

# SUSTAINABLE SOLUTIONS HANDBOOK

The Department of Facilities & Transportation Services

2017-2018 SCHOOL YEAR





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Equity and Employee Relations 8115 Gatehouse Road Suite 2500 Falls Church, VA 22042

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**FCPS LEADERSHIP** 

## School Board

The Fairfax County School Board is charged by the statutes of Virginia and the regulations of the Virginia Board of Education to operate the public schools of Fairfax County by setting general school policy and establishing guidelines that will ensure the proper administration of the Fairfax County Public Schools programs.

### Superintendent's Office

The mission of the Superintendent's Office is to provide overall leadership and strategic direction to the school division in conjunction with the School Board.

The Superintendent's Office ensures the school system's education and administrative functions operate efficiently and effectively. The office ensures necessary short and long term action plans are developed and implemented to achieve the school board goals and operational expectations. The office serves students, parents, families, business, and community members.



#### FCPS LEADERSHIP TEAM ORGANIZATION



#### OUR VISION

FCPS will build our sustainable global future and foster a green culture by successfully engaging in best practices around environmental stewardship and teaching and learning for preK-12.

#### **OUR MISSION**

Our mission is to promote student learning and action using the environment as a foundation. We will be model environmental stewards by investing in green infrastructure and resources, utilizing interdisciplinary environmental curriculum, and fostering community partnerships.

#### OUR GOALS

Our sustainability goals are aligned with the strategic goals described in Ignite, the FCPS Strategic Plan. They are outlined in the following tables. Items that are bolded and italicized are taken directly from the Ignite plan. Non-italicized items represent the sustainability specific goals and actions that Get2Green is planning to accomplish.

## FCPS STRATEGIC PLAN GOAL 1: STUDENT SUCCESS

#### **OVERARCHING STRATEGY 1**

Enhance instructional practices to ensure that all students receive an education in a dynamic environment designed to foster life-long learning and support them in achieving their full potential.

DESIRED OUTCOME	ACTIONS	2015-16	2016-17	2017-18
The curriculum will reflect Portrait of a Graduate outcomes in all	Partner with Fairfax County Park Authority to develop and offer a 4 <sup>th</sup> grade MWEE	•	• •	••
content areas, where students are appropriately challenged	At least one environment related STEAM project per year available in all schools for grades K-6	••	••	
	Inquiry and problem/project based learning opportunities to be embedded in curriculum PreK-12 Development of PBL resources that incorporate the environment as a	••	••	
	basis Capstone-type projects at the conclusion of 3 <sup>rd</sup> , 5 <sup>th</sup> , and 8 <sup>th</sup> grades and during the 10 <sup>th</sup> or 11 <sup>th</sup> grade year		••	••
	Development of Capstone-type projects with the environment as a basis for at least 3 grade levels.			

A full-developed balanced assessment system will reflect Portrait of a Graduate outcomes in all content	Develop and embed a balanced assessment program that assesses both foundational skills and critical thinking/problem solving.		• •	• •
areas	Develop at least 3 balanced assessment tools around environment related projects.			
All qualifying future FCPS students will have access to high quality early education programs	Offer a continuum of services and supports to meet students where they are, both developmentally and academically	•	•	•
	Develop a demonstration outdoor classroom for early childhood instruction.			
Increase participation in Eco-Schools USA	Implement Green School Incentives Program	• •		
program	Improve Eco-Schools pathway resource accessibility	• •	••	
	• = Plan	• = Dev	velop •=	Implemer

## FCPS STRATEGIC PLAN GOAL 3: CARING CULTURE

#### **OVERARCHING STRATEGY 7**

Promote overall health and well-being of students and staff in order to encourage healthy life choices and an increased quality of life

DESIRED OUTCOME	ACTIONS	2015-16	2016-17	2017-18
Proactive and dynamic communications will better engage the community in critical issues	Partner with Fairfax County Park Authority to develop and offer a 4 <sup>th</sup> grade MWEE	•	••	
FCPS students and staff will be encouraged and supported in making healthy life choices	Expand the current portfolio of wellness options for staff and students, to actively promote and support increased exercise and improved nutrition, adequate sleep, and mental health	•		•
	Expand community partnerships focusing on the development of edible gardens on school grounds and nutrition education using the gardens as a tool. Focus efforts on food desert areas of Fairfax County.			
	Support increased participation in the Eco-Schools Healthy Living pathway.			
	• = Plan	• = Dev	velop •=	Implement

### FCPS STRATEGIC PLAN GOAL 4: RESOURCE STEWARDSHIP

#### **OVERARCHING STRATEGY 11**

Promote the value and benefits of the community's investment in FCPS in order to increase the community's understanding of the Division's operating and capital needs to support student success.

DESIRED OUTCOME	ACTIONS	2015-16	2016-17	2017-18
Development of an environmental	Establish FCPS Sustainability Team	••		
stewardship vision, culture, and leadership mentality that sets an	Establish Get2Green "brand" across the district and for all personnel	•	••	
example for FCPS students and enhances student learning	Establish clear, achievable but motivating goals for sustainability	••	•	•
FCPS Cafeterias Polystyrene Free by	Engage contractor to supply recyclable lunch tray		• •	
2016	Engage contractor to supply polystyrene free lunch cups, casserole dishes, etc.	•	• •	
	Produce new recycling signs for the cafeterias and classrooms (Food and Nutrition and Get2Green)			
Increase Recycling in FCPS facilities	Develop recycling/trash data that is publicly available and usable by student and staff teams to enhance recycling in schools	•	••	
Increase Energy Conservation in FCPS facilities	Develop energy use data that is publicly available and usable by student and staff teams to enhance energy conservation in schools	• •	•	
	Analyze use of solar panels for installation on roofs of schools	•	•	•
Develop FCPS Sustainable Landscaping Plan	Develop plan to maximize sustainable landscaping to meet the needs of Design and Construction, Grounds and Maintenance, Plant Operations, and Instructional Services Division	• •	••	
	Provide professional development sessions and literature for all grounds staff, custodians, sub-contractors, monitors, and school-based personnel on importance, installation, and maintenance of wildlife habitat	•	•	•
	Create and install signs to denote and explain sustainable landscaping practices	• •		•

• = Plan

• = Develop • = Implement





## **INSTRUCTIONAL SERVICES**

## Get2Green

To assist schools with a framework for student action, FCPS partnered with the National Wildlife Federation Eco-Schools USA program. Through this program, FCPS efforts focus on developing student driven action teams within Eco-Schools across the county. These teams work on a variety of environmental topics (pathways) under the Eco-Schools umbrella. In addition, we focus efforts on professional development to assist teachers in running eco teams and engaging students in stewardship activities, working with students on Eco-School USA activities, and taking students outdoors for lessons.

