

U.S. Department of Education
Green Ribbon Schools 2012

For Public Schools only: (Check all that apply) Charter Title I Magnet Choice

Name of Principal Ms. Sally Selby
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Sidwell Friends Middle School
(As it should appear in the official records)

School Mailing Address 3825 Wisconsin Ave NW
(If address is P.O. Box, also include street address.)

Washington DC 20016
City State Zip

County _____ State School Code Number* N/A

Telephone (202) 537-8150 Fax (202) 537-8152

Web site/URL sidwell.edu E-mail gemmellj@sidwell.edu

I have reviewed the information in this application, including the award and eligibility requirements on page 2-4, and certify that to the best of my knowledge all information is accurate.

Sally Selby Date 3/20/12
(Principal's Signature)

Name of Superintendent* Hosanna Mahaley
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* PRIVATE SCHOOL-N/A Tel. () _____

I have reviewed the information in this application, including the award and eligibility requirements on page 2-4, and certify that to the best of my knowledge all information is accurate. I concur that this is one of the highest performing green school applicants in our state.

Hosanna Mahaley Date 3-20-12
(Superintendent's Signature)

*Private Schools: If the information requested is not applicable, write N/A in the space.

toward the three Green School Pillars and Elements.

4. The school meets all applicable federal civil rights and federal, state, tribal and local health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency

OFFICE OF THE STATE SUPERINTENDENT OF EDUCATION

Name of Nominating Authority

Hosanna Mahaley

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application, including the award and eligibility requirements on pages 2-4, and certify, to the best of my knowledge through a documentary verification assessment, that the school meets the provisions in this Part of the Nominee Presentation Form.

Hosanna Mahaley
(Nominating Authority's Signature)

Date 3-20-12

Note to Nominating Authority: The application, including the signed certifications and documentation of evaluation in the three pillars should be converted to a PDF file and emailed to Director, ED-Green Ribbon Schools at green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

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.

Section II: Information/ Crosscutting Question

Information

School Name: Sidwell Friends Middle School Public Charter **Private**

Contact Name: Jeanne Gemmell Phone: 202-537-8120

Email: gemmellj@sidwell.edu Position: Green School Point Person

Crosscutting Questions

In September 2006, our Middle School faculty and students returned to a newly renovated building with an addition that almost doubled the size of the original 50-year-old building. This new building became **the first K-12 building in the World to receive LEED (Leadership in Energy and Environmental Design) Platinum rating** from the U. S. Green Building Council, and the first LEED Platinum building of any type in the District of Columbia. Sidwell's Middle School has since attracted more than 10,000 visitors eager to see innovative green technologies in action, while the number of page views for the online Middle School building tour has reached almost 26,000.

Sidwell's Middle School has also won the following awards:

- Top 10 Green Projects, Committee on the Environment, American Institute of Architects, 2007
- Award for Excellence, National Committee for Architecture on Education, American Institute of Architects, 2007
- 2011 Sustainability Award, American Society of Civil Engineers - National Capital Section
- Honor Award, Sustainable Design Awards, Boston Society of Architects, 2007
- AIA Philadelphia Awards for Design Excellence in 2006, Recognition Award, Un-Built Project
- 2007 Craftsmanship Awards, Special Construction and Landscaping, Washington Building Congress
- 2008 Western Red Cedar Architectural Design Award
- 2009 EcoLeadership Award, Alliance for Workplace Excellence

Section III PILLAR ONE: Net zero environmental impact

Element IA: Zero greenhouse gas (GHG) emissions

IA1. Using the inventory module from Clean Air Cool Planet's Campus Carbon Calculator or similar greenhouse gas calculator, what is your school's Greenhouse Gas (GHG) emissions per person? 3.048 (MT eCO₂/person)

IA2. If your school has received EPA's ENERGY STAR certification, in what year was the certification earned? ____

As yet, Sidwell's Middle School has not applied for certification in EPA's ENERGY STAR certification. However, the building was designed and constructed to be as energy efficient as possible, including the following features:

- Energy efficient and passive solar design: The Middle School building uses approximately 60% less energy than standard construction. Artificial lighting is used only as needed to augment natural light. To reduce energy use, lights are controlled by occupancy sensors as well as photocells that automatically adjust the level of artificial lighting according to the amount of daylight available. Improved building envelope design includes a roof that exceeds the thermal property requirements of standard building design by 155% and walls that exceed the same requirements by a factor of three. Windows are twice as insulating as energy standard insulating properties. The central air system takes advantage of an "economizer" operation to eliminate mechanical cooling by bringing in fresh air when outside air temperatures are appropriate; it also uses energy recovery to minimize waste of mechanical cooling and heating. To reduce overall demand on the building's cooling system, solar shades have been erected in key solar orientations. (Please see attached 2 photos.)
- Green Roof: The Middle School's green roof reduces the "urban heat island effect" which occurs when dark surfaces convert sunlight to heat and raise the temperature of the local microclimate. A cool roof prevents the building from heating up, reducing demand for air conditioning. (Please see attached photo.)
- Constructed Wetlands: Less energy is needed to process waste using the Middle School's constructed wetland than a traditional municipal system, while also creating habitats for plant and animal life. The natural vegetative process treats this water on site without having to go to a municipal sewage plant, which saves the energy of transporting waste water to the municipal sewage plant. (Please see attached photo.)

- **Building Materials:** 11% of the materials used in the Middle School's construction were from recycled sources, including carpets, structural steel framing, ceiling tiles, concrete rebar, ceiling grids, fiber insulation, and gypsum drywall paper. 78% of the building materials were manufactured regionally, minimizing the energy needed to transport them to our site. 60% of the waste generated during construction of the Middle School was diverted from landfills and recycled, saving the energy required to manufacture new materials.

IA3. If your school has reduced your total non-transportation energy use (i.e., electricity and temperature control) from

Although we never established a baseline prior to the renovation and addition to our building, it uses 60 % less energy than a conventional building of equal square footage.

IA4. What percentage of your energy consumption is derived from:

On-site renewable energy generation: 5% of the building's electricity is generated by the sun, and harvested by the photovoltaic array (solar panels) on the roof. (Please see attached photo.)

