

# Office of Sustainability

2014- 2015 ANNUAL REPORT



**THE  
POWER  
IS IN  
YOUR  
HANDS**

**DOE** OFFICE OF  
SUSTAINABILITY

# Acknowledgments

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# Table of Contents

<b>Partners</b>	<b>4</b>
<b>Preface</b>	<b>7</b>
<b>Executive Summary</b>	<b>8</b>
<b>Office of Sustainability</b>	<b>12</b>
Purpose, Goals and Mission	12
Structure	13
Sustainability Coordinators	13
Staff Training	15
Advisory Council	15
Online Training Modules	15
<b>Waste Management</b>	<b>16</b>
Recycling	16
Organics Collection	17
Diversion Rate Analysis	17
Outreach	18
Materials	18
<b>Energy Conservation</b>	<b>21</b>
Energy Analysis	21
Energy Team	27
Energy Benchmarking	27
Capital Projects	28
ACE Program	28
IDEA Program	30
ExCEL Program	30
Operation and Maintenance Initiative	31
Demand and Response Program	31
Plug Load Policy	31
Energy Efficient Schools	31
Clean Heat Program	32
Student-led Energy Audits	32
Solar Installations	32
<b>Water Efficiency</b>	<b>34</b>
Water Fixture Retrofits	34
Encouraging Water Efficiency	35
Conservation Education	35
<b>Ecology</b>	<b>37</b>
<b>Green Curriculum</b>	<b>46</b>



<b>Recognition &amp; Contests</b>	<b>43</b>
<b>Partners</b>	<b>49</b>
<b>Sustainability Survey</b>	<b>65</b>
<b>Laws, Regulations and Policies</b>	<b>69</b>
<b>Appendices</b>	<b>73</b>

## Partners

Alliance for Climate Education (ACE)  
Barefoot Foundation  
Bike New York  
Bronx Theatre High School  
Bronx Design and Construction Academy  
Cafeteria Culture  
Captain Planet Foundation  
Carton Council of North America  
Change My World Now  
Children’s Environmental Literacy Foundation (CELF)  
City Science  
City University of New York Building Performance Lab  
City University of New York Law Center for Urban Environmental Reform  
City University of New York Service Corps  
Columbia Secondary School  
Con Edison  
Council of School Supervision and Administrators  
District 3 Green School Group  
Division of Contracts & Purchasing  
Earth Day New York City  
Edible Schoolyard NYC  
Energy Teachers  
Environmental Defense Fund  
Evergreen Packaging  
Global Kids Inc.  
Green City Challenge  
Green Schools Alliance  
GreeNYC  
GrowNYC  
GrowNYC – Grow To Learn  
GrowNYC – Recycling Champions Program  
International Union of Operating Engineers, Local 891  
International Union of Operating Engineers, Local 94  
John F. Kennedy Jr. – Q721  
Leave It Better  
Mayor’s Fund to Advance New York City  
Mayor’s Office of Long Term Planning and Sustainability  
Middle School 328  
Million TreeNYC  
National Wildlife Foundation – ECO Schools USA

New York Botanical Garden  
New York Power Authority  
New York Restoration Project  
New York State Department of Education  
New York State Energy Research and Development Authority  
New York State Department of Environmental Conservation  
NYC City Council, Education  
NYC City Council, Environmental Protection  
NYC Compost Project  
NYC Department of Citywide Administrative Services Division of Energy Management  
NYC Department of Cultural Affairs, Materials for Arts  
NYC Department of Buildings  
NYC Department of Environmental Protection  
NYC Department of Parks and Recreation  
NYC Department of Sanitation  
NYC DOE Division of Academics, Performance and Support  
NYC DOE Division of Instructional and Information Technology  
NYC DOE Division of Portfolio Planning  
NYC DOE Division of School Facilities  
NYC DOE Environmental Study Center  
NYC DOE Office of Charter Schools  
NYC DOE Office of Communications and Media Relations  
NYC DOE Division of Teaching and Learning, STEM Office  
NYC DOE Office of School Food  
NYC DOE Office of School Food, Garden to Café Program  
NYC DOE Office of School Wellness Programs  
NYC DOE Office of the General Counsel-Compliance Services  
NYC Parks Green Thumb  
NYC School Construction Authority  
NY Sun Works  
Office of School Support Services  
Office of Space Planning  
Pratt Industries  
P.S. 209 Clearview Gardens  
Queens Botanical Garden  
Recycle Away Systems and Solutions  
Service Employees International Union, Local 32BJ  
Sims Municipal Recycling  
Skrapacular  
Solar One  
State University of New York Maritime College  
Teachers College, Columbia University

The Horticultural Society of New York  
The Nature Conservancy  
The New American Academy  
Totten Intermediate School 34  
Trust for Public Land  
U.S. Department of Education  
U.S. Environmental Protection Agency  
U.S. Green Building Council, Center for Green Schools  
United Federation of Teachers  
Wellness in the Schools  
Wildlife Conservation Society

## Preface

The New York City Department of Education (DOE) is the largest school district in the United States consisting of more than 1,859 schools, 1,314 school buildings, with 137,500 employees that serve about 1.1 million students. Despite the overwhelming size of the school system and increasing demands on the budget, the DOE has continued to stress the importance of the implementation of sustainability initiatives. The DOE Office of Sustainability seeks to transform the school system into a more sustainable and efficient public entity regarding facility operations and maintenance and student environmental education. This report highlights the progress made during the 2014-2015 school year as the DOE Office of Sustainability underwent its fifth year of existence.

### Our Vision:

- ◆ Nurture the development of sustainable solutions that foster tomorrow's citizens
- ◆ Leverage the school as a learning laboratory and promote it as the center of our sustainability efforts
- ◆ Make direct impacts on conversation through our own operations and maintenance practices

## Executive Summary

The DOE’s Sustainability Initiative emphasizes five pillars of importance and goals:



### Waste Management

To reach a diversion rate of 30% by the year 2017.



### Energy Conservation

Reduce Greenhouse Gas Emissions (GHG) from DOE buildings and schools by 30% below the 2008 levels by the year 2017.



### Water Efficiency

Set up programs to reduce water consumption and increase water efficiency.



### Ecology

Participate in citywide green initiatives, programs and contests that facilitates student environmental activity and education.



### Green Curriculum

Provide school principals and teachers with the necessary resources to integrate environmental education into the curriculum.

## **Office of Sustainability**

Sustainability efforts within the Department of Education are directed by the Office of Sustainability, which is housed within the Division of School Facilities (DSF). The purpose of the Office of Sustainability is to deliver the necessary resources and support to make all DOE schools and building operations more energy efficient, to increase agency waste diversion rates, increase water efficiency and conservation, encourage the incorporation of sustainability into the curriculum and to provide ecological opportunities to schools.

Each year, as mandated by the DOE, school principals must select one school Sustainability Coordinator from the teaching or administrative staff. Sustainability Coordinators, with the assistance of many partners of the Office of Sustainability, play a vital role in the facilitation and implementation of policies, programs and goals, in areas of sustainability.

The DOE fulfilled the requirements of Local Law 41 (2010) by reporting on the selection of Sustainability Coordinators, creating school-specific sustainability plans, and conducting an annual survey assessing the state of recycling and sustainability in schools. In January 2013, the DOE also updated Chancellor's Regulation A-850 to clearly define the roles of the individuals involved in school sustainability so as to avoid confusion of responsibilities. The regulation was also amended to become more inclusive of all aspects of sustainability and not focused on a singular topic.

## **Waste Management**

The DOE fulfilled the requirements of Local Law 41 (2010) by reporting on the selection of sustainability coordinators, creating school-specific sustainability plans, and conducting an annual survey assessing the state of recycling and sustainability in schools. In January 2013, the DOE also updated Chancellor's Regulation A-850 to clearly define the roles of the individuals involved in the Sustainability Initiative so as to avoid confusion of responsibilities. The regulation was also amended to become more inclusive of all aspects of sustainability and not just recycling as it was before.

## **Energy Conservation**

Energy conservation is attained through a combination of outreach programs and building improvement projects. The DOE engages school staff and students through annual training, energy reduction competitions, as well as an annual artwork contest. This year, students, teachers and custodial staff at 105 schools participated in a four month Solar One Green Design Lab Energy Challenge that was co-sponsored by the Office of Sustainability. During the 2014-2015 school year these schools reduced electricity usage in their school buildings from November 2014 to February 2015, with an overall reduction of 4.2%. Through a series of building energy audits and benchmarking, the DOE is retrofitting old and inefficient equipment. Buildings receive boiler replacements, lighting systems upgrades, and HVAC systems retrofits to reduce energy consumption. These energy audits and energy benchmarking projects help us pave the way toward our ultimate goal of reducing greenhouse gas emissions in DOE buildings by 30% by the year 2017.

In the 2014-2015 school year, DOE had more than 500 school buildings with an Energy Star rating of 75 or greater.

### **Water Efficiency**

Beginning in 2012, the DOE and the NYC Department of Environmental Protection (DEP) partnered to implement a plan to install new, high efficiency water fixtures in over 500 DOE buildings' restrooms. The retrofit program began as a pilot in 2012 at Hillcrest and Bayside High Schools in Queens, where contractors installed 350 high efficiency toilets and urinals. In fiscal year 2015, the DEP completed the retrofit of 100 schools, 25 more than anticipated. The goal is to install new, high-efficiency fixtures in the restrooms of 500 city schools by 2018. Overall, the project will upgrade nearly 40,000 restroom fixtures and is projected to reduce citywide water consumption by approximately four million gallons per day. This retrofit project is being funded by DEP at the approximate cost of \$31 million.

### **Ecology**

The Office of Sustainability partners with different ecological organizations and initiatives such as GrowNYC's Grow to Learn Garden Initiative, the New York Restoration Project, and NYC's Million Trees Initiative, and the Garden to Cafe program. Partnerships between DOE and numerous initiatives and programs connects students to green practices and behaviors while also promoting sustainability-themed curricula. The Office of Sustainability aims to support student learning of the mutual and important relationship between humans and the environment, how those interactions affect the environment in which we currently live, and impacts on future generations.

### **Green Curriculum**

The Office of Sustainability partners with non-profit partners such as Children's Environmental Literacy Foundation, Green Education Foundation and Solar One to provide teachers with professional development opportunities in environmental education. Infusing the curriculum and school funds with sustainability themes helps both school staff and teachers to teach students to better understand the benefits associated with a sustainable and green New York City.

### **Recognition and Contests**

New York City students are dedicated to initiating and promoting sustainable issues. Active participation in reduction of energy use and waste, as well as promoting green education and spaces, contributes to a more sustainable city. The Office of Sustainability partners with several local and national organizations to promote sustainability through competitions and recognition programs within schools, between schools, and within communities.

### **Partners**

The Office of Sustainability is continuously engaged with a variety of environmental non-profits and advocacy organizations. Such organizations are interested in promoting behaviors that are environmentally sustainable. These organizations provide a wide range of specialized information, resources and training to help make our schools green.

### **Sustainability Survey**

With the cooperation of Sustainability Coordinators, the Office of Sustainability completed the annual sustainability survey to assess the state of recycling, energy conservation and various other sustainable practices across the DOE. The results of the survey were analyzed and are displayed in the Sustainability Survey session of this report. A total of 1,275 schools completed the survey for a completion rate of 77% of schools with Sustainability Coordinators. Overall, the results are very similar to the findings in last year's report, proving that schools, students, and staff continue to implement various sustainable practices.

## Office of Sustainability

### Purpose, Goals and Mission

The Office of Sustainability is guided by the Division of School Facilities (DSF) within the Department of Education's Division of Operations. It manages the DOE Sustainability Initiative and works year-round coordinating with many City, State and non-government organizations to provide necessary resources to optimize school operations and to maximize awareness of sustainability amongst school staff, students, and communities.

The Office of Sustainability emphasizes five pillars in achieving sustainable success: **waste management, energy conservation, water efficiency, ecology** and **'green' curriculum**:

#### GOALS:

- ◆ Waste Management: reach a diversion rate of 30% by 2017
- ◆ Energy Conservation: reduce greenhouse gas emissions (GHG) from DOE buildings and schools by 30% by 2017
- ◆ Water Efficiency: retrofit 500 DOE buildings by 2018 and educate students on water conservation methods
- ◆ Ecology: increase participation in citywide green initiatives, programs and contests that facilitates student environmental activity and education (e.g. gardens)
- ◆ Green Curriculum: provide school principals and teachers with the resources necessary to integrate environmental education into the curriculum

### OneNYC

In April 2015, Mayor de Blasio introduced OneNYC, a plan that is meant to assess the city's infrastructure and set measurable goals and specific targets for a strong, sustainable, resilient, and equitable city. The OneNYC plan is divided into four categories: growth, equity, sustainability and resiliency. Given the DOE's massive scale, in addition to serving 1.1 million students in over 1,800 schools, the opportunities for sustainability solutions are great. Some of the OneNYC Goals which affect the DOE as follows:

- ◆ Zero Waste: New York City will send zero waste to landfills by 2030.
  - Make all schools "Zero Waste Schools."
- ◆ 80x50: New York City's greenhouse gas emissions will be 80 percent lower by 2050 than in 2005.

### Structure of the Office of Sustainability

While the Division of School Facilities chairs the sustainability efforts for the DOE, various other DOE divisions (e.g. SchoolFood and the School Construction Authority) as well as city agencies (e.g. Department of Sanitation, Department of Citywide Administrative Services, and the Mayor's Office of Long Term Planning and Sustainability) form a cooperative group of stakeholders. Sustainability Coordinators play an integral role in the structure of the Office of Sustainability, as they are responsible for relaying information and leading sustainability efforts within their respective school. These organizations and

individuals play an essential part in helping to achieve a more sustainable New York City school system.

The following diagram (Figure 1) depicts a complete look of the stakeholders of sustainability efforts within the DOE:



Figure 1 – Organization of Sustainability Stakeholders

**Sustainability Coordinators**

**Requirements:** In accordance with Local Law 41 (2010) and outlined in Chancellor’s Regulation A850 (2013), all DOE school principals must assign a Sustainability Coordinator from administrative or teaching staff. The Coordinator cannot be the custodian engineer or principal.

The responsibilities of a Sustainability Coordinator include:

- ◆ Developing and implementing a site-specific sustainability plan which shall, at a minimum, include a school sustainability plan that follows DSNY recycling rules
- ◆ Ensuring that students are following and practicing recycling rules
- ◆ Being the conduit for sustainable curriculum development initiatives
- ◆ Utilizing the U.S. EPA Energy Star Portfolio Manager Building account to assist with energy conservation programs at the school

**Appointment:** In accordance with the regulation cited above, the Office of Sustainability offers a web-based application process, allowing each school principal to assign a Sustainability Coordinator and provide any other necessary information.

To better expand on the ability to capture sustainability program information from the schools, Sustainability Coordinator reporting was moved to the Green Schools Alliance website. This designation of the Sustainability Coordinator is due the last Friday of

September **each year**. In the 2014-2015 school year, 1,661 schools appointed a Sustainability Coordinator out of 1,860 schools for an 89.3% designation rate.

**Sustainability Plan Submission:** All schools within the DOE, including charter schools located within DOE buildings, must create a site-specific sustainability plan summarizing the facility’s sustainability objectives. This should outline the school’s plans to create a green team and set goals for waste diversion and reduction, energy conservation, ecology programs, and green curriculum.

School Sustainability Plan submissions are **due the last Friday of October of each year**. In the 2014-2015 school year, 1,538 schools submitted a sustainability plan for a 93% completion rate for those schools that had designated a coordinator.

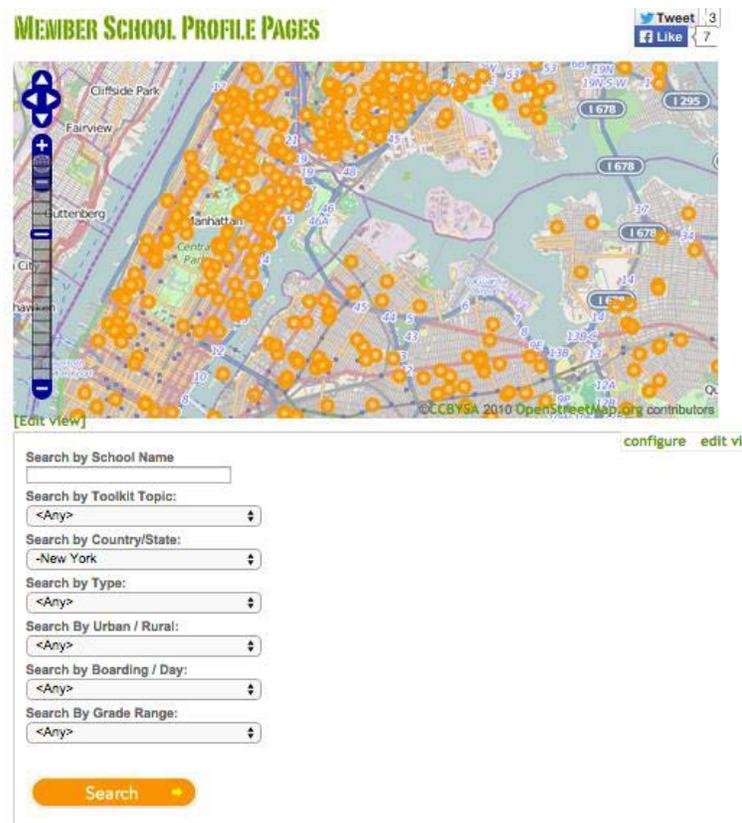


Figure 2 – Sustainability Plan on the Green Schools Alliance (GSA) website

**Coordinator Training:** The Office of Sustainability offers training each year to support implementation of sustainability initiatives in schools. Four trainings were offered during the 2014-2015 school year: October 14th, December 4th, and March 12th. A total of 418 trainees attended Sustainability Initiative training in 2014-2015. The October and March sessions were basic training for first-time coordinators, focusing on roles and responsibilities, NYC recycling rules, and partner offerings for resources and training. The November session was more advanced for coordinators who had been to the training in the past. The

advance training offered a variety of courses from partners and offered a more in-depth study into particular topics. Partners such as the DSNY, Alliance for Climate Education, GrowNYC, Solar One, Eco-Schools, and Materials for the Arts, made presentations and provided hands-on learning activities.

### **Staff Training**

The Office of Sustainability also provides training to other groups within the DOE. Custodian Engineers underwent Building Operator Certification (I and II) through a partnership with DCAS's Energy Management (DEM) and the City University of New York's (CUNY) Building Performance Lab. Additionally, all custodial engineers, building managers and SchoolFood service managers receive updated energy, recycling and organics collection training each summer.

### **Advisory Council for Strategic Planning**

In 2015, the Department of Education Sustainability Initiative Advisory Council (SIAC) was formed. The SIAC was set up in order to support DOE leadership in strategic planning as it undertakes ongoing sustainability initiatives. The SIAC has representatives from various internal divisions (School Food, Compliance Office, Teaching and Learning, Communications and Media Relations, Career and Technology Education, School Construction Authority), city agencies (Mayor's Office of Sustainability, DSNY, DEM, Department of Parks and Recreation), Sustainability Coordinators, parents, teachers, union representatives and non-profit partners.

The SIAC has four core objectives:

- ◆ to guide the development and implementation of sustainability goals for the DOE
- ◆ to develop relationships between DOE and external communities pertaining to 'green' practices
- ◆ to recommend sustainability factors to be included in planning and decision making processes through responsible leadership
- ◆ to promote DOE's sustainability practices and programs on a local, regional and national level

### **Online Training**

The Office of Sustainability used online trainings as an innovative tool to provide professional development for Sustainability Coordinators, facility managers and teachers. The Office of Sustainability held five events during the 2014-2015 school year utilizing an online training program, Learn DOE. The webinars included:

- ◆ Recycling & Organics Collection Basics - DSNY
- ◆ Recycling Champions' Best Practices – Recycling Champions
- ◆ Solar One Energy Efficiency –Solar One
- ◆ Steam Heating System Training – DOE Division of School Facilities
- ◆ Boiler Water Treatment/Water Process Services -- NALCO
- ◆ Sustainability Initiative Basics – Office of Sustainability

## Waste Management

The DOE values its relationship with other city agencies and works with the Department of Sanitation (DSNY) to improve its waste reduction and diversion efforts. DSNY is tasked with reducing the amount of waste disposed by 90 percent by 2030. The two agencies work together to plan new programs, educate school staff and students, to introduce zero waste plans.

