the students throughout Anne Arundel County. As a member of the school's multi-disciplinary team, the school nurse provides case management for students with chronic health conditions. In addition the following policies or guidelines are in place:

- No smoking policy on school grounds
- Cleaning completed at night when students and staff are gone for the day
- Minimal carpet use in school buildings
- Asthma protocol sent to teachers with affected students

### **Building Moisture Control**

The annual capital budget includes programs for roof, window, and exterior doors for new schools and renovations to keep water and moisture out of our facilities. The following steps are taken at all our facilities:

- Onsite custodial staff continually monitors moisture for prevention of mold growth
- Roofing inspections occur twice a year at all locations
- Work orders to repair leaking roofs and windows take priority
- Roof recoat projects extend the life of existing roofs
- Monitoring of crawl spaces and basements for water infiltration

### **Ventilation Systems**

Ventilation systems are installed to the current ASHRAE code requirements and maintained through the Operations Preventative Maintenance Program. The new facilities work management system will provide better tracking of filter changes, belt replacement, lubrication, and cleaning of the HVAC equipment throughout our school buildings and portable classrooms.

### **Indoor Environmental Quality**

The Environmental Management Office includes a certified industrial hygienist that assists Operations and Maintenance staff with any odors or concerns reported by the school administration. They also provide training about the importance of our Indoor Air Quality (IAQ) and how it relates to student absenteeism. Discussion points include the following:

- No VOC emitting items allowed in classrooms (candles, cleaners, wipes, sanitizers)
- Environmental Management staff provides proactive air quality monitoring
- Daily vacuuming of carpets and routine carpet cleaning using extraction techniques
- Large walk off mats provided at every school point of entry



### **Nutrition**

AACPS recognizes this important part of our students’ well-being and is continuing to offer and promote good nutrition in its school breakfast and lunch programs, as well as, many healthy food initiatives. AACPS serves students and school staff over 8,900,000 meals annually in 120 schools.

### **Tasting of the Rainbow**

Each month, the Tasting of the Rainbow initiative gives students the opportunity to sample a different fruit or vegetable as part of the school meals program. Since research has repeatedly shown the importance of frequent exposures to new foods for improved acceptance, this is a tremendous opportunity to expand students’ healthy food favorites. Recently featured foods include asparagus, butternut squash, cabbage, and pumpkin. The program expansion includes local produce as the feature item. An instructional video showcasing the farm, farmer, and the health benefit of eating local produce is shown to all students and parents in AACPS.

### **School Gardens**

“Grow it, know it, try it ... love it!” is the phrase coined by the National Gardening Association to describe the nationwide effort to get students interested in gardening. School gardens provide wonderful opportunities for learning experiences that allow students to be involved with growing, harvesting, preparing, and ultimately eating healthy fruits and vegetables.

School gardens continue to grow in Anne Arundel County. A partnership with the Department of Health and the Department of Recreation and Parks afford many students in the county a first-hand experience on how food grows.

### **Unlimited Fruits and Vegetables**

Included with every school lunch served in Anne Arundel County Public Schools is our one of a kind, unlimited, fresh fruit and vegetable offering. A minimum of three fresh fruits and four fresh vegetables are featured daily. Dramatic increases in the consumption of these important foods have been noted since this option began years ago.

### **Summer Meals**

The Summer Food Service Program was created from the realization that the need for learning and good nutrition don’t stop when the regular school year ends. “Food that’s in when school is out” is the motto of this essential USDA program. Its goal is to provide critically needed nutrition during summer break by serving free meals to children ages 2 to 18. During the summer of 2015 Anne Arundel County Public Schools served 87,362 meals at 14 open public sites, 34 closed on-site programs, and 18 off-site programs. Two school buses also went to nine community sites as part of the mobile meals program.

### **Farm to School**

Farm to School is an initiative which is jointly administered by the Maryland Department of Agriculture and the Maryland State Department of Education. It brings attention to Maryland grown foods as part of school meals. Through this collaboration, students learn where their food comes from, how it is produced, and the positive health benefits of eating these items. In addition, it supports local farmers and decreases the impact of food transport on the environment. Activities culminate with the annual Home Grown School Lunch Week, celebrated each September as part of back to school festivities.

