



2014-2015 District Nominee Presentation Form

CERTIFICATIONS

District's Certifications

The signatures of the district superintendent on the next page certify that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the superintendent's knowledge.

1. The district has been evaluated and selected from among districts within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district is providing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
3. OCR has not issued a violation letter of findings to the school district concluding that the nominated school district has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
4. The U.S. Department of Justice does not have a pending suit alleging that the school district has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school district in question; or if there are such findings, the state or school district has corrected, or agreed to correct, the findings.
6. The district meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

U.S. Department of Education Green Ribbon Schools 2014-2015 District Sustainability Award

Name of Superintendent: Dr. Renee A. Foose
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

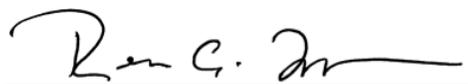
District Name: Howard County Public School System
(As it should appear on an award)

Address: 10910 Clarksville Pike, Ellicott City, Maryland 21042

Telephone: 410-313-6677 Fax: 410-313-6833

Web site/URL: HCPSS.org E-mail: Renee_Foose@hcpss.org

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

 Date: 1/5/15



Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the district's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The district is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental education.
2. The district meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Maryland State Department of Education

Name of Nominating Authority: Dr. Lillian M. Lowery

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

A handwritten signature in black ink that reads "Lillian M. Lowery".

Date: January 27, 2015

(Nominating Authority's Signature)

SUMMARY AND DOCUMENTATION OF NOMINEE'S ACHIEVEMENTS

Provide a coherent "snapshot" that describes how your district is representative of your jurisdiction's highest achieving green school efforts. Summarize your strengths and accomplishments in all three Pillars and nine Elements. Then, include documentation and concrete examples for work in every Pillar and Element.

SUBMISSION

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509

Expiration Date: February 28, 2015

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.



District Contact Information

District Name:

Street Address:

City: State: Zip:

Website:

Superintendent Name:

Superintendent Email Address:

Superintendent Phone Number:

Lead Applicant Name (if different):

Lead Applicant Email:

Phone Number:

District Demographics

	Number of Schools	Enrollment
Elementary (PK - 5 or 6)	41	24,445
K – 8	NA	NA
Middle (6 - 8 or 9)	20	11,890
High (9 or 10 - 12)	12	16,378
Total Student Enrollment	51,681	
Students receiving FARMS (%)	18.9%	
Limited English Proficient (%)	5.0%	
District Location	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Suburban <input type="checkbox"/> Rural	



Summary Narrative: The Howard County Public School System (HCPSS) has long prioritized environmental sustainability – in 1998, it formed a high-quality local food-purchasing cooperative, and in 2002, its first school was certified by the Maryland Green Schools program. But the HCPSS’s environmental efforts have truly taken off since its first female superintendent, Dr. Renee Foose, came on board in 2012. Her determination to narrow the achievement gap across this majority-minority system’s 51,681 students – including tens of thousands living in poverty – has helped her redefine success as a measure of not only high test scores but also a high level of student engagement and overall wellness.

HOLISTIC EDUCATION FOR EVERY CHILD: The HCPSS boasts many top-ranked schools, but Dr. Foose puts equal, if not more, emphasis on the HCPSS’s less advantaged ones by providing them with free iPads for STEM education, telehealth opportunities, and highly nutritious lunches. She has made sustainable practices central not only to existing HCPSS property, but also to new building projects. Since 2012, the HCPSS has gained two LEED-eligible schools and plans to replace an existing middle school with a building that would be one of only three Net Zero energy buildings in Maryland.

UNIQUE GREEN PROGRAMS AND PRACTICES: Having taken a non-traditional career path that includes stints as a school bus driver and a Maryland State Trooper, Dr. Foose has put career exploration and preparation opportunities at students’ fingertips, starting in elementary school – through digital platforms and hands-on learning opportunities with some of the Baltimore-Washington corridor’s top STEM companies. Named an “Innovator of the Year,” “Most Admired CEO,” and “Woman to Watch” by the local media, Dr. Foose created a cutting-edge 5-year strategic plan in 2012 that incorporated green initiatives for the benefit of four target audiences:

(1) Students: Career Exploration Opportunities: Online platforms and STEM partnerships put career exploration at students’ fingertips – starting in elementary school. 100% of 6–12th graders will participate in Naviance lessons with their counselors three times each school year. **Focus on the Whole Child:** The HCPSS accelerates student achievement by complementing high expectations and rigorous instruction with a focus on non-cognitive factors such as hope, well-being, and engagement. **Unique Learning Opportunities:** Every HCPSS student has access to outdoor learning experiences and activities such as Hour of Code.

(2) Staff: “Commit to be Fit” Employee Wellness Program: This program provides awareness, education, motivation, and behavior change programs to help staff members improve their overall health. **Professional Learning:** The HCPSS offers a comprehensive professional learning program that values all staff members as life-long learners. The program emphasizes cultural proficiency, leadership development, and professional practice. **Staff Hub:** This [CHESPRA](#) award-winning online hub gives science teachers convenient access to curricula and collaboration opportunities.

(3) Community: Facilities: The HCPSS is encouraging the community to use its facilities for recreational purposes, with support from local groups such as Healthy Howard and the Horizon Foundation. **HCPSS Updates:** Dr. Foose has approximately 120–150 speaking engagements per year, many of which are with community and parent groups. Green updates comprise many of these conversations.

(4) Organization: Lean Six Sigma: After applying this philosophy within various facilities-related departments, the HCPSS has reduced maintenance calls, repairs, and associated costs by the millions. **Zero-Based Budget:** Since its implementation in 2013, zero-based budgeting has saved the school system \$2.6M through redirecting existing resources to mission-critical initiatives.

UNIQUE PARTNERSHIPS

- **Howard County Conservancy:** This private non-profit spends countless hours annually promoting environmental stewardship among HCPSS students and the community.



- **Howard County Department of Recreation and Parks Office of Environmental Education:** These environmental specialists make outdoor encounters more meaningful by providing tree identification guides, gardening instructions, and tours of local parks.
- **Howard General Hospital:** HGH works with student interns annually, and in 2008, it sponsored a Wellness Day at Reservoir High School that encouraged healthy, active lifestyles.
- **MOM's Organic Market:** Store personnel are teaching Thunder Hill Elementary students how to compost, recycle, and reduce waste.
- **Robinson Nature Center:** The Center supports the HCPSS's environmental education program and helps our schools earn their Maryland Green School certifications. As with the Howard County Conservancy, this is a unique partnership model that helps align field trips with classroom curricula.

