



Arlington  
Public  
Schools

SUSTAINABILITY

# BRIEFING PAPER

APRIL 2017





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# SUSTAINABILITY AT APS

At Arlington Public Schools our mission is to instill a love of learning in all our students and to prepare them to be global citizens. Sustainability, defined as active stewardship of our economic and environmental resources to meet our current needs while preserving the resources for future generations, underlies our mission as one of our Core Values. Sustainability supports Goal Four of our Strategic Plan, to provide optimal, high-performance learning environments that support and enhance teaching, learning and our commitment to the Whole Child.

APS incorporates the values of sustainability into instructional programs, learning environments, school operations and community outreach. Sustainability touches all aspects of our students' daily school lives from teaching and learning through healthy meals and physical activity to engaging, healthy and safe learning environments.

## Teaching and Learning

Sustainability promotes healthy, engaged students. APS continues to invest significant resources to promote sustainability and environmental stewardship at the school and division level. One important program we offer our students is provided at the Phoebe Hall Knipling Outdoor Laboratory in Fauquier County. This valuable resource gives students the opportunity to spend time outdoors in a natural environment and learn how their decisions and behaviors affect other living things.

Individual APS schools recognize that sustainability supports hands-on, project-based learning. Many of our schools embrace outdoor classrooms and gardens. Several of our schools have designed curriculum based on native learning habitats. Curriculum that includes sustainability touches all aspects of learning: science, math, language arts, and fine arts. Bringing our students outside and connecting their learning to our natural environment reinforces our commitment to the Whole Child.

## Capital Projects

As APS enrollment continues to grow, we are committed to designing, building, maintaining and operating schools that integrate teaching and learning, sustainability, environmental stewardship and design. Sustainably designed, constructed, maintained and operated school buildings create high performance learning environments that offer daylight and views to the outside, high indoor air quality, appropriate thermal comfort, proper acoustics and low energy use. We aim to create attractive, engaging learning environments that become integral to our students' learning experience. Sustainably designed, operated and maintained schools

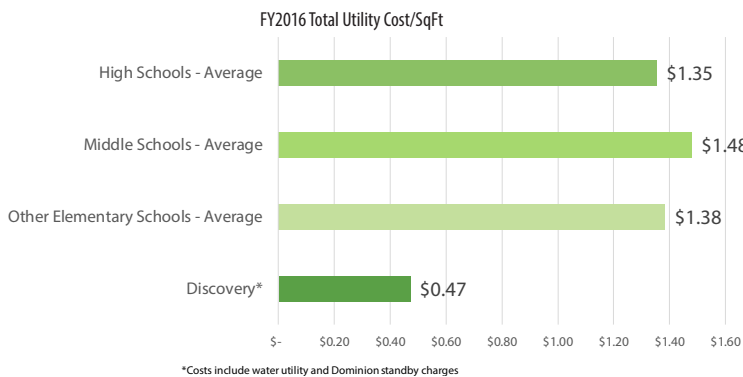
are sound long-term investments that do not have to cost more than traditional schools. We use the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED®) program as a guide for our sustainability efforts. LEED® provides a framework that focuses on indoor air quality, improved daylight and optimal acoustical performance, all of which enhance our students' ability to learn. LEED® also focuses on reducing the energy consumption of our schools. Since 2005, four APS schools, Washington-Lee High School, Yorktown High School, the Reed School and Wakefield High School have been certified LEED® Gold, the Langston joint use facility has been certified LEED® Silver, and Discovery Elementary School, which is operating at Zero Energy, is targeted to achieve LEED® Platinum certification.

Discovery, our newest school, welcomed students and staff in September, 2015. Under the leadership of Principal Erin Russo, Discovery seamlessly integrates teaching and learning about sustainability, environmental stewardship and design to a degree rarely if ever achieved at this level in other schools, while also reducing long-term operating and maintenance costs. All spaces inside and outside of the school are designed as attractive and engaging learning environments. Classrooms and other spaces are agile to accommodate constant changes during the school day as students work individually, in small groups and in large groups, and also are adaptable to accommodate future changes in instructional programs. An energy dashboard, available to students throughout the school division, provides many opportunities for authentic project-based learning grounded in sustainability.



