



U.S. Department of Education (ED)

Green Ribbon Schools (ED-GRS)

2014-2015 Post-Secondary Nominee Presentation Form

ELIGIBILITY CERTIFICATIONS

College or University Certifications

The signature of college or university President (or equivalent) on the next page certifies that each of the statements below concerning the institution's eligibility and compliance with the following requirements is true and correct to the best of their knowledge.

1. The college or university has been evaluated and selected from among institutions 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 and sustainability education.
2. The college or university 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 compliance review.
3. OCR has not issued a violation letter of findings to the college or university concluding that the nominated college or university 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 college or university has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
5. There are no findings by Federal Student Aid of violations in respect to the administration of Title IV student aid funds.
6. The college or university is in good standing with its regional or national accreditor.
7. The college or university 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

Public 4-Year Public 2-Year Private Non-Profit

Name of President/Chancellor: President Steven Knapp

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

Official College or University Name: The George Washington University

(As it should appear on an award)

College or University Street Mailing Address: Rice Hall, 2121 I Street, NW, Suite 801

County: DC IPEDS Number*: 131469

Telephone: 202/994-6500 Fax: 202/994-0654 Web site/URL: www.gwu.edu

E-mail: Special Assistant to President Knapp, Gloria McGhee: gmcghee@gwu.edu

*Integrated Postsecondary Education Data System

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


(President's/Chancellor's Signature)

Date: January 30, 2015

Nominating Authority's Certifications

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

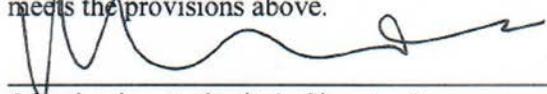
1. The college or university has been evaluated and selected from among institutions within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
2. The college or university 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.

Name of Nominating Agency: Office of the State Superintendent of Education

Name of Nominating Authority: Dr. Unique Morris-Hughes
Chief Operating Officer/ Wellness and Nutrition Services

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

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


(Nominating Authority's Signature)

Date: 1/27/15

SUMMARY AND DOCUMENTATION OF NOMINEE'S ACHIEVEMENTS

Provide a coherent "snapshot" that describes how your college or university 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.

SUMMARY AND DOCUMENTATION OF NOMINEE'S ACHIEVEMENTS

From a groundbreaking solar partnership, the first LEED Platinum certified building on a university campus in D.C., the creation of "Green Leaf" courses, a growing Sustainability Minor, being named one of greater Washington's healthiest employers, an on-campus farmers market that accepts student dining dollars, to an Urban Food Task Force, the George Washington University (GW) has adopted a comprehensive approach to building a sustainable campus community. A thorough view of GW's sustainability efforts can be found in the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment, and Rating System (STARS). Recently, GW joined 62 universities in earning a Gold Rating from STARS. Also, GW was recognized for sustainability achievements on Sierra Magazine's list of the greenest schools in the nation, ranking No. 12 this year.

GW's sustainability teaching and research includes over 170 faculty engaging in sustainability research, 38 undergraduate and graduate sustainability-related programs across various disciplines (including civil and environmental engineering, international development, environmental law and global public health) and 345 courses related to sustainability in all 10 schools. GW also has a pan-university, interdisciplinary undergraduate Sustainability Minor that includes students representing every school. Classes for the minor are designated as Green Leaf courses and range from environmental and resource policy and geological sciences to anthropology and religion. The Sustainability 1001 foundation class well reflects the interdisciplinary strength of the Minor and is team-taught by five professors from Geography, Law, Public Health, Engineering, and Sustainable Landscapes. The Minor also includes a culminating experience, in which students must apply sustainability concepts in a real-world context, through directed research, internships, or service learning. GW also offers a wealth of co-curricular education opportunities: living labs that include substantive work by students collaborating with faculty and staff involving research and experiential learning; immersive learning, internship and alternative breaks programs; and peer-to-peer learning.

GW is committed to reviewing its impact on ecosystems locally, regionally and globally and identifying ways to improve them, and in 2012, released an Ecosystems Enhancement Strategy, a comprehensive sustainability

strategy for GW's operations and administration, including a water plan and a climate action plan. This strategy reaches across environmental and social issues such as climate change, water scarcity and access to natural resources. GW is striving to uncover innovations to enhance ecosystem services in a way that mitigates risk and generates long-term value for GW and the planet. The strategy has six focus areas: strengthen habitat and optimize natural space; promote healthy air and climate; foster clean and abundant fresh water; support sustainable food production systems; optimize waste decomposition and treatment; and encourage a natural urban environment that helps enhance physical, mental and social well-being.

Through efforts to reach its Climate Action Plan goals, GW launched the groundbreaking Capital Partners Solar Project Partnership, involving two other partners. The partners worked with developers to build one solar farm and are working on two more in North Carolina. Solar panels convert solar energy to electricity then transmit it through the power grid, which GW and partners use for electrical power needs. The solar photovoltaic power (PV) supplied is the equivalent to the amount of electricity used in 8,200 homes annually. By 2016, GW will derive over 50% of all its electricity from solar, and accelerate progress toward its carbon neutrality target. At the time of signing, this partnership was the largest non-utility solar PV power purchase in the U.S. in total megawatt-hours contracted, and demonstrates that an urban institution, with limited roof tops and open space, can cost-effectively source a large amount of renewable energy. It's a model for other universities, colleges, and other non-utility customers across the country.

