

Sustainability

BRIEFING REPORT



APRIL 2020



Arlington
Public
Schools



5th grade students at the Outdoor Laboratory

SUSTAINABILITY PROGRAM

Arlington Public Schools' mission is to ensure all students learn and thrive in a safe, healthy, and supportive environment. Sustainability supports our mission and is the foundation of stewardship, which is one of our core values. A sustainable school division supports all facets of our strategic plan by offering opportunities for student success, workforce engagement, operational excellence, and community-based partnerships. Learning about sustainability is an active process that allows our students to make connections to the world around them and creates pathways for their future growth as global citizens.

SUSTAINABILITY AT APS

Sustainability promotes an understanding of humans' interconnectedness to our natural resources and the environment. It supports the whole child by engaging our students to make connections between their classrooms and the world outside. At APS, sustainability touches all areas of the daily lives of our students and staff from transportation, healthy meal options, school operations, community partnerships, and engaged and active learning environments.

STUDENT SUCCESS

Successful students have a connection to their world and an understanding of the impact of human activities on our natural resources. APS continues to provide many opportunities and resources for our students to engage in sustainable practices and learning opportunities through investments in the Meaningful Watershed Education Experience (MWEE), the National Oceanic and Atmospheric Administration's (NOAA) B-Wet Grant, the Arlington Outdoor Laboratory, and the Sustainability Liaisons Program.

Incorporating sustainability in teaching and learning provides an active way for students to connect their lessons to the environment around them and promotes our commitment to every child.

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

After successfully training over 5,400 students and 56 teachers through its three-year B-Wet Grant titled Sustainable Solutions for Urban Stormwater Management through Project-Based Learning, APS received an extension for a fourth year. In its fourth year, APS will train 25 more teachers to expand this program to more students. Through this program, teachers have engaged in high quality professional development on Meaningful Watershed Educational Experiences (MWEE) and students are developing proposals to reduce impervious surfaces, increase stormwater filtration, and reduce stormwater runoff, pollution, and soil erosion throughout the school division's facilities. 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. After last summer's intense storms, understanding the impacts of stormwater runoff and how human development affects the natural world is even more critical in preserving our communities.

OUTDOOR LABORATORY

The Phoebe Hall Knipling Outdoor Laboratory in Fauquier County is an invaluable resource that gives our students the opportunity to spend time outdoors in a natural environment and learn how their decisions and behaviors affect other living things. The Outdoor Laboratory is dedicated solely to the use of Arlington County students. It provides an outdoor science laboratory for our students during the school year and an environmental education camp for three weeks each summer.

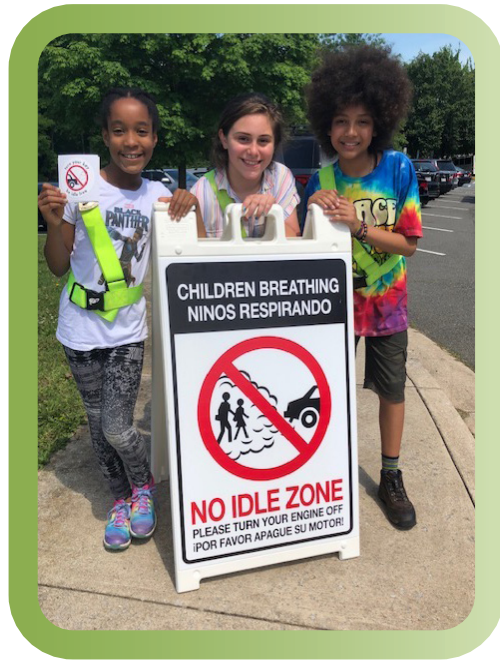
During the 2018-19 school year 7,158 students and 285 staff took part in specific learning activities on day or overnight visits. Programs conducted at the Laboratory are aligned to grade level science curriculum from grades 3 through 12. The Outdoor Laboratory is a critical component in an Arlington student's sustainability education. When visiting, students form close personal relationships with the natural world. For many students, these trips are the only times when they experience direct interaction with the natural world. These hands-on opportunities to interact with the environment encourage them to place high value on natural resources. What they value, they will protect. In turn, they make better informed decisions when using and managing resources.