Purchased renewable energy: 100% of the remaining energy needed for the school is purchased as wind generated electricity.

IA5. If your school has constructed and/or renovated buildings in the past three years, what percentage of the building area meets Leadership in Energy and Environmental Design (LEED), Collaborative for High Performance Schools (CHPS), Green Globes or other standards?

100% of our recent construction has been scored on the USGBC LEED scale.

What is the total constructed area?

Athletic Center (71,270 SQ.FT.)

Lower School Gym (14,770 SQ.FT.)

What is the total renovated area?

Quaker Meeting House and Kogod Arts Center (24,660 SQ.FT.)

Lower School Groome Building (20,610 SQ.FT.)

Middle School (71,631 SQ.FT.)

Which certification (if any) did you receive and at what level (e.g. Silver, Gold, Platinum)?

Middle School (Platinum)

Lower School Groome Building & Gym (Gold)

Athletic Center (Gold is anticipated)

Quaker Meeting and Arts — (Platinum is anticipated)

IA6. What percentage of your school's total existing building area has achieved LEED Existing Buildings: Operation & Maintenance, CHPS Operations Report Card, Green Globes or other standards?

We have not yet attempted to certify any of our buildings under the LEED EB rating. However, our administrative building is heated and cooled using a geothermal heat pump system and should do quite well when we do get it certified.

IA7. If your school reduces or offsets the GHG emissions from building energy use, please provide:

We complete an annual audit calculating our carbon footprint and then purchase offsets for this carbon use.

IA8. Has your school fully implemented the Facility Energy Assessment Matrix within EPA's Guidelines for Energy Management? Yes/No

While we have not used the EPA guidelines for energy management, Sidwell has implemented state of the art energy control and monitoring systems.

Has the school building been assessed using the Federal Guiding Principles Checklist in Portfolio Manager? Yes/No We have not used the Federal Portfolio Manager.

IA9. What percentage by cost of all your school's furniture purchases are certified under the Business and Institutional Furniture

Manufacturers Association's "level" ecolabel? 50% of the furniture purchased for recent construction projects meets the ecolabel standard.

IA10. Does your school have an energy and water efficient product purchasing and procurement policy in place? **Yes/No**

We follow the very stringent LEED guidelines for purchasing these products. For water efficiency, we have installed dual flush toilets, low flow self-cancelling showers, and motion activated faucets with aerators. Our Middle school wetlands system cleans and recirculates black and gray water back into the toilets and urinals to be re-used, reducing our potable water demand by 93%. The School also uses water-efficient landscaping.

To meet energy guidelines, we have purchased highly efficient HVAC equipment, lighting control systems that account for daylighting and occupancy, and wall and window systems that include maximum insulation.

Finally, 100% of our electricity is generated on site or purchased from solar or wind power sources.

IA11. Describe other indicators of your progress towards elimination of GHG emissions (describe in detail and include metrics if available).

We have engaged the services of an energy monitoring company who will give us feedback on our energy use and assist us in optimizing the operation of our buildings. All of our gas and electric meters have been changed to a pulse generating type of meter that will give us real time readings of our energy use patterns. We will be alerted when any abnormalities show up in this data.

Element 1B: Improved water quality, efficiency, and conservation

IB1. If you can, demonstrate reduced total water consumption intensity (measured in gal/square foot) from an initial baseline, please provide:

The constructed wetland behind the Middle School building treats wastewater to be reused in the toilets and urinals. After first flowing through a treatment tank to remove solids, wastewater is treated using biological processes. Aquatic plants, water, microorganisms, sun, soil, sand, and air filter and clean the water. The process is completed with additional filtration of particulates and an ultra violet (UV) filter. Models show that the building uses 93% less District water by treating our sewage in the wetland and reusing the water, as well as through water-efficient landscaping, while providing habitat for plants and animals.

For water efficiency we have installed including dual flush toilets, low flow self-cancelling showers, and motion activated faucets with aerators. Percentage reduction: 93% less water usage than a conventional building

IB2. How often does your school conduct audits of facilities and irrigation systems to ensure they are free of significant water leaks and to identify opportunities for savings? Our one irrigation system is serviced at the beginning and end of every growing season and any leaks would be exposed during those service calls.

IB3. Describe how your school's site grading and irrigation system and schedule is appropriate for your climate, soil conditions, plant materials, and climate, with an emphasis on water conservation.

Planting native species in diverse ecological communities that respond to the topographies of the site eliminates the need for irrigation in the garden areas surrounding the buildings.

The only irrigation system we have is on our Bermuda grass soccer/baseball field. Bermuda grass is naturally a deep rooted, drought resistant grass used for high performance athletic fields. It thrives in the hot humid conditions found in the DC area in the summer. Since it goes dormant over the late fall, winter, and early spring months, no irrigation is needed at those times. We only water the field during early morning hours to avoid excessive evapotranspiration from the leaves of the grass. Our native soil has fairly high clay content and readily retains moisture which allows us to water on a 2-3 day interval. The system is fitted with a rain sensor so any programmed irrigation would not run during or immediately following periods of rain. Our two additional athletic fields were constructed using artificial turf and do not require irrigation at all.

IB4. Do all your outdoor landscapes consist of water-efficient or regionally-appropriate (native species and /or adapted species) plant choices?

Yes/No All plantings installed on campus since 2002 have been from a palette of native species that, once established, will require no watering; all older plantings are locally adapted. All construction projects on campus have included a landscape plan that has immediately replanted any disturbed areas.

If no, what percentage of the total consists of this type of plantings: 70 % of our landscaped areas have been converted to a native species based design.

Has your school participated in the DC District Department of the Environment's (DDOE) RiverSmart School Program? **Yes/No**

We are not currently in the RiverSmart program, but anticipate participating in the near future. Our current practices are very much in sync with this program.