### Recycling

DSNY provides several streams of waste diversion for DOE schools. In conjunction to organics collection (detailed below), DSNY collects recycling in two streams: paper/cardboard and metal-glass-plastic-cartons (MGPC). In order to increase the level of waste diversion in schools, DSNY provides many resources to schools such as: bin labels, posters, tip sheets and site visits, as well as educational materials including curriculum lesson plans, activities and books for students. DSNY also partners with the Office of Sustainability to provide annual trainings.

DSNY implemented the Book Recycling program during the 2014-2015 school year. This program is a partnership between the Office of Curriculum, the Office of Sustainability, and DSNY. This program allows schools to dispose of and recycle obsolete soft and hardcover books. Container drop off and pick up is coordinated by the Office of Sustainability. In the 2014-2015 school year, 39 DOE schools participated in this program, which resulted in approximately 53,406 recycled books.

Numerous other organizations also contribute to enhancing recycling and waste diversion efforts in DOE schools. For the 2014-2015 school year, Recycle Away partnered with the Carton Council of North America and Sims Recycling to donate recycling containers to DOE schools. Through their collaborative efforts, approximately 600 specially designed milk and juice cartons were provided (figure 3). The cartons were distributed to all elementary schools throughout the five boroughs.



*Figure 3 – Donated recycling containers***Organics Collection**

DSNY, in partnership with the DOE, began an organics collection pilot program in 90 schools during the 2012-2013 school year. During that pilot, three boroughs Manhattan, Brooklyn and Staten Island diverted 490 tons of food waste from landfills. The program was expanded to include 360 DOE schools during the 2013-2014 school year. By early 2015, 722 DOE schools in 460 DOE school buildings were in the organics collection program. In addition to this outreach and training effort, a significant amount of time was spent planning for a zero waste program to be unveiled in 2016.

Organics collection requires students to sort recyclables and separate food waste prior to dismissal from the cafeteria. All food scraps, soiled food service paper and DOE's new compostable plates were collected. This included vegetables, fruits, meats (including bones), dairy, fish, grains, baked goods, coffee grounds, tea bags, paper napkins, paper cups, paper plates, paper boats, and compostable paper pulp plates. This offered students an opportunity for measureable environmental stewardship, public scholarship, and created a platform for hands-on learning in science, technology, engineering and mathematics (STEM) courses. All organic material was placed in brown bins that were provided to schools by DSNY, and were collected five days a week in dedicated food waste trucks and transported to commercial facilities. This program required no onsite composting, and the use of these bins reduced the risk of exposure to vermin. Since the inception of the program, DSNY school trucks have collected more than 7, 640 tons of organic material from approximately 463 sites.

**Diversion Rate Analysis**

In a system as large as the DOE, with many different collection methods, waste diversion rates become difficult to measure. DSNY calculates the DOE's diversion rate by analyzing waste that is collected through a nightly school truck collection.

During this school year, DSNY and DOE took a closer look at the existing metrics for waste diversion. Schools organics collection routes collect recycling and organics only. The school's trash is then picked up by the local residential truck, so schools trash is mixed with residents' trash, making it difficult to track the system's waste diversion.

This complicated collection system skewed waste diversion rate calculation for the DOE. The agencies are working together to develop a comprehensive data tracking system that would allow for data to be gathered from the collection trucks. The data system would collect data, specifically, on how many pounds of waste trucks collect, percentage of organic material, and each truck's location.

In 2014 and 2015 DSNY audited selected schools in Staten Island and Manhattan to assess their diversion rates. Based on those audits, schools receiving curbside collections on school truck routes had higher diversion rates than schools that used dumpsters for part of their refuse and recyclables. In the Spring 2015 audits, the selected Manhattan schools had a 44% diversion rate and the selected Staten Island schools had a 30% diversion rate. The diverted material from selected Manhattan schools was 53% Organics, 41% Paper, and 6% MGPC.

The diverted material from selected Staten Island schools was 47% Organics, 34% Paper, and 19% MGPC.

### **Outreach**

School outreach and training is performed by GrowNYC's Recycling Champions Program (RCP). RCP develops model recycling programs at 100 schools each year, educating over 56,000 students, staff, and custodians on recycling in NYC. Five outreach coordinators and a program manager now develop model recycling programs in at least 100 schools each year, with the goal of increasing recycling diversion rates to at least 30% at participating schools. The best practices developed at Recycling Champions schools become resources that are available citywide through their website.

Eleven Recycling Champions schools participated in this year's Big Lift: Zero Waste contest which challenged schools to reduce waste and recycle as much as possible during one school day. The first place organics collection school, P.S. 130M, achieved an astounding 93.60% diversion rate and the first place non-organics school, P.S. 221Q, achieved a 57.78% diversion rate. The average diversion of all participating schools in this year's contest was 58.88%, exceeding the 50% diversion rate for schools targeted in the Mayor's Zero Waste Schools program. This contest demonstrates that NYC schools can lead recycling efforts, which helps meet the City's sustainability goals while also benefitting the environment.

Accomplishments made during the 2014-2015 school year:

- ◆ Provided many different types of programs including: classroom programs, faculty professional development, student outreach in the cafeteria, school assemblies, science classrooms programs, school aide & School Food training, student training, green teams, PTA meetings, and custodial workshops in 91 DOE schools
- ◆ Measured an average increase in overall recycling of 58.9% at schools through the Big Lift Contest
- ◆ Educated and empowered 50,565 students on NYC recycling
- ◆ Conducted workshops for 5,997 faculty and staff on recycling responsibilities and curriculum integration
- ◆ Recycled 11,649 pounds of recyclables and food scraps during the Big Lift Contest
- ◆ Spurred the creation Supported the development of 34 student-helmed green teams that spread the message of recycling to peers
- ◆ Made 439 school visits to DOE Schools for a total of 862 presentations to all school populations.

### **Materials**

#### **New York State Green Cleaning Program for Schools**

Chapter 584 of the Laws of 2005, known as the New York State Green Cleaning Law, requires the mandatory use of environmentally-sensitive cleaning and maintenance products in all New York's public and nonpublic elementary and secondary schools. In enacting this law, New York became the first state in the nation to use legislation to address the hazardous impact of cleaning chemicals in schools on the well-being of children.

Furthermore, in September 2007, the Board of Regents announced its High Performance School Guidelines (NY-CHPs) as an appendix of the New York State Education Department Manual of Planning Standards. These guidelines, in accordance with Education Law 409-I and State Finance Law 163-b, direct schools to develop a formal policy supporting the use of New York State Office of General Services approved green cleaning and maintenance products. [GreenCleaning.ny.gov](http://GreenCleaning.ny.gov) provides direct links to this information and more.

### **Trayless Tuesday**

Trayless Tuesday was implemented in March 2010 by the DOE's SchoolFood division in association with Cafeteria Culture. This program facilitates the reduction of polystyrene foam trays on Tuesdays by replacing them with recyclable paper boats. SchoolFood created a special and relatively dry menu suited to the proper disposal of the paper boats so that they can be recycled as paper. DOE schools used approximately 850,000 polystyrene foam trays each day prior to switch to compostable plates. Trayless Tuesdays decreased cafeteria tray waste by 20% and has saved almost 90 million trays from landfills.

### **Urban School Food Alliance**

The Urban School Food Alliance (The Alliance) was created by school food professionals in 2012 to address the unique needs of the nation's largest school districts. The six founding cities, New York, Los Angeles, Chicago, Miami, Dallas and Orlando, together offer service in over 4,500 schools. The Alliance allows the districts to share best practices and leverage their purchasing power to continue to drive quality up and costs down while incorporating sound environmental practices. The Urban School Food Alliance's six districts worked together to challenge industry to develop an innovative and affordable environmentally-friendly round plate to replace the standard polystyrene tray school cafeterias use across the country. Given the extremely tight budgets in school meal programs, affording compostable plates seemed impossible until the Urban School Food Alliance districts used their collective purchasing power to innovate a compostable round plate for schools at an affordable cost of \$0.049 each. Serving 2.5 million meals a day, the six districts project to remove 225 million polystyrene trays from landfills every year.

In May 2015, DOE placed compostable trays in 180 DOE schools and began rolling out to all schools by June 2015. The compostable plate is produced from 100% pre-consumer recycled newsprint, and the new round shape allow students to eat their food off of plates like they do at home. This is an innovative effort to replace the traditional, rectangular trays seen in institutional settings with a new look. Starting in September 2015, all DOE schools began using the new compostable trays to serve over 800,000 daily meals.

### **DSNY/DOE Communication Protocols**

During the 2014-2015 school year, we examined communication protocols to improve efficiency between DSNY, the DOE and facility managers. Custodian engineers must reach out to the responsible DSNY district for missed collections, drop-offs, and illegal dumping situations and record communication in a logbook. If the problem persists without a solution, the custodian engineer may submit an escalation form with the completed communication log to the Office of Sustainability. The Office of Sustainability then sends the escalation form and the communication log to the DSNY Main Collection Office for

investigation and solution. In order to make special pick-up requests, clean-outs, and special container requests, custodian engineers must email the Office of Sustainability with the following information: building code, borough, address, description of items and quantity, date special request needed, building contact name and email/phone number. The Office of Sustainability then relays the request to DSNY, who sends an officer to the site to evaluate the specific need.

### **Future Plans**

- ◆ Implement a new Zero Waste program developed as part of OneNYC
- ◆ Collaborate with DSNY on expansion of the book recycling program
- ◆ Implement an E-waste contract for excluded electronic items
- ◆ Work with the Urban School Food Alliance on a bid for compostable utensils

## Energy Conservation

As part of sustainability initiatives outlined by OneNYC the DOE partners with the Department of Citywide Administrative Services Division of Energy Management (DEM) on energy conservation efforts. DEM is tasked with reducing greenhouse gas emissions (GHG) in municipal buildings by 30% by the year 2017. Therefore, DOE works with the DEM to audit and retrofit school buildings, introduce energy efficient operations and maintenance plans, and measure and verify results. The School Construction Authority (SCA) designs new schools following green standards to maximize energy conservation efforts. The Office of Sustainability is responsible for the heat, light, and power budget for the DOE.

### Energy Analysis

DOE buildings are 40% of city-owned municipal buildings, measured by square footage, but energy use is only 24% of New York City’s total usage. Despite additions of new instructional technology and air conditioning for improved student comfort over the last few years, the DOE has one of the lowest energy use intensity (MMBTU per square foot) ratings of all NYC agencies. The DOE adds multiple new schools each year (Figure 4) and increasingly utilizes buildings for community purposes, resulting in longer operating hours and increased community events, camps, meal services, and emergency shelters. In the summer session of 2014, over **700** school buildings were used for summer school and other programs. The DOE uses four types of energy in its buildings; electricity, fuel oil, natural gas, and steam. Figure 5 shows the breakdown of energy use across the DOE.

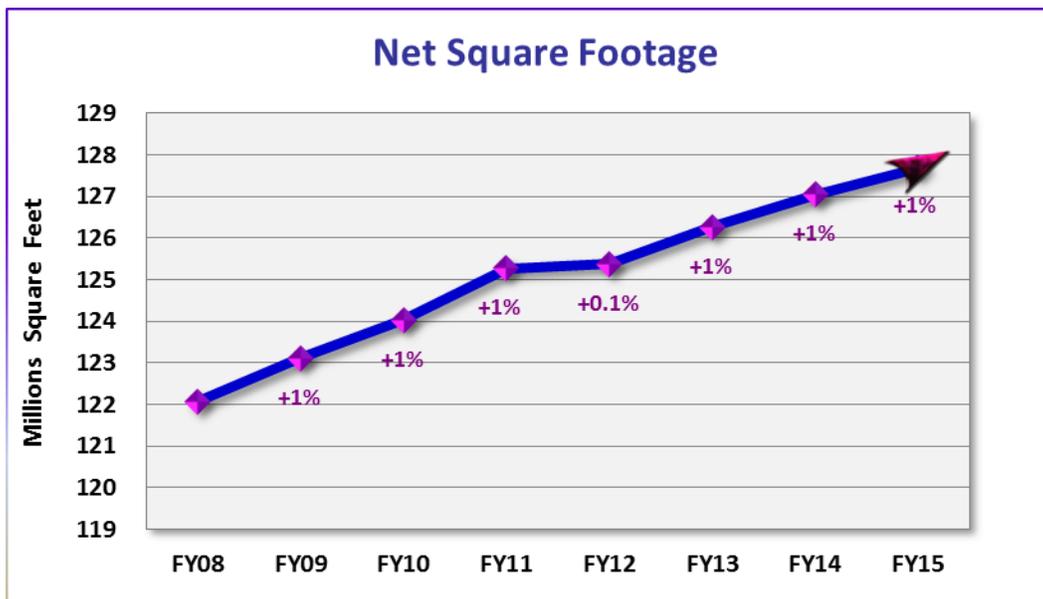


Figure 4 - FY08 -FY14 Net Square Footage

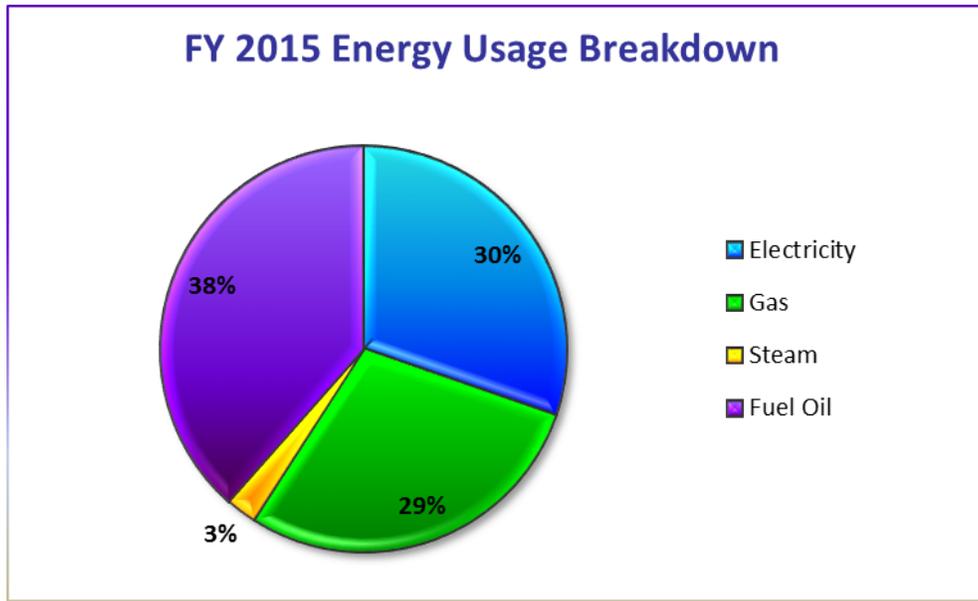


Figure 5 - Energy Use Breakdown

The following figures examine the relationship between total energy use for the DOE per square foot and how weather affects energy use in the school system. Figure 6 presents total energy use in the DOE without considering square footage or weather. Overall energy use from this perspective has not increased from 2014.

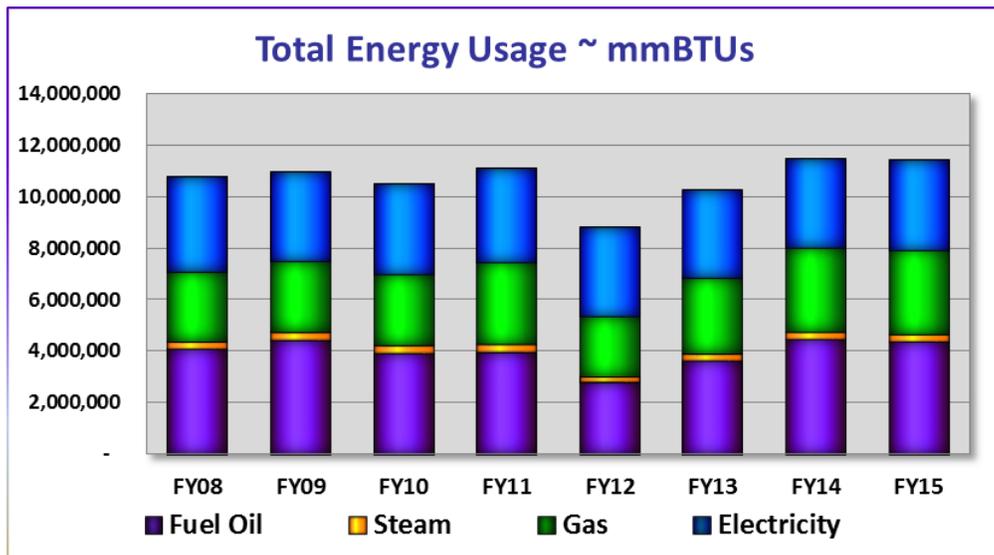


Figure 6 - Total Energy use in mmBTU

Figure 7 shows energy use by examining mmBTU per 1,000 net square feet. By factoring in an additional 5 million net square feet of space since 2008 and looking at energy use in BTU per net square foot, the overall increase in energy use is six percent.

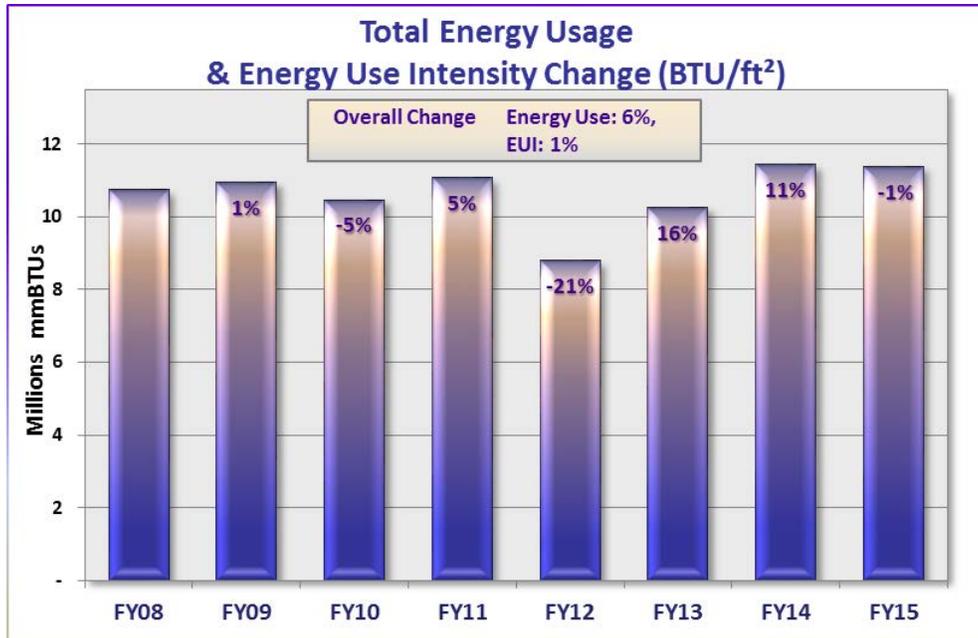


Figure 7 - Total Energy use in mmBTU/ft

Weather is an important factor in analyzing energy usage patterns over time. Degree days are the standardized method of determining how cold or hot the weather is on any given day. Degree days are measured by how many degrees the average temperature of the day is on either side of 65 degrees. For example, if the average temperature of a day in July was 82 degrees, the day has a cooling degree (CDD) value of 17, meaning the majority of the day was spent in cooling mode. In December, if the average temperature of the day was 45, the heating degree (HDD) value was 20, and the majority of the day was spent in heating mode. These heating and cooling degree day values are compiled on a monthly and annual basis and used in determining in energy usage patterns were influenced by the weather. Figure 8 shows the degree days for New York City in the past eight years.