Efforts are also underway to integrate curriculum areas to these project-based learning opportunities to enforce the development of environmental knowledge and 21st century skills. As FCPS works to implement the Portrait of a Graduate, Get2Green is working closely with FCPS Science, Technology, Engineering, Art and Math (STEAM) and Service Learning to create tools for interdisciplinary learning.

#### Where are we now?

- 105 Registered Eco-Schools with 15 Green Flags, the highest award an Eco School can achieve (Belvedere ES, Centreville ES, Chesterbrook ES, Churchill Road ES, Daniels Run ES, Flint Hill ES, Franklin Sherman ES, Frost MS, Haycock ES, Lake Anne ES, Lanier MS, Longfellow MS, Rachel Carson MS, and Rocky Run MS)
- 80+ wildlife habitats
- 75+ Edible Gardens
- About 160 schools engaging in some kind of environmental stewardship activity

## FCPS Get2Green Inventory Overview 2016-17

The 2016-17 school year marks Get2Green's fourth year of tracking school-based sustainability projects. This year, 154 schools responded to our inventory survey, and the data show a continued increase in participation and interest surrounding environmental stewardship projects in FCPS. The graphs to the right highlight this growth and show the potential gains from continuing to support schools as they incorporate environmental education and stewardship practices into school culture.





TOP: Students from the Dogwood ES Green Team at the School Environmental Action Showcase 2016. ABOVE: Marshall HS students' birdwatch at Patuxent Research Refuge.



FCPS Get2Green Interested School 3-Year Growth



FCPS Participation in Eco-Schools USA







### School Environmental Action Showcase

Since 2011, FCPS students have participated in the NoVA Outside School Environmental Action Showcase (SEAS) at George Mason University. At this STEAM (Science, Technology, Engineering, Art, and Math) event, students share the environmental stewardship projects at their schools with the Northern Virginia community, show off their creativity in an eco-art event, present their ideas for how to improve local watersheds, and learn about using microrobotics to address environmental issues. Students also engage in interactive environmental STEAM activities run by local and national non-profits, businesses, and government agencies. This unique event allows students to see how the environmental stewardship efforts at their school fit into regional and national efforts to secure a sustainable future.



#### **Urban Wildlife and Habitat Development**

FCPS students are planning, constructing, utilizing, and maintaining wildlife habitat on their school grounds. Besides giving students the opportunity to engage in authentic, project based learning efforts, these kinds of activities allow students to see that their everyday actions make a difference in the health of the environment—the real basis of environmental stewardship FCPS is promoting with its Get2Green efforts and its partnership with the National Wildlife Federation Eco-Schools USA program. These real, at-home activities and messages allow our students to make a difference through environmental education, STEAM and Service Learning projects all in one.

Much of this work is made possible by partnerships. For example, Get2Green is partnered the Fish and Wildlife Service, Patuxent Research Refuge. Patuxent funds wildlife habitat installations at schools and provides interns to work with Get2Green on biodiversity and habitat education in FCPS. In spring 2017, Get2Green and FWS interns worked with students and staff at Bailey's Elementary to install a wildlife habitat in the school courtyard. This space is being used as an outdoor classroom for students. Get2Green has partnered with Earth Sangha to provide expertise and plant kits to schools. Earth Sangha is helping Hunters Woods Elementary install a native garden around storm drains to improve the site's storm water management and provide wildlife habitat. In addition to these projects, habitats such as Centreville Elementary's award-winning outdoor habitats and classroom spaces are used as models for other schools seeking to develop wildlife habitat in FCPS and beyond.

## FCPS Urban Wildlife Habitat Program

It is all about the Kids FCPS students are planning, constructing, utilizing, and maintaining wildlife habitat on their school grounds. Besides giving students the opportunity to engage in authentic, problem based learning efforts these kinds of activities allow students to see that their everyday actions make a difference in the health of the environment-the real basis of environmental stewardship FCPS is promoting with its Get2Green efforts and its partnership with the National Wildlife Federation Eco Schools USA program. These real, at-home, activities and messages allow our students to make a difference through environmental education, STEAM (Science, Technology, Engineering, Art, and Math) and Service Learning projects all in one.

#### It is all about the Potomac Watershed

By setting an example on our properties across the county of sustainable landscaping techniques and educating our students and communities surrounding our schools about the importance of providing wildlife habitat and the beauty of native plants and animals, we can make a difference in the health of the Potomac River watershed.

#### Metrics

FCPS is piloting biodiversity data collection methods to measure schoolyard plant and animal biodiversity as a measure of the success of our wildlife habitat development efforts.

#### Contact

Elaine Tholen FCPSGet Creen

Donating Landscaping Design Expertise Donating Landscaping Materials Donating VA Native Plants Sharing your Habitat Building Expertise Assisting us in Marketing or Fund Raising Providing Volunteers for Work Days Helping us Measure our Biodiversity

We can use your help—

## http://get2green.fcps.edu



## **FACILITIES MANAGEMENT**

The Office of Facilities Management and the operating engineers are primarily responsible for monitoring energy use in buildings, maintaining mechanical and electrical equipment, grounds and landscaping, preventative maintenance, environmental engineering and recycling.