RESULTS: With a background in accountability, Dr. Foose actively tracks the HCPSS's progress toward becoming a greener, healthier place to learn and teach. Consider the following statistics, presented to local group Leadership Howard County on December 16, 2014.

- HCPSS students took 9,450 AP tests in 2014. 81% of those tests earned scores of 3 or higher, compared to 61% in Maryland and 57% nationally.
- 83.4% of 2014 HCPSS graduates took the SAT, with an average score of 1657 – well above averages for Maryland (1438) and the U.S. (1471).
- SAT scores have increased by an average of 53 points among HCPSS African American students and 57 points among HCPSS students receiving Free and Reduced Meals since 2012.

Green Schools Program Participation A former high school science teacher and school accountability officer, Dr. Renee Foose has led the HCPSS in meeting green standards at the local, state, and federal levels. Meeting standards for factors such as indoor air quality and safe handling of hazardous contaminants is helping the HCPSS achieve holistic education in which student success is based on a range of criteria that includes physical health and academic engagement in addition to standardized test scores. The HCPSS also uses green benchmarks to save money that is then applied toward various programs designed to help narrow the achievement gap. One such program is Dr. Foose's model for "World Class Elementary Education," which includes the following elements:

- **Daily Foreign Language Instruction:** Early, intensive, and immersive foreign language training boosts intellectual growth and academic achievement while inspiring cultural awareness.
- **Expanded Pre-K:** High-quality pre-K teaches the social, emotional, and intellectual skills young children need to be ready for learning.
- **Strengths Development:** Gallup surveys help increase engagement based on ten specific strengths linked to cognitive ability and academic achievement.
- **Subject Departmentalization:** Departmentalization allows teachers to develop more enriching and engaging instruction in areas that they are most passionate about.
- **Telehealth:** Better in-school treatment for injuries and illnesses helps students stay engaged and miss fewer classes.

Environmental-based savings also help support the following programs, designed to help HCPSS students embrace and benefit from technology while becoming more equipped to enter a 21st-century workforce.

- **Bring Your Own Device (BYOD) Program:** Launched as a pilot program in two HCPSS high schools in 2012, BYOD has now been expanded to all high schools and the middle school that opened this year. Now, many teachers in those schools incorporate use technology to enhance instruction, allowing students to participate using smart phones, tablets, or laptops brought from home.



- **Google Apps for Education:** With any Internet-capable device, students can collaborate with peers and access shared documents, spreadsheets, and presentations before, during, and after the school day.
- **Synchronous Video:** Through synchronous video conferencing and other collaborative tools, Dr. Foose is reducing the number of classes cut due to low enrollment by allowing one teacher to work with students at multiple schools. During 2013-2014, synchronous video allowed 187 students to complete courses that were otherwise not available.
- **Tech Partnerships:** Since 2012, Dr. Foose has created 22 new partnerships – including several with the Baltimore-Washington corridor’s most cutting-edge tech companies – to increase students’ access to mentorship opportunities within Science, Technology, Engineering, and Math (STEM) fields.

INTERNAL PROGRAMS

- **BioBlitz:** Sponsored by the Howard County Conservancy, the BioBlitz event has allowed more than 500 HCPSS students to learn about local biodiversity as they observe and catalogue various species of birds, mammals, insects, and plants along 85 acres.
- **Career Academies Program:** HCPSS middle and high school students have the opportunity to explore and attend courses within various “Career Clusters” including Health and Biosciences; Information Technology; and Manufacturing, Engineering, and Technology.
- **“Commit to Be Fit” Employee Wellness Program:** This program provides HCPSS staff members with health issue awareness, education, motivation, and behavior change programs, including assistance with smoking cessation.
- **Earlier Environmental Literacy:** The HCPSS integrates environmental concepts into science and social studies courses starting in elementary school.
- **Gallup Strengths Surveys:** Rather than using standardized test scores as the ultimate benchmark of school achievement, Dr. Foose is shifting the HCPSS to a holistic focus on overall wellness and engagement, as measured with help from Gallup Strengths surveys.
- **HCPSS STEM Fair:** Students present individual research projects for critique by scientists and other community volunteers.
- **HCPSS Sustainability Policy 6080:** Available on the HCPSS website, Policy 6080 outlines the HCPSS’s renewed commitment to sustainability and green initiatives.
- **Joint Taskforce on School Safety:** After the 2012 tragedy at Connecticut’s Sandy Hook Elementary, Dr. Foose and Howard County Executive Ken Ulman created a joint taskforce that led to the installation of 211 security cameras in school buses as an anti-bullying measure and enhancements to front-entrance security at several elementary schools.
- **Our Environment in Our Hands (OEOH):** To make sure all HCPSS students are becoming environmentally literate, 4th graders in Title I schools go to the Howard County Fairgrounds to explore concepts such as stream health, erosion, and Maryland native wildlife.
- **Robotics Programs:** All 20 HCPSS middle schools offer middle school engineering and technology education classes. Robotics education is included in the 8th grade class. All 12 HCPSS high schools offer the Project Lead the Way engineering academy, which includes robotics education. All 12 HCPSS high schools offer the Computer Science-Designing Technology Solutions course, which includes robotics education as well. Many HCPSS middle schools have robotics teams (FIRST LEGO League). Some HCPSS high schools have robotics teams (either FIRST Robotics Competition or FIRST Tech Challenge).
- **School Environmental Report Cards:** HCPSS students routinely tour their outdoor and indoor school environments to assess factors such as biodiversity, vegetation, erosion, energy use, transportation, and waste management. Students then give their schools an environmental report card, which is shared with the broader community via e-newsletters.



- **Student Service Learning:** HCPSS middle and high schools routinely incorporate environmental learning into their student service learning projects. Topics for middle school projects have included Air Quality; Ecology of the Bay; Ecological Footprints; Energy Consumption; Native Species Restoration; and Stream Restoration.
- **Summer Institutes for Talent Development:** The HCPSS offers hands-on environmental learning opportunities for students during the summer break. Many of these programs focus on environmental learning; one class explores topics such as green roofs, offshore drilling, and biodiversity.

EXTERNAL PROGRAMS

National Level

- **Code.org:** HCPSS schools took part in Hour of Code activities that allowed every student to try computer coding for an hour.
- **Math Engineering Science Achievement Program (MESA):** These after-school clubs are found at various HCPSS schools, including many with high FARMS populations.
- **National School Lunch Program (NSLP):** The HCPSS follows the NSLP, which requires that school meals be consistent with the Dietary Guidelines for Americans.
- **Project Lead the Way:** HCPSS high school students participate in this pre-engineering program in which they create projects using 3-D printing and robotics.
- **U.S. Green Building Council Green Apple Day of Service:** On the Green Apple Day of Service, students, teachers, and parents worldwide come together in support of healthy, sustainable schools. In 2012, community members joined Talbott Springs Elementary students and teachers in building a sensory garden and learning about sustainability.

