



The NYC DOE Sustainability Initiative

2013-2014 Annual Sustainability Report





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The Green Schools Alliance
The Horticultural Society of New York
The Nature Conservancy
U.S. Department of Education
U.S. Environmental Protection Agency
U.S. Green Building Council
United Federation of Teachers
Waste Management Inc.
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 1,800 schools, 1,400 school buildings, and 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 Sustainability Initiative seeks to transform the DOE into a more sustainable and efficient public entity regarding facility operation and maintenance and student environmental education. This report highlights the developments and progress made during the 2013–2014 school year (fiscal year ended 2014) as the DOE Sustainability Initiative underwent its fourth 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 efforts
- Make direct impact on conservation through our own operations and maintenance practices

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Executive Summary

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



Waste Management

To reach a diversion rate of 30 percent by the year 2017



Energy Conservation

Reduce greenhouse gas emissions from DOE buildings and schools by 30 percent below 2008 levels by the year 2017



Water

Set up programs to reduce water consumption and increase water efficiency



Ecology

Participate in citywide green initiatives, programs, and contests that facilitate 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

Guided by the Division of School Facilities (DSF) within the Department of Education’s Division of Operations, the Office of Sustainability manages the DOE Sustainability Initiative and works year-round coordinating with many City and nongovernment agencies to provide necessary resources to optimize school operations, so that school staff, students, and the overall community can become aware of different sustainable methods. The Office of Sustainability emphasizes five pillars in achieving sustainable success: Waste Management, Energy Conservation, Water, Ecology, and Green Curriculum. 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 Sustainability Initiative, play a vital role in helping the Office of Sustainability implement its policies in the five highlighted areas of sustainability. The Office of Sustainability provides sustainability training programs for sustainability coordinators and custodian engineers/building managers, so that they can receive proper information on implementation and facilitation of the sustainability initiatives.

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. The average waste diversion rate for the DOE has increased every year with the waste diversion rate at 21 percent due to addition of organics collection. This year, we reached the original goal of doubling the DOE’s diversion rate! The DOE also minimized total waste produced by 12 percent during the same time. The Organic Collection program that was piloted in 2012–2013 in 90 DOE schools in Manhattan, Brooklyn, and Staten Island, diverting over 490 tons of food waste, was expanded within those boroughs to a total of 377 schools in 239 buildings covering 21 percent of our schools.

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, 77 schools participated in a four-month Solar One Green Design Lab Energy Challenge that was co-sponsored by the NYC DOE’s Sustainability Initiative. Out of the 77 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. These 39 schools combined saved over 1 million kilowatt hours of electricity, equal to avoiding 1.7 million pounds of carbon dioxide emissions from entering the atmosphere and New York City air (EPA). Through a series of building energy audits and energy use benchmarking, the DOE is retrofitting old and inefficient equipment. Buildings receive boiler

replacements, upgrades to lighting systems, and retrofits to HVAC systems to reduce energy consumption, working toward the attainment of the goal to reduce greenhouse gas emissions in DOE buildings by 30 percent by the year 2017. In the 2013–2014 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) have partnered to implement a plan to install new, high efficiency, water-efficient fixtures in the bathrooms of over 500 DOE school buildings. 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 the fiscal year of 2014, the DEP completed the retrofit of 26 schools, three more than originally anticipated for that year. The goal is to install new, high efficiency fixtures in the bathrooms of 500 City schools by 2018. Overall, the project will upgrade nearly 40,000 bathroom fixtures and is projected to reduce citywide water consumption by approximately four million gallons per day. The approximately \$31 million retrofit project is being funded by DEP.

Ecology

The Sustainability Initiative partners with different ecological organizations and initiatives such as GrowNYC’s Grow to Learn Garden Initiative, the New York Restoration Project, NYC’s Million Trees Initiative, and Garden to Café. The partnership between DOE and the various ecology initiatives and programs allows students to actively participate and learn about green and ecological methods to reuse and recycle food and recyclable materials amongst other things. Students also learn of the mutual and important relationship between humans and the environment, and how those interactions affect the environment in which we live in presently and in the future.

Green Curriculum

The Sustainability Initiative partners with non-profit partners such as the 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 functions with sustainability themes helps both school staff and teachers teach students to better understand the positives associated with a sustainable and green New York City.

Recognition & Contests

New York City students are dedicated to initiating and promoting sustainable issues, and as a result of their active involvement in reducing energy consumption and promoting various other sustainable practices at a high level, local and national organizations have recognized the schools and students who have contributed in making the City a greener city to live in. The Sustainability Initiative partners with several non-profit organizations to promote sustainability issues throughout competitions with the schools and their communities.

Partners

The DOE Sustainability Initiative works with a wide range of environmental non-profits and advocacy organizations throughout the year. Partners for Sustainability Initiative are the organizations who are interested in promoting lifestyles that are environmentally sustainable. These organizations provide a wide range of specialized information, resources, and training to help you make your school the greenest it can be.

Sustainability Survey

With the cooperation of school sustainability coordinators, the Office of Sustainability completed the annual sustainability survey, assessing 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 this report. There were a total of 1,349 schools that completed the survey for a completion rate of 84 percent of schools with sustainability coordinators. Overall, results were very similar to the findings in last year's sustainability report indicating that schools, students, and staff have continued to implement various sustainable practices.

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Office of Sustainability

Purpose, Goals, and Mission

Sustainability efforts are directed by the Office of Sustainability, which is housed within the DSF. The office's purpose is to deliver the necessary resources to make all DOE school and building operations more energy efficient, increase agency waste diversion rates, increase water efficiency and conservation, encourage the incorporation of sustainability into the curriculum, and provide ecological opportunities to the schools.

