



## 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 District 2015-2018

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Name of Superintendent: Dr. Pamela Moran

(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

District Name: Albemarle County Public School Division

(As it should appear on an award)

Address: 401 McIntire Road; Room 345; Charlottesville, VA 22902

Telephone: (434) 296-5826 Fax: (434) 296-5869

Web site/URL: [www.k12albemarle.org](http://www.k12albemarle.org) E-mail: [moran@k12albemarle.org](mailto:moran@k12albemarle.org)

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



(Superintendent's Signature)

Date: January 23, 2017



**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: Virginia Department of Education

Name of Nominating Authority: Dr. Stephen Staples  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the provisions above.

\_\_\_\_\_Date: January 27, 2017

(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 [green.ribbon.schools@ed.gov](mailto: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/Abstract**

Albemarle County Public Schools (ACPS) serves 13,792 students in preschool through grade 12 in Albemarle County, Virginia, the sixth largest county by area in the Commonwealth of Virginia. A diverse locality of 726 square miles in the heart of Central Virginia, Albemarle County is a blend of primarily rural but also suburban and urban settings.

ACPS has a long-standing commitment to environmental stewardship, formally beginning with an Environmental Management Policy and Environmental Management System established in 2006. Through identification of environmental impacts of our school operations, we steadily make progress on reaching our goals to reduce negative environmental impacts and gain the benefit of cost savings along the way.

Energy efficiency and conservation are a top priority in reducing our environmental impacts. Initiatives include increasing communication with schools about energy and water usage, coordinating energy team meetings, upgrading lighting, installing Energy Star qualified appliances, enhancing our building automation system, and upgrading equipment. Efforts are tracked and benchmarked with ENERGY STAR's Portfolio Manager, and 22 schools have earned the ENERGY STAR label.

Our first major renewable energy installation was completed in February 2012 to include a 42 kW solar photovoltaic array, a Skystream wind turbine, and a solar thermal system. This installation sparked student interest in renewable energy, which developed into a student-led campaign for more solar in our Division. The campaign success led to the installation of 1 megawatt of solar photovoltaic cells through a solar power purchase agreement (PPA) pilot August 2016. These installations provide more than 20% of the electricity needs for these schools - enough electricity to power 125 homes.

ACPS celebrates synergies between the built and natural environments and student learning. Through project-based learning, these built and natural environments are enhancing student learning and understanding. A highlight of environmental education is our Environmental Studies Academy, which offers students several environmental focus areas. Our community partnerships, course offerings, project-based learning focus, and environmental clubs enhance environmental literacy.

Improving student and staff health involves everyone in our Division with continuous contributions from physical education and health teachers, counseling staff, building maintenance personnel, nurses, and individuals. The BeWell Albemarle program for staff provides opportunities to understand and follow an active lifestyle that promotes a culture of good health and wellness through education, wellness activities, and self-improvement.

Our focus on sustainability in education was recently recognized by the Virginia School Board Association when we received top prize in the Green Schools Challenge. We also received one of five nationwide School District Scholarships from USGBC's Center for Green Schools. ACPS will receive ongoing support from the Center for Green Schools over the course of the next year and will benefit from connections with a broad network of school sustainability leaders.

In addition to the environmental and educational benefits, our efforts result in financial benefits. Our average annual avoided utility costs are approximately \$230,000. By recycling construction and demolition debris, we avoid approximately \$15 per ton in tipping fees. By educating our future leaders on the importance of environmental stewardship and wellness, we aim for continued success in Albemarle County Public Schools (@GoGreenACPS).

### **Crosscutting Questions**

ACPS benchmarks our progress in each of the three Green Ribbon School pillars:

1. Reducing environmental impact and costs: ENERGY STAR Portfolio Manager, USGBC LEED Certification, Energy Use Intensity, Water Usage and Recycling Data, Annual Environmental Management System Aspects and Impacts
2. Improving the health and wellness of students and staff: Nurse visit and illness data, indoor air quality investigation measurements, BeWell Albemarle Program participation
3. Providing effective environmental and sustainability education based on sound science and civics: Environmental course offerings and participation, SOL and AP Exam Scores, and Environmental Studies Academy enrollment

Awards related to the Green Ribbon School pillars include national recognition for two Green Ribbon Schools (Stony Point Elementary & Crozet Elementary), Virginia School Board Association – 1<sup>st</sup> Place for Green Schools Challenge for size category (2013, 2016), USGBC’s Center for Green Schools Scholarship District (2016 – 2017), ENERGY STAR Certification (22 schools), USGBC’s Center for Green Schools Trailblazing Teacher Award (Adam Mulcahy, Director for the Environmental Studies Academy), VEEP Whole Kids Foundation School Yard Garden Grant, Verizon Foundation Solar Education Grant, and the Dominion Education Grant (commercial composting), and the Virginia Department of Environmental Quality Virginia Environmental Excellence Program (VEEP) for our Environmental Management System. The Virginia Piedmont Regional Science Fair has recognized over 65 ACPS students over the last three years in environmental science categories with Ashwin Swaminathan advancing to the International Science Fair with his project “Drought Resurrection: A Novel Method to Induce Drought Resistance in Plants.” In addition over 30 students and student teams have won awards from ISEEEP (International Sustainable World Energy Engineering Environment Project), Virginia Lakes and Watershed Association, Stockholm Water Environment Federation, etc.

The Environmental Management System is a framework for involving all stakeholders in continuous improvement for environmental and sustainability efforts. The EMS provides a systematic approach for our school system to bring environmental considerations into day-to-day decision-making and operations. Implementing an EMS also establishes a framework for tracking, evaluating and communicating environmental performance.

### **Goal Area 1: Reducing Environmental Impact and Costs Element**

In 2006, Albemarle County Public Schools (ACPS) established an Environmental Management System (EMS). An EMS is a set of processes and practices that enable an organization to reduce its adverse environmental impacts and increase its operating efficiency. It is a

systematic approach for our school system to bring environmental considerations into day-to-day decision-making and operations. Implementing an EMS also establishes a framework for tracking, evaluating and communicating environmental performance.

The establishment of an Environmental Management Policy is the cornerstone of an EMS. Albemarle County Public Schools has adopted an Environmental Management Policy that embodies our commitment to compliance, pollution prevention, and continual environmental improvement. The Division's environmental initiatives include green building, energy conservation, renewable energy installations, recycling, composting, and integrated pest management.