State Level

- **Explore and Restore Your SchoolShed Initiative:** An initiative of Maryland Governor Martin O'Malley, Explore and Restore Your SchoolShed motivates participating schools to explore and care for their local streams. Governor O'Malley visited Dunloggin Middle in 2013 to see students in action.
- **Maryland Green Schools Program:** The HCPSS has been actively in the Maryland Green Schools program for 12 years, since Triadelphia Ridge Elementary became Howard County's first certified Maryland Green School in 2002. 48 HCPSS schools are currently certified.
- **Maryland Environmental Literacy Partnership (MELP):** The HCPSS serves as the lead school system in this 8-school partnership that includes support from the Chesapeake Bay Foundation. HCPSS schools participate in MELP's Issues Investigation Framework, which is aligned with the Next Generation Science Standards.
- **Partnership for Children in Nature (PCIN):** PCIN, signed in 2008 by Maryland Governor Martin O'Malley, establishes a plan to ensure that students statewide have access to outdoor experiences and environmental literacy education.

Local Level

- **Healthy Howard, Inc.:** The HCPSS received Healthy Howard, Inc.'s Gold certification for its 2012 Healthy Workplace Program, "Commit to be Fit." Gold certification is the highest form of recognition and is awarded to programs that align with national recommendations for comprehensive worksite wellness.
- **Howard County School Health Council:** This state-mandated advisory council combines representatives from the HCPSS, the County Health Department, the PTA Council of Howard County, and other community groups. It is administered by representatives from these community organizations, and reports to both the HCPSS Superintendent and the County Health Officer.



- **University of Maryland Extension Howard County Master Gardeners Partnership:** UM's Master Gardeners help HCPSS students apply and expand their knowledge of sustainable horticulture through various local projects.
- **Walk to School Days:** To help reduce carbon emissions, the HCPSS encourages students to walk to school; many students participate in monthly or weekly Walk to School days.

CERTIFICATIONS/AWARDS

National

- **Green Cleaning Award:** The HCPSS was selected as the Grand Award Winner among K-12 school districts in this Schools & Universities competition, sponsored by *American School & University* magazine, The Green Cleaning Network, and Healthy Schools Campaign.
- **Green Seal GS-42 Certification:** The HCPSS was the nation's first public school system to achieve the Green Seal GS-42 certification for cleaning and contributing to a healthy and more sustainable environment.
- **LEED Certifications:** Silver certification earned by Northfield Elementary, Thunder Hill Elementary, Stevens Forest Elementary construction projects; Gold certification eligibility for Ducketts Lane Elementary; Platinum certification for the new Wilde Lake Middle building. (Upon completion of construction in 2017, WLMS will be one of only three Net Zero energy schools in Maryland.); Certifications in progress for the new Thomas Viaduct Middle and renovated Atholton High, Bollman Bridge Elementary, Deep Run Elementary, Longfellow Elementary, Phelps Luck Elementary, and Patuxent Valley Middle; State of Maryland requires a minimum of LEED Silver certifications for all new school construction projects, but as a HCPSS standard, we have adopted a policy of LEED Certification for all full systemic renovation school construction projects as well.
- **National School Nutrition Association:** The HCPSS' Food and Nutrition Services Director received Maryland's Outstanding Director of the Year award.
- **Physicians Committee for Responsible Medicine:** The HCPSS lunch program received an A+ from this organization in 2012.
- **U.S. Green Ribbon Schools:** 1, Dunloggin Middle in 2012.
- **U.S. Green Building Council and the Center for Green Schools Program:** The Dunloggin Middle School Oyster Gardeners were a 2014 Best of Green Schools honoree in the student leadership category.
- **USDA Best Practice Awards:** The HCPSS was honored for the following initiatives: designing a new kitchen and serving area at Wilde Lake High; establishing a purchasing cooperative with other Maryland counties; increasing participation in school meals through marketing; offering healthy menu selections in all schools
- **USDA HealthierUS School Challenge:** All HCPSS schools were awarded the HUSSC Bronze level of distinction in 2013.
- **Yale Rudd Center for Food Policy and Obesity Recognition:** The HCPSS was recognized in 2014 by the Yale Rudd Center for its revised Wellness Through Nutrition and Physical Activity Policy.

State

- **Maryland Green Ribbon Schools:** 48 HCPSS schools have been certified by the Maryland Association for Environmental and Outdoor Education (MAEOE). Each certified school has engaged staff and students in initiatives such as implementing schoolyard habitats for reducing erosion and providing environmental study areas; designing energy and water conservation programs; and involving community members and partners in sustaining the environment.
- **MSDE Letters of Commendation:** Based on a Federal and State review, the HCPSS was commended based on these criteria: food is served and held at proper temperatures; food staff members are cooperative, highly organized, and great with students; sampled lunch choices are of good quality, taste, and texture; service lines are nicely presented, and other visuals promoting school meals are attractive; the menu has a nice selection of fresh fruits and vegetables; whole grain products are used on a regular, weekly basis.



- **Maryland State Department of Education Awards:** The HCPSS has received MSDE awards based on these aspects of its nutritional efforts: After School Care Snack Programs; Classroom Breakfast Pilot Programs; Community Access to Nutrition Information; Customer Service; Merchandising Program (educating students about nutrition and how to make healthy food choices through school calendar visuals, posters and flyers); Nutrition Education with High School Booster Clubs; Program Accessibility and Outreach; ServSafe Certification; and Staff Training.
- **Positive Behavior and Intervention Support (PBIS) Green Ribbon Award:** Bonnie Branch Middle has earned numerous PBIS recognitions for reinforcing positive student behavior and healthy intervention methods: Gold, 2013; Silver, 2011 & 2012; Bronze, 2010.

Local

- **Healthy Howard Award:** Healthy Howard is a local organization that is setting an innovative health model for Howard County. The HCPSS won its 2011 “Gold” award for Healthy Workplace and Innovation.
- **Howard University School of Business Sustainability Case Competition:** The Sustainability Team from the HCPSS’s centralized academy facility, the Applications and Research Laboratory (ARL), placed second in the Howard University School of Business sustainability case competition, “The DC Schools Sustainability Project, A College Mentoring Partnership.”
- **Washington Post Agnes Meyer Outstanding Teacher Award:** Burleigh Manor Middle science teacher George McGurl won the 2013 award for helping to lead the school’s STEM and Science Fairs and its Maryland Green School certification.