Based on these five pillars of sustainability, the DOE's sustainability goals are:

- **Waste Management:** To reach a diversion rate of 30 percent by the year 2017
- **Energy Conservation:** Reduce greenhouse gas emissions (GHG) from DOE buildings and schools by 30 percent below 2008 levels by the year 2017
- **Water:** Set up programs to reduce water consumption and increase water efficiency
- **Ecology:** Participate in citywide green initiatives, programs, and contests that facilitate student environmental activity and education
- **Green Curriculum:** Provide school principals and teachers with the necessary resources to integrate environmental education into the curriculum

Structure of the Office of Sustainability

Although DSF chairs the sustainability efforts for the DOE, various other DOE divisions (such as SchoolFood and School Construction Authority (SCA)) as well as City agencies (such as the Department of Sanitation (DSNY) and the Mayor's Office of Long Term Planning and Sustainability (OLTPS)) form a cooperative group of stakeholders. School sustainability coordinators play a vital role in the structure of the Office of Sustainability, as they are in charge of relaying information and lead sustainability efforts within their school. These various organizations and individuals play an integral part in helping to achieve a more sustainable New York City school system. The following diagram (Figure X) depicts a complete look of the stakeholders and initiators of sustainability efforts within the DOE.

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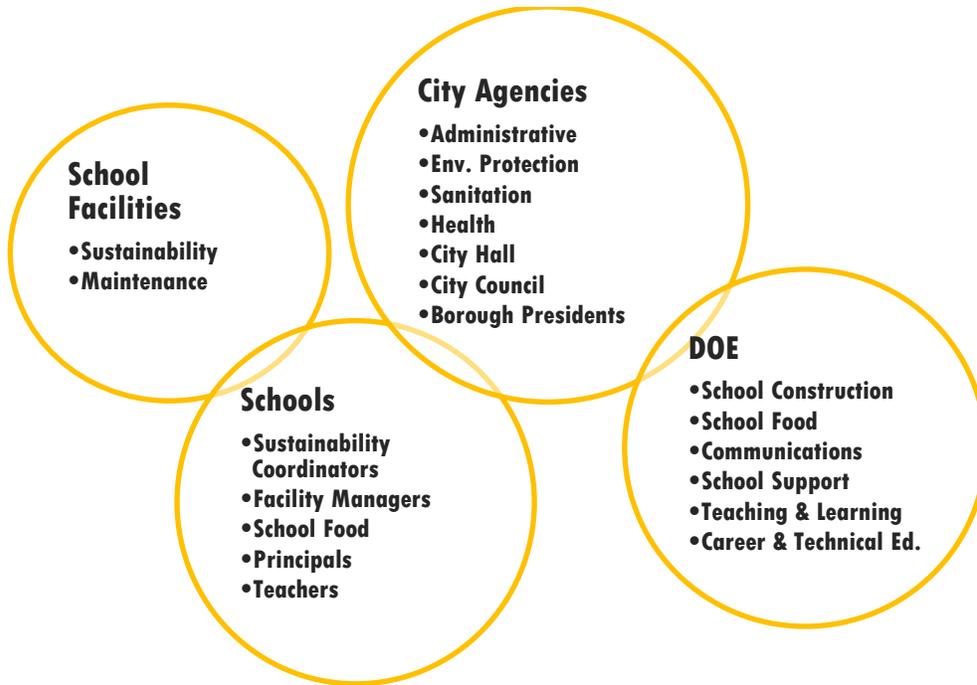


Figure 1: Organization of Sustainability Stakeholders

Sustainability Coordinators

Requirements: In accordance with Local Law 41 (2010) and outlined in Chancellor’s Regulation A-850 (2013), all DOE school principals must assign a sustainability coordinator from either the administrative or teaching staff. The coordinator cannot be the custodian engineer or principal.

Responsibilities of the school sustainability coordinators:

- To develop and implement a site-specific sustainability plan which shall, at a minimum, include a school sustainability plan that follows DSNY recycling rules.
- To ensure that students are following and practicing recycling rules.
- To be the conduit for sustainable curriculum development initiatives.
- To utilize 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. This designation of the sustainability coordinator is due the last Friday of September of each year. In the 2013–2014 school year, 1,614 schools appointed a sustainability coordinator out of 1,779 schools, for a 91 percent designation rate.

Sustainability Plan Submission: All schools under the control of the DOE, including charter schools located within DOE buildings, must create a site-specific sustainability plan summarizing the school or facility’s sustainability objectives. The plan outlines the school’s plans to create a green team

and set goals for recycling, energy conservation, ecology programs, and green curriculum. The school sustainability plan submission is due the last Friday of October of each year. In the 2013–2014 school year, 1,486 schools submitted a sustainability plan for an 84 percent completion rate.

Coordinator Training: The Sustainability Initiative offers training each year on how to implement sustainability initiatives in the school. In the 2013–2014 school year, five trainings were offered; October 21st, November 7th and 21st, February 3rd, and March 22nd. A combined total of 744 trainees attended Sustainability Initiative training in 2013-14. The October session was basic training for first-time coordinators, focusing on roles and responsibilities, NYC recycling rules, and partner’s offerings for further resources and training. The November sessions were more advanced for coordinators who had been to training in the past. These advanced trainings offered a variety of courses from the partners and offered a more in depth study into a particular subject. The February training focused on recycling and organics collection and for the first time, this class was offered to any school employee rather than restricted to designated sustainability coordinators. The March event was a training targeting NYC high school students called Sustain-A-Mania. In all of these trainings, partners such as DSNY, MillionTreesNYC, GrowNYC, Solar One, Earth Day NY, Eco-Schools, Materials for the Arts, etc. made presentations and provided hands-on learning activities.