SUSTAINABILITY LIAISON PROGRAM

The Sustainability Liaison Program has grown from supporting ten (10) schools in the 2016-17 school year to twenty-one (21) schools this year across the school division. Our Liaisons receive a modest stipend in exchange for a year-long effort to build a culture of sustainability through school-based curriculum,



Arlington Community High School students testing water quality



Claremont Students Idle-Free Zone Campaign

operational, transportation, and communication projects. The Sustainability Liaisons are supported by the Superintendent's Advisory Committee on Sustainability (SACS).

In the 2018-19 school year, SACS continued supporting the Liaisons through a buddy system, where SACS provided support, guidance and connections to deeper sustainability expertise. The Liaisons were required to complete three primary projects: take an inventory of the sustainability practices in their school, conduct a waste assessment, and implement at least one waste-related project. The sustainability inventory provides a good snapshot of sustainability efforts at their schools; highlights include:

- 94% of schools report that they have water bottle filling stations for students and staff, reducing the amount of single-use plastic bottles;
- 88% of schools have outdoor learning environments;
- 71% of schools encourage energy conservation by the school community to turn off lights, computers and printers when not in use; and
- 62% of the schools participate in Arlington Transportation Partners' Champions program.

This year the Sustainability Liaison program touched hundreds of students, added to the inventory of sustainability activities across APS, and generated energy among APS schools to improve their recycling and waste reduction efforts.

SACS' goal is to expand the Sustainability Liaison program to support all schools in APS. The liaisons have done exceptional work to build a culture of sustainability in APS. They lead students and staff to reduce environmental impacts, encourage active learning, and

link sustainability to the standards of learning. We recommend continued support and growth for this program.

OPERATIONAL EXCELLENCE

On September 17, 2019, Governor Northam announced an ambitious clean energy goal for Virginia to be 100% carbon-free electricity by 2050. Following that announcement, Arlington County Government updated its long-range Community Energy Plan (CEP) on September 21, 2019, with a goal of creating a carbon neutral community by 2050. These aspirational goals support APS' continued commitment to sustainability in design and construction, maintenance and operations, transportation, and stormwater management. Sustainably designed, operated and maintained schools are sound long-term investments that do not have to cost more than traditionally constructed schools. Focused and intentional procurement of goods will reduce our waste, improve our recycling efforts, and preserve our resources. Sustainable transportation options in an increasingly urban environment improves the safety around our schools and the health of our community. And, after our community and schools experienced the devastating storm on July 8, 2019, managing stormwater runoff has become even more critical in our increasingly urban environment with greater impervious surfaces creating flooding risks and pollution in our local waterways.

ZERO ENERGY SCHOOLS AND RENEWABLE ENERGY

The goal for 100% carbon free electricity promotes both fiscal responsibility and environmental sustainability. In FY2019, APS' electricity costs increased by 3.7% to \$1.12/sf while the amount of energy we used per square feet, known as the energy use intensity (kBtu/sf), decreased by 2.9%.