ENVIRONMENTAL GRANTS

- **Chesapeake Bay Trust Grant for Bryant Woods Elementary:** Bryant Woods Elementary students earned a grant from the Chesapeake Bay Trust in 2012 to stencil 20 local storm drains with this notice: “DON’T DUMP, DRAINS TO THE CHESAPEAKE.”
- **Johns Hopkins Center for a Livable Future (CLF) Grants:** These two CLF grants, both from 2012, enabled HCPSS teachers to develop innovative, hands-on student learning projects that help reinforce relationships among food, public health, diet, and the environment. Long Reach High teacher Alexis Jong completed a vermicomposting project that converted cafeteria food waste into high-quality compost. Oakland Mills High teacher Barbara Savage sponsored student trips to Sharp’s at Waterford Farm and a food distribution plant, followed by design and construction of a hydroponic growing system.
- **Maryland Environmental Literacy Partnership Math Science Grant:** The MELP Partnership is creating robust curriculum resources and providing teacher professional learning and support to meet Maryland Environmental Literacy Standard 1 (environmental issues investigation and student action), as well as content standards in science and social studies. HCPSS manages the Math Science Partnership grant that initiated the program and continues to provide significant support for the partnership’s work.

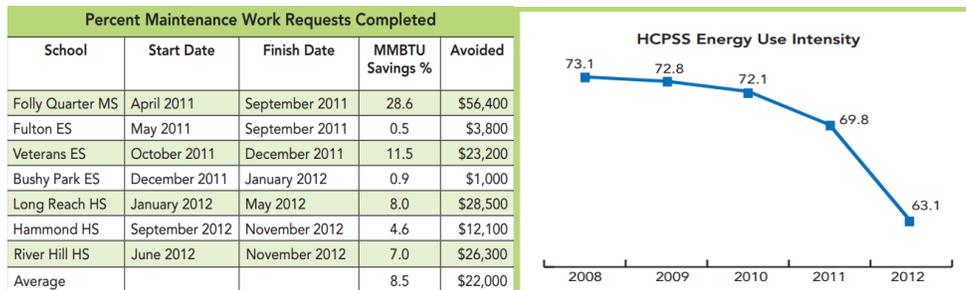
Pillar I: Reduced Environmental Impact and Costs

ENERGY USE: Energy conservation and sustainability measures have been embraced by students and staff throughout the system; especially since the HCPSS's new Sustainability policy took effect on July 1, 2014. The HCPSS has also been applying Lean Six Sigma principles to its Facilities operations during the past five years. Dozens of staff members have already been trained in the methodology, and Lean Six Sigma programs are underway across every operational area.

Various HCPSS schools have reduced energy usage via the following activities: consolidating landscaping duties by turning over lawn mowing duties to the Howard County Department of Parks and Recreation at several schools (in an effort to reduce fuel usage); installing switch timers, energy-saving light bulbs, and geothermal heating and cooling; participating in a load curtailment program during peak demand hours; and switching from fuel oil to natural gas (a cleaner burning fuel) in boilers.

During the last five years, the HCPSS Facilities organization's success with Lean Six Sigma principles has led to the establishment of the HCPSS Continuous Improvement office. Though multiple offices have conducted workshops leading to improvement, the clearest example of how improving an operational practice leads to reduced costs and improved customer satisfaction can be found in the HVAC Shop in Building Services.

The most recent HVAC Shop improvement efforts centered on increased preventive maintenance efforts, which have resulted in improved consistency in school comfort levels and helping to create a more engaging learning environment. HVAC Shop improvement efforts included the formation of a retro commissioning team which focuses solely on comprehensive reviews of building equipment and control systems, work normally done by experienced contractors. For the seven schools completed in 2011 and 2012, the actual energy savings for 2013 exceeded \$150K, with an additional \$105K in rebates received from BG&E for completing that work with in-house employees.



FY 2013 actual gas and electric costs were \$5.9M below the FY 2010 budgeted costs. In addition, during the last three years, the HCPSS has been approved for more than \$1.1M in BG&E rebates and several hundred thousand dollars of incentives related to our participation in an energy curtailment program, dollars which have all been returned to the general fund. We are continuing to aggressively pursue technology improvements which have high payback to the system. The HCPSS charges an Energy Fee – the amount assessed to cover the cost of modifying prescribed temperature settings stated in the Guidelines for Energy Conservation. The HCPSS saved more than \$500,000 in the first two years of an Energy Performance Contract with PEPCO Energy Services. Despite increasing student enrollment and building usage, the average energy use per square foot within the school system has dropped by about 12% since 2008. These savings can be attributed to both behavior change and technology improvements. A successful HVAC Lean project delivers more than \$22,000 in annual energy savings per building and has significantly improved comfort levels and reduced maintenance calls at many schools by more than 50 percent.

LEED (Leadership in Energy and Environmental Design) standards guide all HCPSS construction planning, and every new construction or renovation project is designed to minimally achieve LEED certification. LEED is an internationally recognized green building certification system developed by the U.S. Green Building Council. Recent renovation



projects at Northfield and Thunder Hill elementary schools have achieved LEED Silver certification; LEED Gold certification is expected for the new Ducketts Lane Elementary; LEED Platinum certification is expected for Wilde Lake Middle School.

The departments of School Construction and School Facilities have aggressively implemented energy saving strategies over the last decade. Accomplishments have included the following: LEED certification of six buildings; anticipated LEED certification of 6 additional buildings for a total of 12; award of BG&E rebates in excess of \$1.1M; replacement of Wilde Lake Middle School building. The new building is designed to be one of the first Net Zero energy schools in Maryland. A Net Zero designation indicates that the amount of energy consumed at the facility during one year is equal to the energy produced on site through renewable energy technologies such as solar panels. Energy savings will also be realized through highly efficient geothermal and energy recovery technologies, natural daylight throughout 90 percent of the occupied space, and solar hot water heating. The building will be eligible to achieve US Green Building Council LEED Gold Certification.