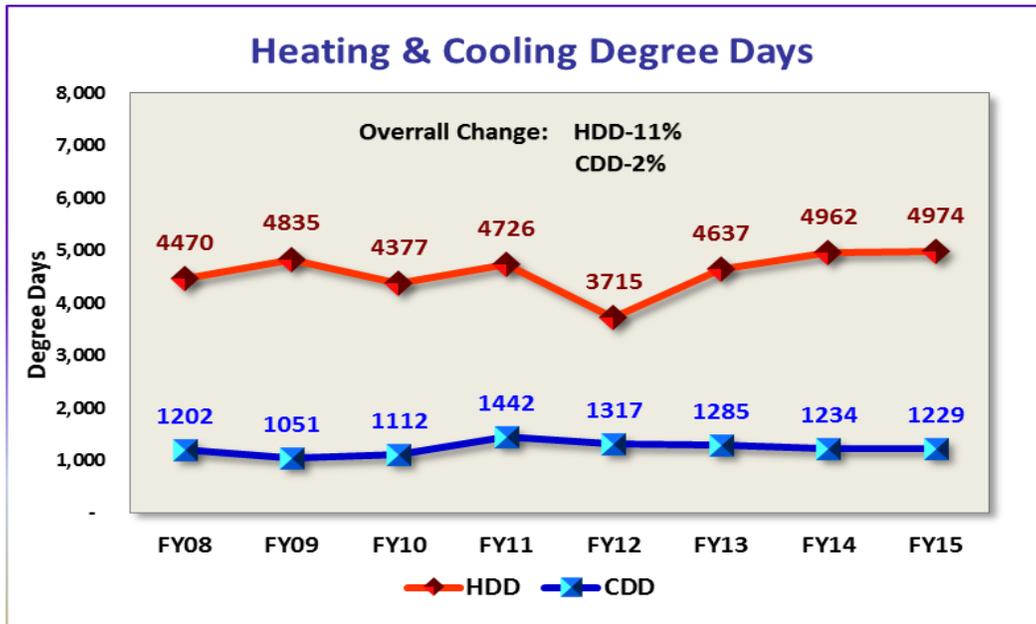


Figure 8 - FY08 - FY15 Heating & Cooling Degree Days

In the past several years, weather has been a main contributor to the ups and downs of energy usage in the DOE. With an exceptionally cold and snowy winter in 2014, any gains to DOE may have made reducing energy usage were taken away by the extreme weather as shown in Figure 9.

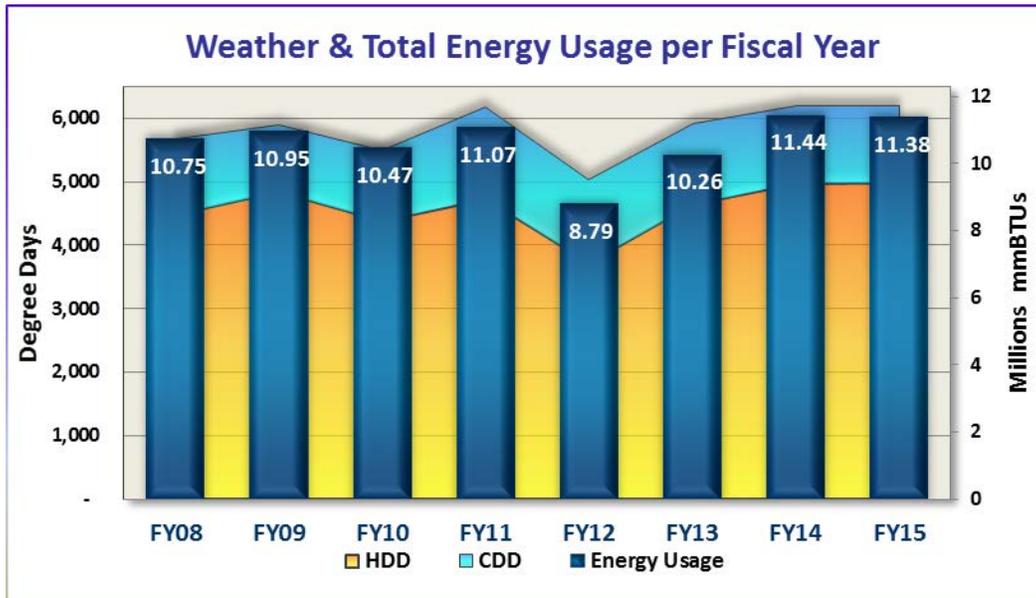


Figure 9 - FY08-FY15 Heating and Cooling Degree Days with Total Energy Use

The next four charts (figures 10-14) show the relationships between weather and energy usage, broken down by the type of energy. In figure 10, over the seven-year period, without consideration for square footage, electricity use in the DOE has been reduced overall by 7%. This usage was affected by weather (as shown in the chart) and increased usage of school buildings after hours and during the summer. It was also affected by an information technology improvement project performed at the school level that occurred during the 2011-2012 and 2012-2013 school years. This improvement project was estimated to add plug load of 10% each fiscal year to the electricity usage agency-wide.

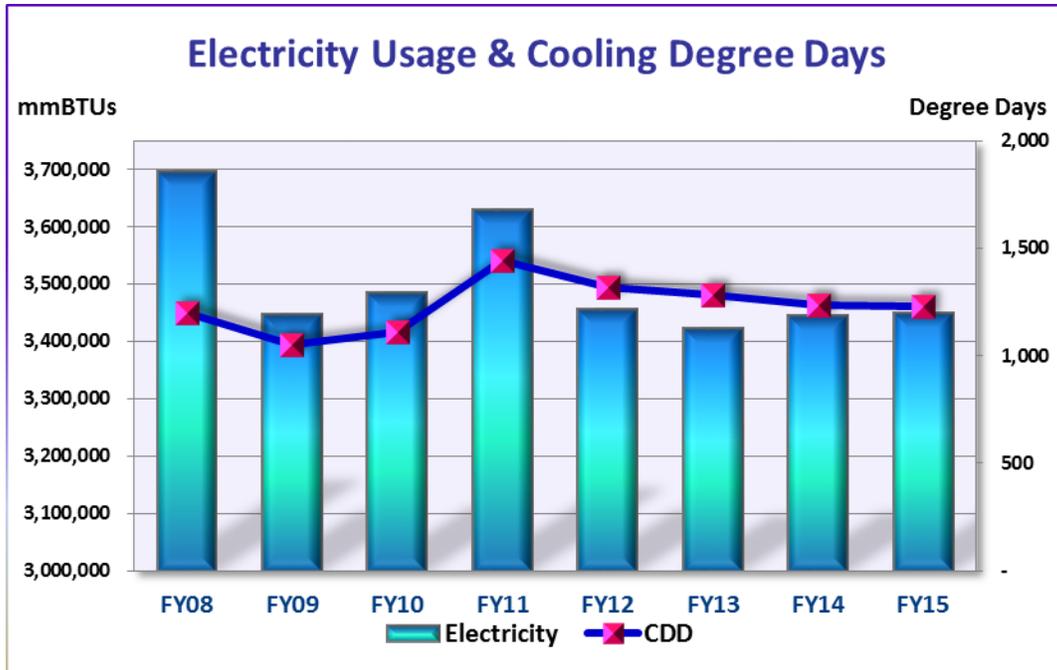


Figure 10 - Electricity Use FY08-FY15 with Cooling Degree Days

Figure 11 shows a general trend in natural gas usage that also follows weather patterns with an overall increase of 20 percent; however, there is no change from the previous year. Another factor that has been increasing natural gas usage is the increased number of boiler conversions from fuel oil to natural gas as prescribed in the Clean Heat Program (described in more detail in a later section). As more conversions occur, natural gas usage will increase as fuel oil decreases.

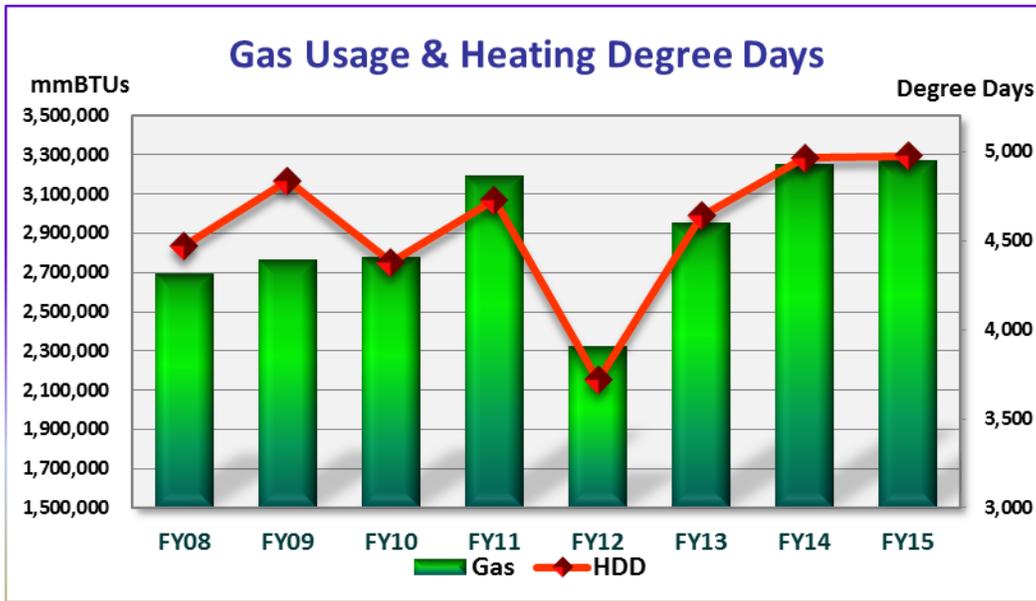


Figure 11 - Natural Gas Use FY08-FY15 with Heating Degree Days

Figure 12 shows a similar trend in usage of steam following general weather trends.

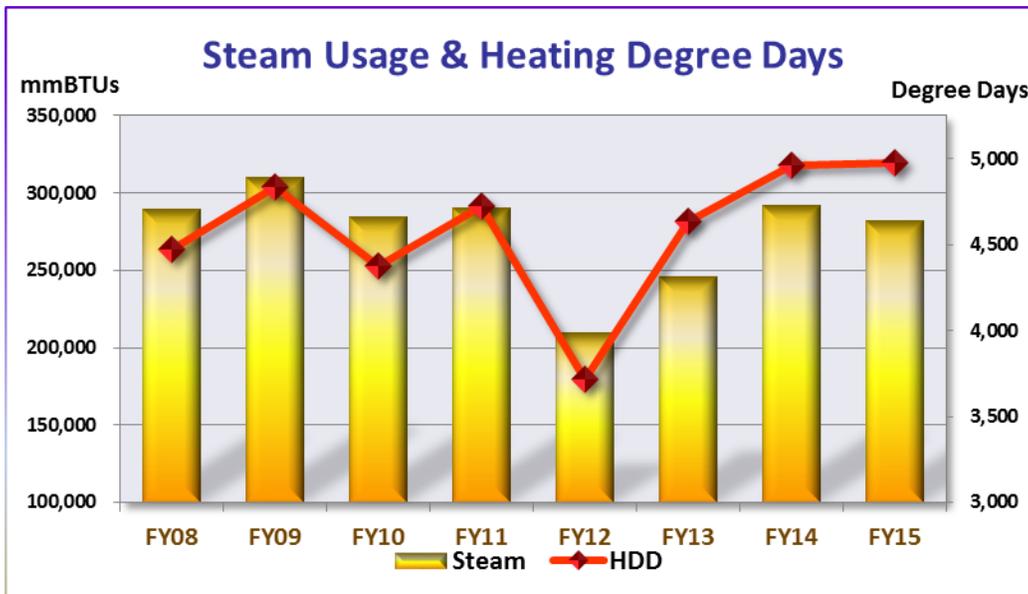


Figure 12 - Steam Use FY08-FY15 with Heating Degree Days

Figure 13 again shows a trend in usage with fuel oil consumption following general weather trends.

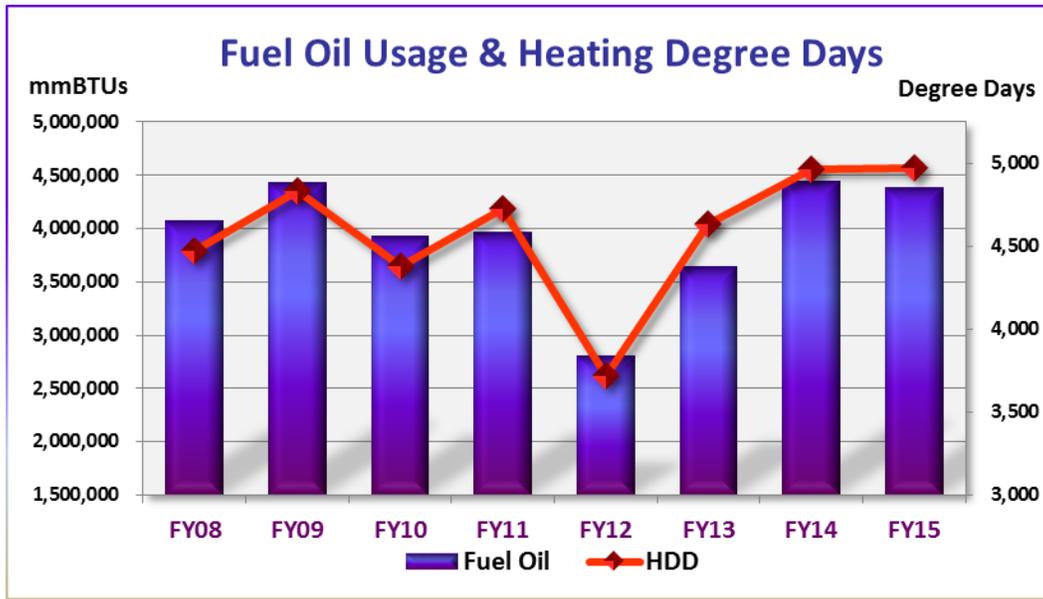


Figure 13 - Fuel Oil Use FY08-FY15 with Heating Days

### Energy Team

The DSF and Office of Sustainability oversee energy reduction projects and operations through a DEM-funded energy team, consisting of five deputy Directors of Optimization (energy managers), one Energy Coordinator, and one Energy Analyst. The Energy Team is managed by the Director of Maintenance with input from the Director of Sustainability. In conjunction with the division’s energy liaison officer and maintenance personnel, this team is responsible for the DOE attainment of the energy and greenhouse gas reduction goals set forth by OneNYC.

### Energy Benchmarking

In order to create a baseline for energy consumption at each school and DOE building, the DOE benchmarks its buildings energy usage with the U.S. Environmental Protection Agency (U.S. EPA) Energy Star Portfolio Manager. Portfolio Manager allows the DOE to easily track and analyze energy usage, costs, and carbon emissions. Portfolio Manager also allots ratings from 1-100, with 100 being the highest, for each facility using its services. As of 2015, 47% of all DOE buildings have an energy rating of 75 or higher.

Students, parents, principals, teachers and any other person associated with a school are encouraged to create a free account on the U.S. EPA’s website and request to view their school’s energy statistics. Teachers can also utilize the Portfolio Manager to perform data analyses and structure lessons on energy types and carbon emissions. All custodian engineers and building managers are given access to Portfolio Manager as part of the Building Operator Certification course.

### Capital Projects

As the maintenance and operation arm of the DOE, DSF typically does not manage capital projects. With the advent of multiple new DEM programs to accelerate energy efficiency project implementation, DSF took on a large portion of project management focused on retrofits of existing buildings.

DEM rolled out three capital programs in fiscal year 2014: Accelerated Conservation and Efficiency Program (ACE), Distributed Generation Program (DG), and Innovative Demonstrations of Energy Adaptability (IDEA). The following sections detail the DSF's involvement in these DEM-funded programs.

#### Accelerated Conservation and Efficiency Program (ACE)

The ACE program fast-tracks and streamlines funding for straightforward and shovel-ready energy capital projects that are independently identified, managed and implemented by DEM's partner agencies. ACE encourages agency staff to use their unique understanding of their building's needs and opportunities for improvement to identify key energy-saving projects. Proposals were submitted by City agencies and competitively reviewed in order to maximize optimal energy, greenhouse gas reduction, and cost savings.

In two rounds of applications, DEM funded six types of projects for 2014-2016 implementation:

Project Name	Number of Schools	Total Amount Allocated
Vacancy Sensors	90	\$ 10,000,000
Hot Water Heater Upgrades	100	\$ 10,000,000
Steam Traps & Pneumatic Cont.	58	\$ 10,000,000
Dual Fuel Conversion	9	\$ 9,202,063
Steam Traps	5	\$ 1,700,000
Condensing Boilers for Indoor Pools	5	\$ 1,280,000
<b>Total Funding</b>	<b>267</b>	<b>\$ 42,182,063</b>

#### ACE Projects Status:



- ◆ As part of NYC Local Law 48, which requires the use of vacancy sensors in many spaces, 80 schools have been completely equipped with vacancy sensors, installations will be complete by the end of fiscal year 2017.
- ◆ 20 gas fired domestic hot water heater designs have been completed, construction will begin in September 2015, and installations will be completed by the end of fiscal year 2017.
- ◆ 25 schools have been completely updated with steam system optimization, installations will be completed by the end of fiscal year 2017.
- ◆ 3 oil to gas burner conversions have been completed, all the designs have been approved by the SCA, all conversions will be completed by the end of fiscal year 2017.

**ACE Round 2 Projects Status:**

- ◆ The design process has begun to improve condensing boilers at five schools, project will be completed by the end of fiscal year 2017.

In the third round of applications, during the 2014-2015 school year, DEM funded three types of projects:

Project Name	Number of Schools	Total Amount Allocated
Boiler Control Upgrades	30	\$ 1,681,120
Steam System Optimization	30	\$ 5,000,000
Hot Water Heater Upgrades	30	\$ 3,489,035
<b>Total # of School/Funding</b>	<b>90</b>	<b>\$ 10,170,155</b>

**ACE Round 3 Projects Status:**

- ◆ The project to upgrade boiler controls at 30 schools will be completed during fiscal year 2018
- ◆ The project to improve steam system optimization at 30 schools will be completed during fiscal year 2018
- ◆ The project to upgrade hot water heaters at 30 schools will be completed during fiscal year 2018



As part of the ACE program, measurement and verification (M&V) is required for a sampling of each type of project. The DOE followed the International Performance Measurement and Verification Protocol during the M&V process. M&V occurred at nine vacancy sensors projects, 10 domestic hot water heater installations, five steam system optimization projects, and three dual fuel conversions.

**Innovative Demonstrations for Energy Adaptability (IDEA) Program**

Through the IDEA program, DEM considers engaging vendors of emerging and under-utilized energy technologies to test these solutions in City buildings. The program works with potential vendors that provide turnkey demonstration projects, in which the vendors would be responsible for installing, commissioning, and onsite training, as well as one-year performance assessments and presentation of the technology’s operations and effect on the building. The City shares the results of the demonstration projects with its agencies and other interested parties, and uses the demonstration to assess the value of the project replication with the goal of informing larger-scale deployment of energy solutions.

In fiscal year 2015, the DOE was awarded two projects through the IDEA program. Rooftop Unit (RTU) Controls were installed at building X884, and boiler controls were installed at J.H.S 127 The Castle Hill in the Bronx.

**Expenses for Conservation and Efficiency Leadership Program**

DEM launched the Expenses for Conservation and Efficiency Leadership (ExCEL) program in 2013 to support City agency facility operators with expense funding to accelerate energy reduction efforts.