IB5. Are alternative water sources (e.g., grey water) used before potable water for irrigation? **Yes/No**

In a number of locations, we have installed passive underground irrigation for trees planted in courtyard settings. In a traditional planting, these trees would be stressed due to the amount of impervious or semi-pervious material installed over and around their expected root zone. The trees are irrigated through diverted rainwater downspouts and rain gardens that collect and reuse storm water. Drought tolerance of the landscape is improved through the placement of perforated rainwater conductor piping in gravel filled trenches and structural soil "tree pits."

IB6. If drinking water is acquired from the school's own well, are your drinking water sources protected? **Yes/No/NA**

IB7. Does your school have a program to control lead in drinking water (including voluntary testing and implementation of measures to reduce lead exposure in drinking water) in place? **Yes/No**

All drinking and cooking water sources are tested by an independent Industrial Hygienist. Any readings that are above normal are immediately addressed.

IB8. Has your school been cited within the past three years for failure to meet federal, state or local potable water quality standards?

Yes/No

IB9. Are all taps, faucets and fountains used for drinking and cooking cleaned on a regular basis to reduce possible bacterial and other contamination; and are faucet screens and aerators regularly cleaned to remove particulate lead deposits? **Yes/No** All faucets, fountains and taps are cleaned nightly by the schools custodial contractor. Screens and aerators are cleaned and replaced on an as needed basis by in house engineers.

IB10: Describe any other ways, not addressed above, that the school is improving water quality, efficiency, and conservation (for example: Storm drain markings and rain barrel installations).

The Middle School building has two large storm water treatment filters that pre-treat all storm water before it leaves campus. These structures are housed in large underground vaults and are sized to handle the entire watershed of the campus.

All rain water that falls on the Green Roof is filtered by the soil media on the roof removing pollutants and nourishing the plants. This process also slows the rate of run-off reducing the potential for erosion further down the line.

IB11. What percentage of your school grounds are devoted to ecologically (trees, natives plantings, pollinators, organic edible gardens) or socially (e.g., playgrounds, outdoor spaces designed and used regularly for social interaction, athletic or recreational areas, etc.) beneficial uses, including those that give consideration to native wildlife? 80%

Describe: Birds, insects, and other small creatures make their home on our native habitat. In fact, our students have discovered 12 strains of bees that were not thought to exist within city limits. Our web site contains a page dedicated to wildlife sightings on campus. We have photographs of hawks, owls, snakes, raccoons, opossum, and of course common squirrels, birds and insects. The campus has been certified as a wildlife habitat by the National Wildlife Federation.

For social interaction, the campus includes park benches in formal courtyard areas, a non-traditional playground designed specifically for Middle School students (climbing apparatus, elevated seats for hanging out), and garden settings with mature shade trees. For the more active times, the campus includes 3 athletic fields, an indoor and outdoor track, 5 tennis courts, a biology pond with fish, and a soothing waterfall.

Element 1C: Reduced waste production

1C1. What percentage of waste is diverted from the landfill or incinerator by reuse, composting, and/or recycling:

Monthly garbage volume (garbage dumpster size(s) X frequency of collection): 64 (compacted for fewer trips by the hauler) cubic yards.

Monthly recycling volume(s) (recycling dumpster sizes(s) X frequency of collection): 96 cubic yards

Monthly compostable materials volume(s) (food scrap/food soiled paper dumpster size(s) X frequency of collection): 30 (mostly yard waste, not food scraps) cubic yards.

Recycling rate calculation: Total monthly recycling quantity plus total monthly compostable material quantity divided by total monthly recycling, composting, and garbage quantity x 100 = 66 %

IC2. What percentage of total office/classroom paper content by cost is post-consumer material or fiber from forests certified as responsibly managed by the Forest Stewardship Council, Sustainable Forestry Initiative, American Tree Farm System or other certification standard: 90 % (If a paper is only 30% recycled, only 30% of the cost of that paper should be counted towards the recycled portion.) Which standard did you use? All of the white copy paper purchased for use in printers/copiers is 100% post-consumer recycled (Forest Stewardship Standard) and 100% processed chlorine-free (Chlorine Free Products Association).

IC3. What percentage of total office/classroom paper content by cost is "totally chlorine-free" (TCF) or "processed-chlorine-free" (PCF)? 100%

IC4. How much hazardous waste does your school generate? 0 lbs/student/year. How was this calculated? None was generated.

IC5. How does your school monitor hazardous waste? We no longer have an EPA Hazardous waste generator number.

IC6. Is a Hazardous Waste Policy for storage, management and disposal of chemicals in laboratories and other areas with hazardous waste in place and actively enforced? Yes/No

IC7. Has your school been cited within three years for improper management of hazardous waste according to Federal and State regulations? Yes/No

IC8. What percentage of total computer purchases by cost are Electronic Product Environmental Assessment Tool (EPEAT) certified products: Not Sure %

How does your school dispose of unwanted computer and other electronic products? We have used private recyclers such as Turtle Wings.

IC9. What percentage by cost of all cleaning products in use are "third party certified" green cleaning products? 98%

Which standard(s) are you using? Green Seal

IC10. Has your custodial program been certified by the ISSA Cleaning Industry Management Standard -Green Building (or an equivalent standard): **Yes/No** We submitted a 40 page green cleaning program as part of our LEED application. The program includes chemicals used, specifies equipment to be used such as HEPA vacs and microfiber cloths, and outlines the training program that our cleaners are required to take. This program has now been used as a model by our LEED consultants for other organizations and other buildings seeking a LEED rating.

IC11. Describe any other indicators, not included above, of the school's reduction of solid waste and elimination of hazardous waste. The school owns a sealed trash compactor that reduces the number of times the hauler has to come to campus from daily, to 2X per week. Materials that may be considered hazardous like florescent tubes and batteries are recycled.

Element 1D: Use of alternative transportation to, during and from school

ID1. What percentage of students walk, bike, bus, or carpool (2+ students in the car) to/from school? ___%

Sidwell's students come from a very large catchment area in MD, VA, and DC. Most are not within walking or biking distance, and many do not live adjacent to a Metro stop, so Metro is not a practical solution. The school provides tools to facilitate carpooling that includes a zip code sortable database of family addresses.