GREENHOUSE GAS EMISSIONS: HCPSS personnel were instrumental in the development of the 2010 Howard County, MD Climate Action Plan and in developing a plan to reduce the system's emissions during the coming decade after it was determined that the HCPSS was one of the county's top contributors of GHG emissions. Since then, the HCPSS has reduced GHG emissions significantly, particularly through its new transportation standards, which include the following: 5-minute limit on bus idling; diesel particulate filters outfitted on buses in 2007; exhaust gas recirculating outfitted on buses in 2004; bus routes reviewed annually to minimize deadline mileage, maximize the number of students assigned to each bus, and maximize the number of trips assigned to the buses each morning and afternoon; students, parents encouraged to arrive to bus stops on time to reduce delays and emissions; HCPSS students are strongly encouraged to walk to school when not eligible for transportation services; students participate in Walk to School days; student transportation safety information easily accessible on the HCPSS website; priority is locating new schools nearby to public transportation, providing dedicated walk and bike paths and bike racks, and including preferred parking for LEV and FEV vehicles; HCPSS encourages use of regional materials to help reduce impact of transportation and extraction of virgin material; greenhouse gas emissions education is part of the science curriculum for HCPSS students in multiple grades.

Through the LEED certification process, the HCPSS Division of Construction regularly incorporates two LEED goals on each project to reduce the level of VOC (Volatile Organic Compound) in construction material and the use of regional material. The reduction of VOCs in construction material betters the educational environment as it reduces the off gassing of chemicals. The use of regional material reduces the amount of GHG emissions for shipping.

WATER USE: The HCPSS is setting a positive example for students by providing a school environment that both practices and teaches techniques for water conservation. The HCPSS gives preference to new school building plans that include low-flow type valves, aerators, urinals, metered faucets, sensed faucets, and other efforts to reduce water usage; the HCPSS is committed to building all new and renovated schools according to LEED standards, which include strict standards for water efficiency; the HCPSS science curriculum for multiple grade levels covers both the importance of water conservation and the means by which it can be achieved.

WATER QUALITY: The HCPSS approaches water quality with the utmost seriousness; it works to not only prevent contamination with poisons such as lead but also to educate students about the role that streams and other natural waterways play in proper drinking water. The HCPSS completed construction for the Triadelphia Elementary Waste Water Treatment Plant and the Folly Quarter Middle Waste Water Treatment Plant in 2013; HCPSS students learn about water quality during indoor and outdoor classroom sessions; HCPSS students participate in the Explore and Restore Your School shed Initiative to evaluate and improve the health of local streams and other waterways on their school grounds; one HCPSS partnership with the University of Maryland Master Gardeners educates students about water quality through its Schools and Streams program.



STORMWATER RUN-OFF: The HCPSS's approach is to solve stormwater management problems in an environmentally friendly way while giving students the opportunity to learn from these practices.

- **Choosing New School Sites Based on Stormwater Management Capabilities:** The selection of proposed sites for new schools is to be based upon relevant regulations to ensure proper location and maximum utilization of the facility, including regulations pertaining to subdivision, roads, wetlands, and stormwater management.
- **Educating Students About Stormwater Management:** Ducketts Lane Elementary, opened in 2013, features a Wetlands Observatory with a stormwater management pond and observation area so students can witness the stormwater collection process without ever leaving the school grounds. Ducketts Lane also incorporates rainwater harvesting for irrigation purposes as well as rainwater gardens as outdoor educational areas.
- **Improving Stormwater Management at Existing Schools:** Students are allowed to canvass their schools and choose an environmental-based problem that they'd like to work with Facilities to solve; many students are choosing stormwater issues.

ECOLOGICALLY BENEFICIAL USES OF THE GROUNDS: Various communications campaigns encourage community members to use school athletic fields to improve their fitness; often, these efforts are coordinated with help from local organizations such as Healthy Howard and the Horizon Foundation. HCPSS students at the elementary and secondary levels are encouraged to build trees and cultivate native species on school grounds for each school's environmental benefit and for the enjoyment of community members who use school athletic fields for recreation; new schools such as Ducketts Lane Elementary, opened in 2013, have on-site wetlands observatories and other outdoor environmental learning features; HCPSS students are encouraged to create the following types of gardens: butterfly, habitat, rainscapes, senses, and vegetable.

SOLID WASTE: The HCPSS set a goal of reducing non-biodegradable waste beyond the levels required by the government, as seen through its custodial green cleaning program, which began in 2005. Students and teachers have been proactive in reducing solid waste in their schools, especially with help from the following efforts:

- **Environmental Grants:** Via a 2012 grant from the Johns Hopkins Center for a Living Future (CLF), Long Reach High teacher Alexis Jong completed a vermicomposting project that converted cafeteria food waste into high-quality compost.
- **"Recycle Rangers":** Ilchester Elementary students formed a "Recycle Rangers" group that helps reduce solid waste; similar groups exist in other elementary, middle, and high schools.
- **"Trash-Free Tuesdays":** Students at various HCPSS schools strive to make at least one day a week trash-free by choosing re-usable containers and reducing solid waste. These efforts involve campaigns to spread the word to students and parents.
- **HCPSS Recycling Program:** The HCPSS has a comprehensive recycling program that involves the collection of various materials. Typically, each school has an involved group of students that encourages others to recycle both by example and through various communications efforts, which include the following: E-school newsletters sent to parents; environmentally themed days and celebrations in addition to Trash-Free Tuesdays; Walking Wednesdays; Wearing Green on Mondays; posters in cafeterias, classrooms, and hallways.

What the HCPSS Recycles: **Cans:** aerosol cans (empty), aluminum cans, aluminum foil, aluminum pie and cake pans, steel food and beverage cans; **Glass:** bottles and jars of any color; **Plastic – Bottles:** drink; laundry detergent; milk jugs; salad dressing; shampoo; soap; **Plastic – Wide-mouth containers:** applesauce cups, cottage cheese tubs, margarine/butter tubs, mayonnaise jars, peanut butter jars, pudding cups, sour cream tubs, whipped topping tubs, yogurt cups. All HCPSS schools and offices have 6-yard metal containers, 32-gallon recycling containers, 56-gallon containers for bottles/cans (in all school stadiums), 95-gallon blue totes.



Construction projects following the LEED standards utilize recycled material where applicable and implement construction waste recycling programs.

PAPER USE

- **Reducing Paper Use:** The HCPSS reduces the need for paper by sending documents electronically whenever possible – this includes e-newsletters for secondary students. Thanks to the adoption of Lean Six Sigma, the HCPSS has automated the teacher transfer request process, saving countless hours and dollars and thousands of pounds of paper per year.
- **Recycling Paper:** Students work with teachers to coordinate the recycling of the following paper items: folders, three-ring or spiral notebooks; magazines, catalogs, and junk mail; milk cartons and juice boxes; newspapers and inserts; office paper and envelopes; paper bags; paperboard food and snack boxes; shredded paper; telephone books
- **Ensuring Safe Paper Storage:** The HCPSS practices a set of guidelines for when large amounts of paper must be kept on the premises: Paper may not be stacked taller than seven (7) cartons (or shoulder height). Paper may not be placed in outdoor storage containers because humidity could create problems with copiers and printers, leading to further wasted resources. Per the Fire Marshal, the HCPSS enforces a policy of not storing paper in hallways.