Discovery Elementary School Solar Lab

The first Zero Energy school in the Mid-Atlantic region, Discovery is designed to have an Energy Use Intensity (EUI) that is one third that of a typical elementary school in Arlington. In 2016, Discovery, which is equipped with over 1,700 solar photovoltaic panels, generated more power than it consumed and returned over 16,000 kWh of power to the grid. Our energy cost avoidance at Discovery is estimated to have resulted in over \$100,000 savings in 2016.



### Operations

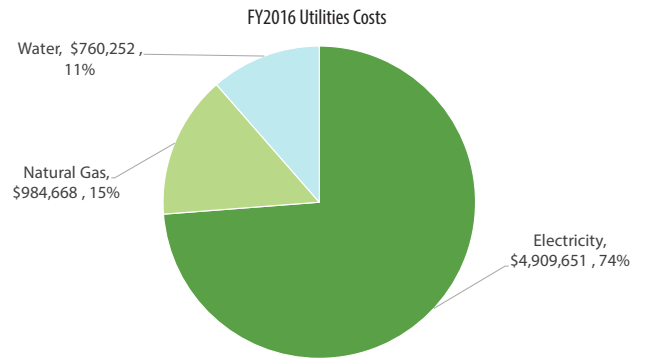
School operations encompass many offices and services including Maintenance, Plant Operations, and Transportation, all of which provide high quality services to our students and staff. Developing sustainable practices in these offices and services provides economic, health, and environmental benefits for all our students and staff.

### Maintenance

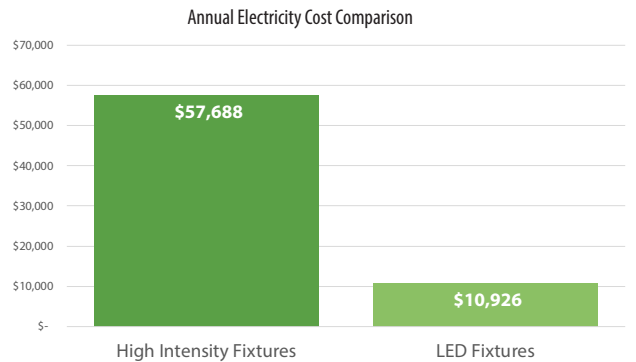
Preventive maintenance is a cornerstone for sustainability in reducing our energy costs. Just as important is its role in improving the longevity and condition of our equipment and facilities. Our goal is to provide a quarterly preventive maintenance program for all our building systems, especially heating, ventilation, and cooling (HVAC).

HVAC equipment is the single largest user of energy in our schools. With an energy budget of close to \$7M, it is imperative for us to focus on proper maintenance and operation of all equipment. Deferred maintenance leads to higher

energy costs, more frequent replacement of equipment, and reduces the environmental quality of our learning environments. Providing the necessary maintenance resources allows us to reduce energy costs, prolong the life of equipment and avoid disruptions to or reduction in the quality of learning.



Lighting is the second largest user of electricity in our schools. We continue to retrofit older, inefficient lighting with LED fixtures and lamps. LED light fixtures greatly improve lighting levels, reduce electricity consumption and decrease maintenance and operation costs due to their longer lifespan. For example, we achieved significant energy and cost savings by replacing over 300 high intensity fixtures in the gymnasium at Jefferson Middle School with 156 LED fixtures and improving the lighting controls. The payback for this retrofit is about three and a half years with an estimated saving of over 500,000 kWh and \$45,000 per year. Most importantly, the lighting retrofit has greatly improved lighting quality and safety in the gymnasium, which is shared jointly by APS and the Arlington County Department of Parks and Recreation.



### Plant Operations: Waste Management and Recycling

Reducing the amount of waste that goes into landfills not only improves our environment but also reduces our costs. Waste is a valuable commodity. If we can reduce the amount of waste we generate and encourage recycling wherever possible, we can save money, reduce pollution, and create a healthier environment for our community.

APS continues to promote our recycling program to support Arlington County's single stream recycling initiative. The new joint APS/ Arlington County waste and recycling contract that commenced in January 2017 allows us to weigh our waste and recycled materials as they are removed from each school for better monitoring and



Long Branch Recycling Rangers



management. Data on waste and recycling levels will improve our ability to track the number of pick-ups required, adjust pick-up frequency, and establish a baseline for process improvement. Waste pick-ups cost more than recycling pick-ups so having the ability to collect data and create a baseline will allow us to manage and track our costs more effectively.