In the 2014-2015 school year, ExCEL provided funding for the following programs:

<b>EXCEL Conservation Measure</b>	<b>Status</b>	<b>Amount Allocated</b>
Energy Management Instruments	Completed	\$ 51,201
BMS Training	Completed	\$ 27,400
Boiler Tune-Up MN	Completed	\$ 60,000
Boiler Tune-Up at 15 Bronx Schools	Completed	\$ 60,000
LED Retrofits at M520	Completed	\$ 63,680
LED Retrofits at X455	Completed	\$ 49,750
Replacing CRT Monitors with LCDs	Completed	\$ 27,965

Building re-tuning at X362	Completed	\$ 52,524
Valve and Pipe Insulation	Completed	\$ 21,500
Building Re-tuning at X362	Completed	\$ 50,000
<b>Total Funding</b>	<b>N/A</b>	<b>\$ 464,020</b>

### Operation and Maintenance Initiative

The Operations and Maintenance (O&M) Initiative is led by the Division of School Facilities' Director of Maintenance. The Director of Maintenance and DSF Energy Managers plan and implement strategies for ensuring that facilities are well maintained and able to promote learning, make occupants feel comfortable, as well as, enhance learning and productivity by providing proper indoor environmental quality. O&M practices also ensure facilities plant and equipment are in a good state of repair, reliable and available for use during occupancy.

To support the O&M Initiatives, the Office of Sustainability offered two webinars for Custodian Engineers in order to enhance their knowledge of the systems that they work with. The first webinar focused on boiler water treatment and water process services, providing an overview of the fundamentals of water treatment technologies and boiler internal water treatment programs. The second webinar focused on the maintenance of steam trap systems, including training on the components of a steam trap.

### Demand Response Program

The DOE partners with several companies to manage and reduce electrical load on the days designated as peak load on hot summer days and extremely cold winter days. DOE currently makes up 66% of the enrolled facilities in the City's Demand Response program. The buildings that are part of the demand response program curtail their energy consumption by shutting off unnecessary lights, air conditioners, and other equipment. In 2014-2015, 234 DOE buildings participated in the Demand Response program, of which 221 buildings either met or exceeded the required commitment. The Office of Sustainability netted \$800,000 in revenue from the Demand Response program. The majority of the revenue funded repairs and upgrades in various DOE buildings.

### Plug Load Policy

Any school improvement request that would increase the energy consumption in the school must be approved by the Office of Sustainability. The Office of Sustainability requires two items to be submitted to [sustainability@schools.nyc.gov](mailto:sustainability@schools.nyc.gov) before approval can be issued.

- ◆ The school(s) benefitting from the requested equipment must have designated their sustainability coordinator during the school year in which the equipment is requested in accordance with Chancellor's Regulation A-850. Sustainability will confirm the designation of a coordinator.

- ◆ The school(s) must confirm that they have complied with Chancellor’s Regulation A-850 and removed non-essential personal equipment. This confirmation can be in the form of an email from the principal(s)

### **Energy Efficiency in Newly Constructed Schools**

The School Construction Authority is the school capital planning agency of New York City and they are committed to working with the DOE on energy conservation initiatives. The SCA performs most capital energy projects in the school district, such as lighting system replacements and dual fuel boiler replacements, while DSF focuses on maintenance and operations projects, such as retro-commissioning upgrades. To guide new construction, in 2007 the SCA and DOE created the NYC Green Schools Rating System to guide sustainable design, construction and operation of new schools, modernization projects and school renovations and to achieve compliance with Local Law 86/05. This rating system is based on the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) Building Rating System. The NYC Green Schools Rating System includes enhancements beyond LEED, based on practices from the SCA and the Collaborative for High Performing Schools (CHPS) rating system.

The SCA is currently in the process of completing a new school in Staten Island that will be the City’s first net-zero energy school. Scheduled to open in September of 2015, it features; LED lighting with an advanced photometric design resulting in 90% lighting autonomy, photovoltaic panels, solar heating collectors, a very efficient envelope design, energy efficient equipment, and strict operations and maintenance procedures. The school is designed to surpass any energy criteria that the City and SCA had set out for construction of new buildings. The DOE has identified a Principal and Custodian in anticipation of opening for the 2015-2016 school year. One of the benefits of building a NZEB school is for the lessons learned. Many of the design features used to achieve net zero status have been incorporated into our standards of construction which is used for all new school buildings, modifications and additions. All of our schools are built to the highest standards, many of which exceed minimum requirements.

### **Clean Heat Program**

We are proud to announce that on June 30, No.6 fuel oil was completely removed from all DOE buildings and replaced with No. 4, a much cleaner fuel oil. Heavier forms of fuel oil contribute more toward pollution than all the vehicles in the City, deteriorating the air quality. In 2011, the city required that all buildings must change to one of the cleaner fuel types, either No.4 or No. 2 fuel oil or any approved lower emission releasing fuel type by January 2030. The ultimate goal is to change all DOE buildings to No.2 fuel oil by 2030. The SCA has been working at a higher level of capital planning, replacing old systems with No.2 fuel oil systems, dual fuel systems, or straight to natural gas. This initiative will help lessen carbon dioxide levels by up to one million metric tons as part of the PlaNYC target of reducing greenhouse gases by 30% by 2030.

### **Solar Installations**

During the 2014-2015 school year, the DOE in partnership with the NYC Department of Citywide Administrative Services (DCAS) and the New York Power Authority (NYPA),

installed a solar array at PS 69 in Staten Island. The installation was completed on Earth Day (April 22<sup>nd</sup>) 2015. Funding has been secured with the intention of completing 24 solar array installations by April 2016. As part of this technology pilot program, a 117 KW solar photovoltaic system was recently installed at John F. Kennedy High School and a 247 KW solar photovoltaic system was installed at Lehman High School (both schools in the Bronx). Both projects were completed in Fall 2014.

#### Future Plans

- ◆ Explore models for bulk Energy Star certification processes
- ◆ Improve data analytics provided to Energy Managers for O&M planning
- ◆ Work with NYPA, DCAS, and SCA to expand the number of schools with Rooftop Solar PV
- ◆ Install real time electricity meters in all schools participating in the Demand Response Program

## Water Efficiency

As water becomes a larger focus in the City’s sustainability efforts, more focus on conservation efforts, retrofit projects, watershed management, water conservation education, and outreach are happening at the school building level. The Office of Sustainability partners with the DEP for all of the water efficiency programs in this section.

### Water Fixture Retrofits

In 2012, DEP rolled out the “Water for the Future,” a 10-year program addressing water conservation and watershed management issues in the city. Part of this program funds retrofits to install high efficiency fixtures in the restrooms of 500 city schools by 2018. With the installation of nearly 40,000 restroom fixtures by the completion of the retrofits, the city will save at least four million gallons of water per day. From 2013 to 2019, DEP will work with the DOE to retrofit old, water inefficient toilets and urinals in approximately 500 city schools throughout the five boroughs.

Toilets specifically, have been specifically targeted because they are the largest consumers of water in the city with 15% of total use. Toilets and urinals in the old school buildings use 3.00 to 4.50 gallons per flush. These old fixtures will be replaced with modern fixtures that use only 1.28 gallons per flush, which will save approximately 5 million gallons of water per day. In 2014, DEP completed the retrofit of 27 schools, three more than originally anticipated for the year. The retrofits replaced more than 2,500 toilets and 950 urinals. During the summer of 2014, DEP finalized a list of 75 schools that would receive retrofits during 2015, however, 100 were eventually completed, 25 more than anticipated. This work replaced 8,000 toilets and 3,000 urinals. Currently, 129 out of 500 schools have been completely retrofitted.



Figure 14 - 129 Retrofitted DOE Schools

### Encourage Water Use Efficiency

Highly visible, informative signs, designed to inform students about the importance of water conservation and water-saving toilets, will be installed in school bathrooms that have been retrofitted with these new plumbing fixtures (see sign in figure 15). DEP targeted schools

that had been retrofitted by conducting inquiry-based, hands-on lessons to help students understand the value of water, the source of New York City Water, how water is transported from the watersheds to homes and schools throughout the five boroughs, issues relating to the supply of water (including resiliency, engineering, water quality, and infrastructure), and stewardship of our shared water resources. Retrofitted schools that received this direct education programming included The High School for Enterprise, Business and Technology in Brooklyn, Stuyvesant High School in Manhattan, The Urban Assembly School for Green Careers in Manhattan, John Bowne High School in Queens, Pelham Preparatory High School in the Bronx, Bronx Design and Construction Academy, and Benjamin Cardozo High School in Queens. Approximately 475 students participated in this targeted outreach, but many more received teacher-led lessons and activities as a result of ongoing professional development trainings.



*Figure 15 – Water for the Future signage*

### **Automated Meter Reading**

As part of the retrofit program, DEP has committed to installing meters and Automated Meter Reading (AMR) devices in every retrofitted school. AMR devices provides accurate, wireless water meter readings to DEP at least four times per day. By installing meters and AMR devices DEP can track the water usage of the schools going forward, and will also allow DEP to implement leak detection. A number of pilot schools that were metered prior to fixture retrofit showed a water usage reduction of as much as 70%.

### **Conservation Education**

The Office of Sustainability works closely with Department of Environmental Protection's Office of Education and provides grades K-12 students and teachers with a wide range of free programs and resources about the city's vital water supply, wastewater treatment systems, sound and noise quality, and other environmental concerns. DEP's Office of Education assists teachers by conducting workshops, providing lessons and field trips and also does outreach to the general public through hands on exhibits.

The Municipal Water Efficiency Program make public buildings more water efficient. DEP has also identified an opportunity to educate students about the importance of water efficiency through this program with education outreach.

**Future Plans**

- ◆ Explore meter data and reporting options with DEP
- ◆ Continue to retrofit schools with old and inefficient water fixtures

## Ecology

The Office of Sustainability has partnered with several organizations to provide ecology-based outreach, such as GrowNYC's Grow to Learn: The Citywide School Gardens Initiative, New York Restoration Project, and MillionTreesNYC. These partnerships increase opportunities for students to actively participate and learn about such things as food waste diversion, recycling, nutrition and wellness, outdoor learning, habitats, and ecological processes and impacts. Students learn of the mutual and important relationship between humans and the environment, and how those interactions affect the environment in which we live now and for future generations.

### Programs

**Grow to Learn: The Citywide School Garden Initiative** is a collaboration between GrowNYC, the Mayor's Fund, the DOE's Office of SchoolFood, and the New York City Department of Parks and Recreation Green Thumb division. Grow to Learn was founded to inspire, facilitate and promote the creation of sustainable school gardens in each and every public school across the city. The program helps school gardens go from an idea to a fully realized and integrated part of school communities. Support from Grow to Learn comes in the form of mini-grants, workshops, hands-on technical assistance, material giveaways (including soil and lumber), and extensive web resources on topics ranging from curriculum to funding. By pooling best practices, this garden initiative ensures that every public school has access to the information and support needed to create and maintain a successful garden.

During the 2014-2015 school year, GrowNYC made substantial progress to improve the level of data collection of the school gardening programs. In order to enhance the data collection even further, GrowNYC is currently working on an online database that ties into their school registration system. Once the online database is in place, GrowNYC plans to attach their grants processes to it, as well. The online database will make GrowNYC's data reporting and metrics easier and simpler to share with partners and funders

Accomplishments made this year:

- ◆ As of June 2015, 537 school gardens are registered with Grow to Learn across New York City's five boroughs
- ◆ Funded over 75 new and expansion school garden projects across the city through the Grow to Learn mini-grants system
- ◆ Offered 45 workshops on gardening and outdoor education topics to 576 school participants
- ◆ Expanded online offerings to include web tutorials and video/audio podcasts on a variety of technical gardening topics
- ◆ Streamlined the grant application, expansion grant application and registration processes for gardeners to connect to an online database for schools
- ◆ Completed a 2-year evaluation of the impacts of school gardens with Health & Design

#### Future Plans:

- ◆ Fund up to 75 school gardens in the 2015-2016 school year
- ◆ Streamline the grant application, expansion grant application and registration processes for gardeners
- ◆ Develop and lead more workshops relating to the use of the garden in schools, including curriculum integration, youth development approaches, and outdoor classroom management
- ◆ Design and launch a new updated website- a one stop shop for school garden needs in NYC
- ◆ Pilot a new site visit protocol to rate the integration of school gardens into the school culture and curriculum and create a targeted action plan for improvement.

**The Garden to Cafe (GTC) Program** is a collaboration of GrowNYC's Grow to Learn, DOE's Office of SchoolFood, New York State's Department of Agriculture & Markets, and NYC Department of Parks and Recreation Green Thumb division. The GTC program facilitates a connection between school gardens and healthy nutrition after seasonal harvests via educational events and activities. The objectives of the GTC program are to expose the entire student, teacher and parent body to the school garden, demonstrate how delicious vegetables are, increase agricultural literacy and interest in our regional food system, turn the school cafeteria into a learning environment, and to build awareness of the local food initiatives underway at SchoolFood. In the 2014-2015 school year GTC hosted 113 events. There are currently 112 schools registered in the GTC program. GTC hosted 6 educational events at DOE summer sites this year: New Settlement Community Center in the Bronx, John F. Kennedy Campus in the Bronx, P.S. 126 in Lower Manhattan, P.S. 721 in Brooklyn, and WhedCo. Health Fair in the Bronx. This program hopes to add another 10 schools to the roster next year, and create new workshops with kitchen staff of school participating in GTC.

**MillionTreesNYC** is a citywide, public-private program led by NYC Parks and the New York Restoration Project (NYRP) with an ambitious goal: to plant and care for one million new trees across the city's five boroughs. By planting one million trees, the city can increase its urban forest-- our most valuable environmental asset made up of street trees, park trees, and trees on public, private and commercial land-- by an astounding 20%, while achieving the many quality of life benefits that come with planting trees. To date, an astounding 986,165 new trees have been planted through MillionTreesNYC. This includes plantings on private properties or non-parks public spaces accomplished by the NYRP, Trust for Public Land, and SCA totaling more than 4,300 new trees within DOE schoolyard properties. In the 2014-2015 school year, 23 new trees were planted within DOE school properties.

### **Schoolyards to Playgrounds**

Part of OneNYC’s initiative is to give all New Yorkers access to a playground, park, or green space within a ten minute walk. New York City has the smallest amount of green space per person compared to other major American cities. In analyzing these types of spaces around the City, the City realized that schoolyards were usually only used during the day and locked after school hours. The Department of Parks and Recreation, The Trust for Public Land (TPL), and the DOE are working together to help renovate and construct at least 290 playgrounds and parks in schoolyards. Although no new schoolyards were opened during the 2014-2015 school year, there are a total of 233 schoolyards open to the public.

#### **Future Plans**

- ◆ Work with GrowNYC to continue to increase the number of schools with active gardening programs

## Green Curriculum

The Office of Sustainability partners with several non-profit organizations to provide professional development and resources to Sustainability Coordinators and teachers, enabling them with the skills to improve our students' understanding of climate change and sustainability concepts. The partnerships and their efforts are outlined below:

### **Children's Environmental Literacy Foundation (CELf) Leadership Training in Sustainability Curriculum (LTSC) Project**

This project is lauded as an exemplary model for professional development that builds environmental literacy while improving STEM and Common Core teaching and learning. Now in its fourth year, the project's focus is on refining its "train the trainer" component in order to replicate it in other DOE schools and in other large urban districts across the country. The project provides professional learning, curriculum frameworks and assessment tools for educators in all subject areas to integrate sustainability topics into STEM curricula with explicit ties to the Common Core Learning Standards. Additionally, participants are engaged in developing a learning community where they exchange challenges, successes, and collaborate on common education for sustainability interests. Project partners include the DOE, Shelburne Farms Sustainable Schools Project, Manhattanville College and Kamston, LLC, an independent research and program evaluation firm with expertise in Education for Sustainability (EFS) program assessment.

With continued support from the DOE and their other project partner schools' full commitment, CELf will be positioned to apply for on stage recognition of successful completion of their "Commitment to Action" at the 2015 Clinton Global Initiative Annual Meeting held in the city. This would be an unprecedented opportunity for both CELf and their Project Partners: the DOE Sustainability Initiative, the Sustainable Schools Project/Shelburne Farms, Manhattanville School of Education and other project partner schools.

During the 2013-2014 school year, 17 DOE schools participated in the project. Twelve DOE schools joined as partner schools during the 2014-2015 school year, each with a Mentor School and a CELf Program Manager. A three-day Summer Institute will be followed by onsite consultations at each school six times throughout the school year. The project's goals are to:

- ◆ increase teachers' content knowledge of sustainability issues and principles;
- ◆ increase their ability to integrate this interdisciplinary content as an enhancement to the Common Core and STEM instruction;
- ◆ demonstrate to grades K-12 administrators that instructional approach can support improved student achievement;
- ◆ and increase students' critical and systems thinking skills and knowledge of sustainability issues such as biodiversity, human population growth and carrying capacity, consumerism and product life cycle.

CELf's professional learning workshops and related instructional practice and curriculum consulting is approved as a P-credit course by the DOE Office of Teacher Effectiveness, and is also included in the DOE STEM course offerings, open to all teachers in the district. This creates yet another replicable component of CELf's Project that appeals to administrators and teachers in all public school districts seeking to encourage professional development by receiving course credit for salary advancement.

CELf was also invited to become the first Education for Sustainability Partner of the DOE's Office of Curriculum, Instruction, and Professional Development. This new status broadens the district administration's perception of CELf and the Project beyond environmental education to an essential component of Common Core and STEM training. And based on the new Chancellor's Learning Partners Program, designed to promote inter-school collaborative learning through mentor relationships, the Project was redesigned using a Mentor School platform. This is expected to increase and expedite successful curriculum through the lens of sustainability.

### **Department of Sanitation (DSNY)**

DSNY provides free educational and curricular resources on their website. Students, teachers, staff, administrators and parents can learn not only the basics of recycling, but of environmental stewardship by recycling at school, which can be extended throughout the community. Curriculum guides for teachers are available for free and are handed out to all attendees of DOE Office of Sustainability trainings.

### **Solar One's Green Design Lab Sustainability School Network (SSN)**

This launched in October 2012 to support Solar One's Education programming with additional outreach and engagement. Membership in the SSN provides schools with access to free services that engage students, teachers, custodians, and staff in reducing energy use in their school building while learning about sustainability and emerging green technology. Schools gain partnership to the SSN by either participating in a Green Design Lab Professional Development Workshop or by applying for the Green Design Lab Direct Program Delivery.

At the end of fiscal year 2015, there were 421 schools in the Sustainable Schools Network; with 222 of those schools having actively participated in a SSN offered activity during the 2014-2015 school year. That is an 18% increase in the number of partner schools in the network of which 53% are active participants in the SSN.

### **Education for Sustainability Initiatives**

During the 2014-2015 school year, the Office of Sustainability explored Education for Sustainability (EfS) options with the DOE Division of Teaching and Learning. Recently, the Division of Teaching and Learning completed a document called the Enhanced Science Scope and Sequence. The Enhanced Science Scope and Sequence consists of two parts, one for grades K-5 and one for grades 6-12. These two documents will add pertinent standards and guidelines to help teachers create lessons in science, emphasizing the Common Core Learning Standards (CCLS). This document will also, apply environmental guidelines where needed. In order for these two documents to be put into effect, NYS will need to change their current science standards. Although the science standards have not been changed, the

NYC DOE reviewed their standards during the summer and are planning further work to be done in the near future.

**Future Plans**

- ◆ Explore funding options for a Sustainability Education Coordinator position within the Office of Sustainability

## Recognition & Contests

The Office of Sustainability debuted its first annual sustainability awards in 2014-2015 to recognize the exceptional work being done by schools, sustainability coordinators, students, and custodian engineers. In addition to these awards, several DOE partners also recognize the schools who have contributed to making New York City a greener place to live and learn.

### DOE Sustainability Excellence Awards

On July 24, 2015 the Office of Sustainability held its first annual Sustainability Excellence Awards, which recognized outstanding individuals and teams for their excellence in environmental leadership and contributions to the DOE's Sustainability Initiative.