In 2014, the Washington Business Journal named GW one of greater Washington's healthiest employers, the only higher education institution on the list. GW's commitment to building LEED-certified buildings ensures that new projects improve air quality and reduce contaminants. GW's Personal & Family Life programs and services help balance the responsibilities of work, academic, and personal life and include a confidential and free Wellbeing Hotline and programs that promote healthy living, friendly competition, and teamwork. Food has been another major focus, with the Urban Food Task Force and the student-led Food Justice Alliance promoting healthy, sustainable food at GW and in D.C. GW enrolled in the Real Food Challenge, requiring it to source 20% of student dining with healthy, sustainably harvested, local/community-based, and fair-trade foods by 2020. To meet student health concerns, GW Student Health Services provides medical care, and provides specialized services, such as care designed for LGBTQ students. Students may also access clinical mental health services through the University Counseling Center. Health Outreach Peer Educators help students evaluate the risk of health-related behaviors, supply accurate health information, and lend support for healthy lifestyle choices. The combination of these efforts make GW a university focused on community wellbeing.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Pillar I: Reduced Environmental Impact and Costs (30% of total score)

Narrative: Describe how your college or university is reducing environmental impact and costs by reducing or eliminating greenhouse gas emissions; improving water quality, efficiency, and conservation; reducing waste production; and using alternative transportation. Identify your institution's energy-efficient facilities and practices, ecologically beneficial uses of grounds, and methods of disposal for solid and hazardous wastes.

Reducing or eliminating greenhouse gas emissions

- Capital Partners Solar Project is an innovative renewable energy project that will provide solar power from three project sites to GW, American University (AU) and the George Washington University

Hospital (GWUH). It is comprised of 52 megawatts (MWh) of solar photovoltaic (PV) power, and it is the largest PV project east of the Mississippi River. Collectively, once all three solar farm sites are operable by early 2016, the project will deliver 123,000 MWh of renewable energy to the three partners in its first year, with GW taking approximately 70.4% of the total load (equivalent to about 50% of its total electricity demand). At the time of signing, GW's share represented the largest ever non-utility solar PV power purchase agreement (PPA) in the U.S. in terms of total megawatt-hours contracted over the life of the 20-year contract term.

- GW is currently pursuing a campus-wide energy efficiency program for existing buildings called the Eco-Building program, which proposes a comprehensive capital improvement plan to strategically implement energy conservation projects in buildings. The program will result in a reduction of energy consumption and greenhouse gas (GHG) emissions, and will produce short-term and long-term financial savings. Through these projects, GW aims to reduce energy use from the buildings by 15%. GW has also engaged a number of energy services companies to more closely monitor and manage the real-time energy use of buildings. Preliminary results show the first phase to have reduced energy by more than 25%.
- New discoveries, equipment and systems for green energy and carbon sequestration are emerging at a rapid pace, but require testing and improvements. GW is using its campuses as testing grounds for new technologies and integrating the performance of these options into learning and research opportunities for students and faculty. As part of this innovation strategy GW targets a 1,000 MTCO_{2e} reduction in its emissions by 2025 through use of on-site, low-carbon energy sources. Additionally, the university aims to produce 10% of its energy needs through on-site, low-carbon technologies by 2040.
- An 18-panel photovoltaic array is operating on a trellis above a walkway, known as the Solar Walk, between two buildings at the Virginia Science and Technology Campus. The Solar Walk is the world's first walkable solar-paneled pathway which includes 27 slip-resistant, semitransparent panels comprising 100 square feet. In peak conditions the walkable panels, designed by Spain-based Onyx Solar, generate enough energy to power 450 LED pathway lights, while the panels on the trellis generate energy that feeds nearby Innovation Hall.
- GW installed its first solar hot water system in March 2011 on a residence hall at 2031 F St. During the summer of 2011, the university installed two more solar hot water heating systems on residence halls at 1959 E St and Shenkman Hall. A fourth solar hot water system will be installed in spring 2015.
- GW's university practice is to adhere to, and when possible, exceed the D.C. policy to achieve at least Silver status for all new construction and major renovations. This has been accomplished since the policy was adopted in 2009, by earning one Leadership in Energy & Environmental Design (LEED) Platinum certification, eight LEED Gold certifications, and one LEED Silver certification.
- GW has committed through its Ecosystems Enhancement Strategy to enhance tree canopy and green cover to help increase sequestration potential and outdoor air filtration capacity. In the near term, the university commits to offset the square foot loss of existing tree canopy and green cover from natural causes of campus development with new plantings. GW is factoring green cover into campus development and conducting annual campus tree surveys to measure progress. Studies show that current

tree cover yields 196 metric tons of carbon dioxide benefit, net of decomposition and maintenance losses.

Improving water quality, efficiency, and conservation

GW's "GWater Plan" is one of the most comprehensive plans for water sustainability issued by a university, with eight goals and targets spanning four major focus areas – potable water, rainfall capture, wastewater and bottled water. GW's Eco-Building Program includes implementation of energy and water conservation projects in campus buildings.

