



Arlington
Public
Schools

SUSTAINABILITY

BRIEFING REPORT

DECEMBER 2018





SUSTAINABILITY

Arlington Public Schools practices stewardship to honor our community's investment in our schools; to create healthy, safe, and optimal learning environments; and to serve current and future generations of learners. Sustainability supports stewardship, which is one of our core values, and provides a framework to achieve operational excellence in our learning environments and daily operations. Learning about sustainability allows our students to make connections to the world around them and creates pathways for their future growth as global citizens.

SUSTAINABILITY AT APS

APS incorporates the values of sustainability into teaching and learning programs, facilities, school operations, and community outreach. Sustainability touches all aspects of our students' daily school lives from biking and walking to school, offering healthy breakfasts to start their day to learning environments where they can make connections from their classrooms to the world outside.

TEACHING AND LEARNING

Sustainable lessons and projects promote healthy, engaged students. Incorporating sustainability in teaching and learning provides a way for students to connect their lessons to the environment around them. APS continues to invest significant resources to promote sustainability and environmental stewardship at the school and division level. The National Oceanic and Atmospheric Administration's (NOAA) B-Wet Grant, Sustainability Liaisons Program, and Outdoor Laboratory, are examples of three programs that support stewardship and promote our commitment to every child.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) B-WET GRANT

The NOAA Bay Watershed Education and Training (B-Wet) program provides local grants to K-12 districts in the Bay Watershed to focus on project based learning through Meaningful Watershed Educational Experiences (MWEE). APS is in year two of a three-year grant for its proposal on Sustainable Solutions for Urban Stormwater Management through Project Based Learning. The goal for this program is to provide

all high school biology students with a comprehensive understanding of how stormwater runoff affects the local watersheds, and to assist students in developing solutions through project based learning.

The project seeks to accomplish the following objectives:

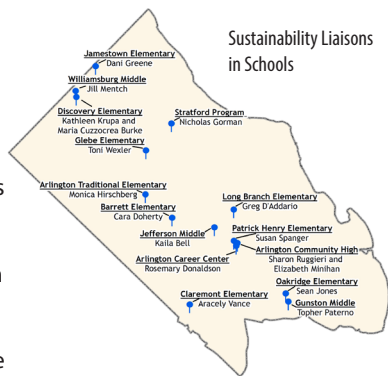
- By July 2019, 5,400 students and 50 teachers will engage in MWEE;
- By July 2019, pollutants discharged in local streams will be significantly reduced;
- 1,800 students per grant year will gain a comprehensive understanding of stormwater management, watershed stewardship, and human impacts to the environment; and
- Six APS high schools and secondary schools will participate in the National Wildlife Federation's (NWF) Eco-Schools USA program and address Watersheds, Oceans, and Wetlands Pathways, making them eligible for the Eco-Schools USA Silver award level.

SUSTAINABILITY LIAISON PROGRAM

The Sustainability Liaison program supports eighteen (18) schools this year across the division. The liaisons are supported by the Superintendent's Advisory Committee on Sustainability (SACS). In the 2017-18 school year, SACS introduced the buddy program matching SACS members with liaisons to provide support, guidance, and connections to deeper sustainability expertise. Last year's liaison cohort completed 33 projects with 14 focused on recycling and waste management, 10 focused on outdoor learning and schoolyard habitats, and 4 focused on transportation.

The liaisons have done exceptional work to build a culture of sustainability in APS through diverse operational, transportation, and communication projects. They lead students and staff to reduce environmental impacts, encourage active learning, and link sustainability to the standards of learning. The goals for the liaisons include identifying sustainability related activities, collaborating and sharing information, and fostering project implementation.

Highlights from last year's program include 660 pounds of food donated to the Arlington Food Assistance Center, the Long Branch Recycling Rangers recycling approximately 20,000 pounds of recyclable material, certification by the National Wildlife Federation for one school's natural habitat, and Arlington Transportation Partners awarding Oakridge Elementary the Platinum distinction for reducing their carbon footprint by encouraging staff and students to walk and bike to school.



The Sustainability Liaison program supports the school district's core value of stewardship by protecting our community's investments in our resources and providing healthy, project based learning opportunities for our students. We recommend continued support and growth for this program.