The award consist of five categories:

- Outstanding Sustainability Coordinator
- Outstanding Facility Staff
- Outstanding Principal
- Outstanding Student Green Team
- Outstanding School Event

A total of 25 DOE staff and students submitted applications to one or more categories, of which 10 winners were selected. Winners received a prize of \$1,000 award via the principal's galaxy budget to expand their school's sustainability efforts. See Appendix A for the full list of winners.

### National Wildlife Federation's (NWF) Eco-Schools Green Flag Award

In partnership with NYC DEM, the Office of Sustainability provided incentives to the first four NYC Eco-Schools to achieve Green Flag Award status with \$5,000 grants. The Green Flag award is the highest level of award in the NWF Eco-Schools program. In order to be eligible for the prestigious Green Flag Award, a school must accomplish the criteria under a **seven step** program as outlined by the NWF. Each of the criteria has an associated point value. The Green Flag requires a total of 300 points and it must be renewed every two years. When a school receives an Eco-Schools award, it gives the entire school community public acknowledgement of its success and motivation to continue progress in the program. The DOE has 11 out of the total 40 Green Flag schools in the United States.

In 2014-2015 school year, these five schools were recognized with the Green Flag Award by NWF's Eco-School USA program for conserving natural resources and integrating environmental education into the curriculum: P.S.166 in Manhattan, P.S. 333 in Manhattan, P.S. 69X in the Bronx, Brooklyn Urban Garden Charter School in Brooklyn and P.S. 29 in Brooklyn.

- **P.S. 166 in Manhattan - The Richard Rodgers School of the Arts and Technology** - P.S.166 joined the NWF's Eco-Schools USA program in 2012, the same year they became one of eight schools in Manhattan's District 3 to spearhead a food and tray waste composting pilot. In 2013, P.S. 166 joined the EPA's Food Waste Recovery Challenge as a way to increase community awareness about food

waste. They've also diverted over 20,000 pounds of waste from going to the landfill, reduced energy consumption by 15,380 kWh, and 100% of the student body visits the school garden for at least 30 minutes per week. The students of P.S. 166 are also the recipients of the Green Cup Energy Challenge Award (2010 and 2011), the NYC Golden Apple Award (2013), and the Eco-Schools Silver and Bronze award.

- **P.S. 333 in Manhattan - Manhattan School for Children**

P.S. 333 joined the NWF Eco-Schools USA program in 2012. This is a K-8 school with a comprehensive wellness policy, created by the Wellness and Green Committee which includes participation from students, teachers and parents. They are also participating in the Wellness in the Schools (WITS) program that provides them with the “Cook for Kids” and “Coach for Kids” programs. They've also partnered with a local farm in New Paltz, NY to provide fresh produce on a weekly basis. P.S. 333 was also one of 8 schools in Manhattan's District 3 to pioneer a food composting pilot program which became a model for the City. The students of P.S. 333 are also recipients of the Bronze and Silver Eco-Schools USA award (2013). P.S.333 diverted 19,740 pounds of waste from going into the landfill, reduced their energy use by 1,740 kWh and reduced CO2 emissions by 1,280 pounds. Additionally, students spend at least 50 minutes outdoors per day and takes food consumption very seriously. Approximately 14% of their food is locally sourced, 25% of their food is freshly prepared, and 100% of the schools' cleaning supplies are certified.

- **P.S. 69 in the Bronx - The Journey Prep School**

P.S. 69 has participated in the Eco-Schools USA program since 2012. PS69 received the Green Flag Eco-Schools USA award for addressing the “Consumption and Waste,” “Energy,” and “School Grounds” Pathways. This school is also registered with Grow to Learn, NYC's citywide school garden initiative, and is a certified NWF Schoolyard Habitat™. They have created habitat for wildlife and planted trees around the school's perimeter with MillionTreesNYC and use recycled plastic raised beds to grow a variety of produce. Children label and tend to all the crops, then harvest them for a cookout. Students of P.S. 69 are recipients of the Bronze and Silver Eco-Schools USA award (2012) for addressing the “School Grounds” Pathway. P.S. 69 has diverted 31,400 pounds of waste from going into the landfill, reduced energy use by 493 kWh, and 100% of the school's' student body visits the school garden at least 120 minutes per week.

- **BUGS - Brooklyn Urban Garden Charter School**

The Brooklyn Urban Garden (BUGS) Charter School has participated in the Eco-Schools USA program since 2013. They received Green Flag Eco-Schools USA award in 2015 for addressing the “Consumption and Waste,” “Energy,” and “School Grounds” Pathways. This school's motto is “BUGS CARES about Sustainability” values: Community, Awareness, Reach, Exploration, Student Voice, and Sustainability. During the 2014-2015 school year students focused on waste reduction as well as researching and designing a school garden. They also diverted 4,500 pounds of waste from going into the landfill, reduced energy use by 575 kWh, and 60% of school's student body visits the school garden at least 60 minutes per

week. BUGS students are the recipients of the Bronze Eco-Schools USA award (2014) the Silver Eco-Schools USA (2015).

- **P.S. 29 in Brooklyn - John Harrigan School**

P.S. 29 has participated in the Eco-Schools USA program since 2012. They received the Green Flag Eco-Schools USA award in October 2014 for addressing the “Consumption and Waste,” “Energy,” and “School Grounds” Pathways. They are also registered with the Green Schools Alliance and participates in their Green Cup Energy Challenge. The school also has an extensive school garden for vegetables and flowering plants that attract butterflies and bees. Students grow over 20 different vegetables and fruits. They also host a bi-annual Rummage and Recycling community event. Students of P.S. 29 are also the recipients of the Bronze Eco-Schools USA award (2013) and the Silver Eco-Schools USA award (2014). During the 2014-2015 school year, P.S. 29 diverted 19,100 pounds of waste from going into the landfill, reduced energy use by 1,969 kWh, and 30% of the school’s student body visits the school garden at least 45 minutes per week.

## DOE Sustainability Artwork Contest



Over 350 students from all five boroughs and all grade levels participated in the fourth annual Sustainability Artwork Contest. The objective of this contest is to create a dialogue among students, teachers and administrative staff regarding sustainability initiatives within DOE schools.

Nine pieces of original artwork were selected that best illustrated how the school community can take action to be more sustainable. Each selected piece was reproduced into a poster and made available for schools to order for free. The winners were grouped by age level; three elementary, three middle school and three high school. Artwork was selected based on the design’s message, subject relevance and artistic originality. The DOE hosted a reception at Tweed on June 15, 2015 to award the students, their families and school representatives. A full list of winners is located in Appendix B.

## DSNY Golden Apple Award

DSNY’s Golden Apple Award recognizes schools that accomplish projects on waste prevention, recycling, composting and neighborhood beautification. The annual competition consists of three main contests: *Trash Masters! Super Recyclers*, honoring schools with exemplary recycling programs; *Trash Masters! Reduce and Reuse Challenge*, which honors creative waste prevention methods; and *Trash Masters! Team Up to Clean Up*, which encourages DOE students to help clean and beautify their schools and neighborhoods. Schools can compete in any or all three competitions and vie for awards on a grade and borough level. Winning schools receive cash prizes; citywide winners were awarded \$10,000; borough winners \$5,000; borough runners up \$2,500; and honorable mentions \$1,250. For schools with outstanding composting programs, Golden Shovel Award winners received \$1,000. This year

13 schools received recognition and cash awards. For the full list of the 2015 Golden Apple Award Winning Schools refer to Appendix C. Here are some of the highlights:

- ◆ ***Trash Masters! Super Recyclers***, Citywide and Manhattan Borough Winner, Elementary Division, **P.S. 130** implemented their new recycling program this year by establishing partnership with GrowNYC Recycling Champions, who helped set up the entire school with recycling bins. Through workshops, bulletin board displays, newsletters and morning announcements, they increased public awareness of “Recycling Right”. Class helpers monitored their own classrooms while the student-led Green Team monitored bin checks throughout the entire school each week.
- ◆ ***Trash Masters! Super Recyclers***, Staten Island Borough Winner, Elementary Division, **P.S. 9 Naples Street Elementary** in Staten Island, “Shining STARS” use Safety, Teamwork, Action and Respect to create positive learning community. They used this them to teach students about the importance of recycling, and engage them in recycling routines. Students participated in academic activities in the classroom and cafeteria. They all took turns being “Super Recyclers” and use their STAR behavior to win the “Golden Garbage Can” in their classroom recycling contest.
- ◆ ***Trash Masters! Reduce & Reuse Challenge***, Citywide and Brooklyn Borough Winner, Elementary Division, Brooklyn New School **P.S. 146** in Brooklyn created a reuse center called the “Green Studio”, which is utilized as a work space, specifically for projects involving reusable and natural materials. The entire school has access to the studio, while the 5<sup>th</sup> grade Green Club meets there to plan and implement future sustainable projects for the school and neighborhood.
- ◆ ***Trash Masters! Reduce & Reuse Challenge***, Citywide and Manhattan Borough Winner, Intermediate Division, **Washington Heights Expeditionary Learning School (WHEELS)** in Manhattan reduced the amount of waste the school and community sends to landfills by over 2,700 pounds per year through a variety of composting, gardening and recycling projects.
- ◆ ***Trash Masters! Team Up to Clean Up***, Citywide and Brooklyn Borough Winner, Elementary Division, **P.S. 197 Kings Highway Academy** in Brooklyn is an elementary school with a large population of English Language Learners and students with special needs. The school’s garden serves as an educational space to inform students about the benefits of healthy eating and food access, enhance students math and science learning, promote physical activity all while fostering the importance of community appreciation of nature.
- ◆ ***Trash Masters! Team Up to Clean Up***, Citywide and Brooklyn Borough Winner, Intermediate Division, **Evergreen MS for Urban Exploration** in Brooklyn created a Green Team who constructed a garden of native pollinators, vegetables, and herbs; and registered with GrowNYC Recycling Champions to enhance the school’s recycling program. Students completed an Earth Day and Anti-Litter campaigns,

creating posters and place them in local bodegas to raise awareness of sustainability issues within the community.

### **Green Schools Alliance Green Cup Energy Challenge 2015**

During the four-week energy challenge, students, teachers and staff discover they have the power to save energy in their schools. Their individual actions translate into financial savings for their school, and positive change for the world. In the Fall of 2014, 165 DOE schools participated in the Green Cup Energy Challenge in the month of October, collectively reducing consumption by 1,016,913 kWh in four weeks, for an overall reduction of 8.5%. That means more than 1.5 million pounds of carbon dioxide was kept out of the atmosphere! The schools achieved an average of 7.2% reduction from their baselines. The top school, John Adams High School in Queens, reduced consumption by 52.7% from their baseline. There was a tie for second with Dr. Ronald McNairy School in Brooklyn and P.S. 369 in Brooklyn, both reducing electrical consumption by 39.9% from their baseline. The Highlawn School, located in Brooklyn, received third place, reducing electrical consumption by 36.9% from their baseline. See Appendix D for the full list of winners.

### **Green Schools Alliance Green Cup Recycle Challenge 2015**

During the four-week recycle challenge, schools compete to improve recycling compliance rates, decreasing contamination, as well as raise awareness about consumption. In November 2014, 16 DOE schools joined the international Green Cup Recycle Challenge. Four DOE schools earned the title of “Recycling Steward” by reaching the second highest achievement level for their recycling compliance and waste reduction programs.

### **Solar One’s Green Design Lab Energy (GDL) Challenge**

As part of the Solar One Green Design Lab curriculum, schools can participate in an energy challenge that not only teaches energy reduction in schools, but also records student efforts in energy conservation. The GDL Energy Challenge, now in its fourth year, has motivated 95 schools to reduce electrical energy consumption through behavioral changes, operational changes and low-cost upgrades. The Energy Challenge, co-sponsored by the NYC Department of Education’s Office of Sustainability, is significant because it lasts for four months, (December to March), to ensure a longer-term commitment on the part of participating schools. It is also the only citywide public school energy challenge that offers participating schools a range of direct services that increase awareness around saving energy and helps the school community identify areas in the building where reductions in energy use can be achieved. The energy challenge gives schools an opportunity to rally together around a central cause and measures their success with actual energy data from Con Edison. Over the past three years, schools with the greatest reductions won a portion of \$25,000 prize funded by the DEM.

In the 2014-2015 energy challenge, all 99 schools collectively saved more than 1.6 million kilowatt hours of electricity during a four-month period, which is equal to avoiding 2.5 million pounds of CO<sub>2</sub> emissions (EPA) and a dollar savings of over \$111,000 to the City of New York. This year 99 schools competed in the challenge, each bringing students, teachers, and custodians together with the goal of school-wide electricity reduction. Out of the 99

schools that registered for this year’s Energy Challenge more than half achieved a reduction in electrical energy consumption when compared to the average consumption for the previous two years. The top 5 schools of Solar One’s Green Design Lab Energy Challenge combined saved a very impressive 412,440 kilowatt hours of electricity, enough to power 23 homes for one year. As a result of their efforts, they avoided 626,735 pounds of carbon dioxide from entering the atmosphere. The top 5 schools with the greatest reductions were awarded cash prizes of \$5,000 each and participated in a celebratory assembly at their school to honor their efforts and success. For the list of the top five schools, refer to Appendix E.

### **Made by Milk Carton Recycling Contest 2015**

Evergreen Packaging’s Made by Milk Contest is a fun way to promote milk consumption and carton recycling among school-aged children. It also provides a great opportunity for food service professionals to partners with teachers in educating children about nutrition, sustainability, and environmental issues. Just by collecting schools milk cartons, designing, and constructing a unique creation from empty school milk cartons, the winning team can earn prizes up to \$5,000.

One hundred and nine entries from schools across the U.S. submitted their recycled carton designs. In Fall 2014, three DOE schools won in the elementary and middle/high school 300+ categories. The winning schools were P.S. 176 in Queens. They used 1,993 milk cartons to create the “Milk Master 5000” (figure 14), P.S 89 in Brooklyn, used 1,280 milk cartons to create “The Three Brave Goats” (figure 15) and Benjamin N. Cardozo High School in Queens used 300 cartons to create “DOZO Sculpts Haring” (figure 16).



Figure 16- Milk Master 5000



Figure 17 - “The Three Brave Goats”



Figure 18- DOZO Sculpts Haring

## Partners

The Office of Sustainability works with a wide range of environmental non-profit and advocacy organization throughout the year. We could not make the impact that we do without the help of these organizations. In this section, we will highlight the astounding work the partners have done in DOE schools throughout the year. We thank these partners and all others for your dedication, passion, and commitment to school sustainability!

### **Alliance for Climate Education (ACE)**

The Alliance for Climate Education educates youth about climate change and helps them build the confidence and skills needed to create climate solutions now and throughout their lives. Using an innovative assembly presentation, ACE has educated over 1.7 million young people nationwide since 2009. ACE also gives students skills and opportunities to take action through their Climate Action Fellowship and supports teachers to bring climate science into the classroom.

Accomplishments this year:

- ◆ Reached over 8,500 students in the NYC Region with the ACE Climate Science and Solutions Assembly
- ◆ Reached 21 DOE schools with the ACE Climate Science and Solutions Assembly
- ◆ 16 students received the ACE Action Fellowship
- ◆ Action fellows mobilized peers and communities to participate in the People's Climate March in September 2014, the largest climate march in history
- ◆ Through lobby meetings, phone banking, letter writing, and targeted events, Action Fellows advocated for the passage of New York City Council Resolution 0375-2014, which calls on the New York Department of Education to include climate change lessons in K-12 curriculum
- ◆ Action Fellows and Global Kids student leaders co-hosted a press conference on Earth Day, with NYC Council Member Constantinides, EPA Region 2 Administrator Judith Enck, and NRDC Senior Attorney Eric Goldstein, in support of Resolution 0375-2014
- ◆ Action Fellows helped garner more than 2,000 signatures on a petition in support of Resolution 0375-2014

Future plans:

- ◆ Improve climate science knowledge of high school students in the City by presenting the ACE climate science and solutions assembly and providing ongoing curriculum support for teachers
- ◆ Engage youth in learning and climate action beyond ACE Assembly through a powerful virtual network

- ◆ Execute the ACE Action Fellowship Program, which teaches young people the knowledge and skills to be confident climate leaders. The Action Fellowship will provide students with hands-on experience in locally-relevant climate solutions.
- ◆ Amplify youth voices to elevate public urgency to take action on climate

## **Bike NY**

Bike NY is a nonprofit organization whose mission is to facilitate and promote cycling in all five boroughs through education and public events as well as collaboration with both community organizations and municipal agencies. Their vision is to encourage cycling as a green, healthy complement to New Yorker's daily lives by providing access to safe cycling practices and engaging events.

Accomplishments this year:

- ◆ Taught 157 kids how to ride a bike through Learn to Ride-Kids classes
- ◆ 585 kids attended the after school program at 10 different locations
- ◆ 10,444 kids received bike safety information at 39 different school assemblies
- ◆ Bike New York expanded to 10 Community Bicycle Education Centers

Future plans:

- ◆ Expanding support for Mayor de Blasio's Vision Zero Initiative toward zero traffic deaths by bringing their Bike Driver's Ed assembly program to more students
- ◆ Increase number of DOE schools offering the after school program

## **Cafeteria Culture**

Cafeteria Culture (CafCu,) founded in 2009 by a group of parents, educators, and designers, is working creatively to achieve zero-waste school cafeterias and climate smart communities through in-cafeteria and eco-arts education, youth leadership, grassroots action, and alternative messaging. CafCu accomplished their first goal, to eliminate the 860,000 styrene foam trays used per day in NYC schools. CafCu, originally called Styrofoam out of Schools, catalyzed the remarkable launch of Trayless Tuesday.

Accomplishments this year:

- ◆ Through the ARTS + ACTION Cafeteria Waste Reduction Program, CafCu brought together 100 4th and 5th graders from 3 schools for a roundtable discussion with City Council member Rosie Mendez on NYC Council's pending Bag Bill
- ◆ Fifth grade students from PS 34 participated in a Socratic Discussion on the topic of NYC Council proposed single use, carryout Bag Fee Bill. They also made reusable bags by repurposing tee-shirts
- ◆ Expanded a composting pilot to include 32 new schools

Future plans:

- ◆ Launch the online, multimedia Cafeteria Waste Reduction/Ranger Training Toolkit
- ◆ Pilot methods of extending the ARTS+ACTION and Youth Made Media school programs
- ◆ Expanded media and alternative messaging campaigns in collaboration with NYC youth to educate and engage communities on post consumption and climate change
- ◆ Pilot District-wide “resource sharing” and training program in District 15

### **Children’s Environmental Literacy Foundation**

The Children’s Environmental Literacy Foundation was founded in 2003 to promote awareness of the importance of sustainability education and to help schools and school districts make sustainability an ongoing part of education. They do this by providing consulting services for schools and school districts, training for teachers and administrators and sustainability education programs for students. They work with all stakeholders in a school community to integrate the concepts and principles of sustainable development into education policy, school curricula, teacher education and lifelong learning. CELF partners with and provides guidance to education leaders who advocate for sustainability education at the state and national levels. The long-term goal is for every school to make sustainability education a regular part of its mission and ongoing policy. In partnership with the DOE’s Sustainability Initiative, in June 2012 CELF launched NYC Leadership in Sustainability Curriculum (LTSC). The project delivers professional learning opportunities, providing tools and guidance for teachers to identify access points for Education for Sustainability within their curriculum and place-based learning opportunities in their school communities. To learn more about their accomplishments this year, visit [Green Curriculum Section](#).

Since its founding in 2006, BPL has promoted high-performance building operations and practices in the existing commercial and public real estate markets. BPL hold partnerships with a wide range of public and private organizations including the NYC Department of Citywide Administrative Services, the DOE, the OLTPS, the International Union of Operating Engineers, the Service Employees International Union, and the Association of Energy Engineers. The BPL works in four major areas: workforce education, professional development, research, and industry outreach collaboration.