- GW has green roofs on six buildings, the most recent being on the roof of the Science and Engineering Hall, which opened in 2015. There is also a small green roof on the President's house on campus. GW currently has 54,358 square feet of green roofs.
- GW has several on-campus gardens that use rain barrels to collect rainwater for reuse in the gardens. For one large building the university uses untreated ground water for irrigation. The GW Law Learning Center has a 6,000 gallon cistern and a 15,000 gallon cistern that are capturing water for use in irrigating the Center's surrounding property. In addition, the Milken Institute School of Public Health was built to capture 8,796 gallons of graywater for reuse in all bathrooms for flushing, within the building that make up approximately 4,682 square feet.
- GW's Square 80 Plaza is a certified LEED Sustainable Site, one of only 34 certified sites in the country. A former parking lot, the Plaza was designed and constructed to include a rainwater collection system that provides irrigation for the landscape and clean water for a decorative fountain. Permeable brick pavers include an under-tray system used to collect rainfall. A 300-gallon rain barrel and three below-ground cisterns (33,000 gallon collective capacity) hold the rainwater. Runnels capture non-permeable hard-scape run-off and direct it into tree pits and planters. Rooftop water is diverted from adjacent buildings into the cistern system. The landscape plantings are comprised of native (70%) and adapted (30%) species, further reducing water demand. In addition to the Plaza's beautiful ascetics, the Low Impact Development design serves as a means to protect the Potomac River Watershed by reducing rainwater runoff and slowing its flow.

Using alternative transportation

Over 62% of GW employees use sustainable commuting options: 13% walk, bicycle, or use other non-motorized means; 7.5% carpool; and 41% use the campus shuttle or public transportation.

- In partnership with Capital Bikeshare, GW currently houses bicycle stations available to staff and students in four campus locations, with additional bikes available within a short walk from campus. The GW stations are some of the busiest in the Bikeshare network. Starting in 2014, GW began offering discounted Capital Bikeshare memberships for all benefits-eligible GW staff and faculty. Also, GW maintains racks and spaces for bikes. The GW Health and Wellness Center also offers a shower-pass program to GW's gym, a discounted gym access to cyclists and pedestrian commuters to use the shower and locker facilities.
- GW offers pre-tax SmartBenefits to all employees for use on metro area bus and rail. Approximately 19% participate in the SmartBenefits program.

- To facilitate transportation between GW's three campuses (Foggy Bottom, Mount Vernon, and Virginia), GW operates free shuttles, which help reduce vehicle miles traveled per capita by reducing reliance on via single occupancy vehicles.
- To promote carpooling, the GW NuRide program connects GW commuters from around the metro area. The GW community also has access to both the Commuter Connection and Guaranteed Ride Home programs. The GW Parking Office provides carpoolers with a discounted monthly parking rate.
- GW has partnered with ZipCar to provide car sharing services for its faculty, staff, and students for rental vehicles on an hourly basis. Currently spaces for 8 ZipCars are located throughout GW's Foggy Bottom Campus. GW students, staff, and faculty can join at a reduced rate with no application fee.

Energy-efficient facilities and practices

Energy use in existing buildings comprises approximately 80% of the GW's GHG emissions. In the first years of implementing its Climate Action Plan, GW prioritized improving building energy efficiency and enhancing IT systems that result in energy use reductions.

- Currently the university is constructing a cogeneration facility on a new unit on the Foggy Bottom Campus that is expected to start-up by the end of 2015. Through GW's Eco Building Program, GW aims to reduce energy use from the buildings by 15%. Within the last 3 years, 30% of GW's buildings (by square footage) have undergone an energy-efficiency oriented retrofit as part of this program.
- GW has commissioned all of its new buildings for the past 20 years. Two pilot-scale recommissioning activities have been undertaken. In one building a continuous commissioning project was used for a year and in another LEED-certified building a recommissioning effort was undertaken to correct a higher-than-expected energy usage. A formal building retrofit program is now underway; see its description below under the description of the institution's program to replace energy-consuming equipment with higher-efficiency alternatives.
- GW's building management systems (BMS) currently interconnect 40 buildings with either remote monitoring or control functionality. In terms of the absolute number of buildings with BMSs the coverage is small (approximately 30%) but the buildings with BMSs are the largest buildings on campus so in terms of square footage (or energy usage) the BMS coverage is extensive. The BMS primarily monitors and controls space temperatures, humidity, and HVAC functions rather than lighting. Lighting is generally controlled with local occupancy sensors, daylight sensors, or photocells. One building that opened recently has its lighting system controls integrated into its BMS.
- GW uses a type of occupancy sensor used to control lighting on campus is a dual-technology sensor that detects both motion and sound. These are usually mounted into ceilings of public spaces such as classrooms and conference rooms. In smaller rooms such as public bathrooms a sensor detects motion to bring lights on and then the lights go off again a pre-set amount of time later such as 15 minutes. This application is now switching to the use of vacancy sensors instead. Some daylight sensors are in use in lobbies with a lot of natural light. Most outdoor lighting is controlled by timers or photocells.