Solar PPA Array at Alice West Fleet Elementary

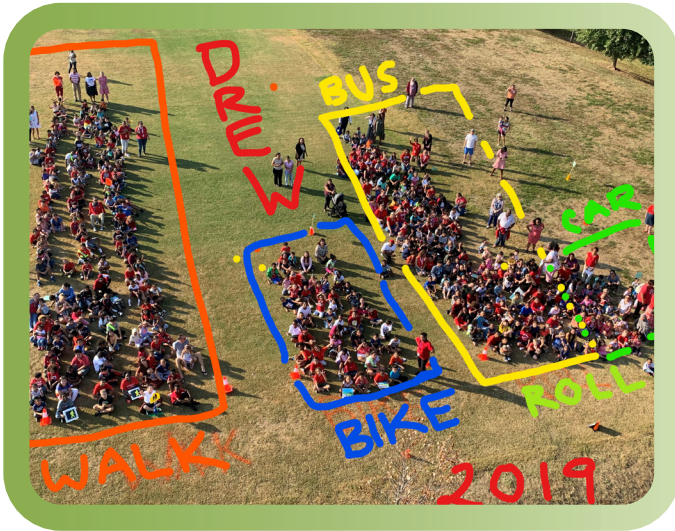
Rising electricity costs have an impact on a school division's budget. APS' continued commitment to Zero Energy schools and renewable solar energy will allow us to manage our energy expenditure in a fiscally responsible manner and support the carbon free electricity and carbon neutral goals of our Governor and County government.

By 2021, APS hopes to have three Zero Energy schools in our school division: Discovery Elementary, Alice West Fleet Elementary, and the new elementary school at the Reed site scheduled to open in September 2021. Zero Energy schools have proven to be long-term sustainable facilities with an average annual energy cost avoidance of \$100,000. Zero Energy schools have an energy footprint that is one third of a typical elementary school in Arlington. As APS grows in enrollment and square footage, we are committed to providing optimal learning environments that reduce our energy use and cost intensity.

APS' solar power purchase agreement (PPA) projects go hand in hand with supporting our Zero Energy school portfolio and in achieving a 100% carbon free electricity resource. In 2019, two solar photovoltaic (PV) arrays were installed at Tuckahoe Elementary and at Alice West Fleet Elementary as part of the PPA project. APS is in the process of finalizing agreements for these two arrays to go operational. The installation of PV arrays at Jefferson, Kenmore, and Washington-Liberty is planned for this year after roof restoration work has been completed at these schools. We are also working to add a second group of schools to the existing PPA comprehensive agreement that would include the following schools: the new elementary school at the Reed site, Abingdon Elementary, McKinley Elementary, and Wakefield High School. Increasing our solar capacity allows APS to increase its renewable energy in line with the County's carbon neutral goal and the Governor's 100% renewable electricity goal.

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 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. Reducing the number of vehicles driving to and from our schools not only creates a safe environment around our schools but also reduces emissions of greenhouse gases – a leading contributor



Human Bar Graph for Walk, Bike and Roll to School Day, Fall 2020 at Hoffman-Boston Elementary School

to climate change. It also could make our Zero Energy schools truly Zero Energy by eliminating emissions that would otherwise increase the school’s carbon footprint.

To achieve the goals of the TDM plan, APS has invested in a commuter benefit program that offers a financial incentive to staff who elect not to drive alone to their employment site over the regular school year, and spends almost \$20 million per year to provide school buses that transport more than 11,000 students per year. In addition, in SY19-20, the School Board set aside funds for staff to conduct a high school transit pilot that subsidizes transit trips to three school locations.

However, APS can do more to promote more sustainable modes of transportation and reduce drive alone rates. The annual budget for the staff TDM benefit program currently stands at \$222,600. This budget can accommodate only a fraction of total employees. Increasing funding for this program will make it more attractive to staff who currently drive alone.

Further, as APS seeks to use more land space for instructional facilities, it must evaluate the trade-offs associated with using space for parking versus instructional space and recognize the importance the TDM program offers in off-setting demand. A robust TDM program and partnership with the County to utilize on-street and other available parking capacity during the day should be the first step in all projects to reduce demand for constructing parking on constrained school sites leading to a more sustainable school overall.