#### Infrastructure

The Infrastructure Section provides construction/contract management, and technical support for the maintenance and renovation of Fairfax County Public School buildings and grounds. Typical tasks for the branch include planning, designing, and managing contracts for the repair or replacement of various building and grounds components. Examples of building and grounds components repaired or replaced include carpets, boilers, air conditioning systems, parking lots, gym floors, bleachers, playgrounds, running tracks, and tennis courts.

### **Environmental Engineering**

The Environmental Engineering Branch is responsible for implementing the Environmental Protection Agency's Asbestos Hazard Emergency Response ACT (AHERA), and the resulting rule (The 1987 Asbestos in Schools Rule) mandating numerous actions to be undertaken by local education agencies. The AHERA act requires Fairfax County Public Schools (FCPS) to:

- Inspect buildings for non-friable and friable asbestos containing materials.
- Formulate management plans.
- Use response actions or abatement or abatement methods.
- Provide awareness training to school employees.
- Implement operations and maintenance programs, and use accredited personnel and laboratories for most of these activities.

In addition, the office is responsible for investigating radon gas and mold problems in FCPS school buildings, selecting the best strategy, and directing the efforts of a multidisciplinary team to ensure overall indoor air quality in school buildings.

## **Occupancy Scheduling**

Facility use and scheduling is a critical component of energy management. Each building is assessed for its occupancy and use patterns in order to identify periods of inactivity and low usage. Mechanical systems are then programmed through building automation and control systems to reduce mechanical operation and, therefore, energy consumption during periods of low usage. Schedules are reviewed regularly with site based administrators and adjusted for seasonal patterns and system performance. School locations conducting events outside of normal operating hours are required to enter these activities in FSDirect. During unoccupied periods, temperature settings shall be at the night setback or setup temperature as determined by the OFM and controlled by programmable energy management systems. In spaces in which the occupant can locally control the temperature setting with a thermostat, the occupants are responsible for changing the setting of the thermostat at the end of the workday to 55 degrees in the heating season and 85 degrees in the cooling season.

In spaces in which the temperature is controlled by a programmable energy management system, setting the temperature setpoints and occupied periods is the responsibility of the OFM and/or the operating engineer in the building. Unoccupied setpoints are to be 55 degrees in the heating season and 85 degrees in the cooling season. Exceptions to the unoccupied temperature settings may be made by the OFM in order to protect the building, achieve improved energy efficiency, or maintain comfort during the occupied period.

In buildings with energy management control systems, appropriate staff members may override the system using the local override switches to set the building to occupied mode for school-based activities or approved community use. Overrides shall be used only for the building zone to be occupied. Override times shall be limited to the times that the zone is occupied.

#### **Energy Management**

Traditionally, FCPS spends about \$40 million on its annual electric, oil, gas and water utilities combined. The Office of Facilities Management is tasked to keep this bill as low as possible through development and implementation of conservation programs. FCPS has had an active and aggressive energy management program since 1978, and is a leader among school systems in Virginia and nationwide in minimizing the use and cost of energy.

Managing energy historically has been about providing comfort and lighting in our classrooms and offices while containing costs. The need to control greenhouse gas emissions and other air pollutants resulting from energy use has become increasingly important as our understanding of climate change and its potential ramifications has advanced.

Energy conservation remains the best proven and immediate way to reduce greenhouse gas emissions. Reducing energy consumption lowers our carbon footprint and reduces operating costs as well, freeing up money that can be better spent educating our children rather than purchasing electricity and gas. For this reason, the FCPS Energy Management Section focuses on energy conservation.

Carbon reduction is the most important environmental concern, and FCPS is committed to reducing energy consumption wherever possible both to take advantage of its benefits to the environment and to reduce energy expenses. Energy-efficient heating and cooling equipment, as well as energy-saving lighting and controls, will be employed to meet this goal. We will continue to look for further opportunities to institute programs adding climate control systems, and initiating window replacements.

Staff members maintain an inventory of greenhouse gas (GHG) emissions and implement policies, programs, and operations to further achieve measurable reduction and help contribute to regional reduction targets. Annual performance measures shall be instituted.



Commodity	Cost	Percentage
Electric (KWH)	\$83,547,734	77%
Natural Gas (THERM)	\$15,568,669	14%
Propane (GAL)	\$6,999	1%
Water (KGAL)	\$3,537,012	3%
Sewer (KGAL)	\$6,079,289	5%
Total	\$108,739,704	100%

## Recycling

FCPS supports recycling! As citizens of the earth and stewards of our environment, we recognize that recycling has many benefits to our community. Our recycling program serves several purposes:

- Contribute to a cleaner environment
- Educate students on the benefits of recycling
- Divert materials from the waste stream
- Generate financial savings from reduced waste disposal

The program to recycle paper, cardboard, glass, plastic bottles, and metal is a school-based effort in which all staff and students are required to participate. The recycling of fluorescent lamps is a program that can only be enacted by the custodial staff and trained staff members in the Office of Procurement Services. The School Board regulation requiring all facilities to recycle is <u>Regulation 8541</u>.





The Energy Conservation Company

In February 2014, FCPS entered into a contract with Cenergistic, an energy conservation company. Cenergistic has helped FCPS reduce consumption of electricity, natural gas and water through building audits conducted by a team of ten Energy Specialists who will be working with both instructional and facility management staff.

All FCPS schools and facilities are embarking on a comprehensive energy conservation and management program with Cenergistic, which includes energy audits, monitoring and follow-ups, and adjustments. The program analyzes optimum practices for heating and cooling systems, ventilation rates, humidity, periods of occupancy, and transition to unoccupied buildings, and is designed to preserve comfortable environments during scheduled activities. The costs of the Cenergistic program comes from the system's existing utility budget, with savings projected to more than pay for the program.

## **Energy Specialists**

The energy specialists work to establish accountability for energy consumption at every level within FCPS. This individual is responsible for developing and monitoring our energy management program under school board approved Policy & Guidelines, for the purpose of reducing utility consumption.