- GW's design standards include winter and summer temperature ranges for designers of new buildings to achieve. In existing buildings, GW has begun to use Coris Outlet Modules, which are Internet-controlled packaged A/C unit ("window shaker") timers. Programmable thermostats are also employed.
- GW has used LED lighting in exit signs for many years. At the end of FY11 the university began retrofitting its underground parking garages with LED lighting and occupancy sensors. GW now has five underground parking garages using LED lighting and occupancy sensors. In FY12 GW installed LED lights as house lights in its historic Lisner Auditorium. GW is now installing LED lights into a wider range of fixtures including interior and exterior uses.
- The University has a few buildings that incorporate passive solar heating. One example is our two greenhouses. A few other buildings include solar window films to reduce solar incidence into spaces that we do not want to overheat.
- We currently have "SnackMisers" on two vending machines on campus, which control the energy use of the machines based on motion. We piloted twelve of these products, but it was determined that it is not the best fit for GW's vending machines, so we continue to explore additional options.

Ecologically beneficial uses of grounds

GW strives to manage landscapes in a responsible, sustainable, and well thought-out manner. Aesthetics and appearance are always important factors on a university campus, but the main goal is to improve the health of the campus ecosystem and maximize usability for the campus community. GW has begun a variety of sustainable landscaping programs: Grass to Gardens, Pollinator Gardening, Edible Landscaping, Pesticide Free Landscaping, and a commitment to the Tenets of Xeriscaping. Overall, sustainability is the cornerstone of GW's Landscape Management philosophy; creating a living, regenerative ecosystem on ca.

- Grass to Gardens is an effort to replace unusable patches of turf with native plant beds that will reduce runoff, bolster biodiversity, attract native invertebrates, and improve soil health. The native beds also reduce labor and noise pollution associated with mowing and other turf maintenance activities. Eliminating these unusable turf areas also allows us to focus on large, usable turf that can be used by the university community.
- Our Pollinator Gardening program involves rehabilitating aging landscape beds with native flowering shrubs and perennials that provide food and forage for birds and invertebrates. These beds are strategically placed throughout campus to create a greenway, allowing pollinators to move through campus as they forage for pollen.
- Our Edible Landscaping program uses annual and perennial edible plant material to create aesthetically pleasing, edible garden beds throughout campus. We grow Rhubarb, Hops, Basil, Peppers, Rosemary, Thyme, Lemongrass, and Pineapple Sage in display beds throughout campus. The edibles are then harvested by the Grounds Department and distributed biweekly to the university community during our Herb Giveaways.
- Our campus is also Pesticide-Free, allowing for unrestricted use and enjoyment of the university community. This year we began a beneficial insect program to create native populations of beneficial

insects to combat common plant pests such as aphids, scale insects, and mites. This program will continue to expand over the coming years as we gather data and begin to find the most effective methods of biologic control for plant pathogens. Not applying pesticides also helps to bolster our efforts to increase biodiversity and create an edible landscape.

- The Tenets of Xeriscaping serve as a framework for all of our plantings on campus. Basically, Xeriscaping entails planting the right plant in the right place. By identifying microclimates and choosing site appropriate plant material, we can reduce water usage, improve stormwater infiltration, increase aesthetic appeal, and reduce labor. All of these results are extremely beneficial to our Grounds Management program and the campus ecosystem.

Reducing waste production

GW is committed to becoming a Zero Waste campus in the long-term, and aims to increase recycling to 50% by 2017 and to reduce litter on campus.

- GW's annual Green Move-Out program takes place when students leave the campus for the summer. Last year, Green Move-Out collected over 20 tons of clothing, shoes, and household items to be distributed or donated to local community organizations. Non-perishable food donations and books are donated to local food bank and literacy program.
- GW also has installed 36 BigBelly Solar trash and recycling compactors on campus. These compactors reduce the frequency of trash and recycling removal, and increase recycling capacity, reduce litter on campus, and conserve energy.
- GW has a comprehensive waste diversion program that includes recycling of containers, paper, cardboard, construction materials, electronic waste, as well as reuse of furniture. We currently have two compost collection programs on both the Mt. Vernon and Foggy Bottom campuses.
- As noted in the GWater Plan, reducing the amount of bottled water purchased is a way to conserve natural resources, reduce waste, and promote safe tap water. Each year GW provides durable, reusable water bottles to an average of 2,400 incoming Freshman as way to demonstrate the university's commitment to sustainability and reduce waste.
- GW's Green Office Network is the primary faculty and staff sustainability engagement program to improve awareness, build community, and empower staff to make positive, healthy changes, including on waste diversion.
- GW participates in Recyclemania, a national university competition to reduce waste, and increase recycling and compost collection. GW students conduct an annual waste sort to increase awareness of Recyclemania. In 2012, GW recycled 307,196 pounds of waste during the 8-week competition.