### ***Energy Conservation and Emissions Reduction***

ACPS is firmly committed to energy conservation. After passing an Energy Management and Conservation Policy<sup>1</sup> and becoming an Energy Star Partner in 2008, the Division earned the Energy Star label for 21 schools and Top Performer recognition. The Energy Star label is awarded to schools achieving an Energy Star rating of at least 75. Top Performer status was awarded because our building portfolio average is above 75. We recently became eligible for additional Energy Star Leaders recognition for reducing our portfolio energy consumption by more than 10%.

Energy efficiency measures include increasing communication with schools about energy and water usage, coordinating energy team meetings, upgrading lighting, installing Energy Star qualified appliances, replacing pneumatic control systems, adding learning cottages to the building automation system, and upgrading equipment. Division students and college interns have assisted with measuring temperature, relative humidity, lighting and carbon dioxide as part of the Energy Star label site verifications for our schools.

We are also pursuing an Energy Performance Contract to upgrade all classroom lighting to LEDs, which will result in improved learning environments for our students and teachers with the added benefit of energy savings. In order to ensure teachers and students preferred the LED lighting to traditional fluorescent fixtures, we conducted a pilot in 10 classrooms. Our teachers enjoyed the dimmability, adaptability, and color temperature of the LED lighting. The building audits have evaluated lighting and water fixtures in all schools.

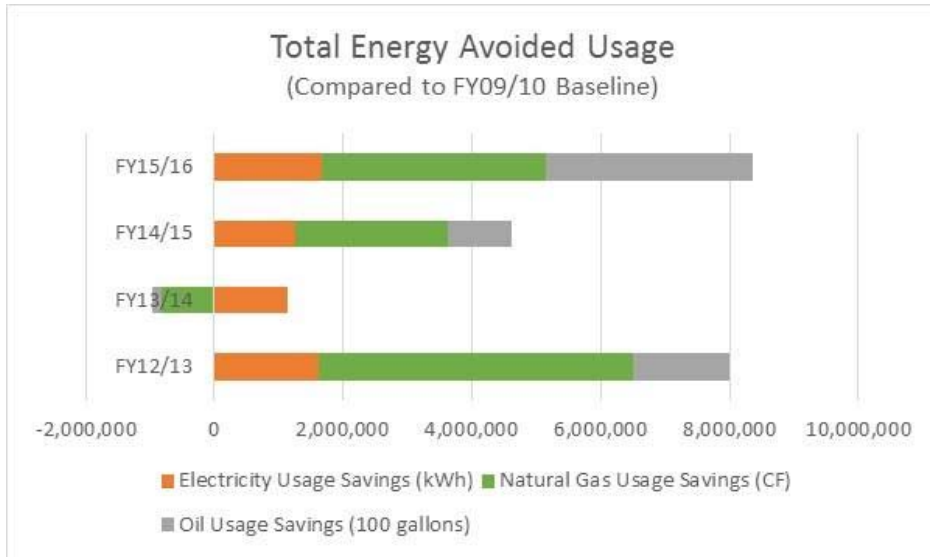
ACPS upgrades approximately 15 buses each year to more fuel efficient models with lower emissions. Bus routes were consolidated in 2011 to eliminate 10% of routes for greater fleet efficiency. Consolidations were made possible by safely increasing walking distances to bus stops. ACPS plans to apply for funding in the next month that would set up infrastructure for electric vehicle charging. Our fleet also includes two Prius models and more fuel efficient transits for facility work vehicles.

Figure 1 shows the avoided energy usage for the past 4 years as compared to a 2009/2010 baseline. The graph breaks down the savings for each energy source: electricity, natural gas, and fuel oil.

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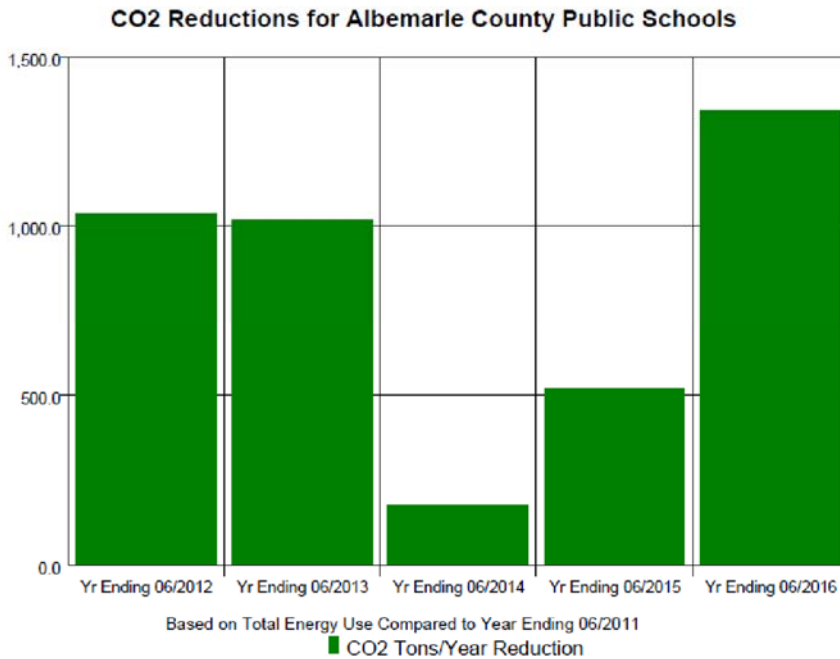
<sup>1</sup> [http://esb.k12albemarle.org/Reference\\_Library/ESB\\_Policies\\_and\\_Regulations/Policies//FEH\\_0115.pdf](http://esb.k12albemarle.org/Reference_Library/ESB_Policies_and_Regulations/Policies//FEH_0115.pdf)

Figure 1: Avoided Energy Usage



ACPS has consistently achieved carbon dioxide (CO<sub>2</sub>) emissions reductions as a result of energy conservation, improved controls and scheduling, and upgrading to more energy efficient equipment. CO<sub>2</sub> reductions related to these improvements are summarized in Figure 2. The CO<sub>2</sub> reductions associated with renewable energy installations are summarized in the section about renewable energy.