### **CUNY Building Performance Lab**

In the area of workforce education, the City University of New York Building Performance Lab (BPL) offers a range of energy-management focused trainings for personnel in the real estate and facilities-management industries who manage and operate NYC’s commercial building stock. Their professional development activities involve internship and independent study opportunities for undergraduate and graduate students looking to gain experience in the fields of energy management and high-performance buildings. A major research project currently underway is the development of a web-based tool for assessing and optimizing the

functionality of building controls systems. In the area of industry outreach and collaboration, the BPL spearheaded the Benchmarking Help Center to help support implementation of the City's Greener, Greater Buildings Plan and also plays a central role in the Urban Technology Innovation Center (UTIC), a project of the NYC Economic Development Corporation with Columbia University, CUNY, and NYU-Poly, with the goal of promoting economic growth in the City's clean technology and real estate sectors by fostering innovation and the sharing of best practices among industry leaders.

Accomplishments this year:

- ◆ Collaborated with DOE energy managers to provide student interns to launch an equipment survey project. Five undergraduate CUNY students were involved in the initial roll out of this initiative and set the stage for continuation of this work in subsequent years
- ◆ Built and promoted the BPL's Field Equipment Lend Library, a free resource available to DOE building operation personnel, providing data collection and monitoring equipment for energy-management research and initiatives

Future plans:

- ◆ Continue to promote ongoing participation in continuing-education opportunities among school custodial engineering personnel who have complete BOC training, with the overarching aim of a sustained "community of practice" that facilitates peer exchange and sharing of best practices and support among this audience
- ◆ Launch a new research project in a sample of DOE public school sites to study the impact of technology intervention on behavior change toward energy efficiency, and enhance the long-term effectiveness of BPL training through improved on site implementation

## **Earth Day New York**

Earth Day New York is a nonprofit organization that promotes environmental awareness and solutions through partnerships with schools, community organizations, businesses, and governments. They do so through year-round programs as well as annual Earth Day events. Earth Day New York was founded in late 1989 by a broad coalition of environmental groups to celebrate the 20th Anniversary of Earth Day in the city. For more than two decades, they have put together high-profile Earth Day events aimed at raising awareness about some of their most pressing environmental challenges and informing people about how to make their lifestyles and communities more sustainable.

Accomplishments this year:

- ◆ Provided four schools, Brooklyn Academy of Science, Environment City as School High School in Manhattan, Harvest Collegiate High School in Manhattan and Bronx Lighthouse Charter School with Earth Day Organic Indoor Learning Gardens
- ◆ Provided those four schools with the new Earth Day/Every Day Food Toolkit, which aims to educate young people about sustainable and healthy food resources; to

- help young people map the existing food resources in their communities; and advocate for those food resources when they are lacking
- ◆ Participated in sustainability coordinators trainings, providing information on the indoor learning garden program

#### Future Plans:

- ◆ Provide the new Earth Day/Every Day Food Toolkit to a larger number of DOE schools
- ◆ Continue to participate in sustainability coordinator trainings

### **Edible Schoolyard NYC**

Edible Schoolyard NYC is a nonprofit organization that partners with the DOE schools to build gardens and kitchen classrooms where children can engage in hands on learning. Their goal is to provide students with the knowledge, skills and environment required to make healthier choices and change the way they eat for life. For the 2013-2014 school year, Edible Schoolyard NYC continued to provide kitchen and garden programming 20-30 times per year to every student in their two showcase schools: P.S. 216 in Brooklyn and P.S. 7 Manhattan.

#### Accomplishments this year:

- ◆ 1,200 students served through the two core “showcase schools” program (90% of students served are low-income)
- ◆ Held 19 professional development workshops ranging in length from 2 to 36 hours, which trained 83 people, 73 of them were new trainees, they came from 53 different organizations and schools

#### Future plans:

- ◆ Continue serving the same number of students at the same level in the showcase schools
- ◆ Continue to provide at least 15 days or partial days of professional development workshops to educators, including our summer ASPDP workshops
- ◆ Continue with our sustained, multi-workshop professional development program to teachers from five different Title 1/DPHO schools
- ◆ Launch our lower cost model for direct programming to students. Specifically, we will be piloting a “Network Schools” model in four new schools—three in the Bronx and one in Brooklyn. Two of these schools will have a Foodcorps service member supporting garden and kitchen programming, and two will have a Foodcorps service member and an Edible Schoolyard NYC staff member supporting programming

## Environmental Defense Fund

Founded in 1967, the Environmental Defense Fund (EDF) works to find innovative ways to solve large-scale environmental problems. Their mission is to preserve the natural systems on which all life depends, by using science and economics to find long-lasting and practical solutions to the most severe environmental problems. The Environmental Defense Fund is one of the world's largest environmental organizations, with more than one million members and a staff of 500 scientists, economists, and policy experts. At the core of the EDF lies five values that allow it to experiment courageously, while staying true to who it is as an organization.

In the summer of 2015, the Office of Sustainability hosted an EDF Climate Corp Fellow, Chandarprahba Sharma, who examined the office's data streams and building information for better ways to manage.

## Garden to Café

Garden to Café (GTC) is a program of the DOE Office of SchoolFood and a partner of GrowNYC's Grow to Learn NYC: Citywide School Garden Initiative. The program connects school gardening and school lunch through seasonal harvest events and educational activities. The objectives for GTC program are to increase student's consumption of fresh vegetables and knowledge of healthful foods, farming and the local food system; increases awareness of the benefits of school gardens; demonstrate the learning opportunity of integrating school gardening with school lunch; build awareness of the larger local food initiatives underway at SchoolFood.

Accomplishments this year:

- ◆ Number of participating schools grew from 80 to 112
- ◆ Hosted 43 events during the fall of 2014
- ◆ Hosted 70 events during the winter and spring of 2015
- ◆ Hosted 6 educational events at summer DOE sites including; New Settlement Community Center in the Bronx, John F. Kennedy Campus in the Bronx, PS 126 in Lower Manhattan, PS 721 in Brooklyn, and WhedCo. Health Fair in the Bronx

Future plans:

- ◆ Projecting to add 9-10 schools to the program
- ◆ Create workshops with kitchen staff of schools participating in GTC. Highlighted during "offseason" (September, January-March), the GTC staff will work with the school kitchen staff on salad bar and vegetable side dish recipes
- ◆ Add culinary training have students join chefs in food preparation
- ◆ Develop options for "monthly harvests" instead of only seasonal (twice a year)

## Green City Challenge

The Green City Challenge was founded in 2010 and is a nonprofit organization based in the city. It is a fun and educational program that teaches students about sustainability in an interactive and engaging manner. The first Green City Challenge Race occurred in October 2010, where twenty contestants in teams of two raced on bicycles to seven destinations in Lower Manhattan and performed challenges that demonstrated knowledge about sustainability. The Traveling Green City Challenge will launch in the 2014-2015 school year. The new program will bring the Green City Challenge concept to DOE schools where hundreds of school students will be able to design, create and participate in their own Green City Challenge. The goal is to operate the program in two to five middle or high schools the first year, expanding to five to ten schools in the second year.

## Green Schools Alliance

The mission of the Green Schools Alliance (GSA) is to connect and empower schools worldwide to lead the transformation to global sustainability. Since its inception in October 2007, the GSA has grown to a network of more than 8,500 member schools in 41 U.S. states and 53 countries, representing more than 6 million students and growing daily. GSA member schools share and implement sustainable best practices and promote connections between schools, communities, and the environments that sustain them. GSA connects schools locally and virtually by creating peer-to-peer forums, exchanging resources, offering original programs and curriculum developed by member schools, and connecting youth to nature. GSA hosts annual competitions, the Green Cup Energy and Recycle Challenge. To learn more about those challenges, please refer to the Recognition and Contest Section.

Accomplishments this year:

- ◆ Launched the annual designation of sustainability coordinators and reporting of school plans through the GSA website as a pilot project for school district measurement and reporting.
- ◆ 165 DOE schools participated in the Green Cup Energy Challenge, saving more than 1.01 million kWh of electricity. The schools achieved an average of 8.5% reduction from their baselines.
- ◆ 16 DOE schools completed the Green Cup Recycling Challenge. Of those 16, ten schools reached the highest achievement level for their recycling compliance and waste reduction programs.
- ◆ Supported MillionTreesNYC: GSA volunteers from public and private school joined more than 1,100 others to plant trees in Rockaway Community Park. The volunteers planted 20,713 trees and 2,025 shrubs.
- ◆ Students and faculty from 10 DOE schools attended S.T.O.P. Bags-Ban the Bag events throughout the year to promote the banning of plastic bags in the city.
- ◆ Five DOE students attended Students Climate and Conservation Congress (Sc3). Sc3 empowers outstanding student environmental leaders with the skills, knowledge and tools necessary to address climate and natural resource conservation challenges and better serve their schools and communities.

Future plans:

- ◆ Collaborate with DOE’s Sustainability Initiative to integrate GSA Member School Profile Pages with the DOE’s mandatory sustainability coordinator reporting. This is expected to be a model for school districts nationwide.
- ◆ Improve the Green Cup Energy Challenge dashboard so that more schools can participate.
- ◆ Improve the Green Cup Recycling Challenge to incorporate organics collection.

## Leave it Better

Leave It Better empowers youth to heal our environment. Currently, the main ways we accomplish this is through our year-long educational program- the Leave It Better Program- and through our seasonal work at the Leave It Better Kids Garden in the Bronx.

The Leave It Better Program is currently in 11 schools throughout New York City. They teach students how to compost with worms and how to garden outdoors through the hands-on process of actually building worm bins, getting dirty, planting seeds, and harvesting food. In addition to these tangible agricultural practices, we provide students with small HD cameras and teach video literacy, so that students are able to communicate what they learn with friends, family, teachers and the extended Leave It Better community.

At the Leave It Better Kids Garden we host weekly garden days at 1970 Grand Avenue in the Bronx. These eventful Saturdays often include activities like picking up trash, weeding, planting seeds, harvesting, composting, building leaf forts, climbing trees and much more.

## Material of the Arts

Materials for the Arts (MFTA) provides thousands of NYC’s arts and cultural organizations, DOE schools, and community arts programs with the supplies they need to run and expand their programs. MFTA gathers materials from companies and individuals that no longer need them and make them available, for free, to the artists and educators that do. In the process, hundreds of tons are removed from the waste stream every year and kept out of landfills, which helps sustain our environment, promotes reuse, and reduces waste. The Education Center hosts programs on site in two studio classrooms and sends teaching artists into schools to share the art of reuse. Classes include instruction in projects that can be integrated into the regular curriculum for use by all teachers. Learn to make sustainable costumes, hats, masks, puppets, mobiles, wind chimes, found object prints, books, game boards, and musical instruments.

Accomplishments this year:

- ◆ Over 15,000 students and 6,000 teachers attended MFTA tours and workshops
- ◆ Provided 10 residencies at P.S. 141 in Brooklyn, P.S. 107 in Queens, P.S. 209 in Queens, P.S. 3 in Manhattan, P.S. 297 in Brooklyn, P.S. 05 in Brooklyn, P.S. 44 in Brooklyn, P.S. 58 in Brooklyn, P.S. 91 in the Bronx, and P.S. 54 in Brooklyn
- ◆ Provided after-school programs at M.S. 35 and P.S. 41(both schools located in Brooklyn)

- ◆ Provided DOE Certified Teacher Training in a 9 week-long sessions
- ◆ Provided two all-day professional development workshops for teachers in November and June

#### Future Plans:

- ◆ Repeat the same number of workshops and programs and reach more participants
- ◆ Provide all-day professional development for teachers at MFTA in creative reuse techniques for the classroom
- ◆ Provide MFTA presentations to the public at museums and cultural sites throughout NYC, including Brooklyn Children’s Museum, Museum of the City of New York, The New Museum, and The Queens Museum
- ◆ Provide MFTA workshops at the New York Art Teachers Association UFT Conference, NYC DOE Sustainability Coordinator Summit, and other conferences

## **New York Botanical Garden**

Since its founding more than 100 years ago, the New York Botanical Garden (NYBG) has been dedicated to preserving and protecting the environment. Through its Sustainability and Climate Change Program, the Garden is identifying and reducing its carbon emissions; revising its grounds maintenance and horticultural practices; managing and removing invasive species in the forest; engaging volunteers in the collection of climate change data; and further educating the public about the major environmental issues of the day and how to help address these problems.

The Children's Education program at NYBG hosts the following children's education programming: Children's Gardening program for children ages three to twelve years old; Green School offers three single session programs for middle school: How to Build a Worm Bin that teaches kids about recycling, The Water Cycle that explains how climate affect plants in different biomes and specialized Citizen Science workshops, which support teachers who have participated in Citizen Science focused professional development at the Garden; and The Everett Children’s Adventure Garden, which provides programming for students in grades pre-K-5, with a focus on connecting students to nature throughout each season.

Bronx Green-Up, provides community gardening outreach that provides horticultural advice, technical assistance, and training to community gardeners, urban farmers, school groups, and other organizations interested in improving urban neighborhoods in the Bronx through greening projects. The Bronx Green-Up program worked with the following DOE schools this year: Bronx Charter School for Better Learning, C.S. 211, DeWitt Clinton High School, Immaculate Conception School, John F. Kennedy High School Enchanted Garden, P.S. 105 Sen. A. Bernstein School, P.S. 130 Abram Stevens Hewitt, P.S. 207, P.S. 42 Little Claremont Park, P.S. 443 The Family School, P.S. 47 John Randolph, P.S. 54 Fordham Bedford Academy, P.S. 87, P.S. 93 Albert G. Oliver, and Spuyten Duyvil Preschool.

## **New York Power Authority**

NYPA is America's largest state power organization, with 16 generating facilities and more than 1,400 circuit-miles of transmission lines. State and federal regulations shape NYPA's diverse customer base, which includes large and small businesses, not-for-profit organizations, community-owned electric systems and rural electric cooperatives and government entities. NYPA provides energy efficiency and renewable energy programs, one of them is “Power to Schools” programs to help grade k-12 public and private school conserve energy and save money by providing them with additional options to improve energy efficiency and utilize clean energy technologies.

Under the Power to Schools program, NYPA is installing energy efficiency projects in DOE schools (such as lighting upgrades, high-efficiency motors for heating and ventilation, replacement or renovation of boilers and chillers, lighting occupancy sensors, insulation and energy management systems).

## **NYC Compost Project**

The NYC Compost Project helps to reduce waste in NYC and rebuild City soils by giving New Yorkers the knowledge, skills, and opportunities they need to produce and use compost. The Compost Project is hosted at seven different cultural institutions and nonprofit organizations throughout the five boroughs. Through these seven host sites, the NYC Compost Project works with more than 200 community compost sites and 700 community groups, organizations, and institutions.

## **NYC Department of Environmental Protection**

New York City Department of Environmental Protection (DEP) protects public health and the environment by supplying clean drinking water, collecting and treating wastewater, and reducing air, noise, and hazardous materials pollution. Their Office of Education provides grades pre-K through college students and educators with a wide range of free programs and resources about the city's water supply and wastewater treatment systems, sound and noise quality, climate change, and other environmental topics. A sampling of education programs include: Special events such as the annual Water Resources Art & Poetry Contest and City that Drinks the Mountain Sky theater performances; Hands-on programs at the Visitor Center at Newtown Creek featuring exhibitions describing the New York City water and wastewater systems; Guided field trips to the East and West-of-Hudson watersheds; Trout in the Classroom program; Classroom presentations; Teacher professional development training; Curriculum assistance; Publications; and on-line education modules.

Accomplishments this year:

- ◆ 214 schools participated in one or more DEP education programs including special events, hands-on programs, and class presentations.
- ◆ 19 teachers attended the Watershed Forestry Institute for Teachers (WFIT) professional development workshop on July 14, 2014.
- ◆ 125 teachers attended the Trout in the Classroom professional development conference on October 9, 2014.
- ◆ Provided Sustainability Coordinators with professional development during the basic and advance Sustainability Coordinators trainings.

- ◆ 5 teachers met with DEP at the NYU Outdoor Expo on October 15, 2014.
- ◆ 17 teachers attended the Operations Explore (OPEX) Teachers Training on October 17, 2014.
- ◆ Provided 35 teachers professional development at the December 4, 2014 DOE Sustainability Coordinators Training.
- ◆ Met with 5 teachers at the Science Council of New York City (SCONYC) professional development conference on March 28, 2015.
- ◆ 15 teachers attended the Tree Census Workshop 2015 hosted by DEP and NYC Parks on April 28, 2015.

#### Future plans:

- ◆ To develop and implement new and enhanced comprehensive education programs and resources in order to reach a larger audience
- ◆ To enrich the exhibitions and programs at the Visitor Center at Newtown Creek
- ◆ To increase outreach by developing new relationships with youth and adult art, education and environmental organizations, cultural institutions, government agencies and other groups
- ◆ Offer additional teacher professional development trainings

### **NY SunWorks**

SunWorks is a non-profit organization that builds innovative science labs in urban schools. The Sun Works Greenhouse Project Initiative is based on The Science Barge model and uses hydroponic farming technology to educate students and teachers about the science of sustainability. The pilot Greenhouse Project Lab at P.S 333 on Manhattan's UWS opened in the fall of 2010, and functions as a hands-on classroom for students from kindergarten through 8<sup>th</sup> grade with an integrated environmental science curriculum. They envision a generation of environmental innovators, empowered to create solutions to global resource challenges. Their goal is to build 100 greenhouse project labs by 2020.

#### Programs provided this year:

- ◆ Provided 20 DOE schools with information about the NY Sun Works Greenhouse Project Program

### **National Wildlife Federation Eco-Schools**

The National Wildlife Federation's (NWF) Eco-Schools program is a free solution to reduce waste, conserve energy, increase environmental awareness, save money, and enhance student academic achievement. Partnering with the DOE, the National Park Service, ioby.org and many other partners, NYC Eco-Schools provides a roadmap to school sustainability that easily integrates with a school's curriculum and recognizes teachers' and students' efforts. Green teams, comprised of students, staff, parents, and community members, work through program pathways to achieve real, measurable progress on issues like energy use, consumption and waste, sustainable food, healthy living, and more. This year five DOE schools, whose sustainability progress qualified them for NYC Eco-Schools Green Flag

awards, received \$5,000 grants from the DOE (P.S. 166 and P.S. 333 in Manhattan, BUGS and P.S. 29 in Brooklyn and P.S. 29 in the Bronx). There are only 40 Green Flag schools in the nation and the city has eleven of them. Learn how those five schools earn the Green Flag Award in the Recognition and Contest Section.

### **Queens Botanical Garden**

The Queens Botanical Garden (QBG) is an urban oasis where people, plants and cultures are celebrated through inspiring gardens, innovative educational programs and demonstrations of environmental stewardship. To introduce nature, QBG offers an array of environmental education workshops for all ages. A leader in environmental education, QBG welcomes students across the city and beyond to their 39-acre living museum. Their hands-on workshops for grades K-12 learners cover a myriad of topics from honeybees to biomes, and their instructors are noted for their wealth of knowledge about plants, animals, and insects as well as sustainable design and environmental stewardship principles. QBG Environmental Education Workshops are a great way to introduce nature into your curricula and many provide Common Core support. QBG instructors are available to guide tours through garden exhibits that provide unique learning opportunities. Botanical displays provide a showcase of environmental, botanical, and cultural themes. QBG participates in NYC Compost Project to educate Queens and the rest of the city on the many benefits of composting.

Accomplishments this year:

- 31 different grade K-12 school activities offered
- 612 attendees at school activities
- 9 Outreach Activities with Schools
- 193 attendees at outreach activities
- 20 workshops for schools with 416 attendees

### **Sims Municipal Recycling**

In late 2013, the Sims Municipal Recycling (SMR) Sunset Park Material Recovery Facility began processing the city's recyclables. SMR is responsible for sorting all of NYC's residential and institutional metal, glass and plastic, as well as half of the city's paper. In the fall of 2014, SMR opened the Recycling Education Center (REC). This center has exhibits that aim to demonstrate the whole story of recycling: what should be recycled, why you should recycle, how recycling happens at the Sims facility, who is involved with recycling, how recyclables get to Sims and where they go after. Students will watch videos and play an interactive quiz in the media center, and they will calculate their personal "diversion rates" in the Lunch Lab. Students will then have the opportunity to walk over a bridge to the operations overlook, where they will be able to see the machines and workers who sort the City's recyclables. The huge piles of recyclables, the large swinging cranes, the colorful network of equipment, and the particular smell of recyclables will create memories that will forever change how students view their waste.