Staff Training

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

Research and Data

The Sustainability Initiative is interested in taking on a larger effort in measuring its impact and the scale of its operations to be able to affect wider-scale change across the school district. In these efforts, the Initiative has been working behind the scenes to build databases that hold annual sustainability coordinator compliance information, training event attendee lists, and information on school sustainability activities, in addition to energy and waste data from city agencies. For the first time, we also required partners to report their impact on DOE schools on an annual basis (discussed in detail in the Partners Section).

To provide long-term research capabilities for the Sustainability Initiative, a partnership was created with the International and Comparative Education Program at Teachers College, Columbia University. As a first project, the research team, led by Professor Oren Pizmony-Levy and Rosa Fernández (M.A student), explored one aspect of access to environmental and sustainability education (ESE) in DOE schools.

In light of NYC’s groundbreaking efforts through PlaNYC 2030 and the DOE’s strong commitment to sustainability practices in school buildings, the research team is exploring which schools are more likely to engage with teaching and learning of environmental issues through a partner program, such as global climate change, community gardening, etc. The first stage of the research has brought to light important findings about access to ESE partner programs. They collected data on a variety of programs that currently exist in schools through non-profit partnerships and created a map of schools that offer such programs. Using statistical analysis, their goal was to understand the relationship between a number of social characteristics common among those schools (school grade level, size, ethnic/racial composition, location, and Free or Reduced-Price Lunch) and their level of engagement with ESE partners.

As the result, they found that about one-third of the schools in NYC (32.1 percent) collaborate with at least one ESE partner. The major findings indicate that (1) schools located in Manhattan are more likely to offer at least one program compared to other boroughs, (2) schools serving students with higher socio-economic status are more likely than other schools to offer a program, and (3) ESE programs are more common in high schools than in elementary and middle schools. The questions they seek to answer now are why and how these patterns emerge. Through their continued partnership with the DOE and its network, they hope to expand the research to gain a deeper understanding of access to ESE programs across the City. The DOE and the research team at Teachers College believe that ensuring that all schools, regardless of social background, have the opportunity to engage their students with ESE programs is not only important, but it is in line with the inspiring idea of a sustainable future in our City and schools.

Future Plans

- Move annual sustainability coordinator designation and plan process online for public access
- Organize an Advisory Council for strategic planning
- Explore options for online training modules for sustainability coordinators and custodian engineers

Waste Management

As part of the sustainability initiatives outlined by PlaNYC 2030, the DOE partners with the (DSNY) on waste reduction and diversion efforts. DSNY is tasked with diverting 75 percent of the city’s solid waste from landfills by 2017. As a result, the DOE works with DSNY to educate school staff and students, introduce zero waste concepts and plans, and measure and verify results.

Recycling

DSNY provides several streams of waste diversion for DOE schools. In addition to organics collection (detailed in a following chapter), DSNY collects recycling in two streams: Paper and Metal-Glass-Plastic-Cartons (MGPC). In order to increase the level of waste diversion in schools, DSNY provides many resources to schools, including bin labels, posters, tip sheets, and site visits, in addition to partnering with the Office of Sustainability on annual trainings.

Organics Collection

In the 2012–2013 school year DSNY, in partnership with the DOE, began an organics collection pilot program in 90 schools in Manhattan, Brooklyn, and Staten Island, diverting 490 tons of food waste. During the 2013-14 school year, the program was expanded to include 360 DOE schools. By Fall 2014, organics collection will be in approximately 700 DOE schools in all five boroughs (about 40 percent of all DOE schools). The goal was to collect all organic material from school cafeterias and kitchens in order to reduce the waste sent to landfills. As part of the preparation for the program, the Office of Sustainability trained SchoolFood managers, custodian engineers, deputy directors of facilities, and sustainability coordinators. On-site outreach was provided in several schools through an agreement with GrowNYC’s Recycling Champions.

Organics collection required students to sort recyclables and separate food waste prior to dismissal from the cafeteria. This offered students an opportunity for measurable environmental stewardship, public scholarship, and created a platform for hands-on learning in science, technology, engineering and mathematics. All organic material was placed in special brown organic 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 on-site composting, and the use of these bins reduced problems with vermin.

All food scraps, soiled food service paper, and compostable trays 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 pulp trays. Since the inception of the program, DSNY school organic trucks collected more than 1,900 tons of organic material from about 400 sites.

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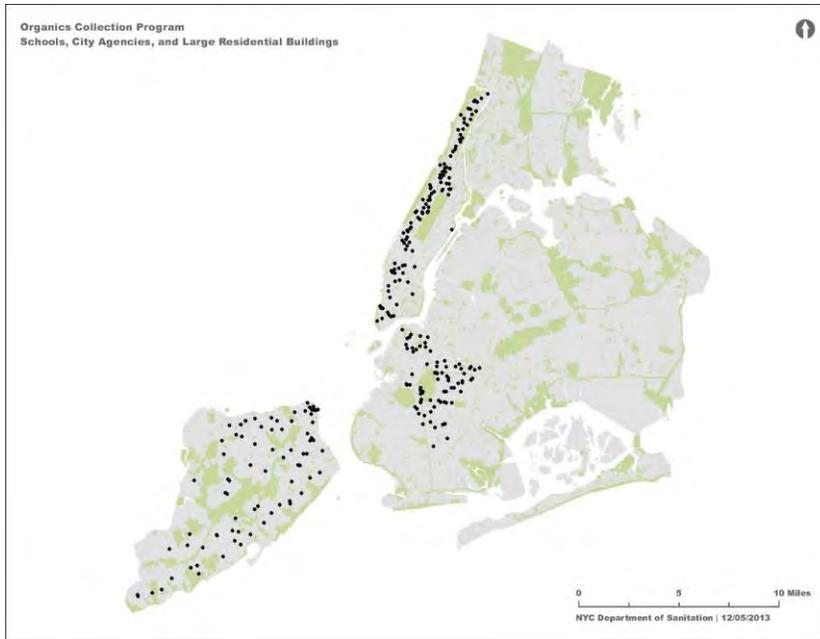