Disposal methods for solid and hazardous wastes

GW has policies and programs to minimize the production of hazardous waste, and disposes of all hazardous, universal, and non-regulated chemical waste in a responsible manner with a preference towards recycling or re-purposing of all materials. Hazardous chemical waste is sorted and shipped to a licensed disposal facility where

classified waste is re-purposed or reused. All other hazardous waste is incinerated. Other waste is recycled: waste oil, batteries, and compact fluorescent (CFL) light bulbs. Waste minimization programs include efforts to retrofit fixtures to accept more environmentally friendly light bulbs, and the elimination of oil-based paint where possible. GW uses licensed contractors, haulers, and receiving facilities to ensure compliance with all applicable D.C. and Federal regulations. GW's insurance provider requires disposal standards that exceed Federal regulations and prohibit offshore disposal of hazardous waste.

Investing in sustainability and improving business practices

- The Innovation Task Force was established in 2009 to address President Knapp's goal of increasing GW's investment in academic learning, research, and the student experience by \$60 million per year. The funding comes from three areas: new funds raised from philanthropic sources; increased productivity of GW's research and instructional programs; and finding savings in business processes. ITF was also charged with soliciting feedback from the GW community about GW's strengths and how to improve academic and business operations further. ITF activity has led to more than 70 initiatives, ranging from new online programs to implementing cloud data systems. ITF has identified \$27 million dollars in savings or new revenues to be reinvested in academic priorities in fiscal year 2015.

In 2014, ITF inaugurated an annual ITF Scholarship Competition. Two students received \$50,000 scholarships for their business plan ideas that will be implemented by the university. One of the students' plans concentrated on energy conservation: based on an estimated 120 hours per week that GW computers are not in use, he proposed implementing Energy Star management settings to campus electronics, outfitting equipment to draw less energy and engaging the GW community on the benefits of implementation.

Meghan Chapple, the director of GW's Office of Sustainability, is a Co-Chair of the Innovation Task Force. Many of the sustainability efforts on GW's campuses have led to significant savings, and through ITF, these savings are reinvested to make a stronger university. The Capital Partners Solar Project, which will provide 50% of GW's electricity needs over the next 20 years, is expected to save millions of dollars in energy costs. This initiative is a perfect example of how GW saves money when investing in sustainability.

Pillar 2: Improve the Health and Wellness of Students, Faculty and Staff (30% of total score)

Narrative: Describe how your college or university improves the health and wellness of students, faculty and staff by integrating a campus-wide environmental health program and promoting sound health and wellness practices. You should discuss integrated pest management, contaminant controls and ventilation, asthma controls, indoor air quality, moisture control, and chemical management. Address the amount and type of outdoor time that your students and staff have, as well as the types of fresh, local, and organic food that they eat. Other components you may want to include are: health education, health services, counseling, psychological and social services, staff health promotion and family and community involvement.

Contaminant controls and ventilation, asthma controls, indoor air quality

- As part of the university's commitment to constructing LEED-certified buildings, new construction and renovation of buildings ensures that projects achieve credits to improve indoor air quality and reduce contaminants. This includes the use of low-emission materials, chemical and pollutant and source

control, and monitoring of outdoor air delivery. These LEED standards provide a better environment for building occupants and are associated with lower morbidity due to asthma.

- GW further promotes indoor air quality through efforts including regularly servicing HVAC systems, promoting indoor green space, and purchasing products low in volatile organic compounds. To complement this commitment to indoor air quality and asthma harm-reduction, GW has also banned smoking from all outdoor space on campus. The university offers staff, faculty, and students access to the American Cancer Society's Quit For Life Program and pays for nicotine replacement therapies.

Chemical management and integrated pest management

- GW disposes of all hazardous, universal, and non-regulated chemical waste in a responsible manner with a preference towards recycling or re-purposing of all materials. (Please see additional information under Pillar I, page 10.)
- GW also has an Integrated Pest Management (IPM) Plan, which applies to the entire campus grounds and adheres to the following four-tiered approach: set action thresholds, monitor and identify pests, prevention, and control. The university has emphasized preventive efforts like waste reduction and proactive efforts like pesticide-free grounds keeping as elements of the IPM plan.

Food

GW has a number of health services and promotion efforts for students, faculty, and staff to improve the physical and mental health, and social wellbeing of the entire GW community. Food has been one major focus, with the Urban Food Task Force and the student-led Food Justice Alliance promoting healthy, sustainable food at GW and in D.C. The university has also committed to the Real Food Challenge which ensures that GW will source 20% of student dining procurement with healthy, sustainably harvested, local/community-based, and fair-trade foods by 2020. Currently, GW only has calculations for calendar year 2013, which was just below 10%. The assessment for 2014 food procurement is still in progress, and based on enhanced practices by GW's primary dining provider, the percentage is expected to increase. The university also hosts a weekly farmers' market, which accepts student dining dollars and also features produce grown on the campus's urban garden throughout the harvest season, and promotes Meatless Mondays in the student dining hall. The Food Justice Alliance Community GroW garden donates hundreds of pounds of organic produce to a local homeless services provider, Miriam's Kitchen, each week throughout the summer and fall. The GW Ground Team grows a number of herbs such as lemongrass, basil, and thyme in campus gardens, which are distributed biweekly to the university community during the growing season.