## Solar One

Solar One is a non-profit environmental organization that provides DOE schools with fun and dynamic ways to incorporate information on sustainability issues. Working with hundreds of schools and community organizations in all five boroughs, Solar One provides grades K-12 Education through the Green Design Lab and Enrichment Education Workshops, and also offers professional development workshops for teachers seeking training on teaching sustainability and starting school greening programs. More about Green Design Lab in Green Curriculum Section.

Accomplishments this year:

- ◆ Provided the year-long Sustainability Program at High School for Energy and Technology in the Bronx, A Phillip Randolph High School in Manhattan, Baruch College Campus High School in Manhattan, Bronx Construction and Design Academy, Energy Tech High School in Queens, High School for Construction Trades & Engineering & Architecture in Queens, Queens Vocational High School, and School of Cooperative Technical Education
- ◆ Provided the Budding Scientist, Estuary and Park Ecology Field Trip at P.S 135 Sheldon A. Brookner in Brooklyn, P.S 215 Morris H. Weiss in Brooklyn, P.S 233 Langston Hughes in Brooklyn, P.S 003 The Bedford Village in Brooklyn, P.S 213 The Carl Ullman School in Queens, P.S 041 Greenwich Village in Manhattan, P.S 173 Fresh Meadows in Queens, and P.S 015 Patrick F. Daly in Brooklyn
- ◆ Provided STEM at P.S 274 The Kosciusko School in Brooklyn, P.S 086 The Irvington School in Brooklyn, P.S 021 Edward Hart in Queens, P.S 016 John Jay Driscoll in Staten Island, P.S 376 in Brooklyn, and P.S 044 Thomas C. Brown
- ◆ Transit Tech High School, in Brooklyn, participated in a 6 session SSN Activity Program, as well as the Sustainable Schools Network (SSN) Activity after school program
- ◆ Provided the After School English Language Learning (ELL) STEM Workshop at P.S 376 The Felisa Rincon de Gautier School in Staten Island, P.S 044 Thomas C. Brown in Staten Island, P.S 274 The Kosciusko School in Brooklyn, P.S 086 The Irvington School in Brooklyn, P.S 016 John Jay Driscoll in Staten Island, P.S 73 in the Bronx
- ◆ Provided the After School Energy Reduction Workshop at Columbia Secondary School in Manhattan, P.S 179 The Kensington School in Brooklyn, and J.H.S 217 Robert A. Van Wyck: The Green Magnet School for Career Exploration in Queens
- ◆ Participated in all four, basic and advance, Sustainability Coordinator trainings offered by the Office of Sustainability
- ◆ Hosted a webinar for Sustainability Coordinators and Teachers on how to save energy at their school. Provided participants with several lesson plans, ideas for hands on activities with students, as well as easy methods of assessing and improving energy use in the building.

## Wellness in the Schools

Wellness in the Schools (WITS) is a non-profit organization that inspires healthy eating, environmental awareness and fitness as a way of life for kids in DOE schools. Through meaningful public and private partnerships with school leadership, teachers, chefs, coaches, parents and kids, WITS develops and implements programs that provide healthy foods, healthy environments and opportunities for regular play to help kids learn and grow. In partnership with several DOE schools, WITS operates the Cook for Kids programs in school cafeterias and classrooms to promote healthy eating and combat childhood obesity. WITS trains culinary school graduates, who partner with cafeteria and SchoolFood staff in preparing daily scratch-cooked meals and serving the “Alternative Menu”, a healthier, less processed menu created by WITS and the DOE.

WITS also operates the Coach for Kids program, which brings trained coaches onto public school recess yards to encourage even the least active children to engage in fun and healthy physical activities. Coach for Kids actively combats schoolyard bullying by building positive social skills through play and fosters a sense of excitement around fitness.

WITS Cook for Kids and Coach for Kids programs are centered on a single daily goal: help students eat well and stay active so that they can return from their lunch/recess period focused and ready to learn. Both programs also have a unique set of program-focused goals, used to measure progress and to assess the continuing needs of a school and student body.

Programs provided this year:

- ◆ M059 and K130 participated in Coach for Kids
- ◆ 28 schools participated in Cook for Kids
- ◆ 21 schools participated in both Coach for Kids and Cook for Kids

## Sustainability Survey

Schools that designated a Sustainability Coordinator were eligible to complete the annual sustainability survey required by Chancellor’s Regulation A-850. In June 2015, the DOE Sustainability Initiative conducted its fourth annual sustainability survey. Out of 1,622 sustainability coordinators, 1,275 completed it for a response rate of 77% (Figure 19).

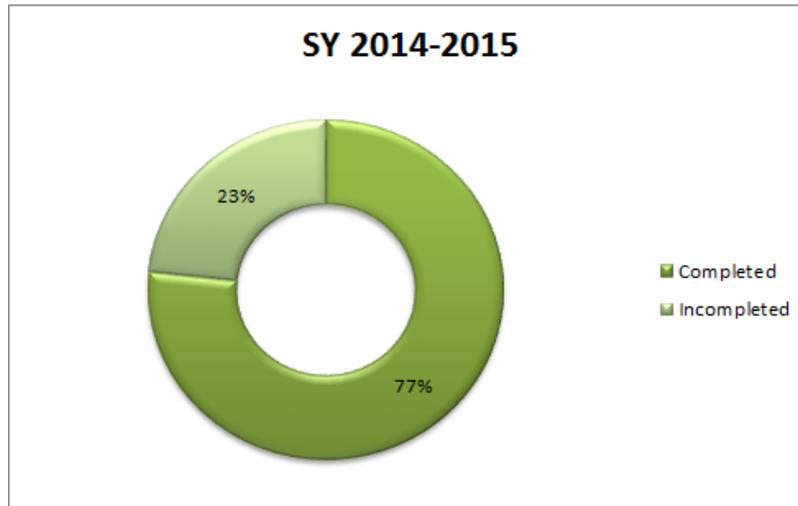


Figure 19 – 2015 Sustainability Survey Participation

### Survey Format

The design of the 2015 sustainability survey had little change from the 2014 survey. There were a total of 10 questions and all but one question allowed multiple responses (see Appendix F). At the end of the survey, after responding to all survey questions, responders were also allowed to input comments expressing any concern or achievement. Listed below are the eight multiple choice questions used in the survey:

- How did you communicate action items from your sustainability plan to your school's community?
- Are there separate, labeled recycling containers/bins for paper in the following areas?
- What percentage of classrooms has separate, labeled containers/bins for paper recycling?
- Are there separate, labeled recycling containers/bins for “Metal, Glass, Plastic, Cartons” in the following common areas?
- What containers are in your cafeteria to manage waste?
- How are the containers/bins set up?
- Did your school take any of the following steps to meet your energy reduction target for the year?
- What kind of support would you need to implement your school’s sustainability plan?

## Survey Statistics

**Communication Methods:** The methods that were most utilized by schools included faculty/staff meetings (58.2%), bulletin board postings (57.57%) and student projects (48%). The least used methods were having media events (2.82%), guest speakers (10.75% percent), and other methods (11.53%). Results of the survey indicate a similar outcome to that of previous years’ surveys, implying that schools have consistently used the same three methods due to the relative ease of use (figure 20).

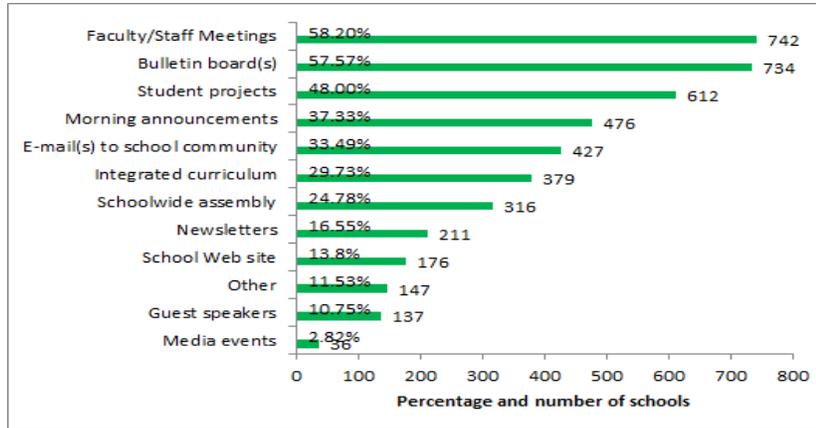


Figure 20 - How did you communicate action items from your Sustainability Plan to your school's community?

**Location of recycling containers for paper:** The two most common areas in which the Sustainability Coordinators indicated that have labeled recycling containers for paper were in every office (78.82%) and in every classroom (76.63%). Only 5.33% of schools indicated that they did not have a paper recycling system setup (shown in figure 21).

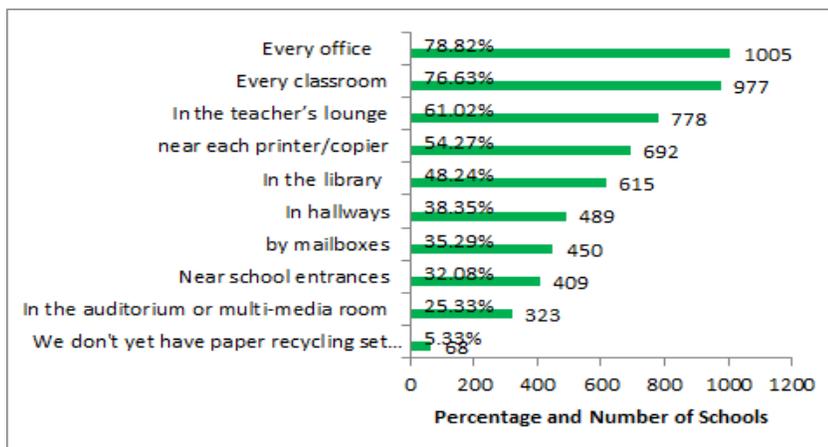


Figure 21 - Are there separate appropriately labeled recycling containers for paper in the following areas?

**Classrooms with Appropriate Recycling Bins:** A total of 848 (66.51%) of surveyed schools indicated that 76% or more of their classrooms have separate and appropriately labeled bins for paper recycling. A little more than 10% of sustainability coordinators indicated that at least 51% or more of their classrooms are fitted with appropriate paper recycling bins (shown in figure 22).

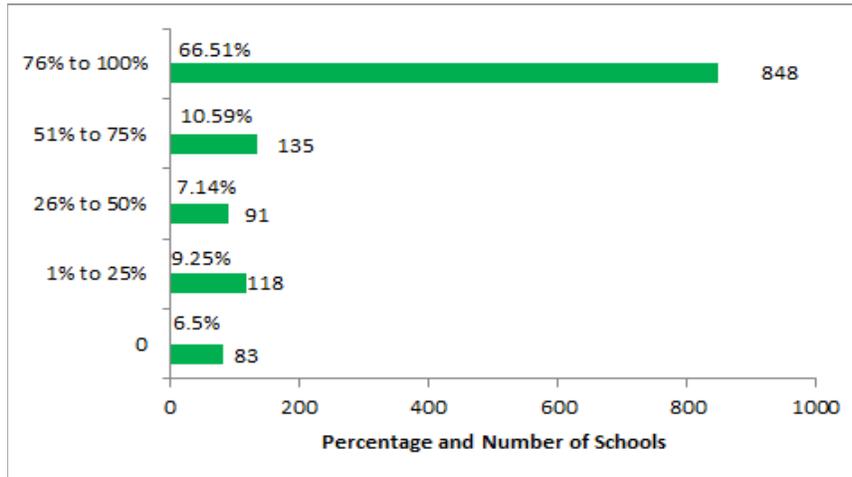


Figure 22 - What percentages of classrooms have separated, labeled containers/bins for paper recycling?

The following chart examines results from the past three years of surveys in respect to the classroom paper recycling bin question (shown in figure 23).

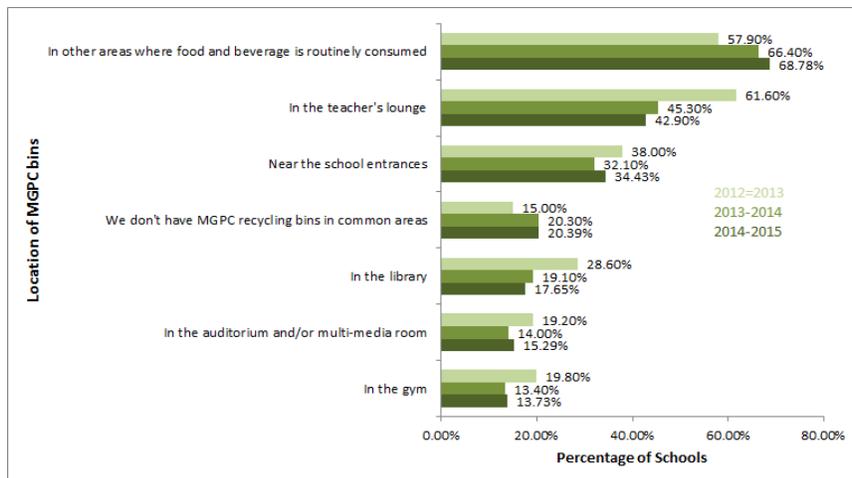


Figure 23 - Year to year comparison of percentages of classrooms with separate, labeled containers/bins for paper recycling.

**Location of Recycling Bins:** The majority of recycling bins for MGPC are located in “other” areas, excluding the cafeteria, where food and beverage are routinely consumed (68.78%). 547 (42.9%) of schools indicated that MGPC bins are in the teachers’ lounge and 439 (34.43%) indicated that they are near the school entrances (shown in figure 24).

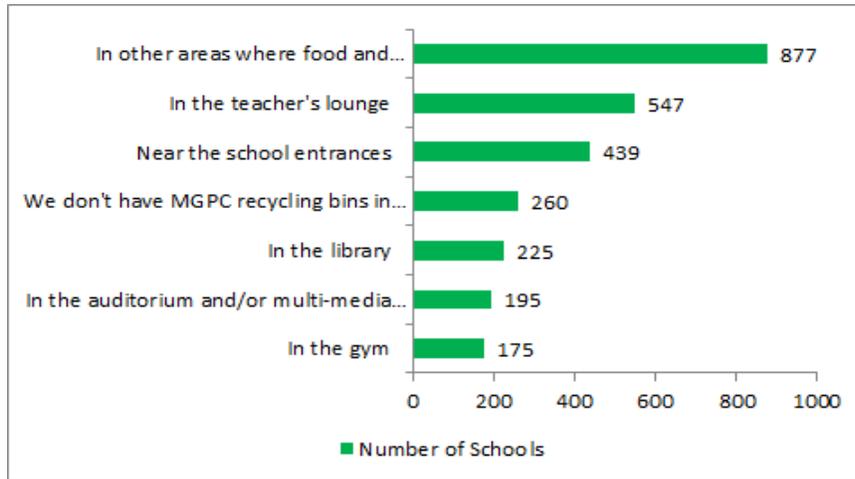


Figure 24 - Are there separate, labeled recycling containers/bins for “Metal, Glass, Plastic, Cartons” in the following common areas?

**Cafeteria Recycling Bins:** 874 (68.55%) surveyed schools indicated that there are MGPC bins to manage waste in their cafeteria and 849 (66.59%) surveyed schools indicated that there are liquid dump buckets in their cafeteria to manage waste. 349 (27.37%) of schools currently have landfill/garbage bins in the cafeteria (shown in figure 25).

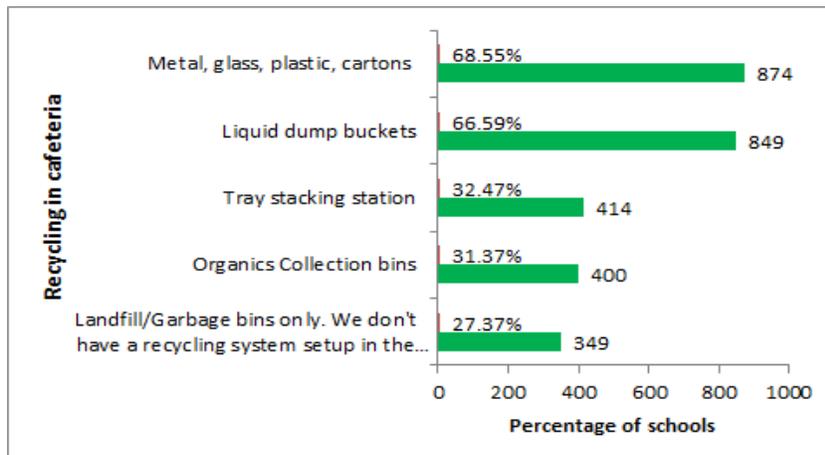


Figure 25 - What containers are in your cafeteria to manage waste?

**Set up of Recycling Center:** The majority of the containers are in centralized stations with one or more of each bin (62.43%). 329 (25.8%) of schools have bins dispersed throughout the cafeteria with no pairing or centralization (shown in figure 26).

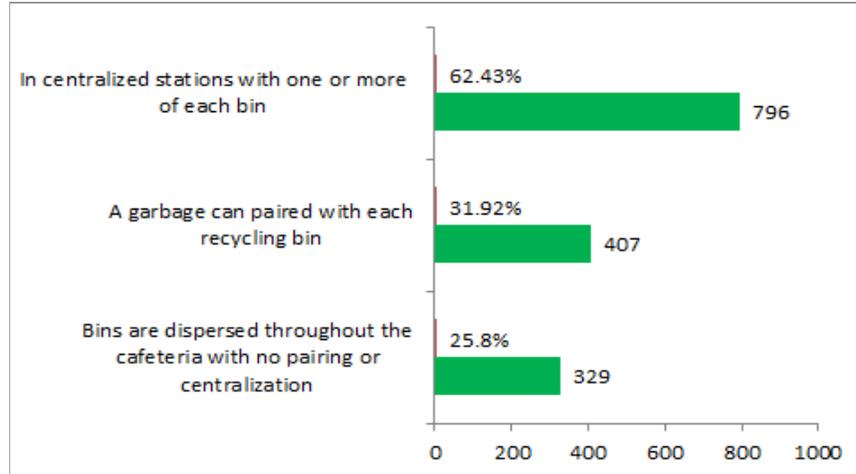


Figure 26 – How are the containers/bins set up in cafeteria?

**Energy Reduction Methods:** Similar to last year, turning off lights when not in use remained the most popular method of reducing energy usage (94.75%). There was however an overall increase in other methods (shown in Figure 27). Most schools have implemented the same methods year to year as their top energy reduction methods, including turning off lights, unplugging appliances, and working with the custodian engineer.

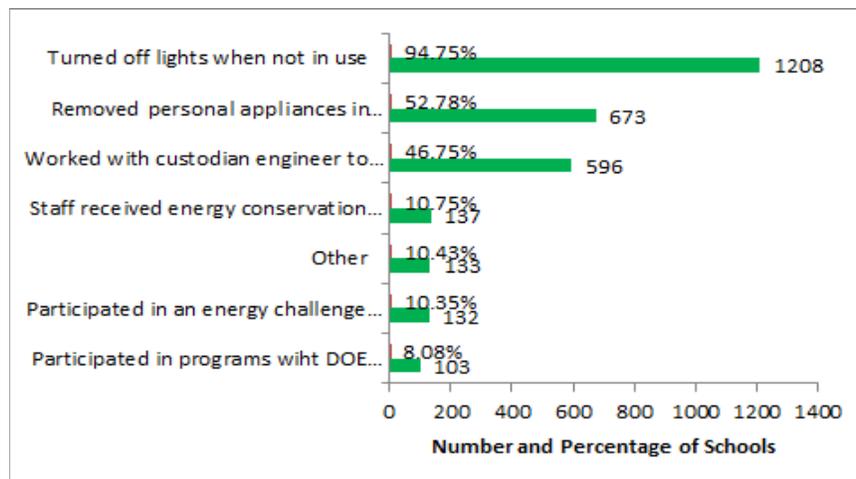


Figure 27 – Did your school take any of the following steps to meet your energy reduction target for the year?