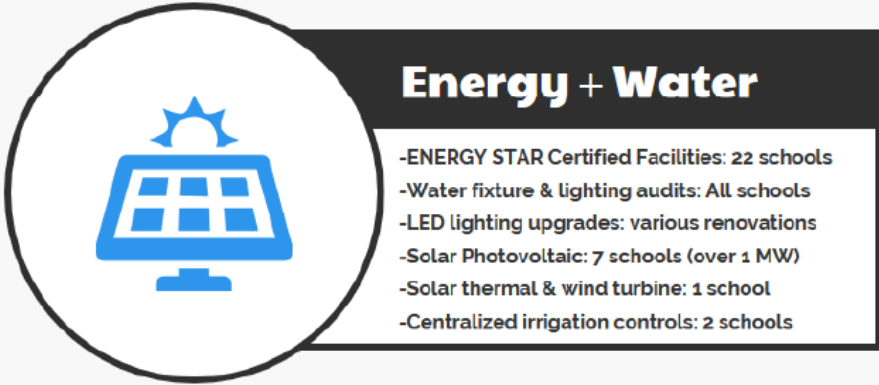
Figure 2: CO<sub>2</sub> Reductions from Non-Renewable Energy Conservation



Recent efforts have focused on renewable energy installations. Construction of a **Renewable Energy Resource Center at Henley Middle School**<sup>2</sup> was completed in February 2012 after receiving a grant from the Department of Mines, Minerals and Energy. The Center includes a 42 kW solar photovoltaic array, a Skystream wind turbine, and a solar thermal system. Graphics Design students researched the systems and created the permanent signage associated with each renewable energy system. We are the first school system in Virginia to install **1 megawatt of solar photovoltaic cells** under the solar power purchase agreement (PPA) pilot in Dominion Virginia Power’s territory. We are excited for our teachers and students to return to six schools with substantial solar arrays. Throughout the year, we will bring workshop opportunities to teachers and students to integrate the data from the solar PV systems with curriculum resources. The systems will reduce our carbon footprint by over 1,050 tons of CO<sub>2</sub> per year. The solar PPA initiative was largely supported by students and staff members, who will now be able to access real-time data on energy production.<sup>3</sup>

Figure 3: Solar PPA Installation Summary

<b>Solar Statistics for Albemarle County Public Schools</b>			
School	System size kW (DC)	Number of Solar Panels	# Average Virginia homes' energy use
Greer Elementary	75	216	9
Albemarle High	124	360	14
Brownsville Elementary	130	378	15
Baker-Butler Elementary	224	648	25
Monticello High	267	774	30
Sutherland Middle	279	809	32
<b>Total</b>	<b>1099</b>	<b>3185</b>	<b>125</b>



**Energy + Water**

- ENERGY STAR Certified Facilities: 22 schools
- Water fixture & lighting audits: All schools
- LED lighting upgrades: various renovations
- Solar Photovoltaic: 7 schools (over 1 MW)
- Solar thermal & wind turbine: 1 school
- Centralized irrigation controls: 2 schools

### **Green Building**

The Division earned **LEED for Schools Gold certification for additions to Brownsville Elementary** and Silver for additions to Albemarle High School. Albemarle High School is the home of the Division’s first green roof, and the roof is monitored for substrate temperature, air temperature, substrate water content, and relative humidity. This data collected about the green

<sup>2</sup> All text marked in bold is accompanied by pictures in Appendix B.

<sup>3</sup> Real-time production and project details: <http://solrenview.com/SolrenView/mainFr.php?siteId=3119>



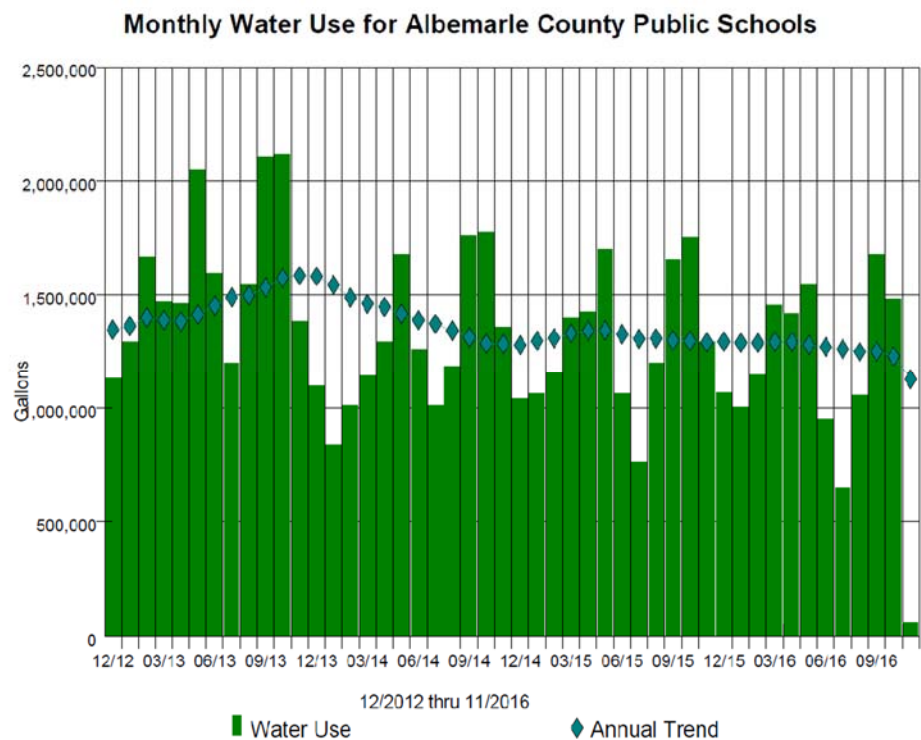
roof is used by teachers and students as part of the curriculum. The Division also has a school registered under LEED for Existing Buildings: Operations & Maintenance to focus on operational efficiencies. Our County recently voted “yes” on a \$35 million bond referendum for modernization and science lab projects. These smaller projects will still incorporate LEED and WELL Building principles to include low-emitting finishes and furnishings, local construction materials, recycled content, daylighting, energy-efficient lighting, and construction waste recycling.

ACPS has taken some steps towards reducing heat island effect. The **green roof at Albemarle High School** covers the administrative section of the building. We have several schools with white EPDM roofs to reflect sunlight and heat away from the building. Many of our school properties are in rural areas and are highly vegetated. Albemarle County maintains a Comprehensive Plan that divides the county into designated development areas (5% of the county) and rural areas (95% of the county). The intent is to focus development into the urban areas to create quality living areas, avoid sprawl, improve access to services and protect the rural areas.