Approximately 3% of our students walk or use the Metro to/from school. We are able to calculate this because the school provides a monthly metro subsidy to encourage students to use public transportation. The number of students carpooling varies but averages about 15%. We supply shuttle bus transportation for about 60 students from our DC campus to our Bethesda campus and back daily. This is about a 4 mile trip and the bus eliminates up to 40 cars from making the trip between the campuses.

ID2. Does your school have a no-idling policy on file and signs posted stating that all vehicles, including school buses and other vehicles dropping off and picking up students, are prohibited from idling on school premises? **Yes/No** Please see attached photo.

ID3. Are all vehicles loading & unloading areas at least 25 feet away from all buildings air intakes (including doors and windows)? **Yes/No**

ID4. Describe how your school transportation use is efficient and environmentally benign (e.g. the percentage of school-owned electric/hybrid/alternative fuel vehicles in your fleet, or other indicators of significant reductions in emissions):

Sidwell's security personnel use electric carts to patrol the campus. Our Head of School is provided a Chevy VOLT electric car as a vehicle stipend. Many of our employees drive low-emission vehicles, and we are in the process of assigning approximately 25 conveniently-located spaces within the parking garage that will be specifically designated for their use. We have numerous bicycle racks stationed around campus for those who are able to ride to school. As mentioned previously, the school also provides monthly metro subsidies to encourage students to use public transportation, and shuttle bus service for about 60 students from our DC campus to our Bethesda campus and back daily.

ID5. Have "Safe Pedestrian Routes" to school or "Safe Routes to School" been designated, distributed to parents and posted in the main office? Yes/No

ID6. Describe any other accomplishments your school has made under Pillar One towards eliminating its negative environmental impact or improving your environmental footprint which you feel should be considered:

Environmental Stewardship is listed as one of the core beliefs in the school's philosophy, and while this application is being completed for our Middle School, we have a school-wide commitment to environmental sustainability. As a Quaker institution, Sidwell Friends is committed to teaching students about the natural world and their relationship to it. Although the Middle School building was the first K-12 building in the WORLD, and the first building of any kind in The District of Columbia to reach the LEED Platinum rating, we have not rested on those accolades. Four subsequent construction projects have been completed under the LEED rating system, and all are anticipated to reach gold rating or higher. We believe it takes a sustained effort to reach a sustainable future!

Section IV PILLAR TWO: Net positive impact on student health and safety

Element 2A: An integrated school environmental health program:

2A1. Does your school have an integrated pest management plan in effect to reduce or eliminate pesticides? Yes/No

2A2. Does your school provide notification of your pest control policies, methods of application and requirements for posting and pre-notification to parents and school employees? **Yes/No**

2A3. Does your school maintain annual summaries of pesticide applications, copies of pesticide labels, copies of notices and MSDSs in an accessible location? **Yes/No**

2A4. Does your school prohibit children from entering the pesticide area for at least 8 hours following the application or longer, if feasible, or if required by the pesticide label? **Yes/No**

2A5. Does your school meet the stricter standard of: ASHRAE Standard 62.1-2010 (Ventilation for Acceptable Indoor Air Quality) OR your state or local code? **Yes/No**

If yes, which standard is your school using? **We use the ASHRAE 62.1 standard for fresh air.**

2A6. Are local exhaust systems (including dust collection systems, paint booths, and/or fume hoods) installed at all major airborne contaminant sources, including science labs, copy/printing facilities, chemical storage rooms? **Yes/No**

2A7. Has your school installed energy recovery ventilation systems where feasible to bring in fresh air while recovering the heating or cooling from the conditioned air? **Yes/No**

Many of the school's larger air handlers incorporate passive energy wheels that harvest cool or warm temperatures (depending on the season) from the exhaust air and pre- treat the incoming fresh air. This can account for up to a 10 degree delta temperature using only the energy of a small electric motor to turn the wheel.

If outdoor conditions for temperature and humidity are within specified parameters, a small light will come on in certain classrooms that alert the teacher that they can open their windows. When the windows of these classrooms are opened, the central heating and air conditioning systems in those rooms shut down and are replaced with a system to enhance natural ventilation. Assisted by solar chimneys on the roof which draw air through vertical shafts in the building, hot air rises through convection and is exhausted above the building. Wind chimes in these vertical air shafts allow students to hear that this natural ventilation system is being used.

Section IV PILLAR TWO: Net positive impact on student and staff health

2A8. Radon: Have all ground-contact classrooms been tested for radon within the past 24 months: Yes/No

All classrooms were tested within the first year of construction.

What percentage of all classrooms with levels greater than 4 pCi/L have been mitigated in conformance with ASTM E2121? N/A

2A9. Carbon Monoxide (CO): If your school has combustion appliances, does your school have an inventory of all combustion appliances and does your school annually inspect these appliances to ensure no release of Carbon Monoxide (CO)?? Yes/No/No combustion appliances

Are CO alarms installed which meet the requirements of the National Fire Protection Association code 720? Yes/No

2A10. Mercury: Have all unnecessary mercury containing devices been replaced with non-mercury devices? Yes/No

Does your school recycle or dispose of unwanted mercury laboratory chemicals, mercury thermometers, gauges and other devices in accordance with federal, state and local environmental regulations: Yes/No

2A11. Chromated Copper Arsenate (CCA): Have all wooden decks, stairs, playground equipment or other structures treated with Chromated Copper Arsenate been either removed or sealed within the past 12 months? Yes/ No

Is smoking prohibited on campus and school buses? Yes/No

2A12. Asthma Control: Does your school have an asthma management program in place consistent with the National Asthma Education and Prevention Program's (NAEPP) Asthma Friendly Schools Guidelines? Yes/No

Sidwell Friends has an asthma management program incorporating many elements consistent with the NAEPP guidelines. Elements that are currently in place include the following:

- A confidential list of students with asthma is created at the beginning of each school year for faculty of those particular students.