ELECTRIC SCHOOL BUS PILOT PROGRAM

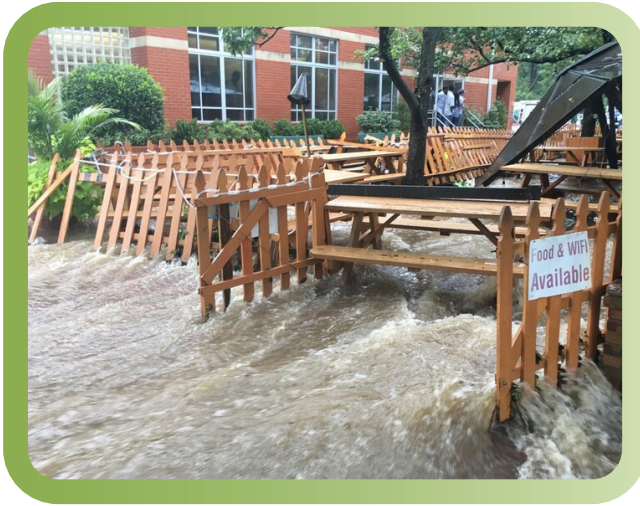
On August 29, 2019, Dominion Energy Virginia (DEV) announced the largest electric school bus initiative in the country. By 2025, Dominion aims to have 50% of all replacement school buses as electric vehicles and by 2050 all 100% replacement school buses would be electric. This initiative would be a partnership between DEV and local Virginia school divisions. In this partnership DEV would own the charging infrastructure and batteries for the electric school buses. School divisions would be responsible for maintaining the electric school buses and for purchasing the electric school bus at the cost of a traditional school bus. DEV would cover the cost difference between a traditional diesel school bus and an electric school bus. DEV plans to roll out 50 electric school buses in the third quarter (Q3) of 2020 and 1000 electric school buses by 2025.

APS was notified in mid-January that we would be receiving two electric school buses as part of Dominion Energy’s initiative. APS is collaborating with other school divisions on the cooperative agreement between DEV and school divisions to ensure school divisions do not assume risks in participating in the electric school bus pilot program.

Dominion Energy’s electric school bus initiative complements APS’ long term goals for smart and sustainable transportation options. Having an opportunity to participate in this electric school bus pilot supports APS’ commitment to finding healthier transportation options for our community, supporting Arlington County’s ambitious Community Energy Plan, and supporting resiliency in the electrical infrastructure.



Dominion Energy’s Electric School Bus Announcement, August 29, 2019



Impact of July 8, 2019 Storm (ARLNOW photo)

STORMWATER MANAGEMENT

On July 8, 2019, Arlington County experienced a severe storm that dropped a typical month of rain in an hour. This storm impacted many neighborhoods and schools in our County highlighting the challenges of an urban environment with increased imperviousness and limited overland support for stormwater runoff. Since this storm, our community is pressing for increased attention and resources in the County and for school properties to mitigate the future impact from stormwater runoff.

APS continues to meet its stormwater obligations under its Phase II Municipal Separate Storm Sewer System (MS4) permit which was renewed in November 2018 for the permit cycle 2018-2023. While our permit requires us to implement a comprehensive stormwater management program to comply with federal and state water quality requirements, we also have an obligation to reduce the quantity of runoff from our properties. Arlington County Government has its own MS4 permit and uses the Sanitary District Tax to fund its permit obligations. Unfortunately, APS has no such revenue stream creating an unfunded mandate. Without a dedicated revenue stream for stormwater management, managing APS' stormwater infrastructure will impact other areas of our budget in order to meet federal, state, and County requirements.

Under our MS4 permit, APS is responsible for six (6) Minimum Control Measures (MCM). In addition, the Department of Environmental Quality (DEQ) requires APS to implement a Total Maximum Daily Load (TMDL) action plan to meet pollutant reductions 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 (MCM) projects are required to meet the County's stormwater requirements regarding water quality and quantity. With limited space, these stormwater requirements add more time and cost in design, construction, permitting, and ongoing operations and maintenance.

This year's extremely intense storms show 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.

SUMMARY

Sustainability is a keystone to APS' strategic plan and contributes directly to student engagement and supporting the whole child. Sustainability programs engage, challenge, and motivate our students to become life-long environmental stewards, who will protect our natural resources and find creative, healthy ways of community engagement. 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.