***Water Quality, Efficiency & Conservation***

ACPS receives water from onsite well systems and municipal water sources. We have two Waterworks Operators on staff who regularly tested well water for contaminants, including lead & copper, as required by the Virginia Department of Health. We recently completed voluntary lead & copper sampling at all schools served by municipal water sources to alleviate any effects of premise plumbing on water quality.<sup>4</sup>

Conservation efforts don’t stop with energy. We have utilized interns from the University of Virginia to conduct fixture audits at each school to determine where aerators and fixture upgrades are required. Toilet replacements bring toilets from 3.5 or 1.6 gallons per flush (gpf) to 1.28 or 1.1 gpf. New urinal installations utilize 1 pint per flush instead of 1 gpf. Interns developed a water conservation



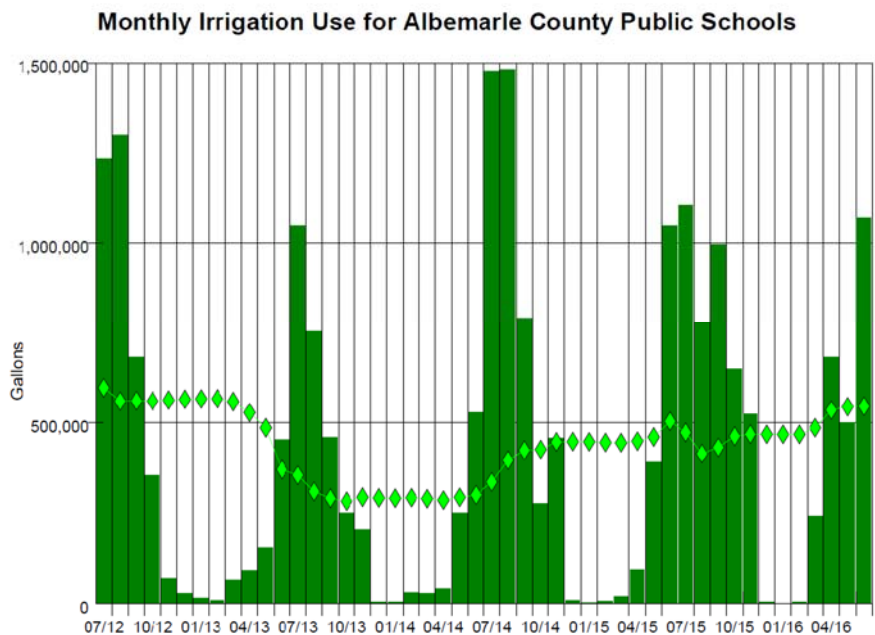
<sup>4</sup> <http://www.nbc29.com/story/32449399/albemarle-county-schools-receive-good-news-with-water-testing>



website<sup>5</sup> and **signage for our restrooms** to remind users of the importance of water conservation. The installation of more efficient fixtures, aerators and water conservation messaging have resulted in a steady decline in building water usage.

While our building water usage trend has steadily declined, our irrigation usage is more erratic. While irrigation will vary based on weather patterns and field maintenance, we wanted to gain better control and understanding of our irrigation usage. To achieve these goals, we will be installing a centrally controlled irrigation system in our largest schools. The centrally controlled system will allow us to ensure that irrigation schedules are accurate, eliminate unwarranted irrigation, and easily change schedules to adjust for rainfall. An added environmental and operational benefit is the reduced vehicle miles by our grounds crew to change irrigation schedules onsite. Only sports fields are irrigated – no landscaping plants are irrigated. One high school utilizes a local pond for irrigation of the practice fields.

Additionally, many schools utilize highly tolerant and native plants in biofilters to retain and treat stormwater runoff. Recent **Green Apple Day of Service** projects at two schools involved students in planting native species in school biofilters. Outdoor classrooms are utilized throughout the Division and have evolved to include **school gardens, views of solar panels, and math gardens.**



***Reduced Waste Production***

Every school and support facility has a recycling program that accepts cardboard, paper, metals, and plastics. Division recycling includes electronic waste, rechargeable and alkaline batteries, fluorescent bulbs, TechnoTrash (CDs, diskettes, cords, etc.), and construction & demolition debris. Additionally, many schools participate in a **commercial composting program** to increase diversion rates for organics. In 2015, ACPS recycled or diverted over 700 tons of materials as summarized in Figure 4. The figure also highlights the reduction of universal and hazardous wastes, such as PCB ballasts and mercury-containing devices.

<sup>5</sup> <https://www2.k12albemarle.org/dept/osp/building/environmental/Pages/Water-Conservation.aspx>

Figure 4: ACPS Recycling Data - Calendar Year 2015

Material	Amount (tons)	Vendor
Used Oil & Oil Filters	12.3	Safety Kleen
Used Antifreeze	1.8	Safety Kleen
Chemicals/Waste Fuel	75.0	Reco, Rapid Recovery
Scrap Metal	8.2	Gerdau
Batteries/cell phones	0.09	Metal Conversion Technologies, Batteries Plus, AERC
TechnoTrash	0.05	GreenDisk
Electronic waste	43.8	Computer Recycling of Virginia
Mixed Waste Recyclables	316	van der Linde
Cardboard Recycling	116	County Waste
Composted Food Waste	28.2	Black Bear Composting
PCB Ballasts	0.7	AERC
Fluorescent, Hg, Na Bulbs	1.5	AERC
Construction Waste	119.8	Van der Linde
<b>Total (tons)</b>	<b>723.3</b>	

We aim to reduce hazardous waste in our division through recycling or eliminating the sources by improving processes. We recycle all mercury-containing devices in our division. PCB ballasts have been removed and recycled from all classroom areas. By upgrading to LED light fixtures, we continue to eliminate mercury-containing fluorescent bulbs. By upgrading a classroom with LED light fixtures, we remove and recycle approximately 120 milligrams of mercury. The ACPS Energy Management and Conservation Policy specifies purchasing energy-efficient lighting and ENERGY STAR appliances.

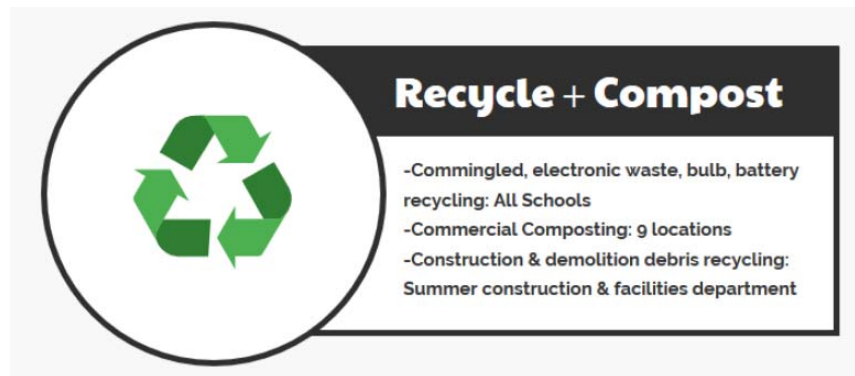
To facilitate instruction and reduce paper waste, ACPS provides laptops to every high school and middle school student. Elementary school students have a laptop to every 2 students. Paper towels and toilet paper are made from 100% recycled content, with paper towels using 50% post-consumer content. Instructional courses that may use chemicals (science, photography, CTE/shop classes) are trained on the Division’s Chemical Hygiene Plan<sup>6</sup> and are annually inspected by the Building Services Department.