HAZARDOUS WASTE: The HCPSS follows all safe handling procedures for disposing of hazardous waste and gives students firsthand experience with it by incorporating it into science curricula. The handling of hazardous waste is included in the curriculum for GT Systems Management Solutions. Students learn to describe the necessary features of an EV lab safety plan, including battery handling and storage, machine tool safety, hazardous waste safety, and chemical safety. The HCPSS environmental literacy program includes a unit that conveys key terms about power, waste, pollution, and environmental sustainability, including reducing hazardous waste.

TRANSPORTATION: The HCPSS transportation department ensures that emissions are kept low and that fuel is conserved via the following methods:

- **School Buses:** 5-minute idling limit to reduce carbon emissions; diesel particulate filters outfitted on buses in 2007; exhaust gas recirculating outfitted on buses in 2004; bus routes reviewed annually to minimize deadline mileage, maximize the number of students assigned to each bus, and maximize the number of trips assigned to the buses each morning and afternoon; students, parents encouraged to arrive to bus stops on time to reduce delays, increased carbon emissions.
- **Alternative Transportation:** HCPSS students are strongly encouraged to walk to school when not eligible for transportation services; students participate in Walk to School days.
- **New Building Projects:** Priority is locating new schools nearby to public transportation, providing dedicated walk and bike paths and bike racks, and including preferred parking for LEV and FEV vehicles. HCPSS encourages use of regional materials to help reduce impact of transportation and extraction of virgin material.

Pillar 2: Improve the Health and Wellness of Students and Staff

PESTICIDE USE: The HCPSS' Integrated Pest Management (IPM) Program is a proactive, monitoring-based approach to insect, rodent, and weed problems that prioritizes preventing infestations to reduce the need for pesticides.

- **Preventing Infestations:** All HCPSS facilities monitored at least monthly to identify any new pest problems. Staff monitor HCPSS grounds for infestations regularly during routine maintenance.
- **Controlling Infestations:** If it is determined that control of an identified pest is necessary, alternatives to pesticides are applied first. The exterior landscape IPM program relies on proactive practices such as proper plant selection, pruning, certified seed use, and proper mowing, and irrigation techniques. The urban/facilities IPM program relies on non-chemical methods such as exclusion, trapping, and sanitation to manage pest problems and reduce the need for pesticides. After non-chemical means are exhausted – or if an infestation requires an emergency treatment for the safety and/or health of students, staff, visitors, or the educational environment – pesticide use may be approved for use as a last resort.
- **Safe Pesticide Use:** Whenever pesticides are used, the least-toxic effective pesticide is applied. No pesticide application will be made without prior identification of a pest and pest problem, the meeting of some threshold, and the determination that nonchemical means have been exhausted. Pesticide applications are made always in places and at times that limit the chance for human exposure.
- **Reporting Pesticide Use:** Material Safety Data Sheets (MSDS) for each pesticide or bait that may be used on HCPSS property are maintained centrally and in an IPM notebook located in the custodial office of each facility. IPM notebooks are available for review by parents and visitors by requesting access through the front office of each school. HCPSS website contains list of pesticides including the trade name, common name, and EPA registration number of all pesticide materials that are likely to be used in one or more HCPSS buildings or grounds.

HAZARDOUS CONTAMINANTS: The HCPSS takes every precaution to dispose of hazardous contaminants properly and prevent them from ever needing to be in school buildings in the first place.

- During new school construction, the Office of Safety, Environment and Risk Management monitors the design and construction phases at regular intervals and in response to specific concerns. Consistent with all statutory requirements, monitoring includes Integrated Pest Management (IPM), Indoor Air Quality (IAQ), and abatement of potentially hazardous materials.
- The HCPSS also operates under a Shelter-in-Place Policy. When hazardous outdoor environments result from terrorism or other reasons, school staff will close all windows and doors and shut down the HVAC, creating a neutral pressure in the building, meaning that the contaminated air will not be drawn into the building. No one is to enter, or leave the building, in this situation.

CHEMICAL MANAGEMENT: The HCPSS has been a leader in chemical management since 2005, when its custodial office adopted an internal green cleaning program, "Cleaning for Health." The HCPSS was recognized in 2012 as nation's first public school system to achieve Green Seal GS-42 certification for cleaning and contributing to a healthy and more sustainable environment. All HCPSS cleaning products are certified as low-emission by the Green Seal of Ecologo. The HCPSS's ongoing goal is to reduce non-biodegradable waste beyond levels required by the government.

ASTHMA MANAGEMENT: The HCPSS helps prevent asthma flare-ups by limiting students' exposure to various triggers, particularly tobacco smoke.

- **Anti-Tobacco Initiatives:** HCPSS' Policy 1050 designates the system as smoke-free. All HCPSS schools, grounds, and facilities are designated smoke-free zones. All schools are labeled with anti-tobacco signage. "Commit to be Fit" employee wellness program includes smoking cessation support.



- **In-School Health Resources:** HCPSS health professionals deliver pediatric nursing procedures, including nebulizer treatments for students with asthma. The HCPSS also complies with the Individuals with Disabilities Education Act, Americans with Disabilities Act, and §504 of the Rehabilitation Act of 1973, which requires that “concurrent delivery of instructional services and enrollment in a public school shall be provided for a student whose physical condition requires the student to be absent from school on an intermittent basis” because of various conditions, including asthma.

BUILDING MOISTURE CONTROL: The HCPSS takes every precaution to prevent excess moisture, especially by being vigilant about school windows and entry points. As with any infestation problems, all moisture- and mold-related issues are identified and abatement procedures occur immediately.

AIRBORNE CONTAMINANTS: The HCPSS takes every effort to reduce student and staff exposure to toxins such as dust, lint, dirt, smoke, germs, bacteria, and volatile organic compounds in every school.

- **In existing schools:** Award-winning use of green cleaning products reduces contaminants while helping to reduce biological contaminants such as viruses and bacteria.
- **During bid process for construction of new schools:** The maintenance of Indoor Air Quality throughout the project is an important component of the bid specification. The HCPSS requires all contractors to use materials and processes in compliance with EPA or OSHA Air Quality regulations.
- **During construction:** Regularly scheduled inspections are conducted by a licensed industrial hygienist to monitor the Indoor Air Quality during major construction or renovation projects.
- **After construction:** On any major project that affects the HVAC systems, a third party commissioning agent ensures that all equipment is functioning properly and as designed, including efforts to trap airborne particulates within the system.