Not only do we celebrate in September, Anne Arundel County Public Schools continues to purchase local fruits and vegetables from within a 150 mile radius throughout the school year, depending on availability. We include local farmers and their produce for the

tasting of the rainbow video feature. In the 2014-2015 school year 241,961 lbs. of produce were purchased from local farms, including 21 different fruits and vegetables.



### Physical Activity

To support the whole child, movement is now a required learning block during the kindergarten and first grade student's daily experience. Students participate in a 20-minute movement learning block every day, in addition to physical education and recess. During this time students engage in movement, health lessons and school counseling lessons which are all connected to the exploration question of the day. This practice will be implemented into future grades as curricula are rewritten throughout the next several years.

- All middle and high school and several elementary schools have been given iPads to help document students' fitness levels and other components of physical activity. Teachers also use this technology to engage their students in various types of learning.
- Students participate in physical education each week (for elementary school - two times a week for 30 minutes; for middle school every other day or every third day for 55 minutes; for high school - 1/2 credit of fitness for life and 1/2 credit elective).
- The use of school facilities outside of school hours is promoted for physical activity programs offered by community-based organizations.
- Recess is provided each day for all elementary students. Some middle schools have incorporated a recess-like incentive for their students, which affords students the opportunity for additional physical activity during the school day.
- Middle and high school students can participate in intramural sports before, during, or after school, which increases the opportunity for movement and builds a positive culture with healthy competition.
- To help foster students' mental health and increase physical education, participation in outside activities such as Girls on the Run, Heroes, Mighty Milers, Marathon Kids, and BillionMile Club are encouraged.

### Pillar 3: Environmental and Sustainability Education



### Outdoor Education

Outdoor Education in AACPS is an integral part of the curriculum. Teachers are encouraged through curriculum and professional development to incorporate the outdoors as part of their instruction. Many of our school facilities are designed with outdoor classrooms and courtyards designed to facilitate outdoor learning.

- Five-gallon bucket mobile outdoor classrooms are popular throughout our schools.
- More formal outdoor learning areas are currently being developed to incorporate elements that directly tie to curriculum and include elements from art, music, and STEM content areas. Rolling Knolls, Waugh Chapel, and Riviera Beach elementary schools, and Ferndale Early Childhood will be piloting these outdoor learning areas.
- Schools are encouraged to fully utilize their schoolyards for instruction. This includes using local streams for water quality analysis and using forests for habitat and wildlife investigations.
- Many schools have native plant and food gardens as well as meadows and bio retention areas used for hands-on learning.

## Drown Proofing Program

The Drown proofing Program is a comprehensive aquatic safety program for fifth grade students in Anne Arundel County Public Schools. Students develop and demonstrate water safety skills. Students receive readiness instruction in the classroom and four hours of instruction by certified aquatic safety instructors in a pool. The program includes lessons on personal water safety, the use of personal flotation devices (PFDs), safe rescues of others, and cold water survival techniques. The concepts of hypothermia and ice safety are also incorporated into the aquatic lessons.

## Outdoor Education Programming

Anne Arundel County Public Schools is fortunate to have Arlington Echo Outdoor Education Center, a 24-acre site on the Severn River. It has provided hands-on outdoor learning experiences to thousands of students for over 45 years. At this site, along with a Girl Scout facility, Anne Arundel Parks and Recreation sites, and Department of Public Works sites, over 30,000 students and staff each year engage in team-building, canoeing, water safety, and/or environmental activities.

### Pillar 3: Environmental and Sustainability Education



## Environmental Literacy Requirement

In 2010, Maryland became the first state in the nation to implement an environmental literacy high school graduation requirement. In 2011, the Maryland State Department of Education (MSDE) instituted Environmental Literacy Curriculum Standards Pre-K through 12 to be fulfilled by local education agencies. In 2013, Anne Arundel County Public Schools (AACPS) passed the Sustainability Policy that includes environmental literacy education. Long before these policies, environmental education was an important part of AACPS. Since 1971, AACPS's Arlington Echo Outdoor Education Center and other local non-profit environmental education providers have given AACPS students opportunities to learn outdoors about their local environment.

## Environmental Literacy Curriculum

Environmental Literacy in AACPS is integrated throughout the pre-K through high school curriculum. Through interdisciplinary learning activities in their regular curriculum courses, both in the classroom and outdoors, students investigate their local environment, environmental systems, and sustainability. Outdoor learning is a required part of the student experience. Environmental Literacy standards align and integrate with Next Generation Science Standards, Social Studies C3, Common Core as well as the cultural arts. Together with STEM learning and our requirement of student action, environmental literacy/education creates engaging learning experiences and is a key part of AACPS.