Figure 2: Organics Collection Locations FY14

Diversion Rate Analysis

In a system as large as the DOE, with many different methods of collection, waste diversion rates are difficult to measure. DSNY calculates the DOE’s diversion rate by analyzing waste that is collected through a nightly school truck collection. This route serves over 930 locations, covering approximately 75 percent of DOE buildings. As shown in Figure 3, the waste diversion rate at the end of the 2013–2014 school year was 21 percent.

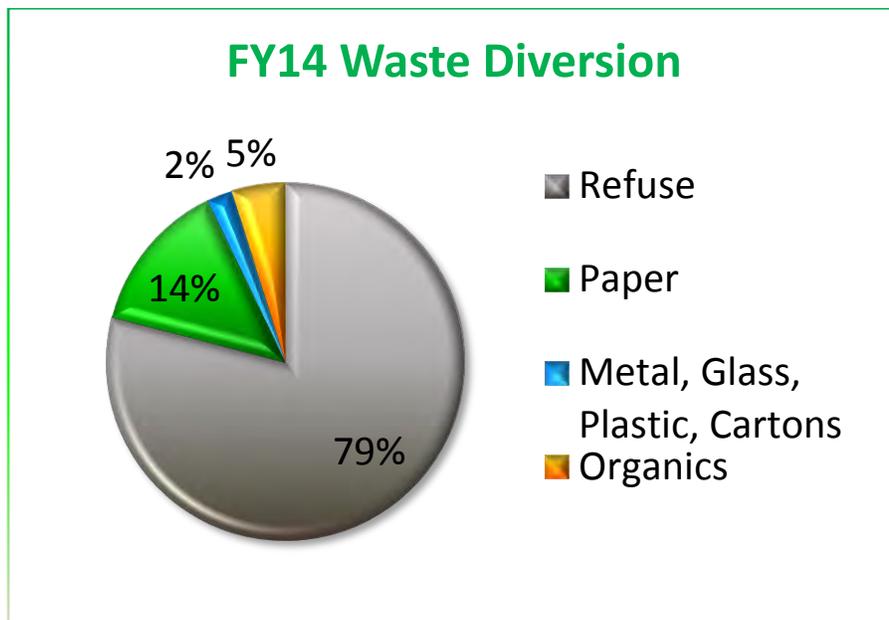


Figure 3: FY14 Waste Diversion Rate

An analysis of diversion rates over time show an average increase of 1percent per year in the last five years until organics collection was introduced in a significant number of schools, which accounts for the 5 percent jump in fiscal year 2014, as shown in Figure 4.

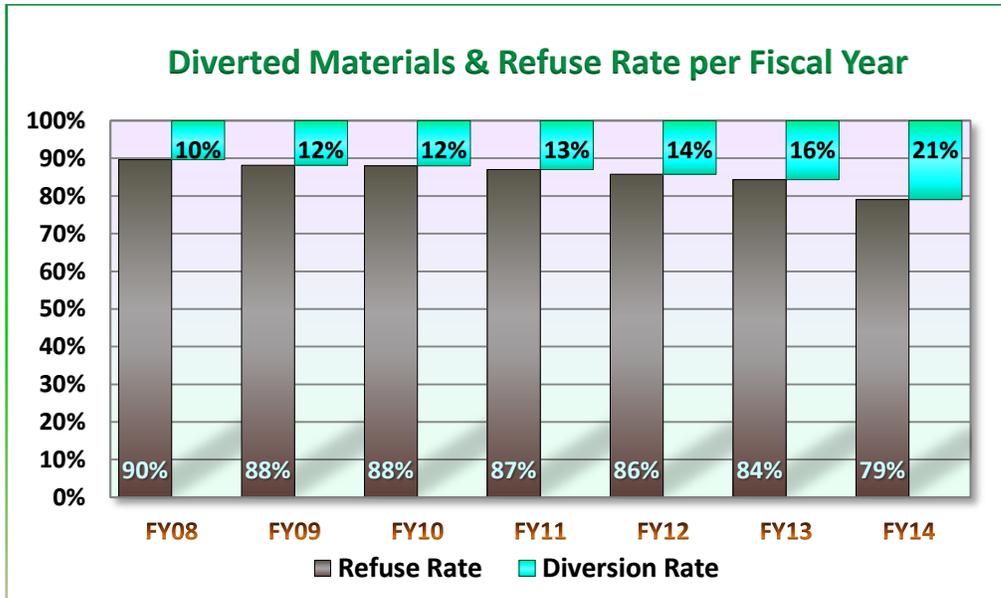


Figure 4: Waste Diversion FY08-FY14

In analyzing data provided by DSNY, several other items are noteworthy. Over the last six years, the DOE has increased its footprint by 4 percent or by more than 5 million square feet. Simply in this fact, the DOE should have increased the amount of waste it produced from schools. But efforts made in the schools actually reduced the amount of waste produced by 9 percent. When this waste minimization rate is analyzed by square foot, the DOE actually produced 12 percent less waste (Figure 5).