Basic areas of responsibility include: administration and record keeping, accountability, reporting, program implementation, promoting Organization employee involvement, and validating energy management system compliance to the Organization's energy policy and guidelines. The role of the energy specialist is instrumental in the success of the energy conservation program and helping FCPS retain critical utility funding.

## **Facility Audits**

The energy specialists will conduct regular "walk-through" audits of all FCPS facilities to ensure operating efficiency, optimum educational environment, and compliance with energy policy. Audits will primarily be conducted after hours and during periods of low occupancy. Each site is reviewed during holiday periods and extended shutdown periods such as winter break, spring break, and summer vacation.

## EnergyCAP

FCPS and Cenergistic use EnergyCAP software and its specialized cost avoidance calculations in order to validate energy savings, track utility bills, and manage energy data. With EnergyCAP, FCPS can track any energy or non-energy commodity and any type of bill detail, then produce and distribute meaningful reports to our stakeholders.

EnergyCAP software provides a software interface for automated submission of building energy data to ENERGY STAR's Portfolio Manager. Through the interface, ENERGY STAR returns energy use information and an ENERGY STAR building rating for energy efficiency that can be used to achieve certification status. This function is critical for FCPS to achieve a top ranking among ENERGY STAR certified school districts.

Fiscal Year	Month	Cost Savings \$	Cost Savings %	Quarterly Totals \$
	July	\$258,533	10.7	
	August	\$271,322	11.9	\$712,491
	September	\$182,636	5.9	
	October	\$197,050	8.4	
	November	\$207,221	7.1	\$729,784
FY 2015	December	\$325,512	8.3	
۲ 2،	January	\$365,844	10.6	
	February	\$381,830	10.3	\$1,153,620
	March	\$405,947	11.0	
	April	\$320,336	12.7	
	May	\$237,477	9.4	\$951,926
	June	\$394,113	9.7	
	July	\$434,065	17.0	
	August	\$424,107	16.9	\$1,253,849
	September	\$395,677	11.5	
	October	\$310,827	12.1	
	November	\$362,725	12.4	\$1,186,994
016	December	\$513,443	13.2	
FY 2016	January	\$679,770	19.0	
_	February	\$605,312	17.2	\$1,887,487
	March	\$602,405	16.7	
	April	\$453,324	16.7	
	May	\$408,669	15.2	\$1,212,423
	June	\$350,430	9.7	
	July	\$401,270	15.2	
	August	\$279,448	10.8	\$1,018,741
	September	\$338,023	9.3	
	October	\$344,590	13.2	
~	November	\$412,909	13.9	\$1,417,140
017	December	\$659,640	15.5	
FY 2017	January	\$527,600	15.5	
	February	\$567,079	17.9	\$1,620,693
	March	\$526,014	14.3	
	April	\$597,621	23.0	
	May	\$147,971	21.6	\$763,526
	June	\$17,933	5.3	
	Total Savings	\$14,392,179	11.5	\$14,392,179

## Energy Conservation Program Savings



## **NATIONAL AWARDS**











2017 AWARD WINNER







## Top in Category: K-12 School





## Marshall HS won the Top Category - Water for K-12 Schools in the ENERGY STAR® National Battle of the Buildings BOOTCAMP Competition!

The ENERGY STAR<sup>®</sup> National Building Competition: BOOTCAMP was a competition that challenged building owners, managers, and occupants to reduce energy and water use, and save money over just 90 days!

For three months from September 1 - November 30, 2016, more than 200 organizations across the country entered 800+ buildings to compete in the 2016 National Building Competition: BOOTCAMP. Competitors worked to cut energy and water waste, one energy or water-saving action at a time, and tracked their building's monthly energy and water consumption using ENERGY STAR Portfolio Manager<sup>®</sup>, EPA's online measurement and tracking tool.



## FCPS Recognized for Having the Most ENERGY STAR Certified Schools in the U.S, 151 buildings.

ENERGY STAR is a voluntary program offered by the EPA that helps businesses and individuals save money and protect the climate through superior energy efficiency.

The ENERGY STAR program was established by the EPA in 1992, under the authority of the Clean Air Act. Under the EPA's leadership, American consumers, businesses, and organizations have made investments in energy efficiency that are transforming the market for efficient products and practices, creating jobs, and stimulating the economy. Now in its 23rd year, the ENERGY STAR program has boosted the adoption of energy efficient products, practices, and services through valuable partnerships, objective measurement tools, and consumer education.

To earn the EPA's ENERGY STAR certification, a facility has to be certified by a third-party engineer and rank among the top 25 percent building energy use in its peer group, nationwide. Today, Fairfax County Public Schools is the largest school division with the most number of ENERGY STAR buildings nationwide.



## FCPS Earns 2017 Energy Star® Partner of the Year Award

Fairfax County Public Schools (FCPS) has been named a 2017 Energy Star® Partner of the Year-Energy Management Award winner for its efforts to improve the energy efficiency of its buildings and facilities. The school district's accomplishments were recently recognized by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy in Washington, D.C.

Key accomplishments include:

- Earning ENERGY STAR certification for 151 buildings.
- Achieving \$14 million in energy savings since 2014 as a result of a comprehensive energy conservation program called Get2Green, incorporating ENERGY STAR tools and resources.
- Reaching a 14-percent reduction of greenhouse gas emissions, the district has cut more than 63,766 metric tons of carbon dioxide since 2014. This is equivalent to the carbon dioxide saved by more than 1.6 million tree seedlings grown for ten years.
- Training more than 100 educators to teach students about energy efficiency and conservation through their lesson plans, activities, and classroom materials.
- Promoting a culture of energy conservation and environmental stewardship through the ENERGY STAR program by displaying the ENERGY STAR logo on all publications, banners at schools, community videos, educational presentations, newsletter stories, and holding regular energy committee and sustainability meetings.
- Participating in EPA's ENERGY STAR National Building Competition: BOOTCAMP.