Grade	Description of Environmental Literacy Grade Level Units
PK	<b>What's the Trouble with Trash?</b> Students learn about trash, landfills, and litter on land and water. Students learn to recycle at school and home, not to litter and to clean up litter (with adult help). Outdoor learning takes place at school. Students take action by hosting a recycling picnic at school for family members to share what they have learned.
K	<b>Why are Trees Terrific?</b> Students use outdoor experiences to identify plant needs, the parts of a tree and natural resources. Students engage in a field experience and learn about forest ecology, that trees protect water quality and provide food and homes for living things. Integrated as part of the regular curriculum throughout the year, students continue to use trees as a basis for learning about natural resources, including taking action by planting and caring for a tree.
1	<b>How Can We Help The Monarch Butterfly?</b> Students investigate and take action on issues related to Monarch butterflies. Students care for and observe Monarch caterpillars and study Monarch habitat needs, migration and causes of Monarch population decline. Outdoor learning takes place at school. Students take action by tagging/releasing the butterflies and by maintaining schoolyard Monarch

	gardens.
2	<b>How Can We Improve Wildlife Habitats?</b> Students conduct research on local and global habitats and the human impact on them. Outdoor learning takes place at school. Students take action by propagating native plants for use at home.
3	<b>How Cool is Composting?</b> Students compost at school and learn that composting reduces the amount of waste entering landfills. Outdoor learning takes place at school. Students take action by informing others about the environmental benefits of composting.
4	<b>How Has Human Activity Affected Maryland's Living Things?</b> Students investigate the human impact on climate, land, water, and living things. Students conduct investigations/collect data through their science curriculum and field experience to complete project based learning action projects. Students conduct background research, investigate and collect data, and analyze and take actions back at school. Students learn and understand issues affecting the Chesapeake Bay and how they can make a difference.
5	<b>How Do We Make Our School Greener?</b> Students work to acquire or maintain MAEOE Maryland Green School status by conducting audits on energy, water, waste or transportation. Students take action to reduce resource use at school and conduct a second audit to assess the success of their efforts.
6	<b>How Do We Use The Chesapeake Bay Sustainably?</b> Through the ecology of Chesapeake Bay species and restoration projects, students examine the human interaction with the environment including policy, economics, and historical significance in addition to stormwater runoff, the biology of living things, restoration, and pollution. Students participate in a field experience and action projects depending on the project for their school. All projects use water quality and environmental issues affecting living things to investigate the Chesapeake Bay.
7	<b>How Can You Make A Difference?</b> Students investigate the impact of human population growth on the availability of natural resources and environmental quality. Students use a Green School Report Card to evaluate their school. Students make personal choices to make positive environmental changes at school and in their community.
8	<b>How Are Humans Affecting Our Global Environment?</b> Students investigate the causes and effects of environmental change. Students work in cooperative groups to research one of the ways that humans impact the natural change process. Students learn about global issues such as climate change and invasive species.
<b>Biology</b>	<b>How Have Human Activities Impacted Biodiversity?</b> Students analyze manmade and human features in the environment on school grounds, and determine if these features promote effect surrounding aquatic ecosystems. Students conduct a Bioblitz on school grounds, select one human activity, and analyze the impact of this human activity on the environment and biodiversity. Students design a solution to reduce the negative effects on environment and biodiversity.
<b>Government</b>	<b>How should federal, state, and local governments collaborate to create policies to protect ecosystems like the Chesapeake Bay?</b> Students investigative the interaction of government and non-government agencies on environmental issues. Students examine the Federal government’s influence on nationwide environmental issues, the Chesapeake Bay region and Maryland. Students consider the actions and influence of state and local governments and non-governmental entities influence on government action and public opinion. Students present their findings to inform the public, persuade government action, or add support to non-governmental entities.
<b>Health</b>	Students investigate how the changes in the environment affect health. They examine how global climate change affects the spread of infectious disease and how the environment influences the emergence of disease.