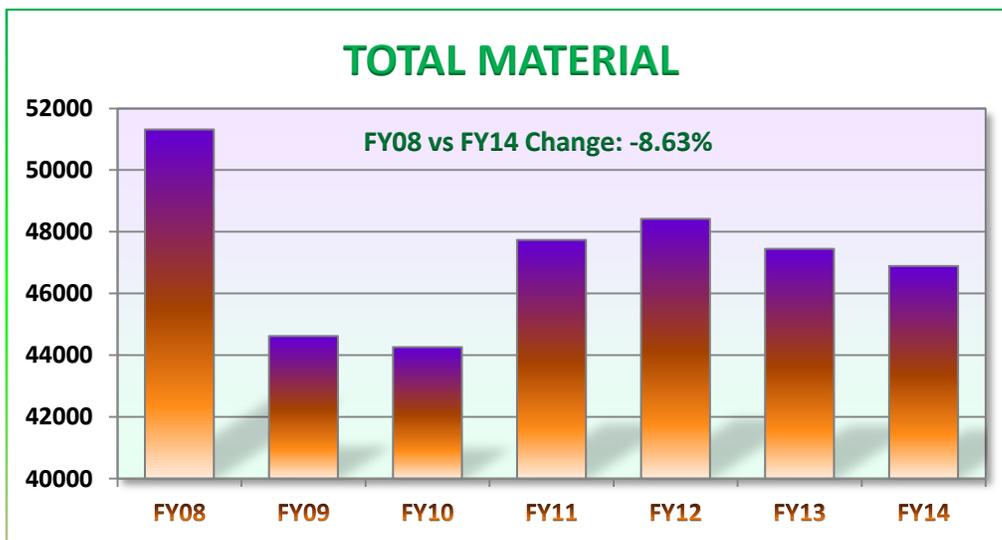


Figure 5: Total Material Collected FY08-FY14

Looking specifically at the recycling waste streams and accounting for the increase in square footage, paper collection was increased by 46 percent and the MGPC collection was improved by 11 percent, as shown in Figure 6 and 7 respectively.

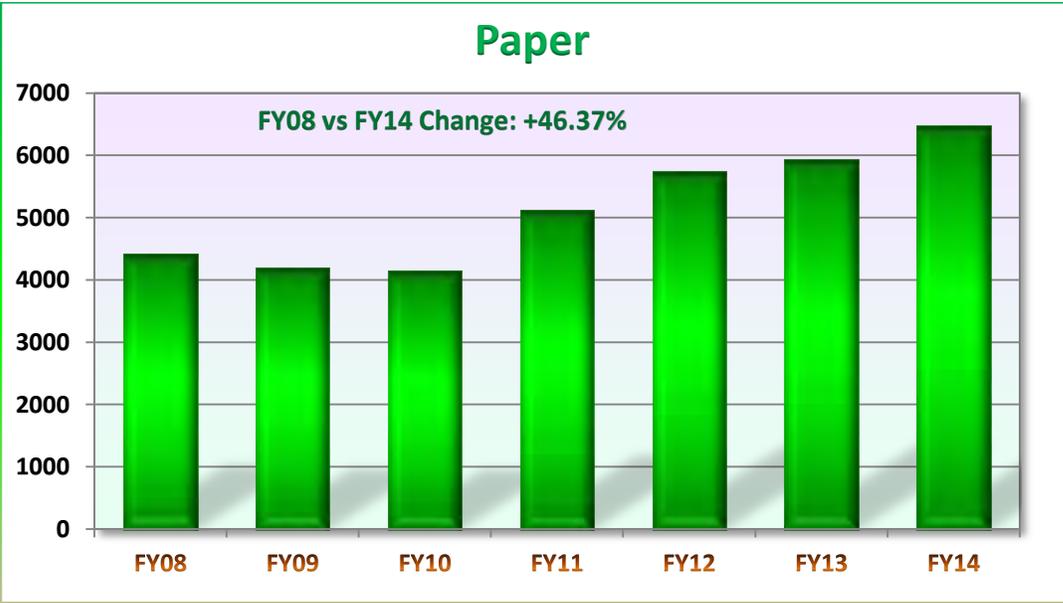


Figure 6: Paper Diversion Rate FY08-FY14

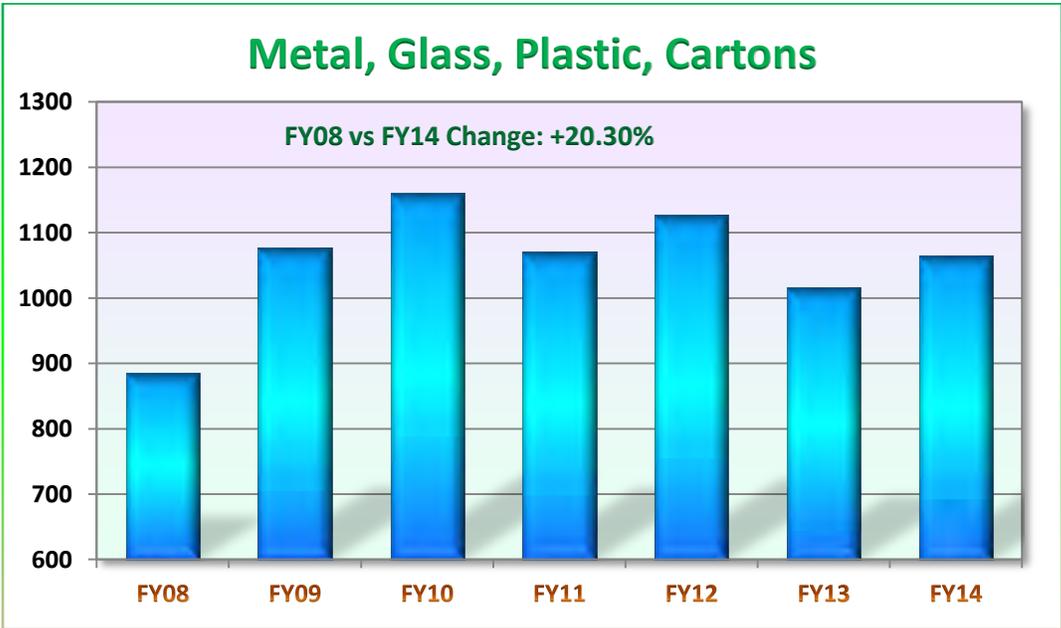


Figure 7: Metal, Glass, Plastic, Carton Diversion Rates FY08-FY14

Combining all the information from previous diversion rate charts into a snapshot of the DOE’s waste management hierarchy is shown in Figure 8.

