I consider myself a fortunate man to have grown up in Virginia Beach at the mouth of the Chesapeake Bay, the largest estuary in the U.S. and the third biggest in the world.

This watershed spans 165,759 square kilometers and connects six states – Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia. The social, economic, and environmental benefits of a healthy Chesapeake Bay are the lifeblood of our coastal community.

I’ve witnessed changes in the health of the Bay during my lifetime, and that’s why I’m so excited and gratified to see Virginia Beach City Public Schools (VBCPS) students embrace outdoor learning opportunities across their home city. These educational experiences are fortified by our partnerships with organizations like the Chesapeake Bay Foundation (CBF), Lynnhaven River Now and the Elizabeth River Project.

Our relationship with the CBF and the generous donation of Macon and Joan Brock have provided us with a world-class career pathway for our students in the form of the VBCPS Environmental Studies Program. This remarkable curriculum impacts young learners across the division while creating the next generation of leaders who are attuned to the unique, global challenges ahead.

While VBCPS is home to many exceptional educational opportunities, when it comes to our sustainability initiatives, we pride ourselves on leading by example within the division. This year we added four more Leadership in Energy and Environmental Design (LEED) buildings to our inventory. With the recently completed Plaza Annex, Princess Anne Middle School, Thoroughgood Elementary School and John B Dey Elementary School, we have over 2 million square feet of LEED building space. In addition, we’ve added photovoltaic panels to four schools through a solar power purchase agreement (Solar PPA). The solar installations will lower our emissions and reduce our energy cost. As a result of these efforts, Ocean Lakes Elementary School is now our first net-zero energy school.

What follows in these pages serves a snapshot into our sustainability work, ranging from the built environment, to transportation, to scratch cooking and much more. Thank you for taking the time to read this report, and for your investment in Virginia Beach City Public Schools.

—Aaron C. Spence, Ed.D.
Our Mission

VBCPS is committed to educating students about the "Triple Bottom Line." Understanding the interconnectedness and interdependency of social, economic and environmental systems is critical to a student's education.

Concepts such as **equity**, **empathy** and **inclusion** are important to the development of all students. In this context, sustainability becomes another vehicle to engage students in issues that are larger than themselves.

Our Primary Goals

- Develop a sustainable building infrastructure.
- Integrate sustainable practices throughout the school division.
- Educate the public about sustainability.

"Sustainability is equity over time…think of it as the Golden Rule through time…Do unto future generations as you would have them do unto you."

—Robert Gilman, PhD
LEED FOR SCHOOLS

Leadership in Energy and Environmental Design (LEED)
The decisions that teams make during the design and construction of new or renovated school projects set the stage for the performance of those facilities for many decades. LEED for Schools is a whole project rating system that provides a framework for decision making when designing and constructing K-12 projects.

While there is a clear emphasis on energy efficiency within LEED for Schools, the rating system also addresses site-related considerations, water conservation, selection and procurement of environmentally preferable building materials, indoor environmental quality, and stormwater issues related to resiliency in our region.

With over 2 million square feet of LEED building space, Virginia Beach City Public Schools establishes itself as a global leader in sustainable building while saving money and improving student performance over the life of its building portfolio.

LEED Schools
The average energy usage intensity* is 6.75% kBtu/sf/yr lower than non-LEED academic buildings.

Platinum
Pupil Transportation Facility, College Park Elementary School

Gold
Virginia Beach Renaissance Academy, Great Neck Middle School, Old Donation School

Silver
Windsor Oaks Elementary, Virginia Beach Middle School, Kellam High School

Certified
Hermitage Elementary School

Registered
Thoroughgood Elementary School, Princess Anne Middle School, Lynnhaven Middle School

Achievable Dreams Academy, Plaza Annex, John B Dey Elementary School

* Energy usage intensity is a measure of total energy from all sources used by a building relative to its size.

Timeline of Achievements

2015
District of Distinction Award, District Administration magazine; Project of Distinction (one of the top 5 new schools in the world) Kellam High School (Council of Educational Facility Planners); Platinum Certified Green School Division (Virginia School Board Association)
## LEED Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Year Opened</th>
<th>Construction Cost</th>
<th>LEED Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hermitage Elementary</td>
<td>2005</td>
<td>$102/SF</td>
<td>Certified</td>
</tr>
<tr>
<td>Windsor Oaks Elementary</td>
<td>2010</td>
<td>$168/SF</td>
<td>Silver</td>
</tr>
<tr>
<td>Renaissance Academy</td>
<td>2010</td>
<td>$187/SF</td>
<td>Gold</td>
</tr>
<tr>
<td>Virginia Beach Middle</td>
<td>2010</td>
<td>$209/SF</td>
<td>Silver</td>
</tr>
<tr>
<td>Great Neck Middle</td>
<td>2011</td>
<td>$166/SF</td>
<td>Gold</td>
</tr>
<tr>
<td>Pupil Transportation</td>
<td>2011</td>
<td>$185/SF</td>
<td>Platinum</td>
</tr>
<tr>
<td>College Park Elementary</td>
<td>2011</td>
<td>$195/SF</td>
<td>Platinum</td>
</tr>
<tr>
<td>Kellam High School</td>
<td>2014</td>
<td>$214/SF</td>
<td>Gold (Projected)</td>
</tr>
<tr>
<td>Old Donation School</td>
<td>2017</td>
<td>$201/SF</td>
<td>Gold</td>
</tr>
<tr>
<td>John B Dey Elementary</td>
<td>2020</td>
<td>$200/SF</td>
<td>Silver (Projected)</td>
</tr>
<tr>
<td>Princess Anne Middle</td>
<td>2021</td>
<td>$224/SF</td>
<td>Gold (Projected)</td>
</tr>
<tr>
<td>Thoroughgood Elementary</td>
<td>2021</td>
<td>$250/SF</td>
<td>Gold (Projected)</td>
</tr>
</tbody>
</table>

2016

Green Ribbon School District, USDOE
ENERGY CONSERVATION INITIATIVES

Performance Contracting
Performance contracting is a financing mechanism provided by an Energy Service Company (ESCO) whereby the cost of energy efficiency upgrades are paid through future energy savings. A key element of performance contracts is that the ESCO guarantees that the energy savings will cover the cost of the project financing for the life of the project. Since 2008, VBCPS has used performance contracting to provide energy saving solutions in over 7.5 million square feet of building space.