<b>6th Family &amp; Consumer Science</b>	Students investigate the green movement's impact on the fashion industry and present research on a chosen topic.
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**Assessments**

Assessment in the AACPS Environmental Literacy curriculum takes many forms. Elementary assessments include projects or products such as journal entries, drawings, maps, or models. Assessment at this level also includes teacher observation of student attitudes and student participation in activities such as classroom discussion, recycling, tree planting or composting. Assessment of environmental literacy learning at the middle and high school levels is integrated into course assessments such as tests and projects.

**Additional Environmental Opportunities**

In addition to the environmental learning and projects listed above, which are embedded into the curriculum for all students, there are additional opportunities for students to investigate and take action on local environmental issues. Through our Terrapin Connections program, students in 80 classrooms raise terrapins, collect growth data, observe behaviors, learn care and husbandry protocols, examine environmental issues and research the natural history of the Diamondback Terrapin. Many schools utilize programs offered by non-profit organizations and Maryland State Department of Natural Resources such as horseshoe raise and release, the Maryland amphibian and reptile atlas, Trout in the Classroom and other citizen science monitoring programs.

**Environmental Science Courses**

All twelve AACPS comprehensive high schools offer AP Environmental Science. The Environmental Science elective course is offered at ten of the twelve high schools and one of our alternative education sites. Student enrollment in AP Environmental Science for the 2015-2016 school year is 1,046 students. Enrollment for the Environmental Science elective is 363 students. Additionally, 24 students are enrolled in an Environmental Resource Management pathway at the Center of Applied Technology.

**STEM, Green Technologies, Career**

- Each AACPS high school offers a unique Signature Program. A Signature brings together educators with local business and community leaders to make classroom instruction relevant, interesting, and challenging for students with opportunities that connect to the 21st century workplace. Environmental Literacy is the Signature at one high school, and many other Signature themes include concepts that address human impact on the global environment.
- The STEM Magnet High School program has a green technology option. Students participate in environmentally focused specialty classes including Environment and Society and Green Architecture.
- The STEM Magnet High School program offers a Community Challenge course where students are paired with businesses/community members to develop real world solutions. Examples of student development projects include invasive species removal plans, app development for stormwater tour, bicycle with cart to supply healthy food (fruits and vegetables) to AACPS community, and bioretention area redesign.
- The STEM Middle School Magnet Program offers students an inquiry-based, interdisciplinary environment to explore diverse subjects. Student entering 6<sup>th</sup> grade are required to attend a 2-day outdoor field experience. STEM themes often engage students in environmental issues especially focused on the Chesapeake Bay.
- The Environmental Literacy and Outdoor Education Office offers yearlong and semester internships for students on topics including submerged aquatic vegetation mapping, wildlife camera trap monitoring, native bee surveys, environmentally themed mural design, and phytoplankton monitoring in collaboration with NOAA/NOS Marine Biotoxins Program.
- The Curriculum for Agricultural Science Education (CASE) at one high school provides a high level of educational experiences to students to enhance the rigor and relevance of agriculture, food, and natural resources subject matter. CASE uses science inquiry for lesson foundation, and concepts are taught using activity-, project-, and problem-based instructional strategies.
- Our Center for Applied Technology Environmental Resource Management (ERM) program gives students working knowledge and first-hand experience in the areas of water resources, fisheries/wildlife, soil, forests and watershed restoration. Project/Problem-based learning allows students to investigate environmental topics, research best practices, and experiment with new ideas to identify restoration and sustainability practices.
- All of the Center for Applied Technology programs, from Welding to Culinary Arts, include activities focused on sustainability practices for that industry.

- In the Biomedical Allied Health program, students are designing and developing a vertical garden to enhance air quality and improve courtyard aesthetics.
- Students from 3 High Schools participate in an annual Career Symposium sponsored by the Chesapeake Bay Foundation.



### Teacher Professional Development

AACPS continues to develop and implement a robust environmental literacy professional development plan. The plan includes teachers, administrators, environmental literacy leaders, and non-school-based environmental education providers. Content includes information on environmental literacy and local environmental issues, outdoor instruction methodology, issue investigation, and hands-on/project based learning and action.

Last year, over 520 teachers were trained in environmental literacy and outdoor education. Courses are offered through the Environmental Literacy and Outdoor Education Office as well as with the STEM, English Language Learners, Science, and Social Studies offices. Professional Development is offered through partnerships with local non-profits such as the Chesapeake Bay Foundation and the Annapolis Maritime Museum.