- A school policy on administering medications and certifying specific faculty as Certified Medication Technicians for school trips which includes training on inhaler administration. The medication policy also addresses that students are allowed to carry their own inhalers for more immediate emergency response to an asthma episode; students can self-administer when appropriate.
- A written asthma action plan is required for all students with asthma to be submitted to the school on an annual basis or when there are changes to medication regimen or condition.
- Education for staff about asthma occurs prior to overnight school–sponsored trips. Education for students occurs during the 6th grade Health and Wellness Curriculum in the fall of each year. By the end of the lesson, students are able to identify situations requiring professional health services, demonstrate the ability to locate needed health services and learn basic management of asthma.
- We also have a family-physician-school partnership in regard to managing individual asthmatic students. Each action plan identifies the physician at the beginning of each year so that if there are any changes and or questions each member that is involved in the care of that student knows point of contact. There is also a school physician that can be contacted in case of any additional questions or concerns if personal physician is unavailable.
- Smoking bans exist on all school property.

2A13. Indoor Air quality: Have you developed and implemented a comprehensive indoor air quality management program consistent with IAQ

Tools for Schools? **Yes/No**

Sidwell recognizes the importance of building air quality on the health of faculty and students. A carbon dioxide monitoring system that is interconnected to an outdoor air supply system automatically provides fresh air when sensors indicate that carbon dioxide levels inside a room exceed minimum acceptable levels. Only low volatile organic compound (VOC) emitting materials were used in the construction of the building. The flooring and tack boards are made of linoleum, a material made from linseed oil and pine and that does not release harmful chemicals into the air. All of the building entrances are outfitted with walk-off mats that allow water, dirt, and other contaminants to drop off people's shoes before they enter the building. Our cleaning service provider uses Green Seal Certified cleaning products.

2A14. Moisture Control: Are all structures visually inspected on a regular basis and free of mold, moisture & water leakage? **Yes/No** Is indoor relative humidity maintained below 60% (cold climates during freezing temperatures should target 20-30%)? **Yes/No** Are moisture resistant materials/protective systems installed (e.g., flooring, tub/shower, backing, and piping)? **Yes/No**

2A15. Chemical Management: Does your school have a chemical management program in place that includes the following elements: **Yes/No**

The goal of Sidwell's housekeeping program is to maintain a truly healthy learning environment; our focus is on cleaning for health, not just appearance. All of our contracted cleaning staff receive training on green cleaning prior to, and during, their employment. They use energy-efficient equipment selected to have less environmental impact—low moisture processes, quieter operation, higher filtration, and lower emissions; and Green Seal Certified cleaning products. Our paper products are also Green Seal Certified, including 100% recycled paper towels and toilet tissues. All school employees are required to receive annual Blood Borne Pathogen training which covers handling, clean-up and disposal of this particular type of hazard. The techniques introduced in the training cover many types of chemical and biological hazards.

Element 2B: High standards of nutrition, fitness, and quantity of quality outdoor time

Food and Nutrition

2B1. Has your school earned USDA's Healthier US School Challenge award for school food? **Yes/No**

Sidwell Friends' does not participate in the National School Lunch Program, and as such, cannot participate in the USDA Healthier School Challenge. However, our commitment to environmental stewardship extends to our cafeteria and food program. Our dining room maximizes the use of local and regional ingredients and foods to reduce the impact of long distance deliveries on our natural resources and promote food safety and integrity.

We participate in a CSA (Community Supported Agriculture) coop weekly through *Great Country Farm* in Bluemont, Virginia. *First Choice Produce* provides local and often organic fruits and vegetables all year-round from Mennonite farmers in Southern Maryland. *Toigo Orchards* (whom we found at a farmer's market) provide apples, pears, peaches, apricots, cherries, cucumbers, plums, tomatoes, blueberries, and strawberries. We use certified humane, cage free eggs produced by *Farmers Organic Foods*; certified organic milk by

Natural by Nature from Pennsylvania, where the cows are grass fed and on generational family farms that are Amish and Mennonite; all natural beef that contains no antibiotics, no hormones, and no artificial ingredients; *Rudi's Organic Bread*, which contains certified organic grains, no chemical fertilizers, pesticides, or herbicides, or artificial ingredients, and a slower baking process to retain nutritional value; and yogurt produced locally from an organic cooperative.

Sidwell serves many nutritious-rich dark green leafy vegetables such as kale, broccoli, and spinach, and avoids processed foods, MSG, trans fats (we are trans fat free with all of our oils), fried foods (we do not have a fryer), added sugar sweets (traditional desserts are offered only as a special treat, while fresh fruit and yogurt are offered daily), high mercury fish, high fat ingredients and recipes, and non-seasonal foods that need to be imported. Beyond the menu and ingredients, our “green cuisine” also focuses on the following practices:

- Scratch cooking (little to no processed or frozen foods)
- Composition salads (salads containing more than one main element are healthier, tastier and provide more variety on the plate and less demand on higher cost items such as meat)
- Use of recyclable, renewable, biodegradable and compostable products when possible, including napkins with 100% recycled content; aluminum pans and lids and plastic containers are also reused whenever possible; we make our own vinaigrettes and other dressings and we reuse containers for this purpose
- Use of fewer disposables (we have made huge steps in reducing the number of disposable items for carryout, and those we do use are compostable and/or recyclable; *Fabri-kal* makes drinking cups from natural resins that are compostable in municipal and industrial facilities; *Enviroware* produces compostable plates, bowls, and even utensils)
- Use of fair trade coffee in our conference rooms and faculty lounges
- Use of encores, otherwise known as leftovers, in salads, soups or sides so that wholesome food does not end up in the trash (safe foods that are not suitable for encores are picked up by the DC Central Kitchen for service to people in need)
- Use of composting (students collect kitchen scraps twice a week for the Buildings & Grounds staff to use on campus as compost)

2B2. What percentage (by cost) of food purchased is certified as "environmentally preferable" (e.g. Organic, FairTrade, Food Alliance, Rainforest Alliance, etc.)? Milk — 100%; Coffee — 100%; Beef, Poultry, Fish, Dairy — approximately 50%

2B3. What percentage (by cost) of food purchased is grown and processed within 200 miles of the school (including food grown on school grounds)? Produce from April-November—80%; Produce from December-March—50%; Beef, Poultry, Fish and Dairy—approximately 50%

2B4. Does the school have an onsite food garden? If yes, do students consume food from the school garden? Yes/No

Sidwell has an onsite food garden on the Middle School's green rooftop; the school uses fresh herbs and vegetables from this garden in its lunch program. (Please see attached photo.)