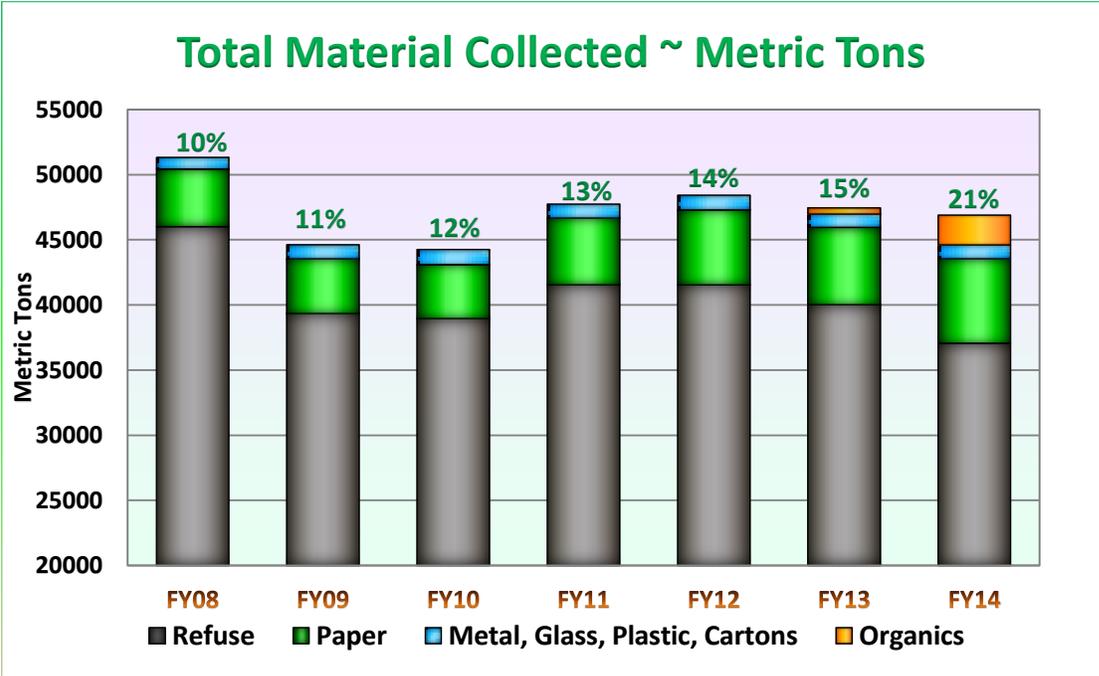


Figure 8: Total Material with Waste Characterization and Diversion Rates FY08-FY14

Outreach

GrowNYC’s Recycling Champions Program (RCP)

In 2013, GrowNYC entered into a service contract with the DOE to expand Recycling Champions’ outreach capacity. RCP develops model recycling programs at 100 schools each year, educating over 50,000 students, staff, and custodians on NYC recycling. Five outreach coordinators and a program manager now develop model recycling programs at least 100 schools each year, with the goal of increasing recycling diversion rates to at least 30 percent at participating schools. The best practices developed at Recycling Champions schools become resources that are available citywide through their website.

Supporting the NYC Departments of Sanitation and Education Organics Collection program was an important focus this school year because many schools had little to no recycling taking place in the cafeteria prior to starting Organics Collection. Ninety Recycling Champions schools implemented the recycling and food scrap collection practice in their cafeteria and through our partnerships, 100 percent of these schools were in compliance with Local Law 77 (2013) which supports food scraps collection. To meet and exceed compliance, 545 visits were made to Organics Collection schools by RCP staff, resulting in an average increase of 44 percent in organics collection rates as measured through the Big Lift contest. Since recycling cartons, plastic, metal, and glass is the first step in cafeteria recycling, Recycling Champions was able to increase blue stream recycling by an average of 336 percent at schools as measured through the Big Lift contest.

The RCP Big Lift contest challenges participating schools to weigh all waste generated in a day from cafeterias, classrooms, and offices, once-weekly for six weeks. In 2013-2014, 16 schools participated and I.S. 34 in Staten Island achieved the highest overall recycling rate of the school year at 79 percent. M.S. 226 in Queens had the most improved overall recycling rate, increasing recycling by 146 percent. This school year, RCP schools averaged a 63 percent overall recycling rate during the Big Lift contest, demonstrating that NYC schools can lead on recycling, helping meet the City’s sustainability goals and benefitting the environment.

Accomplishments during the 2013–2014 school year:

- Measured an average increase in overall recycling of 43 percent at schools through the Big Lift contest;
- Educated and empowered 48,421 students on NYC recycling;
- Conducted workshops for 1,981 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 of 31 student-helmed green teams that spread the message of recycling to peers;
- Made 545 visits to Organics Collection schools to improve their participation

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 our children. Furthermore, in September 2007, the Board of Regents announced its NY-CHPs High Performance Schools Guidelines 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 provides direct links to this information and more.