## FCPS Better Buildings Challenge commitment is to achieve a 20% reduction by 2023.

The district has expanded its comprehensive education and sustainability program into a systemic collaboration driven by students, staff, businesses and the greater community across many domains. FCPS has established special programs to educate students and staff in environmental stewardship responsibilities. A cross divisional Sustainability Team is driving programs such as the NWF Cool School Challenge with students performing energy audits and executing action plans for first hand involvement and education. Additional plans to achieve the reduction commitment include equipment upgrades, building shell improvements, operational changes, and adjustments in occupants' behaviors. A strong emphasis is placed on operational and occupant/staff driven improvements. Energy Specialists are conducting energy audits, overseeing equipment and operational schedules, and working to improve occupants' energy use behaviors. Energy Management department personnel are fixing EMS system issues as quickly as possible, minimizing equipment downtime. One third of every project dollar is directed toward improvements in energy efficiency and sustainability. Among equipment upgrades during renovations are: variable frequency drives (VFDs), water source heat pumps (WSHP), energy recovery units (ERUs), variable refrigerant flow (VRF) systems, automatic temperature control (ATC) systems, green diesel technology, and cool roof installations.



2017 AWARD WINNER

Fairfax County Public Schools has been named a 2017 U.S. Department of Education Green Ribbon School District Sustainability Awardee, and Centreville ES is named Green Ribbon School for its sustainability efforts. The district was honored for its comprehensive Get2Green program and for achieving \$10 million in energy savings during a two-year period.

The FCPS comprehensive environmental education and sustainability program has been expanded into a district-wide program, Get2Green, whose mission is to promote student learning and action across the curriculum using the environment as a foundation, aided in part through a partnership with the National Wildlife Federation's (NWF) EcoSchools USA program. Initiatives in the Get2Green program are aligned with the district's strategic plan.

The Department of Facilities and Transportation Services invests one-third of every project dollar into sustainability infrastructure, such as geothermal, rainwater cisterns, LED lighting, variable refrigerant flow mechanical systems, water source heat pumps, biofilters, solar hot water heaters, highly reflective roofing, and pervious pavers. This has resulted in a savings of \$10 million in energy savings in two years and an 11 percent reduction in greenhouse gas emissions.

To date, 90 Fairfax County schools are registered as EcoSchools, 12 of which have achieved the highest honor, Green Flag status.

Centreville Elementary uses the environment as a primary vehicle for student learning, offering opportunities to solve real-world problems through creativity, collaboration, communication, and critical thinking. Students at the school are engaged in planning, constructing, using, and maintaining a wildlife habitat on school grounds that increases biodiversity, conserves water, minimizes the need for mowing, and serves as an outdoor classroom.

As part of the NWF-administered Cool School Challenge, students conduct energy, water, waste biodiversity, health, habitats, food, and transportation audits, followed by action plans based on the results. They create public service announcements and youth-oriented TED-style talks on the environment, work on outdoor education lessons to share with teachers, meet with custodians and cafeteria managers, and work with the principal to gather information and get approval for new initiatives.

Centreville Elementary has three outdoor classrooms, a walking trail, and a variety of gardens, one for each grade level. A green hour enables students to enjoy several hours of weekly outdoor education.

energy ENERGY STAR	201	<b>7 TOP</b>	CITIES
1 W	ashington, DC		790
2	Los Angeles		531
3	New York		395
4 S	an Francisco		372
5	Atlanta		351
6	Dallas		343
7	Chicago	268	
8	Houston	236	
9	Boston	209	
10	Phoenix	204	

## Washington D.C. named nation's top ENERGY STAR city for 3rd year in a row!

For the third year in a row, Washington, D.C., held its lead over second-place Los Angeles, which dominated the list for six years after the rankings were first announced. A record 790 buildings were certified in the DC area in 2016.

EPA's annual Top Cities list shows which metro areas were home to the most ENERGY STAR certified buildings in the previous year. These regions continue to make impressive strides in cutting American energy bills and pollution through energy efficiency. Their efforts contribute to stronger economies, healthier communities, and cleaner air for all of us.

#### What's behind DC's success?

While we can't pinpoint the specific reasons why nearly 800 DC-area buildings chose to earn the ENERGY STAR last year, the following factors may be worth noting.

- A handful of local school districts contributed nearly 280 buildings to DC's total: Fairfax County Public Schools (151), Prince William County Public Schools (52), Loudoun County Public Schools (57), and Stafford County Public Schools (17).
- Several DC-area initiatives have aimed to improve the energy efficiency of the area's commercial buildings. Most significantly was <u>The Clean and Affordable Energy Act of 2008</u> (PDF, 116 KB). The bill was the first of its kind in the US: it requires that the energy performance of commercial buildings be rated and publicly disclosed every year.
- Other initiatives have included tax credits and a voluntary campaign by the downtown DC Business Improvement District called the "Smarter Business Challenge."
- Federal agencies may only lease space in ENERGY STAR certified buildings. Landlords across the region might be motivated to earn the ENERGY STAR in order to retain and attract Federal tenants.



Connecting and empowering champions who are creating healthy and sustainable schools



## **Green Schools Alliance District Collaborative**

Fairfax County Public Schools (FCPS) has been named one of the charter members of the Green Schools Alliance District Collaborative.

The Green Schools Alliance District Collaborative is an advisory council of public school districts, represented by their district sustainability professionals, working together to harness the collective power of schools to support greener, more efficient solutions. The Collaborative is comprised of 24 U.S. school districts - 8 of which are the 12 largest districts in the country. Collectively, these districts affect the lives of 3.83 million children in 5,949 schools with more than 577 million square feet of building area. The members of this advisory council build and share best practices, leverage their combined purchasing power to increase access to sustainable alternatives and promote market transformation, and influence national policy decisions.



The District Collaborative's mission is to leverage our collective knowledge, experience, and influence to accelerate the implementation of sustainability principles that incorporate sound environmental, economic, and equitable decisions in schools



## Three Fairfax County Schools Awarded Eco-Schools USA Green Flag for Exceptional 'Green' Achievement

#### Honor indicates commitment to sustainable curricula and school operations

Carson Middle School, Frost Middle School, and Marshall High School have earned the National Wildlife Federation's (NWF) <u>Eco-Schools USA</u> Green Flag award for exceptional achievement in 'greening' physical structure and grounds, conserving natural resources, and integrating environmental education into curricula. Carson Middle, Frost Middle, and Marshall High are Fairfax County public schools.