VENTILATION SYSTEMS: The HCPSS has high standards for all HVAC systems to ensure a safe and healthy learning environment. All HVAC-related problems are solved quickly and with minimal disruption to students and teachers. Through the adoption of Lean Six Sigma, the HCPSS has saved hundreds of thousands of dollars, which it has applied toward programs that are helping to close the achievement gap. The HCPSS also prioritizes proper ventilation during new school construction.

- **During New School Construction:** The following components are sought-after when designing new schools: energy recovery units; geothermal heat pump units; variable volume/variable temperature (VVVT) damper controlled through a room thermostat
- **After Construction:** On any major project that affects the HVAC systems, a third party commissioning agent ensures that all HVAC equipment is functioning properly and as designed, including efforts to trap airborne particulates within the system.

INDOOR ENVIRONMENTAL QUALITY: Though students and staff members get lots of fresh air during outdoor activities, the HCPSS prioritizes a high indoor environmental quality as well. **New School Construction Standards:** An important component of the bid specification is the maintenance of Indoor Air Quality throughout the project. HCPSS requires all contractors to ensure the use of materials and processes that comply with EPA or OSHA Indoor Air Quality regulations.

NUTRITION: The HCPSS uses two primary methods to ensure healthy meals for all students K-12: Policy 9090, the Revised Wellness Through Physical Activity and Nutrition Policy, a first-of-its kind policy that establishes nutritional, physical activity, and instructional priorities to directly support our efforts to create a world-class school system and collaboration with local groups such as Healthy Howard, the Horizon Foundation, and the Howard County Department of Health.



- **Purchasing Good Food at Good Prices:** The HCPSS purchases food produced in the U.S. and follows competitive bidding practices. Since 1998, the HCPSS has participated in a 10-county purchasing cooperative that enables us to economically purchase quality food items in bulk.
- **Strict Food Quality Standards:** 100% Fruit Juice Only; Fat-free, Low-fat and Low-sodium Condiments; First Quality Frozen Vegetables; Low-sodium Gravy Mixes and Soup Bases; Meat Produced in USDA Federally Inspected Plants; No Trans Fats in Foods; U.S. #1 Fresh Vegetables; USDA Grade A Potatoes; Whole Grain Pizza Crust, Rolls and Biscuits; Whole Wheat Pasta Products
- **Strict Food Preparation Standards:** All food prepared for Meals Program is made in our school kitchens; 18 popular menu items made from scratch; standard USDA recipes are used in cooking and are student tested for taste and consistency; most entrees baked or oven-roasted; vegetables are steam-cooked; pizza made with low-fat mozzarella cheese and low-sodium tomato products; other menu items and recipes use reduced-fat cheese, low-fat and low-sodium gravy or soup bases that contain 2% or less fat calories
- **Encouraging Healthy Choices:** MyPlate poster is displayed at the entrance of each serving line and is also updated daily based on the menu. All HCPSS cafeterias also have a “10 Tips” nutrition poster outlining ideas for balancing calories and choosing which foods to eat more and less often
- **Meeting Nutrition Objectives:** All a la carte items meet criteria set by the Institute of Medicine and the HealthierUS Schools Challenge committees; all nutrition and allergen information included on HCPSS main site; food never given as a reward nor withheld as a punishment; meatless lunch choices available daily; menus are planned to provide the proper calorie and nutritional content for students within each age range; no soft drinks or candy sold during the school day; nutrition education included in health education curriculum from pre-K – grade 8; portion sizes are standardized, and super-sizing is not permitted; promoting the link between nutrition education, physical activity, and living a healthy lifestyle; strict list of foods approved for in-school celebrations
- **Staff Nutritional Development: Healthier US School Challenge:** Managers attended an 8-hour summer workshop sponsored by the USDA National Food Service Management Institute; **Lunch Room Behavior Training:** Para-Educators and Lunch Monitors attended training on lunch room behavior and expectations; **Policy 9090 Meetings:** Employees attend monthly meetings or trainings and adhere to the HCPSS Wellness Policy; **ServSafe Certification:** Employees are required to pass a 16-hour ServSafe Sanitation Course.
- **Nutrition Awards: USDA Healthier US School Challenge:** All HCPSS schools awarded the HUSSC Bronze level of distinction (January 2013); **USDA Best Practice Awards** (various); **Maryland State Department of Education Awards** (various); **Maryland State Department of Education Letters of Commendation** (various); **National School Nutrition Association Award for Maryland Outstanding Director of the Year**
- **Accomplishments: Health Inspection Reports:** Received excellent health inspection reports in all school kitchens; **Breakfast Program:** Breakfast is now available in 43 schools, which has increased breakfast participation by 64%; **FARMS:** Experienced a 15% increase in FARMS participation through the direct certification process; implemented the first FARMS Maryland online application process; **Online Inventory:** Implemented a new online inventory system for food and supplies at local schools; **Health Challenge:** Met the March HealthierUS Schools Challenge for school year 2011-12; **Top Chefs Competition:** Annually participate in the Top Chefs Competition with the Culinary Arts Program. Competition entrees are added to school menus as decided by the students; **Family and Consumer Science Collaboration:** Teach nutrition and how to promote healthy food choices through collaboration with the Family and Consumer Science Program; **Concession Stand Committee:** Assisted the Concession Stand Committee with inspecting all concession stands, reviewing menus, inspecting equipment and making recommendations for replacement equipment; assisted all High School Booster Clubs with obtaining temporary licenses for Concession Stands.

PHYSICAL ACTIVITY: Here are some highlights from the HCPSS’s Policy 9090: “Brain breaks” of physical activity are incorporated throughout the school day; students’ fitness levels are measured periodically via the Fitnessgram; each school’s P.E. department is given at least one iPad mini to help document students’ fitness levels; staff members will not deny participation in recess or other physical activity opportunities as a form of discipline or punishment unless the safety of students is in question; all staff will be provided professional development on physical activity breaks and encouraged



to incorporate physical activity into classroom instruction; the use of school facilities outside of school hours is promoted for physical activity programs offered by community-based organizations. To help foster students' mental health, participation in outside activities such as Girls on the Run is encouraged. Also, 211 security cameras were installed on HCPSS school buses in 2012 as an anti-bullying measure.