In addition to teacher PD, environmental literacy instruction is also incorporated in administrator training in the Leadership Development Institute and University of Maryland Ed.D. Educational Leadership.



### Civic and Community Engagement

#### Watershed Stewards Academy

AACPS and the Anne Arundel Department of Public Works (AADPW) collaborated to create the AA County Watershed Stewards Academy (WSA), a unique community outreach and environmental action program. WSA educates community leaders to become “Master Watershed Stewards” who develop partnerships between citizens, organizations, businesses and local government to take responsibility for private property storm water quality and quantity, achieving restoration and preservation of their respective sub-watersheds. WSA continues as a non-profit and joint project with AACPS. Master Watershed Stewards (now 170) engage 10,000 individuals annually on watershed issues, plant over 8,500 native plants and improve over 100,000 s.f. of watershed.

#### Anne Arundel County Department of Public Works (AADPW)

AACPS and AADPW collaborate to combine large scale stormwater restoration projects with environmental literacy learning to provide a local environmental action project. AADPW builds and restores large scale streams and stormwater outfalls and students plant the projects, test water quality and learn about engineering and environmental practices.

#### AACPS Stream Restoration Project

The AACPS Stream Restoration Project was created in 2013 when the Advanced Studies and Programs Office obtained Maryland Department of Natural Resources funding. This project is currently offered to high school students through a Signature Magnet Program. Stream Team Student Leaders work together to organize and implement the planting of 1,000 native trees in watersheds to improve the overall health of the ecosystem. Southern and Broadneck high school students recently worked with elementary and middle school students, planting 915 trees at 10 schools.

## Arlington Echo Outdoor Education Center

AACPS Arlington Echo Outdoor Education Center is a community model for sustainable best practices. This Maryland Association for Environmental & Outdoor Education (MAEOE) Green Center demonstrates solar panels, LED lighting, native plant gardens, rainscapes, a living shoreline, pervious pavement, rain barrels, swales and bioretention areas. The Center has sold over 15,000 rain barrels over the past 12 years, which have been installed at homes and businesses throughout Anne Arundel County and Maryland, supporting stormwater reduction and raising awareness of watershed issues.

### Green Schools

AACPS participates in the MAEOE Maryland Green Schools Program, which requires that parents and community members work with schools to help them become green schools. Community members engage through school environmental fairs, student presentations, school community gardens, and professional development for teachers.



### Meaningful Outdoor Learning Experiences

AACPS is committed to providing meaningful outdoor educational experiences for all students. Each environmental literacy unit (see above) incorporates the components of a meaningful outdoor learning experience. Our definition of a “meaningful” experience is based on the Chesapeake Bay Program’s definition of a “meaningful watershed educational experience,” which includes the following components and practices.

### Components

- 1) Issue Definition:** Throughout the pre K through high school curriculum, students investigate a variety of environmental issues in an age-appropriate way from multiple perspectives. Issues include but are not limited to solid waste, deforestation, habitat loss, water quality, climate change, use of natural resources, the environment and human health, and environmental policy.
- 2) Outdoor Field Experiences:** Multiple outdoor learning experiences on school grounds and/or other locations in the community are a required part of instruction at six elementary grade levels, and in one required middle school course and one required high school course.
- 3) Action Projects:** Environmental literacy issue investigation culminates in environmental action projects at every elementary grade level, pre K through fifth grade, and in one middle school course and one high school course.
- 4) Synthesis and Conclusions:** Because the environmental literacy units are embedded as part of the curriculum, students are conducting projects and reflecting on their actions.

### Essential Practices

- 1) Active Teacher Support:** The environmental literacy curriculum is designed to be implemented by classroom teachers. Elementary, middle and high school classroom teachers, supported by environmental literacy resource teachers, professional development, and supporting programs.
- 2) Classroom Integration:** The AACPS environmental literacy curriculum is rooted in classroom learning, integrating standards from multiple content areas such as Common Core Language Arts and Math, Next Generation Science Standards, and C3 Social Studies. Use of outdoor spaces for instruction is an important component.
- 3) Local Context:** All student investigations are connected to local contexts. Global issues are studied with the purpose of taking action locally.
- 4) Sustained Activity:** Throughout the pre K through high school curriculum, AACPS environmental literacy includes multiple days of instruction, investigation, and environmental action. At some grade levels, for example, the first grade Monarch butterfly unit, learning experiences begin in the fall and are completed with an action project in the spring.