To win the Green Flag, students and faculty at the three schools tackled a host of sustainability initiatives that began with forming an Eco-Action team; auditing facility energy efficiency, waste disposal and other environmental impact areas; and instituting environmental-themed curricula.

Carson received its Green Flag award on June 1. Students started an anti-idling campaign and reduced their carbon footprint by over 4,500 pounds of CO2. They are aiming to reduce the amount of trash they produce, and students have also started a food sharing group.

Frost received its Green Flag award on June 3. The school received \$8,500 in grants from four different sources to fund Eco-Schools projects. Students installed two water bottle fillers, with Eco-Code bottles. They also donate seven pounds of food to a shelter each day. Students at Frost are able to connect with nature and lower their carbon footprint by participating in Bike-to-School and spending time in their NWF Certified Schoolyard Habitat.

Marshall received its Green Flag award on June 4. The award was given in honor of achievements like saving 16,000 gallons of water and almost 114,000 kWH of electricity. They also participate in the GLOBE program and won the EPA Battle of the Buildings Competition for Water.

## **REGIONAL AWARDS**











## VSBA Green Public Schools Challenge!

Fairfax County Public Schools (FCPS) has been named a Certified Green School Division by the Virginia School Boards Association (VSBA).

FCPS was one of sixteen districts statewide that earned platinum certification for implementing new actions and adopting new policies that earned green points as part of the VSBA Green Schools Challenge. The challenge was established to encourage implementation of specific environmental policies and practical actions that will reduce carbon pollution by school districts and their communities.

The district has an active Get2Green program that engages students in environmental action in more than 160 schools. Students learn about alternative energy sources and saving energy, growing food and composting food waste, wildlife habitats and biodiversity, and protecting local watersheds. The program involves partners such as the National Wildlife Federation, the Chesapeake Bay Foundation, Fairfax County Parks and Nature Centers, Plant Nova Natives, the Fairfax County Department of Public Works and Environmental Management, and the U.S. Fish and Wildlife Service.

The challenge is sponsored by Moseley Architects and ABM Building and Energy Solutions.



## Metropolitan Washington Council of Governments

Fairfax County Public Schools (FCPS) is recognized with a 2016 Climate and Energy Leadership Award in the Educational Institution category for its Get2Green program. FCPS is the 10th largest school district in the nation with over 220 facilities comprising of 197 schools, 11 centers, and other support buildings. The Get2Green program's mission is to promote student learning and action using the environment as a foundation. FCPS has potential to reach over 186,000 students through programs such as home energy audits as part of curriculum; learning about renewable energy through building wind turbines; and sharing school grown edible food and leftover cafeteria food with local food banks.



## FCPS Students Honored for Innovative Solutions at 2017 Environmental Action Showcase



## SEAS is hosted by NoVA Outside in partnership with GMU's Potomac Environmental Research and Education Center.

Students from three Fairfax County public schools were honored for their innovative environmental solutions at the sixth annual School Environmental Action Showcase (SEAS) at George Mason University's (GMU) Center for the Arts. More than 350 FCPS students from 25 schools attended SEAS.

Students from Fort Belvoir Upper Elementary, Carson Middle School, Lanier Middle School, and Stuart High School presented their watershed improvement plans in the Caring for Our Watersheds competition. Students from Carson Middle took first place in the competition for their food sharing program that captures uneaten food from the cafeteria and sends it to community shelters, and teams from Lanier Middle won second and third.

Students from Belvedere Elementary won the \$500 Dynamic Young Visionary award from the Fairfax County Federation of Teachers for their outstanding leadership, collaborative problem solving, and exemplary teamwork in their efforts to protect and improve the local environment.



## FCPS Energy Competition Concludes With Big Savings

Seven Fairfax County public schools were recognized for their efforts in the district's Get2Green division wide energy conservation competition, Battle of the Buildings, which ran from February 1 to April 30. Forty-seven schools participated, engaging students, teachers, and their school communities in energy conservation through simple methods such as turning off lights and electronics when not in use and closing windows when air conditioning is running.

Participating schools saved over 1,000,000 kBtu and nearly \$30,000. The top savers in the competition were Hunters Woods Elementary School, which saved 25.9 percent compared to the same period in 2016; Haycock Elementary School, which saved 18 percent; and Madison High School, which saved 16.5 percent. Two schools, Olde Creek Elementary and Rolling Valley Elementary, won awards for their creative communications methods, and Centreville Elementary and Franklin Sherman Elementary won awards for high levels of community engagement. The winning schools are being rewarded with water bottle refill stations, two of which were donated by Elkay.

Schools shared their efforts on Twitter using <u>#FCPSEnergyBattle</u>. All participating schools were sent Kill-A-Watt meters, small devices that students can use to test how much energy various electronics in their schools consume. In addition to energy auditing, schools came up with a variety of creative methods to have fun conserving energy. Hunters Woods became the top energy saver by incorporating energy conservation into every aspect of the school day—reading outside, creating recycled artwork by window light, creating an energy dance under the sun, learning about circuits, and creating public service announcements to share on school news, social media, and with family and friends outside of school. At Olde Creek Elementary, Principal Dustin Wright assumed an alter ego, Mr. Neon, who encouraged students to conserve energy and rewarded classes that were caught going green.

## FOOD AND NUTRITION SERVICES

The Office of Food and Nutrition Services (FNS), Fairfax County Public Schools, is committed to developing excellence in every student. As a school district that values whole child health, we are a premier food and nutrition services program that seeks to engage and inspire students through healthy food access, nutrition education and experiential learning experiences. We believe that as they acquire the knowledge, skills, and values they will, in turn, be prepared to contribute to this ever-changing global society.