OUTDOOR LABORATORY

The Phoebe Hall Knipling Outdoor Laboratory in Fauquier County is a valuable resource that gives students the opportunity to spend time outdoors in a natural environment and learn how their decisions and behaviors affect other living things.

During the 2017-18 school year 7,019 students and 288 staff took part in specific learning activities on day or overnight visits. Programs conducted at the laboratory are aligned to grade level science curriculum from grade 3 through grade 12. Students learn how their decisions and behaviors affect other living things. As they acquire knowledge and understanding from and about their environment, students develop competence in evaluating alternatives for using and managing resources.



FACILITIES AND OPERATIONS

As APS enrollment continues to grow, we are committed to sustainability in design and construction, maintenance, transportation and stormwater management. Sustainably designed, operated and maintained schools are sound long-term investments that do not have to cost more than traditional schools. Finding sustainable transportation options in an increasingly urban environment for our staff and students improves the safety around our schools and the health of our community. Managing stormwater runoff has become very important in our more urban environment with greater impervious surfaces creating flooding risks and pollution in our local waterways.

Discovery Elementary demonstrates our goals for optimal learning environments while reducing our maintenance and operations costs. Discovery was designed to have an energy use index (EUI) that is one third that of a typical elementary school in Arlington, and as the largest

building of any type certified as zero energy by the Living Building Institute, produces more energy than it consumes over the course of a year. Our energy cost avoidance at Discovery is estimated to be \$100,000 annually.

We continue to look at various sustainability initiatives that will reduce our energy use, impact, and expenditures as we continue to grow. In FY2018, our electricity spend was \$1.08/sf. Rising electricity costs have an impact on a school division's budget. Our goal is to manage our energy expenditure in a fiscally responsible manner. We have pursued two initiatives, Solar Power Purchase Agreements (PPAs) and Demand Side Energy Management Programs, that allow us to manage our rising electricity costs responsibly, while also generating some revenue.

SOLAR POWER PURCHASE AGREEMENTS (PPAS)

PPAs allow the customer, be it a municipality, a state entity, or a school division, the ability to add renewable energy on existing properties at little to no upfront cost. The solar photovoltaic (PV) system owner enters into a financial agreement with the customer for a long-term contract at an attractive, negotiated electricity rate.



Solar PPAs give APS an opportunity to expand its renewable energy portfolio and provide a hedge against rising electricity rates. Solar PV arrays also support authentic teaching and learning opportunities. Students can see and analyze real time power generation and the impact on solar power production of various environmental factors.

APS has awarded the Solar Photovoltaic (PV) Rooftop System Power Purchase Agreement contract to Sun Tribe Solar of Charlottesville, VA. Sun Tribe is a Virginia firm with a commitment to clean energy and growing the Virginia renewable energy marketplace. APS has agreed to a 25-year fixed-price contract to purchase power from solar PV arrays to be installed at five (5) sites. We look forward to installing the solar arrays in 2019.

DEMAND SIDE ENERGY MANAGEMENT PROGRAMS

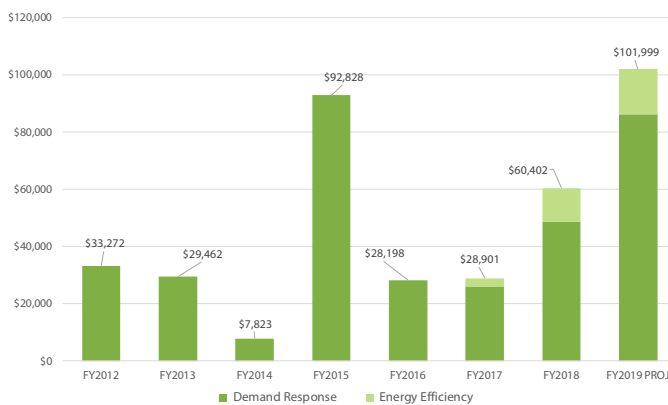
APS has participated in the state's demand side energy management program since 2012. Demand side energy management means curtailing the amount of power our facilities use to lower our electricity costs, generate revenue, and support our sustainability objectives. APS has participated in two different programs for demand side energy management: demand response and energy efficiency.