Physical Education, Outdoor Opportunities, and UV Safety

2B5. What percentage of students over the past year engaged in at least 150 minutes of school-supervised physical education and/or outdoor time per week? 100%

2B6. What is the average amount of time over the past year that each student engages in school-supervised physical education (including outdoor time) per week? 240 minutes/week

2B7. What percentage of school-supervised physical education is spent outdoors? 66%

2B8. What percentage of your current student body has participated in EPA's Sunwise Program or an equivalent program regarding UV protect and skin health? Approximately 8%

Coordinated School Health, Mental Health, School Climate, and Safety

2B9. Does the school use a Coordinated School Health approach or other health related initiatives to address overall school health issues? Yes/No Sidwell Friends' has an established parent-run association that deals with all school health related issues called Community Health Initiative (CHI). This association works in conjunction with the Middle School Principal, outside resources, and parents of current students. Topics include concussions, alcohol consumption, and other health related issues. School assemblies also use outside professional resources to educate students on important topics such as bullying, eating disorders, and other mental health issues.

2B10. Does the school partner with any community groups to support student health and/or safety? **Yes/No**

Sidwell Friends is in partnership with the American Red Cross for certification in CPR/AED and First Aid for faculty, and with MedStar Health, which provides annual blood drives in which both students and faculty participate.

2B11. Describe any other measures regarding the school's built and natural environment that your school takes to protect student and staff health and which you feel should be considered: The overall health of the students, staff and faculty was taken into great consideration when the Middle School was constructed, and this emphasis continues, as noted in the proceeding responses.

Section V PILLAR THREE: 100% of the school's graduates are environmentally and sustainability literate

Element 3A: Interdisciplinary learning about the key relationships between dynamic

environmental, energy and human systems

3A1. What percentage of last year's graduates scored proficient or better during their high school career on state or school:

Sidwell Friends is an independent school, which does not employ state standards in assessing its students. The middle school is for students in grades 5 through 8. The closest we come to a middle school school-wide environmental assessment is student performance in the 8th grade environmental science course. Every 8th grader, of which there are 100 each year, takes the course, which is described below (3A2). Of these students, roughly 95 each year obtain a grade of B or higher.

3A2. Does your school or your state have an environmental or sustainability literacy graduation requirement? **Yes/No** Every 8th grader at Sidwell Friends Middle School takes environmental science. The course focuses on four significant environmental issues that will confront our students: Biodiversity loss, Global climate change, Water stress, and Human population growth. The students learn the biological, physical, and ecological science concepts required to understand the significance of these issues and what they can do to help address them, both collectively and individually. At the end of the course, each student writes a personal code of environmental ethics based upon what they have learned. We place each statement into large manila envelopes that serve as middle school time capsules preserving memories of middle school. The students open them again when they are graduating seniors.

Aiding us significantly in this course is the Sidwell Friends middle school building. Beginning operation in 2006, the building is the first platinum-rated LEEDS school building in the world. The 8th science students begin their course by taking three days to learn the building features that conserve energy, eliminate storm water runoff, reduce water pollution, use renewable and recycled materials, and provide both a healthy and pleasant environment inside the building and a wildlife-friendly natural habitat outside. We then inform the students that although they now are familiar with the green features of the building, they do not know WHY the school felt it necessary to construct it. The rest of the year in the course is designed to make this clear.

3A3. Are environmental and sustainability concepts integrated throughout the curriculum? **Yes/No**

Aside from the 8th grade environmental science course, students encounter sustainability concepts in at least the following courses:

Sixth grade geography: Every 6th grader takes 6th grade geography. The course focuses on sustainability as a global issue, looking at human population growth and demographics, water scarcity, renewable/nonrenewable resources, education, poverty, deforestation, hunger, and global climate change. The students consider four different geographical regions and tie each one to a specific global issue:

- With South America, the students look at energy, with each student researching a specific renewable energy resource. After discussing South America as a whole in terms of its geography (Amazon, Andes, Pampas, Patagonia), the students zero in on Brazil and discuss its use of alternative energy resources, in particular hydroelectric power and biomass.
- With India, the students look at human population growth and discuss how the country's carbon footprint is changing.
- With Africa south of the Sahara, the classes consider food scarcity, sustainable agriculture, micro-credit, education, and women's rights.
- With North Africa and Southwest Asia, the students consider the use of the Nile River and the disappearance of the Aral Sea and Caspian Sea due to unsustainable farming.

Sixth grade science: The 6th grade science course is titled "Matter, Energy, and the Environment." In essence, it is a junior version of high school chemistry and high school physics, with environmental science woven throughout. Highlights include units on toxicology (how chemicals impact our environment and human health and what we can do to minimize the impact), a cross-curricular unit on energy (with the 6th grade geography teachers) with a focus on sustainability (i.e. wind and solar), and green engineering, culminating in a project where

the students investigate the nature of light, how it is harnessed for electricity through the solar panels on the school's roof, and finally the designing and building of solar-powered cars.

Seventh grade science: The 7th grade science course focuses on life science. It includes units on ecology, evolution, and the history of life. In the fall of 2011, all 7th graders conducted a bioblitz on the school campus, surveying and identifying plants and animals. The plan is to continue and expand this project in the coming years.

Seventh and eighth grade English: One English class, with one third of eighth graders, pursues a four-week Science/English interdisciplinary unit on habitat shrinkage resulting from unsustainable human practices. The students study William Faulkner's novella, *The Bear*, in which the way of life of what Faulkner calls "the true hunters" is eliminated by the material needs of the burgeoning population of the 19th century American southeast. The "immemorial wilderness" is slowly being destroyed as settlers cut down the woods for both farmland and timber to build human housing. The woods are the habitat of the totemic (fictional) bear, Old Ben, whose life ends as a result of the destruction of his living space. From this disaster we move to a consideration of a chapter in Arctic ecologist Barry Lopez's *Arctic Dreams* on the polar bear's challenged environment as man-made global warming shrinks the annual Arctic ice which is home to the "ice bear" and its most important prey, ringed seals, which rely on polar ice for their own sustenance. The goal is to raise students' awareness about the deleterious effects of global carbon-based industrialization. The unit of study culminates in students' writing op-editorial essays about the subject of habitat depreciation.