Typical energy conservation measures include the following:
- Lighting retrofits, replacements, and occupancy controls, including LED stage lighting and controls (89,177 fixtures over 11 phases)
- Domestic water conservation
- Building envelope improvements
- HVAC repair/replacement
- Boiler, chiller, and cooling tower repair/ replacement
- Energy management system up-grades
- Automatic temperature controls
- Retrocommissioning and testing, adjusting, and balancing (TAB)
- Bipolar ionization for improved air quality and filtration
- New ceiling
- New windows
- Installation of ground source (geothermal) heat pump systems (3 schools)
- Energy conservation training/curriculum enhancement
- Sustainability awareness-communication
- Utility bill audit and rate analysis

Solar Power Purchase Agreements
A Power Purchase Agreement (PPA) is a financing mechanism provided by a third party solar developer who owns, operates, and maintains the solar PV system for the term of the agreement. The building owner, who enters into this agreement with the solar developer, allows the installation of the solar PV on their property (generally their rooftop) and purchases the electricity generated from the system for a fixed price over the duration of the agreement.

SOLAR PPA Sites
- Renaissance Academy (proposed 900 kW DC)
  Actual 891.6 kW
- Princess Anne Middle School (proposed 700 kW DC)
  Planned (still under construction) is 739.64 kW DC
- Thoroughgood ES (proposed 144 kW DC)
  Actual 166.4 kW
- Ocean Lakes ES (402 kW DC) (Net 0)
  Actual 412 kW

Both Performance Contracting and Solar PPAs provide VBCPS with two strong mechanisms to reduce energy use and Greenhouse Gas Emissions. Combined these with our LEED building portfolio, maintenance and operation procedures, and the result is a division wide cost avoidance between 2006 – 2020 of $69 million.

2017
Energy Star Partner of the Year, EPA; VEEP Sustainability Partner, DEQ; Excellence in Development Design, (Hampton Roads Association for Commercial Real Estate); Best Design Award, Old Donation School (VA Chapter of the Association for Learning Environments); Platinum Certified Green School Division (Virginia School Board Association)
ENERGY CONSERVATION INITIATIVES

Emissions Reduction Planning
In March 2011, Virginia Beach City Public Schools published its first Greenhouse Gas Inventory. This inventory has helped VBCPS understand the magnitude of various emission sources within its operational control. Since that time, the Division has developed an Emissions Reduction Plan and successfully embarked on meeting the majority of its objectives.

Greenhouse Gas Inventory
2016 Snapshot

Emissions by Category
MT CO2

- Building: 64,049
- School Bus: 14,993
- Commuting: 38,329

Green Cleaning Award, Honorable Mention, American School & University; Design Achievement Award (Virginia By Design Award, The Branch Museum of Architecture and Design); Energy Star Partner of the Year, EPA; Governor’s Environmental Excellence Award (Gold)
DIVISION SERVICES

Building Managers allow building administrators to focus on education vs facility issues. The Building Manager can also act as an educational resource while ensuring that our building assets receive the attention they need to operate as great learning environments for many years to come.

In addition to over 70 propane buses, VBCPS currently has eight electric school buses. These buses were purchased through a cost sharing program with Dominion Energy.

Custodial Services continues to use Green Seal certified cleaning products and an integrated pest management plan to maintain a healthy indoor air quality environment.

The Office of Food Services continues to expand scratch cooking across the division. Even while most of 2021 consisted of offsite learning, Food Services served over 8 million meals.

As we expand our electric and propane bus fleet, Vehicle to Grid technology will allow more flexibility in our utility grid.

2019
Virginia Environmental Excellence Partner (DEQ); Sustainable Development Honor Award for Old Donation School
Community partners like the Chesapeake Bay Foundation, Lynnhaven River Now, Yellow and our local A&E community, to name a few, play an important role in VBCPS sustainability efforts. As subject matter experts, facilitators, and community leaders, their participation enriches the educational experience.

"The garden is a community, a life inside of a fence and when you enter it becomes a new start to be a new you."

—Zoe Mason, Fifth Grader, Seatack Elementary School
STUDENT ENGAGEMENT

2021
People's Choice Award, Princess Anne Middle School (VSBA); Community Leader Award, Old Donation School (USGBC); Virginia Environmental Excellence Partner (DEQ)
“The Environmental Studies Program (ESP) at the CBF Brock Environmental Center, really gives me hope and motivation when I’m surrounded by so many other incredible people (students, teachers, and guests alike) that share the same passions. Having daily interactions with real professionals from all different fields really helps me broaden my perspective and has given me so many unique opportunities that I would not have gotten anywhere else.”

—Natalia de los Rios, Junior, ESP
Tony and Krista Arnold. Combined, they have over 70 years in public education with VBCPS. Recently retired, the positive impact on the lives of all those they have come in contact with will not be fully realized for many years to come.

All the best!