Since instituting a green cleaning policy<sup>7</sup> and program in 2008, the Custodial division continues to refine and improve usage of Green Seal and Carpet-Rug-Institute (CRI) rated products. Currently we are replacing vacuums by attrition with CRI Gold and Bronze rated Taski vacuums. We strive to purchase equipment with a DBA rating of less than 70 DBA. All schools have multiple chemical dispenser stations which dispense Green Seal certified products with the exception of a germicidal detergent used to disinfect restrooms. For safety of our employees and to greatly reduce sludge in the waste stream, we’re purchasing oscillating machines to use in place of conventional strip soap and machine agitation. We anticipate reduction in slips and falls along with eliminating 50 tons of sludge in the waste stream. Custodial staff utilizes microfiber cloths to reduce dust and the need for paper products.

<sup>6</sup> <https://www2.k12albemarle.org/dept/osp/building/environmental/Pages/Chemical-Hygiene-Plan.aspx>

<sup>7</sup> [https://www2.k12albemarle.org/dept/osp/building/environmental/Documents/Safer\\_Chemical\\_Management\\_SOP.pdf](https://www2.k12albemarle.org/dept/osp/building/environmental/Documents/Safer_Chemical_Management_SOP.pdf)

A community partner in 2009 completed Safe Routes to School studies for several ACPS schools. We have made improvements to school infrastructure through **Safe Routes to School grants at Crozet Elementary** (a prior national Green Ribbon School Award recipient).



## **Goal Area 2: Improving the Health and Wellness of Students and Staff**

ACPS implemented an integrated pest management (IPM) program in 2008. Since the IPM program was implemented 8 years ago, the Division has only required approximately 40 pesticide applications. During this same period of time under a traditional monthly preventive treatment program, over 2,000 pesticide applications would have occurred. A pest contractor conducts monthly preventive inspections at each school location, and monitoring stations are identified in each kitchen area. If physical methods for excluding pests are not effective, notification of chemical treatments are sent to community members who have “opted in” and posted on the environmental website. Records of inspections and chemical applications are kept at each school and centrally at the Building Services Department. The Safer Chemical Management SOP<sup>8</sup> addresses herbicides utilized on school grounds. The SOP prioritizes herbicides that utilize natural ingredients and specifies the locations where synthetic chemicals are allowed.

### ***Contaminant Control***

ACPS maintains policies that prohibit smoking on school grounds.<sup>9</sup> The Assistant Director for Environmental, Health & Safety manages AHERA compliance and asbestos abatement projects. ACPS adheres to all AHERA requirements (e.g., six-month surveillance, annual notification, 3-year reinspections, employee training, and recordkeeping). ACPS installed carbon monoxide sensors in all mechanical rooms with fuel combustion appliances/boilers. The sensors are connected to our Building Automation System and will send notifications if any alarm thresholds are exceeded. ACPS has eliminated all playgrounds that contained chromated copper arsenate treated wood. Lead-based paint analysis with an XRF camera was conducted in 1990, and the Lead RRP Rule is followed whenever the limited amounts of lead-based paint are disturbed. All

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<sup>8</sup>[https://www2.k12albemarle.org/dept/osp/building/environmental/Documents/Safer\\_Chemical\\_Management\\_SOP.pdf](https://www2.k12albemarle.org/dept/osp/building/environmental/Documents/Safer_Chemical_Management_SOP.pdf)

<sup>9</sup>[http://esb.k12albemarle.org/Reference\\_Library/ESB\\_Policies\\_and\\_Regulations/Policies//GBEC\\_0814.pdf](http://esb.k12albemarle.org/Reference_Library/ESB_Policies_and_Regulations/Policies//GBEC_0814.pdf)

schools have been tested for radon, and any future additions are also tested for radon. As required, all radon results are reported to the Virginia Department of Health.

The Assistant Director for Environmental, Health and Safety is responsible for responding to any indoor air quality (IAQ) concerns. The purpose of the Division's (IAQ) Standard Operating Procedure (SOP) is to encompass all procurement and operational factors contributing to indoor environmental quality. The SOP covers HVAC equipment specifications, indoor air quality investigations, indoor air quality instrumentation, mold abatement, summer/construction operations, green cleaning, mobile classroom procurement and operation, furnishings, and flooring. Routine inspections for moisture are conducted on a daily basis by custodians (visually) and on a biannual basis by the Environmental Health & Safety Coordinator with a thermal imaging camera.

The Division's Chemical Hygiene Plan outlines procedures for the following areas: annual inspections, corrective actions, annual training, required laboratory items, general laboratory safety rules, emergency response procedure, emergency chemical spills, general chemical storage guidelines, chemical and biological disposal procedures, list of acceptable chemicals for experiments, and responsibilities of Chemical Hygiene Officers in schools. ACPS conducts annual Hazard Communication training for all staff, and Safety Data Sheets are maintained electronically for ease of access and updating.



### ***Ventilation System Design and Maintenance***

HVAC filters are changed quarterly by the Division's Building Services Department. A work order is issued for preventive maintenance each quarter. Any issues that arise between filter changes are addressed by our HVAC crew. The Energy Management Technicians monitor the air handling units and percentage of outside air delivered to the classrooms through the Building Automation System. Additionally, during ENERGY STAR site verifications the carbon dioxide levels are measured and ventilation rates are verified for representative classrooms.

### ***Asthma Control***

All Division campuses are smoke-free, ventilation systems are maintained properly, an integrated pest management program is in place, school maintenance (painting, spraying

pesticides and cutting grass) is avoided when school is in session, and all staff are notified of known asthma diagnosis in students.

The presence of all triggers cannot be controlled, so we try to identify ways to decrease exposure of triggers to individual students identified with asthma by staying indoors when outdoor conditions are poor (e.g., local forest fires), pollen and mold spores are worse than normal and /or pre-medicate those students before their recess time; suggest the use of physical barriers to cold such as scarves in cold weather, and have an “Asthma Action Plan” or care plan for each student identified with asthma.