OUTDOOR EDUCATION: The HCPSS values outdoor education as part of a holistic approach to student achievement. Many new schools, such as Ducketts Lane Elementary, are being built with outdoor learning spaces. Outdoor education has also been central to various service learning opportunities for students. Middle school students at schools such as Mount View and Bonnie Branch provide opportunities for students to support the environment by recycling plastic bags. Governor Martin O'Malley presented Dunloggin Middle School students with the Maryland Children's Outdoor Bill of Rights during a visit to the school's wetlands project.

Pillar 3: Effective Environmental and Sustainability Education:

ENVIRONMENTAL OR SUSTAINABILITY LITERACY REQUIREMENT: HCPSS science curricula meet Maryland Environmental Literacy Standards. The HCPSS's environmental literacy plan layers both science and social studies courses with concepts related to environmental consciousness and social responsibility; HCPSS science coordinators work with system partners and local organizations to develop outdoor learning experiences and field trips that reinforce environmental concepts being taught in the classroom.

INTEGRATION OF ENVIRONMENTAL AND SUSTAINABILITY CONCEPTS THROUGHOUT THE CURRICULUM AND ASSESSMENTS: The HCPSS is transitioning to the Next Generation Science Standards (NGSS), adopted in 2012 by the Maryland State Board of Education. Full integration of NGSS is planned for 2017-2018. NGSS includes both the scientific concepts that students should learn, as well as the scientific practices they should engage in to enhance learning; provides a rich opportunity to immerse students in complex, relevant, and authentic problem-solving that is connected across grade levels and disciplines; and blends Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs) of science, and Crosscutting Concepts (CCCs) of science into a 3-dimensional learning environment for all students. To make the shift to NGSS as smooth as possible, the HCPSS has invited various partners to participate in an intensive study on the background of various NGSS standards. Much of the work is being supported through a Maryland Office of Education grant through the Office of STEM Initiatives.

HCPSS students build outdoor classrooms; creating rain gardens; establishing school "green teams"; growing milkweed plants; raising monarch butterflies. Students can enroll in a high school environmental science elective; topics include organisms, populations, and the human impact on the environment. HCPSS students can supplement their science and social studies courses with courses within the Summer Institutes for Talent Development. Students have the chance to apply the scientific process and use a variety of field and laboratory instruments for measuring environmental characteristics and biological sampling.

TEACHER PROFESSIONAL DEVELOPMENT IN ENVIRONMENTAL AND SUSTAINABILITY EDUCATION:

- **HCPSS/Chesapeake Bay Foundation (CBF) Summer Course:** Prek-12 HCPSS science teachers participate in a 5-day on-location course specific to the Howard County environment.
- **Intensive Summer Experience for High School Teachers:** During these annual summer events, HCPSS high school teachers learn various modules and implement them upon returning to school in the fall.
- **Maryland Association for Environmental and Outdoor Education (MAEOE) Conference:** HCPSS science teachers have the opportunity to attend and present at the MAEOE Conference; one HCPSS teacher presented on the practice of using FieldScope to collect scientific data.
- **Partnerships with Local Colleges and Universities:** Teachers work with professionals at Johns Hopkins University and other local institutions to help further their education.



- **Semi-Annual Professional Learning Days:** Held in fall and spring, these events provide an environmental literacy component and engage secondary science teachers in a comfort-style learning experience.
- **Staff Hub:** This online resource contains information about professional development events and provides opportunities for vertical and horizontal collaboration among science teachers.
- **Workshops at the Robinson Nature Center and Howard County Conservancy:** Both locations work with the HCPSS to provide workshops for teachers at the primary and secondary levels. On average, there were 35 distinct registrants, with many attendees participating in two or three trainings. Just over half of the attendees sought MSDE teacher training credit through the programs.

AP ENVIRONMENTAL SCIENCE COURSE OFFERINGS: AP/GT STEM courses are offered at every HCPSS school; specific AP courses include Biology, Chemistry, Environmental Science, Physics C: Mechanics, Electricity & Magnetism.

USE OF SUSTAINABILITY AND THE ENVIRONMENT AS A CONTEXT FOR LEARNING: Elementary and Secondary Science Coordinators are now consulted during the design stage of new school construction; coordinators also shared information with the Construction Office and our HCPSS Architect contractors about an Outdoor Learning PlaySpace Workshop, which was attended to support development plans for ES #42. HCPSS students give their schools environmental report cards after exploring aspects of their indoor and outdoor school environments. Students often work with the system's Facilities Department to help mitigate environmental problems, help reduce waste, etc.

SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS, GREEN TECHNOLOGIES, AND CAREER PATHWAYS: Starting in elementary school, students are introduced to STEM and environmental careers through videos, lessons, and hands-on interaction from area scientists and engineers.

- **Career Academies Program:** Students attend courses and hands-on learning opportunities based on "Career Clusters." Approximately 750 total students complete the career academy requirements annually.
- **Naviance:** This Web-based program lets HCPSS students explore their strengths and reflect on their interests to help them develop an idea of their future careers. Each student takes an assessment to identify his or her three strongest emerging talents and has access to firsthand career insights from professionals.
- **STEM Partnerships:** Emergent Biosolutions Inc., U.S. Food and Drug Administration, University of Maryland School of Medicine, and USB Products are just a handful of partners helping students in the Biotechnology Career Academy acquire the skills and techniques used in molecular biology.

CIVIC/COMMUNITY ENGAGEMENT PROJECTS INTEGRATING ENVIRONMENT AND SUSTAINABILITY TOPICS

- **Governor's Initiatives:** HCPSS students participate in various efforts to raise awareness of and prevent further contamination of the local environment, including Governor O'Malley's Explore and Restore Your SchoolShed initiative.
- **Partnerships:** HCPSS students help beautify and restore the local environment with help from local partners. University of Maryland Master Gardeners collaborate with HCPSS primary and secondary science offices to offer educational programs on topics including conservation practices, composting, local foods, watersheds, gardening, native plants, and the environment.
- **Service Learning:** HCPSS middle schools incorporate these projects into the curriculum for all three grade levels. Topics have included ecology of the bay, energy consumption, stream restoration, ecological footprints, air quality, and native species restoration; 33% of 2012-2014 middle school service learning projects focused on science-related topics; 31% (of total 2014 projects) dealt with environmental concerns.

STUDENTS' MEANINGFUL OUTDOOR LEARNING EXPERIENCES: The HCPSS's goal is for every school to have an outdoor feature such as a garden or a stand of new trees that can be maintained and used for outdoor education experiences. Students at several new schools, including Ducketts Lane Elementary, are enjoying outdoor features



including a wetlands observatory and a stormwater management area. The Students Branching Out program involves the planting and maintenance of new trees on school property to be used as for educational purposes.