### Farm to School and Real Food for Kids' Salad Bar

Over the last two years, FNS began transforming our program to maximize the availability of fresh and local foods. We are in the process of partnering with farmers and FCPS schools to promote local food procurement.

The "Real Food for Kids' Salad Bar," is another program that seeks to change healthy behaviors among students in FCPS. By 2021, all elementary schools will have DAILY access to a salad bar that features fresh and local foods. This sustainable food practice not only promotes healthy food access but promotes the local economy.

### Reduce, Reuse, Recycle - History and Current Trends

Recycling in Fairfax County began in the early 1990's with efforts to transport the disposable foam trays to recycling plants in New Jersey; however, this proved unacceptable and expensive. The trays were too contaminated with food to recycle and were returned them to Virginia for landfill disposal.

In 1994, all polystyrene items and trash used in food services was converted into electricity through a process known as "waste to energy," at The Energy Resource Recovery System (ERRS) facility in Lorton, VA.

Office of Food and Nutrition Services continues to search the market and use as many acceptable products made from recyclable materials such as the post-consumer materials in our napkins and implement the philosophy of the 3 R's - Reduce, Reuse, and Recycle.

We currently use a tray that is made of 100% recycled material and 100% compostable. The tray is also shrink wrapped to reduce the volume of packaging. The decision was made to purchase these trays as part of the county-wide recycling effort. As we continue to move towards a locally grown food program, we hope to continue sustainability efforts.

## Food Bank

Legislation sponsored by Representative Frank R. Wolf has enabled FNS to develop and foster a successful partnership with schools and local food banks. This partnership provides safe leftover foods from student lunches (school purchases and lunches brought from home) to local food banks. To ensure that food donations from student lunch leftovers are safe and healthy, FNS provides guidelines to assist schools with the implementation of the program in the Donation of Student School Meal Leftovers to Local Food Banks Memorandum of Understanding (SL 174).





efuse from FCPS that cannot be recycled, scycled or composted is converted to energy a Covanta plant in Lorton. See www.covanta.com r more information on this plant.

PAPER



**FOOD CONTAINERS and HOLDERS** 



#### **POSSIBLE UPCYCLE**

#### POSSIBLE COMPOST

See: www.terracycle.com for information on these and other items. The food and liquid out of the containers.

Questions?? email recycling@fcps.edu



## **DESIGN & CONSTRUCTION**

The Office of Design and Construction (D&C) is the liaison between FCPS and Fairfax County and is responsible for design and construction services for new school facilities; additions to existing schools; renewals (renovations) of existing school facilities; completion of capital improvement work orders in the most cost-efficient manner; minor facility improvements; and the purchase, installation, and relocation of temporary classroom facilities. This office evaluates the capacity and effective utilization of each school on a yearly basis. Design and Construction manages facility accommodation for the disabled through the Americans with Disabilities Act Transition Plan.

#### **Responsibilities:**

- Capital Bond Improvement Program (new schools, school renovations & additions)
- Provide on-site inspection staff to ensure quality assurance and safety
- Provide building evaluation and assessment to coordinate the planning of construction projects for the next school bond referendum to best support the educational needs of the students
- Responsible for all FCPS building improvements/modifications
- ADA compliance and transition plan
- Facility roofing installation maintenance program
- Artificial turf field installations
- Temporary classroom program
- Educational specification development (relative to facilities)
- Master Specifications and Details

FCPS is a member of The Collaborative for High Performance Schools (CHPS). CHPS is a national organization devoted to the idea that every K-12 school child should be in a high performance classroom, offering design guidance and benchmarking tools. Through The Office of Design and Construction, FCPS headed up the development of the VA-CHPS Criteria that is available to all Virginia school systems. All Bond construction projects are CHPS Designed.

Some highlights of measures taken or being taken towards sustainable facilities include but are not limited to:

- STORM WATER MANAGEMENT such as: Underground STORM WATER DETENTION, DRY PONDS, CISTERNS, Underground INFILTRATION FACILITIES, FILTERRAS, Cartridge FILTERS, SOIL AMENDMENTS to increase storm water infiltration, REFORESTATION of specific areas on school sites.
- 2. **SITE LIGHTING:** LED fixtures are specified for parking lot lighting. Furthermore, the lights are controlled by a computerized, customizable Lighting Control System. In addition to saving energy, LED lights are dimmable, allowing the system to be as flexible as possible.

3. MECHANICAL and PLUMBING SYSTEMS: High efficiency HVAC systems are used in both new and renewal projects. Currently we usually install Water Source Heat Pump (WSHP) or Variable Refrigerant Flow (VRF) systems. These HVAC systems are highly efficient and provide a high degree of occupant comfort. At each school, all HVAC equipment is controlled by a computerized Automatic Temperature Control (ATC) system. It saves energy by stopping and starting equipment, setting temperatures back during unoccupied times, controlling the intake of fresh air, and it allows network access to help Energy Management manage and troubleshoot equipment without putting trucks on the road unnecessarily. Though water is not often in short supply in our region it is nevertheless a precious resource. We specify "Lo Flo" plumbing fixtures that use far less water than older types of fixtures, and meet or exceed current code. Sensor type faucets are in our current design rather than mechanically metered faucets. These fixtures cut down on water use and maintenance also. Any reduction in maintenance requirements means a possible reduction in CO2 emissions.

## 4. ELECTRICAL:

- High efficiency LED and fluorescent (including Compact Fluorescent) light fixtures are our current design. No incandescent lights are used.
- Occupancy sensors are installed in classrooms to help ensure that lights do not remain on when a room is empty.
- A programmable Lighting Control System is used to control lights inside the building where appropriate as well as exterior lights.
- As part of a Sustainability Committee initiative D&C and Energy Management is assessing the feasibility of using Power Purchase Agreements (PPAs) to install solar photovoltaic arrays on schools.