Trayless Tuesdays

The program, implemented in March 2010 by the DOE’s SchoolFood division in association with Cafeteria Culture, 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 use approximately 850,000 polystyrene foam trays each day. This program decreased cafeteria tray waste by 20 percent. Since the program’s inception four years ago, the DOE has used almost 90 million fewer polystyrene foam trays. Certain schools have expanded the usage of paper boats to Fridays and breakfast meals, reducing polystyrene foam usage even further.

Urban School Food Alliance

The DOE, Los Angeles Unified School District, Chicago Public Schools, Dallas Independent School District, Miami-Dade County Public Schools, and Orange County Public Schools partnered to form the Urban School Food Alliance. The alliance enables the school districts to leverage higher volume purchasing power to secure lower costs. The ultimate goal is to offer public school students healthy and delicious meals while keeping food costs low. Collectively, the Alliance serves approximately 2.9 million lunches a day, of which 850,000 are served in the City. The first alliance-powered bid was released in late 2013, with the goal to replace polystyrene trays with compostable trays. NYC schools use 850,000 trays per day, which amounts to 153 million trays per year. The Alliance is currently processing the bids, with the hope to roll out compostable trays in the 2014–2015 school year.

Future Plans

- Collaborate with DSNY on expansion of Organics Collection program (adding routes in the Bronx and Queens)
- Examine DSNY/DOE communication protocols and improve processes for efficiency
- Increase outreach to other DOE parties not currently trained in the Organics Collection Program

Energy Conservation

As part of the sustainability initiatives outlined by PlaNYC 2030, the DOE partners with the Division of Energy Management (DEM) on energy conservation efforts. DEM is tasked with reducing greenhouse gas emissions in municipal buildings 30 percent by the year 2017. As a result, DOE works with DEM to audit and retrofit school buildings, introduce energy efficient operation and maintenance plans, and measure and verify results. The 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 make up over 40 percent of City-owned municipal buildings, measured by square footage. Despite being such a large percentage of the City's footprint, DOE's energy use currently only makes up 24 percent of the City's energy 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 (as shown in Figure 9) and increasingly utilizes buildings for community purposes, resulting in longer operating hours and increased building use. Buildings are used in the summer months and after school hours for instruction, community events, camps, meal service, and emergency shelters. In the summer session of 2013, over 400 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 10 shows the breakdown of energy use across the DOE.