### ***Nutrition and Fitness***

Students receive nutrition education in alignment with the Health and PE Standards of Learning, which include education on energy balances and wellness. Elementary students will understand the impact of salt and sugar intake, comparing serving sizes, how our bodies use macronutrients, and the importance of hydration and physical activity.

During **Farm to School Week**, each child nutrition manager prepared a local menu each day. Schools have partnered with local farmers to learn about farming and taste seasonal fruits, vegetables and meats. These partnerships have led to permanent menu changes. The cafeterias started offering a hummus and vegetable platter produced by a local farm. About half of our schools are hosting **onsite gardens or greenhouses**. Finished compost from the commercial composting program is used for the onsite gardens.

The Division sets the framework for student and staff wellness through Board level policies<sup>10</sup>, school-based nurses, and community boards. The School Health Advisory Board (SHAB) assists with the development of health policy in the division and the evaluation of the status of school health, health education, the school environment, and health services. The SHAB consists of local physicians, parents, and other health-related professions and reports recommendations annually to the School Board. The SHAB has addressed a range of issues including the installation of cell towers, wireless routers, fragrances in schools, active seating, homework policies, and nurse staffing. A new homework policy aims to improve student health and overall wellness.<sup>11</sup>

School nurses are employed at all schools. Nurses accommodated over 169,000 clinic visits in the past school year. The volume and diversity of work performed by school nurses is tabulated at the referenced link – the top reasons include feeling ill, minor injuries, and medication dispensation<sup>12</sup>. School nurses also collect any medications that are expired or not picked up by students at the end of the year so they can be properly disposed through a drug takeback program hosted by the local hospital and police department.

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<sup>10</sup> Student Wellness Policy:

[http://esb.k12albemarle.org/Reference\\_Library/ESB\\_Policies\\_and\\_Regulations/Policies//JHCF\\_1016.pdf](http://esb.k12albemarle.org/Reference_Library/ESB_Policies_and_Regulations/Policies//JHCF_1016.pdf)

Staff Health Policy:

[http://esb.k12albemarle.org/Reference\\_Library/ESB\\_Policies\\_and\\_Regulations/Policies//GBE\\_0614.pdf](http://esb.k12albemarle.org/Reference_Library/ESB_Policies_and_Regulations/Policies//GBE_0614.pdf)

<sup>11</sup> Homework Policy:

[http://esb.k12albemarle.org/reference\\_library/esb\\_policies\\_and\\_regulations/policies/ikb\\_0516.pdf](http://esb.k12albemarle.org/reference_library/esb_policies_and_regulations/policies/ikb_0516.pdf)

<sup>12</sup> <http://esb.k12albemarle.org/attachments/062c14c3-bdaf-4361-82f4-d1065d5a504d.pdf>

School counselors are available at all schools and provide school guidance curriculum, individual student planning and responsive services. The counseling department has elementary and secondary curriculum available<sup>13</sup>. The school counseling program functions in collaboration with students, school staff, parents, guardians, and the community to ensure student success. The school counseling program is managed by state certified counselors. ACPS received Safe Schools/Healthy Students grants in the past to provide free counseling services for all middle and high school students to address issues that may include sadness and clinical depression, substance abuse, family abuse or problems, peer conflicts, academic failure, behavior problems, and suicidal thoughts or behaviors.

### ***Physical Education***

The Albemarle County School Division provides a program of physical fitness available to all students with a goal of at least 150 minutes per week on average during the regular school year. Such program may include any combination of physical education classes, extracurricular activities, and other programs and activities. ACPS provides anonymous height/weight data to Central VA's Move to Health Organization to assist in benchmarking our community's wellness progress.

ACPS is constantly seeking and coordinating partnerships with local entities that encourage student wellness, healthy eating and general nutrition and fitness. The Virginia Food Hub sponsors the Farm to School week and works with six of our schools to take food from local farms to serve in our cafeterias. This provides an opportunity for schools and classroom instruction to highlight efforts that are taking place throughout the year to source more school foods grown locally, and to provide educational activities to students that emphasize food, farming, and nutrition. These efforts have benefits that reach beyond the cafeteria since they make a lasting impact on the health and eating habits of the next generation. In addition this has the added benefit to local farmers as they see an increased market opportunity.

ACPS employees are offered discounts to several area gyms and recreational facilities and our division offers an ongoing wellness program along with mindfulness training for staff on a regular basis.

One of our division lifelong learner competencies states that students will "Understand and follow a physically active lifestyle that promotes good health and wellness". The ACPS Lifelong Learner Competencies represent our core beliefs as a school division and the competencies represent characteristics that we expect all of our graduates to master.

As part of our commitment to assess student progress on becoming a lifelong learner the division has created and administers a collection of performance tasks across all grade levels. The competency regarding physically active lifestyle is assessed in 5th, 7th, and 9th grade leveraging an innovative approach to Physical Education. The task expands upon the goal setting standards in the Physical Education Standards of Learning starting with students pre-assessing their own needs and setting a goal that they would like to work towards. The teacher then designs several opportunities a week for students to independently perform exercises, arrange for pick-up games,

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<sup>13</sup> <https://www2.k12albemarle.org/dept/instruction/schoolcounseling/Pages/curriculum.aspx>



or pursue their goal however they see fit. This open feeling and student ownership of their own health and wellness during Physical Education is a major shift from a previous time when we might have seen students directed through various units of instruction that they had no control over. After setting their goals and working towards them, students are then given time to reflect on their progress and determine whether they want to continue, adjust, or set a new goal.

In 2016-17 there were 1,827 students assessed across grades 5, 7, and 9 on this performance task with nearly three-fourths of the students scoring in the Advanced or Proficient range. In addition to progressing instruction within our classroom Physical Education programs, our community began asking for alternative ways to demonstrate they have mastered the Standards of Learning in Physical Education for High School.

We heard from our students that are engaged in Athletics or even Marching Band that they were interested in leveraging the exercise during those activities to count for Physical Education credit. While participation alone in these activities wouldn't demonstrate

competence in all of the broad categories within the course standards, ACPS set out to design a Virtual course that would allow students to pull everything together. The core of Virtual Physical Education was designed from the ground up on the premise of how to put students in control of their own health and wellness. Within the course students

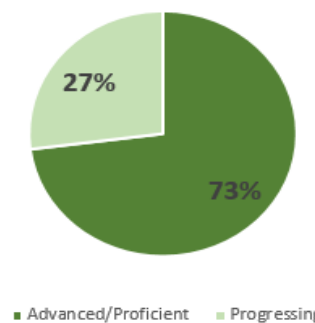
design their own strength and cardio plans in addition to selecting a sport or activity of their choice through which to improve or develop their skillset. Students are held accountable through a portfolio of items including video recorded workouts as well as tracking their cardio performance and other health related metrics with a Fitbit Charge HR that is issued to every student. The end result are students leave the course with the tools, experience, and understanding how to follow a physically active lifestyle that promotes good health and wellness.