Many of our students have taken the recycling lead by forming green teams to encourage their peers, teachers and families to recycle. We want reducing waste and increasing recycling to become a lifelong habit for our students as they become our future leaders.

#### **Plant Operations: Green Cleaning and Integrated Pest Control**

An effective green cleaning program improves the health and well-being of students and staff, increases the longevity of facilities, and decreases life-cycle costs. APS focuses on three components in its green cleaning program: the use of microfiber products, effective cleaning equipment and the use of Green Seal® certified cleaning products.

APS believes its microfiber program rollout improves the ability of our custodial staff to remove dust and particles more efficiently, safely and sustainably. The microfiber cloths and mops may be washed and reused which reduces the amount of materials purchased and thrown into our waste stream. Purchasing the right cleaning equipment also supports our green cleaning program. For example, our vacuum cleaners' triple filtration dust filters remove 99.9% of dust particles. APS also works with our custodial product vendor to purchase Green Seal® certified products whenever possible. These products support our LEED® benchmark for green cleaning by meeting standards for low toxicity, pH neutral, recycled content and packaging, and unbleached materials.

APS has employed an Integrated Pest Management (IPM) program for more than 25 years as encouraged by the Virginia Department of Education. The program's goal is to use the most effective and least toxic method available. APS follows a comprehensive process to remove and/or seal food sources, seal entry points, ensure proper and immediate reporting of rodents and other pests, provide proper housekeeping and sanitation services, and provide monthly inspections of areas reporting pest activity.

#### **Transportation**

Through APS Go!, a division-wide Transportation Demand Management (TDM) Plan for students and staff, and various other programs linked to it, APS strongly encourages alternative modes of transportation to single occupancy or single family vehicles, including APS bus transportation, biking, walking, carpooling and public transit. We also encourage use of alternative modes of transportation for both staff and students by working with Arlington Transportation Partners, providing a dedicated Safe Routes to School Coordinator and offering benefits to all staff for choosing more sustainable methods of travelling to and from work. Reducing the number of private vehicles near our schools greatly improves safety for our students. Our students' health is also improved by reducing the number of vehicles driving and idling around our schools and consequently the emissions of greenhouse gases and particulate matter. New routing and planning software linked to GPS on each school bus will help us to route our busses more efficiently, increase ridership and further reduce congestion and emissions around schools.

#### **Community Outreach**

APS is fortunate to have many community partnerships with higher learning institutions such as George Mason University and local organizations such as the Arlington Food Assistance Center (AFAC) and Arlingtonians for a Clean Environment (ACE). With the help of these partnerships, our students are engaged in sustainability throughout our community.

APS also engages with its community through the Superintendent's Advisory Committee on Sustainability (SAC). This committee meets monthly



*New LED Gymnasium Lighting at Jefferson Middle School and Community Center*



*2016 Winners of the Green Action Awards*

to provide guidance and recommendations to the Superintendent on sustainability issues including curriculum, energy and water conservation, waste and recycling, and sustainable procurement practices. The committee has been instrumental in creating the APS Green Action Awards. These awards encourage our schools and students to share and promote sustainable practices throughout the school division. This year, with the support of SAC, APS launched a pilot program to provide stipends to eleven school-based staff members to act as sustainability liaisons. The liaisons work with all grade levels in their schools to promote sustainable practices, connect learning to the environment, and share sustainability ideas and practices division-wide.

The Department of School and Community Relations has created a visually engaging way to reach APS students, parents and staff on sustainability activities taking place throughout the school division. Arlington Educational TV's regular Green Scene videos highlight our students' efforts to make our community a better place now and for future generations.

#### **Summary**

APS is committed to building and maintaining optimal learning environments with sustainability as the keystone. Sustainability features engage, challenge and motivate our students to become lifelong 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 instruction, sustainability, school operations, design and construction. There is tremendous value to integrating sustainability into our dynamic learning environments and into our daily operations, while meeting safety and comfort standards in a fiscally responsible manner. We want our students to develop skills that allow them to succeed in our global community.