Wellness programs

- In 2014 the Washington Business Journal named GW one of greater Washington's healthiest employers, the only institute of higher education on the list. GW's Personal & Family Life programs and services are an integral part of the University's efforts to help faculty and staff to balance the responsibilities of work, academic, and personal life. Employees can contact the GW Wellbeing Hotline to receive free, confidential counseling from clinicians who can refer callers to services as needed. Employees may also receive supplemental child or elder care when arrangements are disrupted. GW also offers a wide range of wellness programs for employees that promote healthy living, friendly competition, and teamwork

among GW staff and faculty. Programs include GW Run/Walk Meet-Up Group, walking challenges, flu vaccinations, GW's Healthy Pregnancy Program, and a faculty and staff summer softball league.

- To meet student health concerns, clinicians at GW Student Health Services (SHS) provide immunizations and care for medical issues. SHS also provides specialized services, such as care designed for LGBTQ students. Students may also access clinical mental health services and mental health promotion efforts through the University Counseling Center (UCC). Health Outreach Peer Educators work with SHS to help students evaluate the risk of health-related behaviors, supply accurate health information, and lend support for healthy lifestyle choices.
- Programs such as GW Trails provide a variety of outdoor activities for students to exercise and connect with the natural environment. To further promote student wellbeing, in 2014 GW launched NewU, a program on adjusting to college for first year students, and FutureU, a life skills program for third and fourth year students. NewU focuses on competencies including career planning, navigating life in D.C., and connecting with faculty. FutureU provides participants with skills like financial management and etiquette. A major focus of each program is how to eat healthy and how to purchase and prepare healthy, sustainable foods.
- The combination of these efforts to improve the campus environment and to provide students, staff, and faculty with access to a variety of health services make GW a university focused on community wellbeing. Health services are coordinated between a number of departments and with the inclusion of students, staff, and faculty on health-related committees. GW will continue to evolve these services to meet changing needs.

Pillar 3: Effective Environmental and Sustainability Education (40% of total score)

Narrative: Describe how your college or university provides effective environmental and sustainability education by incorporating STEM, civic skills, and green career pathways. Provide examples of interdisciplinary learning about the key relationships between dynamic environmental, energy, and human systems. Demonstrate how your institution uses the environment and sustainability to develop STEM content, knowledge, and thinking skills. You should also discuss how your institution develops and applies civic knowledge and skills to environmental and sustainability education.

Degree programs

GW offers 38 undergraduate and graduate sustainability-related programs across various disciplines, including civil and environmental engineering, international development, environmental law and global public health. GW also offers 345 sustainability courses, with over 100 that have been designated as Green-Leaf courses, which are undergraduate courses that students in the Sustainability Minor are encouraged to take, but are open to all students.

Undergraduate sustainability minor

Since Fall 2012, GW has offered an 18-credit interdisciplinary Minor in Sustainability. Currently, there are 155 minors from across all GW schools. The minor enables students to explore the challenges of sustainability, and think about how to develop solutions to pressing issues at the local, regional, and global level. It is open to undergraduates from all schools, and complements any major, and is interdisciplinary. The Introduction to

Sustainability course is team-taught by five faculty in the School of Engineering and Applied Sciences, Geography, Public Health, Law, and Landscape Design, to provide a comprehensive understanding of sustainability concepts. Students select classes from a pre-approved list of Green Leaf courses that have been designated as suitable for the Minor, with at least 3 credits earned from each of three tracks: environmental/earth systems; society and sustainability; policy, organization and leadership. In addition, all students must take a 3-credit Culminating Experience, an experiential learning experience. All Culminating Experiences require a submission of a reflection paper and social media creation.

GW offers six sustainability-related academic offerings for undergraduates, including the following: B.A. in Economics; B.A. in Geology; B.S. in Chemistry; B.F.A. in Interior Design; B.S. in Civil Engineering with concentrations in environmental engineering, transportation, engineering and sustainability; B.S. in Biology.

Graduate program

GW offers 32 graduate programs related to sustainability, 11 in the Columbian College of Arts and Sciences, 7 in the School of Engineering and Applied Sciences, 5 in the School of Business, 3 in the School of Public Health, 3 in the College of Professional Studies, 2 in the School of Law, and one in the Elliott School of International Affairs. Some examples are: M.A. in Environmental Resource Policy; M.A. in International Development Studies (Sustainable Development Focus); M.B.A. in Environmental Policy and Management; J.D. in Environmental Law; M.P.S. in Sustainable Urban Planning; M.P.H. in Environmental Health Science and Policy; M.S. in Civil and Environmental Engineering; Ph.D. in Environmental and Engineering Management.

Living labs

GW's living labs include substantive work by students working with faculty and staff that involves active and experiential learning and contributes to positive sustainability outcomes on campus. Focus areas include Air and Climate, Buildings, Dining Services/Food, Energy, Grounds, Waste, and Water.