Twelve of our elementary schools maintain a school garden, three of our high schools have aquaponics systems along with two of our middle schools, and our Environmental Studies Academy has a full greenhouse with students essentially in charge of all aspects.

The division has created a School Health Advisory Board that meets quarterly to discuss issues around student and staff health and well-being.

The Kohl's Growing Up Healthy Program (KGUH) is an innovative collaboration between the UVA Children's Fitness Clinic, the Social Issues in Medicine course at the University of Virginia Medical School, and the Albemarle County Extended Day Care Program. In the program, UVA medical students teach Kindergarten through 5th grade students about healthy nutrition and lifestyle habits to maintain a strong body and mind.

ACPS Goal Setting for a Physically Active Lifestyle





### **Goal Area 3: Providing Effective Environmental and Sustainability Education**

#### ***Environmental and Sustainability Literacy***

The Division's environmental and sustainability education is spearheaded by our **Environmental Studies Academy (ESA)**. Our academy model allows us to roll out initiatives to a small group of students to developmentally test concepts before rolling out division-wide. In addition, our Academy students serve as mentors, role models and guides to numerous middle school and elementary students.

This past spring ACPS developed an Environmental Art class along with an English class that focuses on Environmental Law and Policy and to be implemented in the fall of 2017. The Environmental Art class will include the following focus areas: insect migration project, orchard/farm field trips, recycled art sculptures, native species drawings, aluminum can sculptures, botanical garden trip, farmer's market ad production, and a pollinator project. Currently ACPS is also developing a combination Biology/Environmental dual class that focuses on data collection and experimentation.

Our Math, Engineering and Science Academy (MESA) focuses on clean energy and sustainability as an umbrella topic during the student's junior year and students perform various research projects around energy topics including a comprehensive life cycle analysis that explores competing products from cradle to grave. This analysis seeks to determine environmental impact across the entire life-cycle of two similar products to compare all aspects of a product to unwrap the environmental impact in raw material acquisition, transportation, manufacturing, distribution, usage and end of life disposal.

**Governor Terry McAuliffe recently visited Monticello High School** for a ribbon cutting ceremony for a solar panel installation, where former ACPS students were instrumental in gaining support for installation of solar panels at six of our area schools. "We're excited to have six schools up and running," said assistant director of building services for Albemarle County Schools, Lindsay Snoddy. "We have live data collection systems and know exactly what they're producing in real time and our students and teachers are going to be using that data to integrate into the classroom learning and do some real project-based learning with it."

ACPS students are collaborating with McIntire Botanical gardens in their development as they seek to open in 2018. Students will work to move a stream and help create the landscaping for the garden. This experience will give students the opportunity to see the development and process to create a nature preservation area from the ground up.

In 2013 and 2016, the Virginia School Boards Association honored Albemarle County with the top environmental prize in the "Green Schools Challenge". This contest was designed to encourage divisions to implement practices and policies to reduce their carbon footprints. Nowhere is this highlighted more than at Henley Middle School. Henley features solar panels, a solar thermal heating system and a wind turbine. Susan Guerrant, Henley's Environmental Coordinator, said the technology also serves as a learning opportunity for the students. "Our 6<sup>th</sup> grade science students complete an extensive sustainability unit, and our 7<sup>th</sup> grade math students work on project-based learning by applying their interpretation of data

collected from Henley renewables to scale model residencies, and our 8<sup>th</sup> grade students include our renewables when they study the transfer of energy concepts.”

### ***Assessment Materials and Professional Development***

Albemarle County uses a variety of assessment items including textbook and assessment materials from McGraw-Hill, Pearson and Scholastic. In addition, we participate in The Virginia School University Partnership (VSUP) and have downloaded their question bank into SchoolNet, which is our division-wide testing apparatus. Along with the purchased vetted question banks, teachers have the ability to upload their own questions into the database and after vetting by the instructional team these question are matched against the state SOLs and are available for all instructors to use in their instruction and assessment. In addition, ACPS has developed performance assessments to measure student performance against our lifelong learner division goals which mirror many of the critical thinking and collaboration skills desirous of our 21st century graduates.

The Virginia standards of learning have specific targets and standards for each grade level and students are measured by the end of course SOL tests as appropriate. Our Lifelong learner competency states that students will “participate fully in civic life, and act on democratic ideals within the context of community and global interdependence.” Nowhere is this more evident than in developing citizen students who understand their role in the world.

Albemarle County offers multiple professional development opportunities for teachers throughout the school year. In addition, each teacher is expected to participate in professional development sessions over the summer. Recently ACPS has reached out to the National Energy Education Development (NEED) Project in conjunction with Dominion Power to participate in training our teachers around energy and sustainability activities and instruction. This partnership will train teachers on incorporating the data from our solar photovoltaic installations into classroom instruction.

Many teachers attend workshops and conferences with a focus around environmental issues. Approximately ten ACPS teachers attended the Virginia Military Academy STEM conference which featured a session around climate lessons specifically geared towards middle school instruction.

ACPS received Northrop Grumman Foundation and Conservation International’s grant funding for STEM teacher training. During the summer of 2017, four teachers will be funded to work with scientists for two weeks in an ECO Classroom program in Costa Rica to provide supplemental tools and real-world experiences to inspire students to pursue STEM related careers.

### ***Community Partnerships***

Albemarle County embraces our partnerships with the University of Virginia, Piedmont Virginia Community College, James Madison University, The New York Hall of Science, University of Virginia Medical Center, Martha Jefferson Hospital, Northrop Grumman, and other community groups. Bringing the community to the classroom allows students and their teachers to enhance

learning through relationship building and relevance. Business involvement increases student knowledge and fosters a deeper understanding of careers and citizenship. One such relationship is the Rivanna Stormwater Education partnership. From pollution to runoff in parking lots to pet waste, Rivanna has helped develop lesson plans for our students to understand their responsibility to the environment. All of our 4<sup>th</sup> graders attend Camp Albemarle – a nature preservation area – and learn through stations and volunteers coordinated by the Thomas Jefferson Soil and Water Conservation. Many of our students are given the opportunity to learn in an outdoor hands on lab that many are not exposed to in any other setting.