## **TRANSPORTATION SERVICES**

The Office of Transportation Services is responsible for providing the safe and efficient transportation of all eligible students to and from schools and school activities each day. To accomplish this monumental task, a team of dedicated routing, safety, and administrative specialists combined with a host of drivers and attendants work together to maintain a high level of service for all of our clients.

FCPS is committed to continuing efforts towards climate stabilization. FCPS has actively made changes to practices and operations that have led to GHG emissions reductions. Currently, FCPS in conjunction with Fairfax County and the Virginia Department of Environmental Quality (DEQ) is proposing to partner in a voluntary program to reduce emissions from diesel-powered school buses by retrofitting eight (8) buses with an EPA-verified emissions control technology (diesel particulate filters). The anticipated program outcomes are improved air quality and reduced exposure to diesel particulate matter (PM), hydrocarbons (VOC), and carbon monoxide (CO) emissions.

*Outdoor Air Quality (OAQ)* - To do its part to improve general air quality in the region, FCPS will maximize the use of school buses with green diesel technology using ultra low sulfur diesel fuels and, when replacing vehicles, FCPS shall give preference to vehicles with improved fuel economy and reduced emissions.

#### Sustainability & Greenhouse Gas Emissions

Consumption of energy for transportation or in buildings for heating, air conditioning, ventilation, lighting, hot water, computers, and other plug loads produce greenhouse gas (GHG) emissions in the form of carbon dioxide. These emissions can result directly from burning fossil fuels. As a product of combustion, gasoline or diesel fuel used in cars, buses and trucks release CO2 directly from the tailpipe directly in to the atmosphere. Burning natural gas or fuel oil in a boiler or furnace for heating buildings, heating domestic hot water, or used for cooking in kitchen equipment also releases CO2 directly from the flue pipe as a product of combustion.

Using electricity also releases CO2 into the environment, but does so indirectly when fossil fuels are burned to generate the electricity. In Virginia, vast amounts of coal and natural gas are burned to generate electricity. These sources of CO2 are not at the same site as the electricity is consumed (i.e. school buildings), and can be hundreds of miles away. Some power generation sources like nuclear power, hydroelectric power, windmills, or solar photovoltaic do not create CO2 to generate electricity.

## **SAFETY AND SECURITY**

#### **Environmental Health**

The Environmental Health Section provides technical knowledge and expertise required to keep the school division at minimal risk to liability and property losses. This section also complies with myriad of federal, state, and local fire, health, and safety codes that impact the school division. Environmental health questions or additional information may be forwarded to 571-423-2010.

#### **Responsibilities**

- Provide customized workshops, classes, and comprehensive testing and certification programs for environmental health related issues
- Conduct comprehensive inspections of school buildings, equipment, and sites
- Initiate minor improvement work requests to correct safety deficiencies
- Develop emergency and disaster preparedness plans
- Coordinate indoor environmental monitoring
- Investigate and resolve complaints/concerns involving sensitive health issues
- Develop and implement programs to ensure system-wide compliance with Occupational Safety and Health Administration and Environmental Protection Agency regulations
- Manage inspections of all FCPS facilities to evaluate compliance with environmental and safety laws, regulations, and standards
- Develop employee-training programs designed to ensure a safe and healthy work and learning environment
- Direct and monitor the selection, purchase, storage, and handling of hazardous chemical materials
- Manage the minimization and disposal of hazardous waste generated at all FCPS facilities
- Administer the blood borne Pathogen program
- Conduct water testing

## **ADMINISTRATIVE SERVICES**

#### **Community Use**

The Fairfax County Public School Board encourages the use of the school buildings and grounds by the community for educational, recreational, civic, and cultural activities to the extent possible under the law. The Board believes that school facilities are an important resource in developing and sustaining lifelong learning in promoting intergovernmental cooperation, and in encouraging citizen participation in community activities.

In order to ensure that school facilities are available for school programs and that they serve community needs, priorities for use have been designated. The highest priority for use of school building and grounds is assigned to Fairfax County Public Schools (FCPS) instructional programs, student activities, and activities of school-related groups. The next priority is given to the Fairfax County Neighborhood and Community Services Division and FCPS Adult Education.

#### **Contract Administration**

The Contract Administration Section is responsible for all procurement and contract support, for the Office of Administrative Services.

Acquisition of products and services are performed in accordance with state and local laws, and in support of environmental stewardship, whenever possible. Purchasing decisions will include environmental considerations such as reducing waste and greenhouse gas emissions, minimizing environmental impacts, and using products made with recycled materials.

#### **Customer Service Team**

The Facilities and Transportation Services Customer Service Team is the initial point of contact for the resolution of technology issues that impact the business of maintaining and operating Fairfax County Public Schools' facilities. The Customer Service Team primarily supports the computerized facilities management system, networking software, SQL database, bus routing software, safety & security systems, and other software impacting the Facilities and Transportation Services business processes.

Our goal is to provide customers with the information they need in a timely and efficient manner through the proper use of departmental technology, training, and customer support.

## **Regulations and Guidelines**

## Regulations

- <u>Regulation 8320 Site and Building Acquisition</u>
- <u>Regulation 8534 Energy Conservation Measures</u>
- <u>Regulation 8536 Operation of Air Conditioning and Heating</u>
  <u>Systems</u>
- <u>Regulation 8538 Control of Vent Fans</u>
- <u>Regulation 8541 Recycling Requirements for All FCPS Facilities</u>
- Regulation 8542 Environmental Stewardship
- <u>Regulation 8560 Maintenance of Physical Facilities</u>
- Regulation 8615P School Safety Manual

## **Guidelines and Checklists**

- <u>Cenergistic Guidelines for Energy Conservation and Building</u>
  <u>Management</u>
- International Performance Measurement & Verification Protocol (IPMVP)
- Authorized Use of Overrides
- Moisture Management Document
- Library Operational Plan
- <u>School Energy Savings Checklist</u>
- <u>Classroom Energy Savings Checklist</u>
- FNS Equipment Shutdown Guidelines
- FNS Shutdown Notification Sign
- FACS Shutdown Notification Sign
- How to Prepare a Personal Refrigerator