- *Air and Climate:* Students design, build, and deploy a greenhouse gas sensor network under the direction of a GW faculty member. The goal is to engage the local population in climate science by collecting data from individual sensors on a database server where they will be visualized and deployed on the web. Partners include two D.C. area start-ups with ties to a federal agency. The team combines satellite measurements, climate modeling, and ground-level measurements of greenhouse gas concentrations during seasonal permafrost melting seasons. The GW group is developing and deploying a sensor to perform open-path, laser absorption measurements of carbon dioxide and methane - the two most important anthropogenic greenhouse gasses - at University of Alaska field sites near Fairbanks. The long-term goal is to build 50-100 more units and place them in D.C. and metropolitan area elementary schools.
- *Buildings:* The new Milken Institute School of Public Health is a LEED Platinum building, and is used as a teaching tool in Sustainable Energy classes, taught by a faculty member in the Department of Environmental and Occupational Health. Students examine the rainwater collection system on the roof used for bathroom flush water and the heat recovery system for fresh air brought into the building, as well as examining the many safety and backup systems in a green commercial building.

- *Dining Services/Food:* GW signed the Real Food Campus Commitment in 2014 and has created an internship opportunity for Sustainability Minor students to serve as the Real Food Challenge (RFC) project lead. These individuals partner with other student food advocates, dining services management, and the Office of Sustainability to guide and monitor the university's efforts around RFC goals. Information gathered by the students is used to facilitate discussions around the concept of sustainable foods as it pertains to curriculum addressing carbon footprints, food policy, health, and social equity.
- *Energy:* A faculty member in Economics and International Affairs teaches a course on the Economics of Sustainability, and a significant portion of the course studies GW students' electricity use and recycling habits. Students learned the methods of social science field research and then applied them by collecting data on dorm energy use and recycling, conducting student surveys, implementing randomized control interventions and analyzing data. Findings showed that while most students hold strong pro-environmental positions, it does not translate into practical action. Students who had stronger environmental positions were using as much electricity as other students, and did not know how much they used or how much appliances consume. Informing students of their relative ranking was found to have a significant impact on electricity use.
- *Grounds:* Faculty members in the Sustainable Landscapes Program are working with graduate students to produce a Sustainable Landscape Guidelines document for the Foggy Bottom campus. Students conduct an in-depth site inventory and analysis of the landscape, including the physical conditions and social and behavioral aspects of the use of campus outdoor. The project identifies opportunities for introducing Low Impact Development features, such as stormwater infiltration and bio-retention systems, pollinator gardens, green streets, edible gardens, and enhanced tree canopy. The team will collaborate across multiple disciplines to build a regenerative design approach, one that provides ecosystem services and improves in performance as it grows and matures. Utilizing expertise in landscape architecture, engineering, ecology, horticulture, arboriculture, urban agriculture, rainwater harvesting, and soils, students will create a living system landscape plan that when implemented will ensure function and beauty.
- *Waste:* Students working with the Office of Sustainability partnered with the Zero Waste and Logistics team to conduct a Visible Litter Audit on campus. Each segment of campus sampled was audited using a visible count of all litter separated by size, and via the scoring system developed for the Keep America Beautiful Litter Index. The data analysis of the 16,000 items of litter audited helped to determine litter “hot spots” on campus, in addition to identifying the type of waste that is being most frequently littered, i.e. cigarette butts making up over 50% of all combined litter. The findings will help to inform conversations with students, especially around cigarette butts and the hazards they pose to local waterways. This is one of the first urban litter studies and is the only known study on an urban university campus.
- *Water:* Faculty from the Department of Engineering Management and Systems Engineering worked with students on a Water Use Sustainability Definition and Assessment study. The objective was to characterize a GW definition of sustainability using a decision-analytic approach, and operationalize this definition with respect to water use impact and water footprint objectives. While universities have discussed approaches to energy conservation and greenhouse gas reduction goals, GW is a first-mover among universities in discussing approaches to water use footprint reduction goals. Since sustainability

is difficult to define, the study aimed at developing a methodological approach that could create sustainability definitions to be used in decision support systems. Students working in the Office of Sustainability with GW Facilities elicited an objective-value hierarchy representing GW's strategic water plan objectives, then characterized value functions for each measurable attribute. The framework, approach, and comments on this study were published in the International Journal of Multi-Criteria Decision Analysis.

Immersive experiences

There is a strong emphasis across GW's degree programs on immersive experiences, not only because of the location of GW in the nation's capital and its proximity to federal agencies, and national and local organizations, but because to the culture of GW. Semester-long experiential learning such as service learning and internships, either with community partners in D.C. or internationally, is the norm. These are categorized as a "Culminating Experience" or a "Capstone Seminar".

All Sustainability minors are required to complete an experiential learning component, which challenges students to take sustainability from the classroom and apply it to the real world. There are also several immersive learning experiences that various departments and schools offer, not only for Sustainability Minors, but also for students who may not be in the Minor. Following are a few examples:

- The Community-Engaged Teaching program in the Graduate School of Education and Human Development is an innovative teacher education preparation that links teacher education programming with community and school-based fieldwork. Students participate in a service-learning project with Groundwork Anacostia River D.C., an organization that fosters environmental restoration and sustainability. Students are required to translate their service-learning experience into curriculum for use in the content areas in which they teach; develop skills as community video storytellers and create short films that represent their vision of community-engaged teaching; investigate theories of social justice education that help them bridge the classroom to the broader community; and work with master teachers in a variety of secondary school settings.
- The GW Chapter of Engineers Without Borders consists of mostly students in the School of Engineering and Applied Science, but membership is open to all disciplines. The current project involves the sustainable design and implementation of compost latrines in the village of La Peña, El Salvador, as well as training of local villagers. The students have conducted a number of implementation trips to El Salvador. The next project is the evaluation of safe water sources for the village.
- The Law School's Environment and Energy Policy Practicum offers students the opportunity to work directly with client organizations on policy research projects, such as the World Wildlife Fund, the World Resources Institute, the American Council on Renewable Energy, and the Solar Electric Industry Association of Virginia.
- The School of Medicine and Health Science partners with the nonprofit Project Medishare to improve health services and education in the community of Thomonde in the Central Plateau of Haiti. Students and faculty studying medicine, nursing, and public health embarked on nearly 15-week-long medical missions to Haiti, caring for over 1,000 patients dealing with a variety of health issues including

malnutrition, respiratory diseases, and arthritis. These medical missions contextualize how poverty and inequity influence health and the challenges of disaster recovery.

Alternative breaks program

Over the past decade, students have created, led, and participated in service opportunities through the GW Alternative Breaks program offered by the Center for Civic Engagement and Public Service. GW Alternative Breaks' mission is to empower students, staff and faculty to understand their role in local and global communities through service-learning trips focused on various issue areas. It is a student-focused, -planned, and -led immersive experience that takes place over winter and spring breaks. The goal is to foster personal reflection, social awareness and active citizenship. All of the trips include learning about/confronting social inequity and many trips have focused on issues of environmental sustainability. In 2014, nearly 350 students participated in 17 programs. Destinations include Costa Rica, Florida, Guatemala, L.A., New Orleans, Nicaragua, Puerto Rico, Kentucky, Cherokee Nation, Chicago, D.C., Detroit, Ecuador, Gullah Nation, New York City, and the Philippines. Following are some examples:

- Sustainable Disaster Relief in Tacloban, Philippines: Students served with the ASB Philippines and the Global Peace Youth Corps to conduct sustainable rebuilding throughout the region hardest hit by the typhoon. While working to rebuild homes and return a sense of safety to families in the community, students were dedicated to building in a sustainable way that better prepares the region for future storms and restores the area's natural beauty. Students interacted with members of the community, both learning and teaching sustainable methods of rebuilding.
- Sustainability and Community Health in Los Santos, Costa Rica: The program explored issues of sustainability and community empowerment through the installation of eco-stoves in houses and working with youth in the community to exploration in the rainforest. The experience provided insight into the multiple facets of community service. Partnering with Green Communities Costa Rica.
- Sustainable Housing and Rural Poverty in Harlan County, KY: Students served with COAP, an organization working in Appalachia since the 1970s to provide quality, sustainable housing. Students built and repaired homes for low-income families while learning about economic and social issues in Appalachia including rural poverty, unemployment, and environmental degradation.
- Urban Farming and Community Empowerment in Chicago, IL: Students worked with Iron Street Farm to help promote sustainable urban farming and foster community empowerment. They learned the ins and outs of sustainability in an urban setting, helping expand farms and building upon the site's compost system, and exploring how Iron Street Farm employs at-risk youth to develop community food systems and urban agriculture.

Student peer-to-peer education

- Eco-Reps are a part of the student-run Campaign GW, an ongoing forum for students to directly share their ideas with the administration and participate in the decision-making process on future GW campus development issues, including sustainability. Eco-Reps help with events such as Earth Hour, Recyclemania, Eco-Challenge and Earth Month throughout the year and provide sustainability updates through a newsletter, which is distributed to a listserv of about 22,000 members of the GW community (primarily current students).

- The Sustainable Student Leaders (SSL) program connects student leaders from a variety of green organizations at GW. Through the SSL listserv, student leaders communicate about sustainability-related events and volunteer opportunities. They also meet monthly to update each other on sustainability initiatives and to discuss strategy and potential ways in which they can collaborate on upcoming projects that are relevant to group members.

Green careers

- The GW Career Center offers services to STEM students from Dr. Sonya Merrill, a Senior Industry Consultant in the Center. She focuses on understanding trends in the industry sections seeking expertise in science, technology, engineering and math in order to help STEM students acquire advanced career skills and pursue occupational opportunities. She assists students with resume and cover letter writing; building professional branding and social media use; and creating and executing internship and post-graduation job search strategies. Dr. Merrill is a businesswoman and entrepreneur, certified career coach, trainer/facilitator, mentor, business consultant and academician with numerous years of industry section experience and academic instruction. During her expansive career as a corporate officer and organizational strategist, she distinguished herself as a leader of large, high-performing teams and successful organizations.
- GW's Green Alumni Network (GAN) was created in 2009 to engage a broad range of alumni with an interest in sustainability; it also offers general information and updates on sustainability initiatives on campus; utilizes alumni expertise to make GW's campus more sustainable, and offers networking and career advising for current GW students focused on finding sustainability-related employment. GAN also participates in the GW Dinner with Alumni program, which offers current GW students the chance to build connections and network with alumni and their peers over dinner. Dinners are held in October, November, March and April as well as over the summer in July and August.