### ***Development of Content Using Environment & Sustainability***

The Virginia Initiative for Science Teaching and Achievement (VISTA) Elementary Literacy Integrated with Science (ELIS) at UVA recently received over \$200,000 to serve 60 teachers in Albemarle County. The Northrop Grumman Foundation has provided funding for four teachers to spend two weeks at the ECO Classroom in Costa Rica. The ECO Classroom is a unique and innovative nationwide professional development program designed to offer public school science teachers supplemental tools and real-world experiences to inspire students to pursue STEM related careers. Because ACPS was selected as a School District Scholarship Awardee for 2016<sup>14</sup>, we have free access for some teachers to access Learning Lab<sup>15</sup> which provides Learning Lab provides K-12 teachers and school leaders with comprehensive, project- and STEM-based curriculum that encourages student leadership, environmental literacy, and real-world action.

Elementary and middle school students integrate environment and sustainability into many lessons and projects. Recent lessons include creating green cities of the future, studying the Great Pacific Garbage patch, Chesapeake Bay watershed analysis, project-based learning on renewable and non-renewable resources, soil analysis, presentations by local environmental experts, dissection of owl pellets, analysis of building utility data, participation in ENERGY STAR site verifications, and Wind for Schools. The results of this project-based work is often presented to the larger student body to further increase environmental literacy at the elementary and middle school levels. Ongoing field trips that reinforce environmental lessons include trips to local farms, orchards, Virginia Discovery Museum, and Chincoteague Bay Field Station.

ACPS high schools offer a variety of dual enrollment and AP Science electives. Students are challenged to take courses that interest them and offer opportunities to study for careers in medicine, environmental fields, and engineering. ACPS offers three special academies that focus on skills for careers in engineering, medical, and environmental studies. Approximately 550 students are in one of the three academies. In addition, numerous other electives are as follows with enrollment numbers: AP Biology (183); AP Biology 2 (119); AP Environmental Science (163); Ecology (306); and Horticulture (39). Students also take a variety of other specialty courses in Oceanography to Geology through dual enrollment with Piedmont Virginia Community College or online through Edgenuity or Virtual Virginia. Many of our physical science courses from Physics to Earth Science offer components of environmental studies.

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<sup>14</sup> <http://www.usgbc.org/articles/recognizing-2016-school-district-scholarship-awardees>

<sup>15</sup> <https://learninglab.usgbc.org/>

This past semester students taking Earth Science at Monticello High School **created weather stations from scratch** learning coding and using Arduinos to create devices that measure temperature, humidity, pressure, etc. By using the environment as a teaching tool the students were more engaged and learned additional math, science, and engineering in addition to coding. The students were able to access the weather data from their phones. Attention to detail, construction, working in collaborative teams were all enhanced through this educational experience.

Currently the school contracts with the Thomas Jefferson Soil and Water Conservation group to provide a meaningful watershed educational experience (MWEE) for our elementary students. All 4th grade students and many 3rd and 5th grade students will participate in outdoor learning labs offered at the Camp Albemarle site. Moorman River runs through this site and students are offered day long and overnight opportunities to engage in a meaningful outdoor experience. The Thomas Jefferson Soil and Water volunteer staff offers at least six different learning stations for students. Before traveling to the site students will participate in background research and hands on activities appropriate for their grade level at their school. These activities involve research, **field investigations**, data analysis, reflection and sharing the information which involves our critical lifelong learner competencies.

### ***Civic Knowledge and Skills***

Civic responsibility is an important component in the ACPS portrait of a graduate. When we discuss 21st century skills (collaboration, creativity, critical thinking and communication) we also recognize another “C” around citizenship. Our senior students must complete 10 hours of community service over the course of their senior year. This volunteer time takes on many forms and has our students cleaning grounds, picking up trash, working with elementary students, working in shelters and retirement communities. However this service learning also takes place outside the senior requirement and is often more powerful.

One such example is the 8th grade students at Henley Middle School who recently studied global citizenship, how to be good stewards of the earth, and other issues like sustainable development. One topic the class studied was the conflict between commercial interests and natural resources specifically in the gold mining that is destroying Peruvian rainforests. The Henley students decided to help build a school and undertake a month-long project where each child created craft items which were then auctioned to raise money. Henley students later interacted with students in their new schools. As part of this work, the entrepreneurship class learned web design, marketing and retail skills around fundraising and created a wildly successful cross-curricular learning opportunity.

Western Albemarle High School takes advantage of a testing day for upperclassmen to offer community engagement for almost 300 9th grade students. Activities included a waste audit, art with recycled materials, landscaping, assisting at senior centers, assisting the community library, and making anti-bullying signage. As a result of this one day activity, our students enjoy community service and the Division establishes long-term relationships with community sponsors.

The Virginia Standards of Learning offer a comparison to our state counterparts and Albemarle County performs at or near the same level on most basic math and science courses.

SOL Test	Albemarle County	State
All Math	78	80
All Science	82	83
Biology	85	84
Algebra I	86	83
Chemistry	89	88
Earth Science	84	84

In addition ACPS schools perform substantially higher than the state average in courses that focus on environmental issues.

Environmental AP Course	Albemarle County	State
AP Biology	3.30	2.90
AP Environmental Science	2.90	2.59
AP Chemistry	3.10	2.60

While Virginia SOL scores are comparable to the rest of the state, Albemarle County consistently scores above state and national averages on the SAT norm referenced test across the board as seen.

Subject	SAT Scores		
	Albemarle County	State	National
Reading	563	515	492
Math	566	512	501
Writing	539	493	478

In addition to national tests, ACPS has developed performance assessments that measure our lifelong learner skills<sup>16</sup>. These performance assessments starting in kindergarten measure specific lifelong learner skills and allow us to track cohorts as they move through their grade levels. Over the last four years we have seen consistent growth in student performance as measured against these 21st century skills and desired graduate outcomes.

Over the last several decades environmental concerns have become increasing more important. From changing climate, population growth, energy demands, destruction of habitats, genetically modified food and more, the demand for environmental scientists and environmental engineers is at an all-time high with projected double digit increases in career demand over the next 10 years. Albemarle County recognizes our role in making the instructional shift to meet the demands of the future. By constantly creating opportunities and bridging the current standards with environmental learning opportunities our responsibility is to create citizen-students who understand their role in the world. While it is cliché to say that our students are our future, at the same time it is reality. Making sure that as a division we teach the skills, and the attributes and establish the learning conditions in which students embrace and recognize the importance of environmental issues cannot be understated.

<sup>16</sup> <https://www2.k12albemarle.org/acps/division/Pages/Lifelong-Learner-Competencies.aspx>