**Support Ideas:** Sustainability Coordinators were asked what kind of support they needed to implement school sustainability plans with a list of choices. More than half wanted to enhance ideas to engage more students. 593 (46.51%) schools indicated that they need recycling container labels and signage from the DSNY (shown in Figure 27).

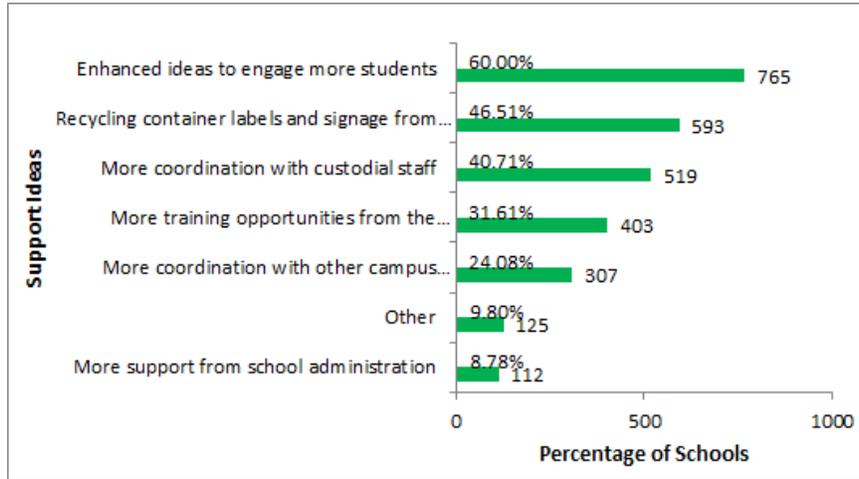


Figure 28 – What kind of support would you need to implement school sustainability plan?

**Comments:** At the end of the survey, coordinators were allowed to leave open-ended comments. There were a total of 644 comments, both positive and negative. The majority of positive comments highlighted a school’s success in implementing a successful sustainability plan and improvements that were made during the school year. The majority of negative comments were aimed at the lack of available resources or funding, such as recycling bins/boxes.

## Laws, Regulations and Policies

This section outlines the laws, regulations and policies enacted by the DOE, the City of New York and the State of New York to reach the goals highlighted in OneNYC.

### OneNYC

In spring 2015, Mayor de Blasio marked Earth Day by unveiling the city's 'One New York' Plan. OneNYC is described as a much broader successor to PlaNYC, the blueprint for long-term city infrastructure and environmental planning. OneNYC includes an overhaul of the city's recycling program, incentives to reduce waste, and tacit support for the City Council's plan to dramatically reduce the use of plastic shopping bags.

One NYC lays out a series of specific targets and sustainability initiatives to prepare the City for the future generations, including:

- ◆ Reducing the City's greenhouse gas emissions by 80% by 2050, over 2005 levels
- ◆ Sending zero waste to landfills and reducing waste disposal by 90% relative to 2005 levels, by 2030
- ◆ Ensuring New York City has the best air quality among all large U.S. cities by 2030
- ◆ Reducing risks of flooding in most affected communities
- ◆ Eliminating long-term displacement from homes and jobs after future shock events by 2050

### Energy

**Local Law 84:** This law requires owners of all large buildings to determine if their building needs to be benchmarked, and if so measure the annual energy consumption (benchmarking) and submit the data to the city by a specific due date.

**Local Law 85:** This law requires buildings to meet current energy codes for any renovation and alteration project in conjunction with local energy laws as designated by the New York City Energy Conservation Code (NYCECC), except historic buildings and state or national monuments.

**Local Law 86:** All city funded capital projects with construction costs of \$2 million dollars or more must be designed to Leadership in Energy and Environmental Design (LEED) silver or higher ratings. Also, construction projects with costs at \$12 million or more must reduce energy costs by 20-30 percent below the American Society of Heating, Refrigerating, and Air Conditioning Engineers standard or NYCECC standard. The School Construction Authority's Green Building Guide satisfies the mandates in this regulation.

**Local Law 87:** Buildings that are 50,000 gross square feet or larger must undergo audits and retro commissioning to determine energy consumption every ten years. The process of auditing large buildings can help lead to energy efficiency retrofits, resulting in costs and

energy savings. This law helps large building owners to understand their buildings performance, which help to lead to efficient measures.

**Local Law 88:** Large non-residential buildings are required to upgrade lighting fixtures to meet NYCECC code standards. Also, electrical sub-meters must be installed in large non-residential buildings to provide energy statements to the tenants of the office spaces.

**Local Law 66:** Amended the administrative code of the city of New York, in relation to reducing greenhouse gases by eighty percent by two thousand fifty. The City of New York committed to reduce its greenhouse gas (GHG) emissions by 80 percent from 2005 levels by 2050 (80 x 50), accelerating its initial target of a 30 percent reduction from 2005 levels by 2030 (30 x 30).

## Waste

**Local Law 36 (2010):** Local Law 36 of 2010 (LL 36) dictates that every New York City agency, including the DOE, shall submit a waste prevention, reuse, and recycling plan. Each city agency shall also designate a lead recycling or sustainability coordinator and each agency building should be designated one assistant sustainability coordinator.

**Local Law 41 (2010):** Local Law 41 of 2010 (LL 41), although similar in content to LL 36, specifically outlines the recycling requirements for the Department of Education. Requirements are as follows:

- ◆ All buildings owned and leased by the NYC Department of Education, including schools and administrative buildings are to recycle all recyclable materials.
- ◆ The chancellor must appoint a Director of Sustainability to oversee the recycling program, outline goals and policies to promote waste prevention, reuse, and recycling programs in all DOE Schools, charter schools, and other facilities and offices under their jurisdiction
- ◆ All school principals must appoint a sustainability coordinator from the school staff. The sustainability coordinator cannot be the principal or the custodian engineer.
- ◆ All schools and administrative offices must prepare and submit a viable recycling plan, which at a minimum requires that every class have separate and appropriately labeled bins for trash and recyclable paper, and for school buildings to have recycling bins for metal, glass, and plastic materials as close to the school exit as possible without violating safety codes.
- ◆ The school principal or sustainability coordinator must participate in an annual survey conducted by the DOE Director of Sustainability; which helps review each school's and the city's progress on recycling activities. The Director of Sustainability must submit an annual recycling report to the DSNY.
- ◆ All primary and secondary schools that are not under the jurisdiction of the DOE, but receive department collection services must also appoint a Sustainability Coordinator and implement a waste prevention and recycling plan.

**Local Law 77 (2013):** requires the DSNY to establish a voluntary residential organic waste curbside collection pilot program and school organic waste collection pilot program.

## General

**Chancellor’s Regulation A-850 (2013):** The DOE has always had a recycling policy in place before the passage of LL 36 and LL 41 known as Chancellor’s Regulation A-850; however, the regulation has undergone multiple revisions over the years to incorporate changes that will better fit the criteria outlined in LL 41. The regulation was sent to the Panel for Educational Policy for the 2012–2013 school years to reflect current DOE organizational structure and policy. The latest revised version of the regulation was issued on January 17, 2013, with the most notable change being that the heading of the regulation was changed to “Sustainability” from “Solid Waste Management (Recycling).” The significance of this is that previous versions of the regulation were limited to information on recycling policies and guidelines, but the latest version incorporates information about energy conservation, ecology, and green curriculum; validating more of a sustainable initiative rather than just a recycling initiative.

As a result of the broadened approach taken by the DOE on different aspects of sustainability, another important and noticeable change to the regulation is the clarification of roles of DOE personnel responsible for implementation of the Sustainability Initiative. Responsibilities are outlined for the CEO of DSF, Director of Sustainability, Deputy Director of Recycling, Deputy Director of Energy, Principles, Custodian Engineers, and Sustainability Coordinators. The Sustainability team includes many individuals, and by having a defined organizational structure it allows for more clear and efficient operation. As part of the revised version of the Chancellor’s Regulation, all school building requests from the principal that would increase the energy consumption of the building (*e.g.*, request for an air conditioner) have to be submitted to the CEO of DSF. The requests have to include equipment specific energy load information and how it complies with the energy conservation and reduction portion of the Sustainability Plan. Chancellor’s Regulation A-850 has undergone multiple revisions, but the latest and refined version is on par with the provisions in LL 41 and better rounded in relaying information on different features pertaining to Sustainability.

### Environmentally Preferable Purchasing

By accounting for factors such as energy and water use or greenhouse gas emissions, environmentally preferable purchasing regulations emphasize the positive impact on human health by purchasing products that are environmentally safer than other products.

**Local Law 118 (2005):** The law mandated the creation of a Director of Citywide Environmental Purchasing to institute new purchasing standards as according to environmental guidelines. The Director must also update environmental legislative standards and submit an annual report on the city’s purchasing of environmentally sound products.

**Local Law 119 (2005):** The law reviewed current usage of energy efficient merchandise and set the water and energy efficiency minimum standards for products purchased by the city.

**Local Law 120 (2005):** The law formed the standards for acquiring products comprising of hazardous materials, while also developing regulations on reducing the volume of hazardous materials produced from the goods purchased by the city. In addition to the hazardous materials policy, the law also mandates that the city set up a plan to reuse and recycle electronic goods.

**Local Law 121 (2005):** The law revised printer default settings for city offices to print double-sided, while also establishing the minimum recycled content standards for a number of goods set by the Federal Comprehensive Procurement Guideline.

**Local Law 123 (2005):** The law established that the City of New York develop a program to evaluate the practicability of green cleaning and implement a citywide green cleaning program by 2009.

**New York State Green Cleaning Law:** Enacted as Chapter 584 of the Laws of 2005, the State Green Cleaning Law requires elementary and secondary schools to obtain and utilize environmentally delicate cleaning and maintenance products. The New York State Office of General Services updated the law in 2010 to include state agencies and public authorities.

## Appendices

APPENDIX A: DOE Sustainability Excellence Awards

APPENDIX B: DOE Sustainability Art Poster Contest Winners

APPENDIX C: DSNY Golden Apple Award Winners

APPENDIX D: Green Cup Energy Challenge Winners

APPENDIX E: Solar One Energy Challenge Winners

APPENDIX F: Survey Questions and Format

## **APPENDIX A: DOE Sustainability Excellence Awards**

### **Outstanding Sustainability Coordinator**

Phil Richford - P.S. 197 Kings Highway Academy

Nicole Miller - P.S. 111 Adolph S. Ochs Middle School

Danny Steiner - Bronx Theatre High School

### **Outstanding Green Team**

P.S. 57 Green Team - P.S. 57 Hubert H. Humphrey Elementary School

M.S. 74 Green Team - M.S. 74 Nathaniel Hawthorne Middle School

Extreme Green Team - John F. Kennedy High School

### **Outstanding Event**

The Big Lift - P.S. 130 Hernando De Soto

Stuyvesant Annual Earth Day Fair - Stuyvesant High School

### **Outstanding Principal**

Rosemarie Nicoletti - P.S. 197 Kings Highway Academy

### **Outstanding Facility**

Luciano Paone - P.S. 54 Charles W. Leng Elementary School

## **APPENDIX B: DOE Sustainability Art Poster Contest Winners**

### **Elementary**

Kayla Rose Medina, Grade 2, P.S. 30 Westerleigh, Staten Island  
Xhaden Sargeant, Grade 3, P.S. 25 Eubie Blake School, Brooklyn  
Lauren Amador-Cruz, Grade 5, P.S. 111 Adolph S. Ochs, Manhattan

### **Middle School**

Andriy Yegorov, Grade 8, I.S. 98 Bay Academy, Brooklyn  
Amelia Samoylov, Grade 8, I.S. 98 Bay Academy, Brooklyn  
Chahinez Bouflah, Grade 8, J.H.S. 190 Russell Sage, Queens

### **High School**

Judy Zhou, Grade 12, Brooklyn Technical High School, Brooklyn  
Fay Ng, Grade 12, Brooklyn Technical High School, Brooklyn  
Samantha Remulla, Grade 12, Brooklyn Technical High School, Brooklyn

To view the winner artwork visit:

<http://schools.nyc.gov/community/facilities/sustainability/about/events/PosterContestWinners>

**APPENDIX C: DSNY Golden Apple Award Winners**

<b>Division</b>	<b>Borough</b>	<b>Award</b>	<b>Prize</b>	<b>School</b>
Elementary	Manhattan	Citywide Elementary	\$10,000	PS 130 Hernando De Soto
High School	Manhattan	Citywide High School	\$10,000	Stuyvesant High School
Elementary	Staten Island	Borough Winner	\$6,000	PS 9R Naples Street Elementary
Elementary	Queens	Borough Winner	\$5,000	PS 221 The North Hills School
Elementary	Queens	Borough Runner-Up	\$2,500	PS 144 Col Jeromus Remsen
Elementary	Queens	Honorable Mention	\$1,000	PS 29
Intermediate	Queens	Honorable Mention	\$1,000	IS 5 Walter Crowley
High School	Queens	Honorable Mention	\$1,000	John F Kennedy Jr High School
High School	Bronx	Honorable Mention	\$1,000	Bronx Theater High School

**APPENDIX D: Green Cup Energy Challenge Winners**

<b>Placement</b>	<b>Org Location Code</b>	<b>School Name</b>	<b>Award Amount</b>
1st Place	Q480	John Adams High School	\$ 12,500
2nd Place	K005	Dr. Ronald McNairy School	\$ 5,000
2nd Place	K369	P.S. 369	\$ 5,000
3rd Place	K097	The Highlawn School	\$ 7,500
4th Place	Q194	William Carr Middle School	\$ 5,000
5th Place	K489	Medgar Evers Middle College	\$ 2,500
6th Place	K605	George Westinghouse Career & Technical Education High School	\$ 2,500
7th Place	X179	P.S. 179	\$ 1,000
7th Place	X369	Young Leaders Elementary School	\$ 1,000
7th Place	X352	The Vida Bogart School for All Children	\$ 1,000
8th Place	K273	The Wortman School	\$ 2,500
9th Place	Q018	The Winchester School	\$ 2,250
10th Place	K003	The Bedford Village School	\$ 2,250

**APPENDIX E: Solar One's Green Design Lab Energy Challenge Winners**

<b>Placement</b>	<b>Org Location Code</b>	<b>School Name</b>	<b>Award Amount</b>	<b>% Energy Reduction</b>
1st Place	M154	P.S 154 Harriet Tubman Learning Center	\$5000	33%
2nd Place	M361	Children's Workshop School/East Village Community School	\$5000	22.9%
3rd Place	K003	P.S 003 The Bedford Village	\$5000	21.5%
4th Place	K067	P.S 067 Charles A. Dorsey	\$2,500	19.6%
5th Place	K527	Urban Assembly Institute of Math & Science for Young Women	\$2,500	19.6%
6th Place	M126	P.S 126 Manhattan Academy of Technology	\$5000	18.2%

**APPENDIX F: DSNY Golden Apple Award Winners**

<b>Division</b>	<b>Borough</b>	<b>Award</b>	<b>Prize</b>	<b>School</b>
Elementary	Manhattan	Citywide Elementary	\$10,000	PS 130 Hernando De Soto
High School	Manhattan	Citywide High School	\$10,000	Stuyvesant High School
Elementary	Staten Island	Borough Winner	\$6,000	PS 9R Naples Street Elementary
Elementary	Queens	Borough Winner	\$5,000	PS 221 The North Hills School
Elementary	Queens	Borough Runner-Up	\$2,500	PS 144 Col Jeromus Remsen
Elementary	Queens	Honorable Mention	\$1,000	PS 29
Intermediate	Queens	Honorable Mention	\$1,000	IS 5 Walter Crowley
High School	Queens	Honorable Mention	\$1,000	John F Kennedy Jr High School
High School	Bronx	Honorable Mention	\$1,000	Bronx Theater High School

**Trash Masters! Reduce & Reuse Challenge**

<b>Division</b>	<b>Borough</b>	<b>Award</b>	<b>Prize</b>	<b>School</b>
Elementary	Brooklyn	Citywide Elementary	\$11,000	Brooklyn New School PS 146
Intermediate	Manhattan	Citywide Intermediate	\$11,000	Washington Heights Expeditionary Learning School



High School	Queens	Citywide High School	\$10,000	Maspeth High School
Intermediate	Queens	Borough Winner	\$5,000	IS 125 Thom J McCann Woodside
High School	Queens	Honorable Mention	\$1,000	John F Kennedy Jr High School
High School	Brooklyn	Honorable Mention	\$1,000	Brownsville Academy High School

**APPENDIX F: Survey Questions and Format**

**2014-2015 DOE Annual Sustainability Survey**

Office of Sustainability

1) General Information

School/Location Code: \_\_\_\_\_

Building Code: \_\_\_\_\_

Borough: \_\_\_\_\_

School Name: \_\_\_\_\_

Principal's Name: \_\_\_\_\_

Coordinator's Name: \_\_\_\_\_

Coordinator's e-mail address: \_\_\_\_\_

2) How did you communicate action items from your Sustainability Plan to your school's community? Check all that apply.\*

- Bulletin board(s)
- Morning Announcements
- School wide assembly
- Guest speakers
- E-mail(s) to school community
- Student projects
- Faculty/Staff meeting
- Newsletters
- School website
- Integrated curriculum
- Media events
- Other: \_\_\_\_\_
- We do not communicate sustainability initiatives with our school community

3) Are there separate, labeled recycling containers/bins for paper in the following areas? Check all that apply.\*

- Every classroom
- Every office
- By each printer/copier
- By mailboxes
- Near school entrances
- In hallways
- In the library
- In the teacher's lounge
- In the auditorium and/or multi-media room
- We don't have a paper recycling system set up at our school

4) What percentage of classrooms have separate, labeled containers/bins for paper recycling? Choose one of the following options.\*

- 0
- 1% to 25%
- 26% to 50%
- 51% to 75%

( ) 76% or more

5) Are there separate, labeled recycling containers/bins for "Metal, Glass, Plastic, Cartons" in the following common areas? Check all that apply.\*

- Near school entrances
- In the gym
- In the auditorium and/or multi-media room
- In the library
- In the teacher's lounge
- In other areas where food and beverage is routinely consumed
- We don't have MGPC recycling bins in common areas

6) What containers/bins are in the cafeteria to manage waste? Check all that apply.\*

- Liquids dump bucket
- "Metal, Glass, Plastic, Cartons" bin
- Organics Collection bin
- Tray stacking station
- Landfill/Garbage bins only. We do not have a recycling system set-up in the cafeteria.

7) How are the containers/bins set up in the cafeteria? Check all that apply.\*

- In centralized stations with one or more of each bin
- A garbage can paired with each recycling bin
- Bins are dispersed throughout the cafeteria with no pairing or centralization

8) Did your school take any of the following steps to meet your energy reduction target for the year? Check all that apply.\*

- Participated in an energy competition. (Ex. GSA's Green Cup Energy Challenge)
- Turned off lights when not in use
- Removed personal appliances in accordance with Chancellor's Regulation A-850
- Worked with custodian engineer to reduce energy from building operations
- Staff received energy conservation training
- Participated in programs with DOE partners (ex: Eco-Schools, Solar 1, CELF, etc.)
- We did not work on energy initiatives this year
- Other: \_\_\_\_\_

9) What kind of support would you need to further implement your school's sustainability plan? Check all that apply.\*

- More coordination with other campus schools in the building
- More coordination with custodial staff
- More support from administration
- Enhanced ideas to engage more students
- Recycling container labels and signage from the Department of Sanitation
- More training opportunities from the Office of Sustainability and its partners
- Other: \_\_\_\_\_

10) Here's your opportunity to tell us what is working, what is not working, and how the Office of Sustainability and the Department of Education can better support you in making your school more sustainable.

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