Demand response programs pay participants for reducing their electricity demand when the grid is stressed and demand for power is great. APS can participate in demand response by operating its full backup generator at Washington-Lee High School and by using its building automation system at other schools to reduce the building load during these peak load times. Since 2012, APS has received over \$250,000 for participation in demand response. In FY2019, APS will receive an estimated revenue of \$86,000 for our participation.

Energy efficiency programs offer revenue to customers that permanently reduce their load through energy efficiency upgrades including heating and cooling, lighting, and replacing old motors. APS began participating in Virginia's energy efficiency programs in 2017 by submitting Discovery Elementary and several lighting upgrade projects. For a customer, these projects not only permanently reduce

electricity consumption saving money annually, but also earn revenue for the permanently reduced load. For example, Discovery Elementary operates at 40% less demand than the load of a typical elementary school. This reduction along with improvements in lighting at various schools has earned APS close to \$40,000.

Load Reduction Energy Programs FY2012-18
Revenue: \$269,000



TRANSPORTATION

Through APS Go!, a division-wide Transportation Demand Management (TDM) Plan for students and staff, and its grant-funded Safe Routes To School program, APS strongly encourages sustainable modes of transportation, including APS bus transportation, biking, walking, carpooling, and public transit, as preferred alternatives to single occupancy or single family vehicles. We are now in our sixth year of grant funding for the Safe Routes to School program, which promotes active, sustainable transportation modes through education, encouragement, evaluation, and enforcement activities. This program also supports our elementary bike safety program, teaching safety fundamentals and rules of the road while building our students' confidence and independence. Engagement with our schools, students, and families via outreach and our coordination and collaboration with our County partners, affirms our support for sustainable transportation modes at all our schools and facilities, and underscores our commitment to improving air quality and safety. Reducing the number of private vehicles near our schools greatly improves safety for our students. Reducing the number of vehicles driving and idling around our schools – and consequently the emissions of greenhouse gases and particulate matter – benefits student health. New routing and planning software linked to GPS on each school bus helps us route our buses more efficiently, thereby increasing ridership and further reducing congestion and emissions around schools.



Bike Safety Program

STORMWATER MANAGEMENT

APS received its Phase II Municipal Separate Storm Sewer System (MS4) permit in April 2014. This permit requires APS to implement a comprehensive stormwater management program to comply with federal and state water quality requirements. Arlington County Government has its own MS4 permit and uses the Sanitary District Tax to fund its permit obligations. APS has no such revenue stream creating an unfunded mandate.

APS stormwater obligations continue to grow as we grow as a school division. We are responsible for six (6) Minimum Control Measures (MCM) and, the Department of Environmental Quality (DEQ) requires APS to implement a Total Maximum Daily Load (TMDL) action plan to meet waste load allocations for the Chesapeake Bay. The 6 MCMs focus on education and outreach, involvement and participation, illicit discharge and detection, construction site runoff control, post-construction stormwater management, and pollution prevention and good housekeeping.

Additionally, new construction projects and major maintenance and minor construction projects are required to meet the County's stormwater requirements regarding water quality and quantity. With limited space, these stormwater requirements can add more time and cost in design, construction, permitting, and ongoing operations and maintenance.

This year's extremely wet season demonstrates the importance of proper stormwater management and control. As Arlington County becomes increasingly dense with greater imperviousness, it is imperative to find ways to mitigate stormwater runoff and protect local waterways. APS has allocated resources within its budget to meet current MS4 requirements and obligations, but additional resources will be required in the future. Closer collaboration with the County regarding resource allocation for stormwater management and the Sanitary District Tax is needed.



ACHS Students Performing Water Quality Survey

SUMMARY

Sustainability is a keystone to good stewardship and APS' commitment to building and maintaining optimal learning environments. Sustainability programs engage, challenge, and motivate our students to become life-long environmental stewards, who will protect natural resources and promote creativity and healthy ways of living. Our goal is to address our growing student enrollment while reaching the highest standards in teaching and learning, school operations, design and construction, transportation, stormwater, and fiscal management. There is tremendous value in integrating sustainability into our dynamic learning environments and our daily operations, while meeting safety and comfort standards in a fiscally responsible manner. We want all students to succeed in our global community.