In another eighth grade English class, we address our Science/English unit through poetry. The overarching goal for the two projects is to reflect upon and track our growing and changing awareness of our school environment, particularly awareness of sustainability in the "built environment." We begin with a study of Sharon Olds's poem *At the Bay*, using this text to focus on "seeing," looking deeply and repeatedly — whether at a text, at our surroundings, at the object of study in the field or in a lab. Students reflect on this habit of mind as they share their thinking with others, visibly mounted on the class and hallways. Then, using Thinking Routines from Ron Ritchhart's work, *Making Thinking Visible*, students share the connections they are making, the ways in which their understanding has been extended, and the challenges or questions they are now creating. In a second round the class builds on this work through Margaret Atwood's poem, *Backdrop Addresses Cowboy*. They undertake a short research project on the materials chosen for the Middle School building and interior surfaces, and

then write a style imitation of Atwood, using an element of the building as the “backdrop” of the poem. The goal is to raise students’ awareness about choices made in the environment of the building, rendering it not only less toxic, but more sustainable. At this point, their final letters to themselves in Science are posted for public reading. The unit culminates in two further rounds of written reflection: students respond to a Thinking Routine which they post publicly and read; then they write a final reflection on ways in which their understanding has grown, their thinking changed.

All 6th graders take a visual arts class, and in the 2010-2011 school year, they created wooden signs that interpret the green features of the school’s LEEDS platinum-rated building. These signs are now placed all over the school, including the roof and basement, to help students and school visitors learn more about the building.

Students in 6th grade advisories tour the green building, play a green building treasure hunt that highlights the green building’s features, and conduct a role-playing exercise that illustrates the inequitable distribution of resources around the world.

Students in 7th grade/8th grade advisories review the school’s recycling program.

Seventh graders take a course entitled “Quakerism and the Arts.” Among other topics, they consider social justice and how it is inextricably connected with sustainability.

Every March, the school sets aside the curriculum and institutes a “mini-mester,” during which students and teachers engage in a concentrated exploration of one area of interest outside of the classroom and sometimes outside of the city. Minimester provides an opportunity for experiential education, for stronger ties to the community, and for multi-age connections between students and teachers.

Offerings for the week are different each year. Recent themes with an environmental focus have included:

- Trips to the Grand Teton Science School in Grand Teton National Park, Wyoming
- Trips to investigate coral reef ecology and conservation in the Florida Keys
- A trip to Hawaii to carry out habitat restoration projects with The Nature Conservancy
- Exploring the natural areas around Washington, D.C. and constructing bird houses for local state parks
- Studying Chesapeake Bay with the Chesapeake Bay Foundation

- Weeding and planting a garden at Mary's Center, a child and family services organization in Washington, D.C. that serves immigrant families
- Working at Red Wiggler Farm, a local organic community farm
- Exploration of food issues, including when, where and how food is produced; how organic food is classified; and how consumers make food choices
- An overnight stay at a local farm, with the chance to milk cows, feed chickens, and discuss the life of a farm family

Between 1997 and 2011, the Middle School has sponsored nine summer trips to explore Alaskan wilderness and three summer trips to Hawaii to work with the U.S. Fish and Wildlife Service, the Nature Conservancy, and Hawaiian State Parks to contribute to endangered species habitat restoration efforts.

3A4: If your school is a high school, what percentage of your eligible graduates last year had completed Advanced Placement Environmental Science during their school career? What percentage of these students scored 3 or better on the Advanced Placement Environmental Science assessment?

Students in both the 11th and 12th grades in the Sidwell Friends Upper School took Advanced Placement Environmental Science in the 2010–2011 academic year. Thirty five out of 119 12th graders, or 29% of the class, and 19 out of 124 11th graders, or 15% of the class, took the course. Of these students, 33 took the Advanced Placement Environmental Science assessment, with 30 achieving a score of 3 or better.

3A5. If neither your state or school conduct environmental science, sustainability or environmental education assessments, what percentage of your students scored proficient or better on science education assessments in the last year?

Approximately 90% of our students earn grades of B or above in 6th, 7th, and 8th grade science.

3A6. Are teacher professional development opportunities in environmental and sustainability education provided for all teachers in your school? **Yes/No** The school provides venture grants, to support faculty summer work, and travel grants, which enable a small number of teachers annually to travel during the summer. The grants are awarded on a competitive basis and are shared throughout all the school's divisions: lower, middle, and upper schools, and the physical education department. In 2010, for example, the 5/6 art teacher, working with

our school carpenter, obtained a grant to research how to construct long-lasting wooden signs that describe the middle school's green features. Every new middle school faculty member gets a guided tour of the middle school's environmental features.

3A7. Does your school's environmental education program pay particular attention to scientific practices, such as asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations, and engaging in argument and applications based on evidence: **Yes/No**

The 8th grade environmental science course has been carrying out a long-term bee census on the campus, working with the U.S. Geological Survey since 2005. To date, we have discovered 68 species of bees, including 12 Washington, D.C. city records, and analyzed over 975 individual specimens. The 8th grade students consider the data that we have amassed and write research papers based on an aspect of the research of their own choosing. As part of this assignment, each student downloads Excel spreadsheets and constructs graphs using Excel technology. They also compose habitat maps of the study site using aerial photographs from Google Earth.

In addition, eighth graders analyze demographic data from internet sources to make sense of the dimensions of, and reasons for, world human population growth. They also study the global climate change controversy. They consider the reasoning behind both the denier and the believer sides and come to their own, individual, conclusions. Part of this unit includes an internet survey in which the students learn about the specific organizations, particularly in the U.S., that affiliate with either position.

The 7th grade life science course conducts a bioblitz study during which they census the plants and animals on the campus, and when learning about the theory of evolution, they consider the evidence behind it.

The 6th grade science course incorporates scientific inquiry throughout the year. For example, the first lab of the year focuses on constructing small rockets and correlating the heights to which they fly to the rockets' characteristics. The students do the same with solar cars at the end of the year. The course includes a variety of chemistry labs that involve the use of Vernier probes. While studying electricity, the students test the resistance of a variety of insulators and conductors to observe their effects on the flow of electric current.

3A8. Do your students have meaningful outdoor experiences (an investigative or experiential project that engages students in critical thinking, problem solving and decision making) at every grade level?

Yes/No If not in all grades please specify which grades: The 8th grade environmental science course is conducting a long-term bee census of the campus, and the 7th grade life science course carried out a bioblitz of campus flora and fauna in the fall of 2011(see above for details).

Element 3B: Use of the environment and sustainability to develop STEM content knowledge and thinking skills to prepare graduates for the 21st century technology-driven economy

3B1. Do your students matriculate or graduate with a robust general science education that includes a deep understanding of life, physical, and earth sciences? Yes/No Students in 7th and 8th grade spend three hours and 15 minutes/week in science classes. Students in 6th grade spend two hours and 40 minutes/week in science classes. Students in 5th grade spend three hours and 20 minutes/week in science classes.

3B2. If your school is a high school, does your curriculum provide a demonstrated connection between classroom content and college and career readiness, particularly to post-secondary options that focus explicitly on environmental and sustainability fields, studies, and/or careers?

Yes/No/NA

Community and Civic Engagement

Element 3C: Development of civic engagement knowledge and skills, and students' application of these to address sustainability and environmental issues in their community

3C1. Are all students required to conduct an age-appropriate, self-selected civic/community engagement project at every grade level?

Yes/No The community service projects that occur during Minimester are self-selected. The ones that take place within homerooms and advisories are determined by the faculty member in charge of the group.

What percentage of these projects focused on environmental or sustainability topics? 33%

3C2. What percentage of last year's graduates scored proficient or better on a community or civic engagement skills assessment?

We do not use such an instrument to assess our students.

3C3. Does your school partner with local academic, businesses, government, nonprofits, informal science institutions and/or other schools to help advance your school, other schools (particularly schools with lesser capacity in these areas), and community toward the 3 Pillars?

Yes/No Working with the school archivist and the manager of the school web site, students wrote and recorded an on-line tour of the school's platinum-rated school building, with the hope that this would help other people learn about green architecture and even help inspire others to construct their own green buildings. To date, over 25,000 people have visited the site. Students also wrote the texts for a host of signs, which are placed around the building to interpret its many green features for visitors. Roughly a third of the 8th grade students are trained every year as building tour guides; to date, over 10,000 students, architects, and environmentally-concerned citizens have taken the guided tours, which are open to all. A committee of seventh and eighth grade science and math teachers is working with the American Association for the Advancement of Science (AAAS) to develop activities centered on environmental data generated by sensors on and around the building; these will be available to students everywhere on-line.

As mentioned above, the 8th grade science classes are working with scientists at the U.S. Geological Survey to conduct censuses of the bees on the middle school campus.

Many different minimesters (described above) have focused on service projects working with the local community. Students who come to the middle school by 6th grade must choose at least one service mini-mester. In addition, each student in 5th or 6th grade participates in an off-campus service project twice a year, and students in 7th and 8th grade participate in service projects four times each year. Some recent service initiatives have included the following:

- Working with children at the local Rosemount Center, a local day care center
- Delivering donated food items to the local food bank and helping them sort and distribute the food
- Weeding and planting a garden at Mary's Center, which serves immigrant families
- Helping out in various area soup kitchens
- Working with children at Brightwood Elementary School, a D.C. public school beginning in Pre-kindergarten.
- Working at the Red Wiggler organic community farm
- Working with students at St. Coletta's, a school for students with developmental disabilities
- Working in the day care program at Walter Reed Army Hospital
- Partnering in classroom activities with students and teachers at Phoebe Hearst Elementary, a DC public school

In addition to these activities, students have worked on the following projects:

- Working with a young alumna of the school, sixth graders studied the issue of fair labor practices in the manufacture of clothing and created shirts to exchange with students in Ghana.
- Eighth grade students have proposed a change to the candy selections which are stocked in the school's store, suggesting that more fair trade and sustainable options be available. They are planning a campaign to educate SFS students in both Middle and Upper schools who use the store about the impact of their purchasing practices.
- Sixth grade students instituted a "No Waste" campaign to focus on food waste in the dining room. They presented information about their campaign to Middle School students and encouraged students to avoid taking more food than they would eat at lunch so that food is not wasted.

3C4. Does your school provide outdoor learning opportunities for students (e.g. outdoor classrooms/ Outdoor Club)? **Yes/No**

The campus is very much a part of the teaching space. Examples include the bio-blitz and the bee study discussed above. In addition, we maintain a wildlife sightings page on our website which includes observations from students, faculty and staff.

3C5. What other indicators or benchmarks (quantified whenever possible) of your progress towards the goal of 100% of your graduates being environmental and sustainability literate does your school feel should be considered by the review committee?

One of Sidwell Friends' most defining choices in recent years was the School's decision to establish the Middle School as a "living habitat" in which students could experience first-hand the interdependent systems necessary to operate a built space in an environmentally sensitive and sustainable way. This "living classroom," in turn, is providing an inspiring forum for our students to explore and debate the complex scientific, economic, ecological, and political realities that must be balanced in order for a society to meet its full range of needs for the present without undermining the ability of future generations to do the same. This broad conception of sustainability, with its implicit compassion and concern for the well-being of the Earth and all living things, resonates deeply with core Quaker values of simplicity of living, service to others, and environmental stewardship. We believe that the introduction of the LEED Platinum Middle School, and the subsequent attention to wise environmental practices, sustainability in the curriculum, operations, and facilities throughout the school, should be but the

beginning of a school-wide commitment to creatively advance the principles of sustainability and global interdependence in our programs, our efforts at cross-disciplinary problem-solving, and our practices as a community.

Section VI: Authorization

By signing below I certify that the information provided is, to the best of my knowledge, accurate:

Authorized Representative Signature and Title

Date