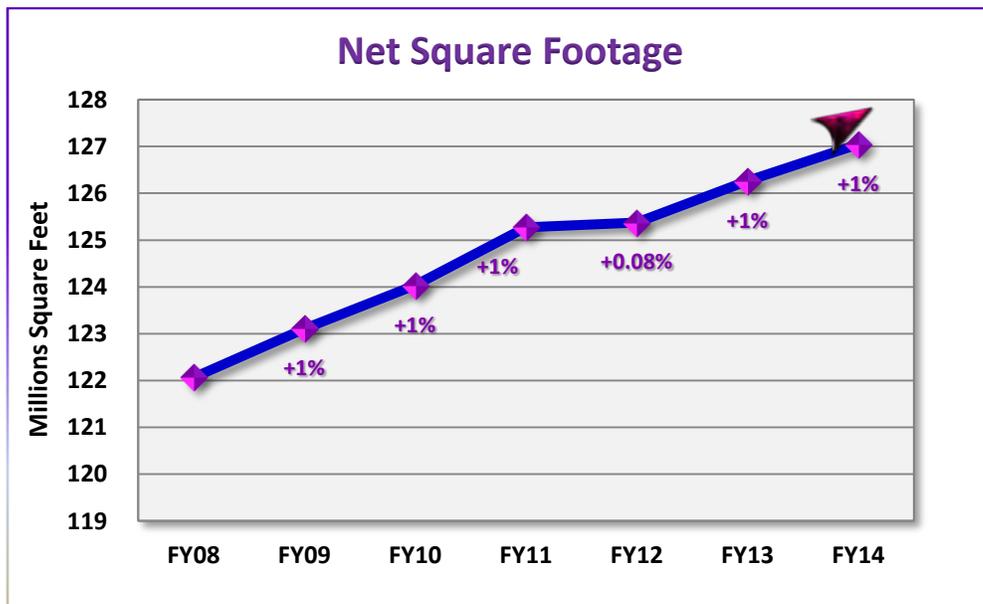


Figure 9: Net Square Footage FY08-FY14

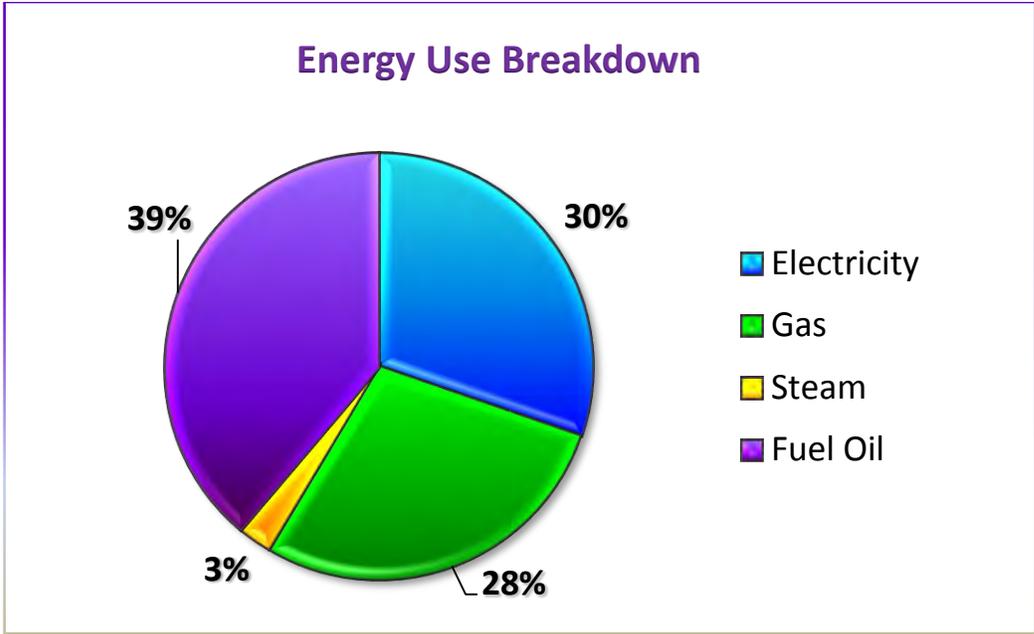


Figure 10: Energy Use Breakdown

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 11 presents total energy use in the DOE without considering square footage or weather. Overall energy use from this perspective increased by 6 percent (compared to the fiscal year 2008 baseline).

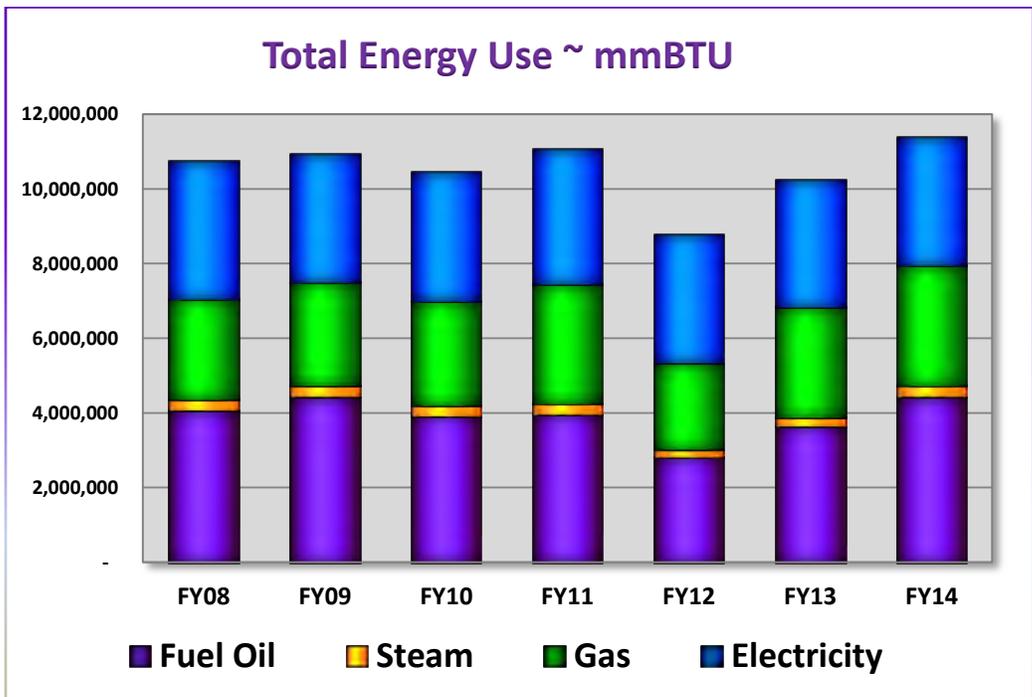


Figure 11: Total Energy Use in mmBTU

Figure 12 shows energy use by examining mmBTUs 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 usage is only 2 percent, with a 10 percent increase over the previous year.

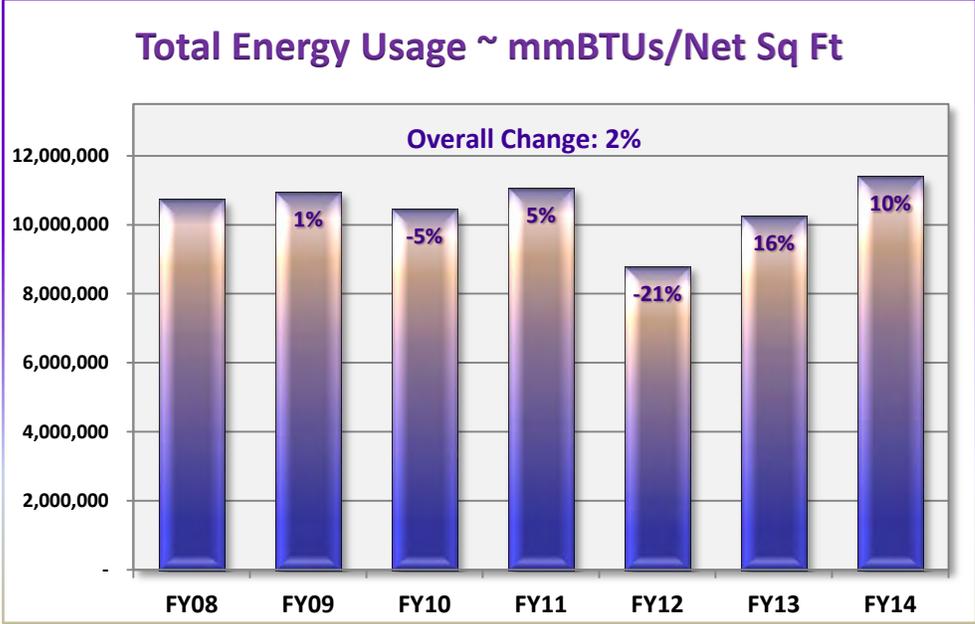


Figure 12: Total Energy Use in mmBTU/Net Sq. Ft.

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 if energy usage patterns were influenced by the weather. Figure 13 shows the degree days for New York City in the past seven years.

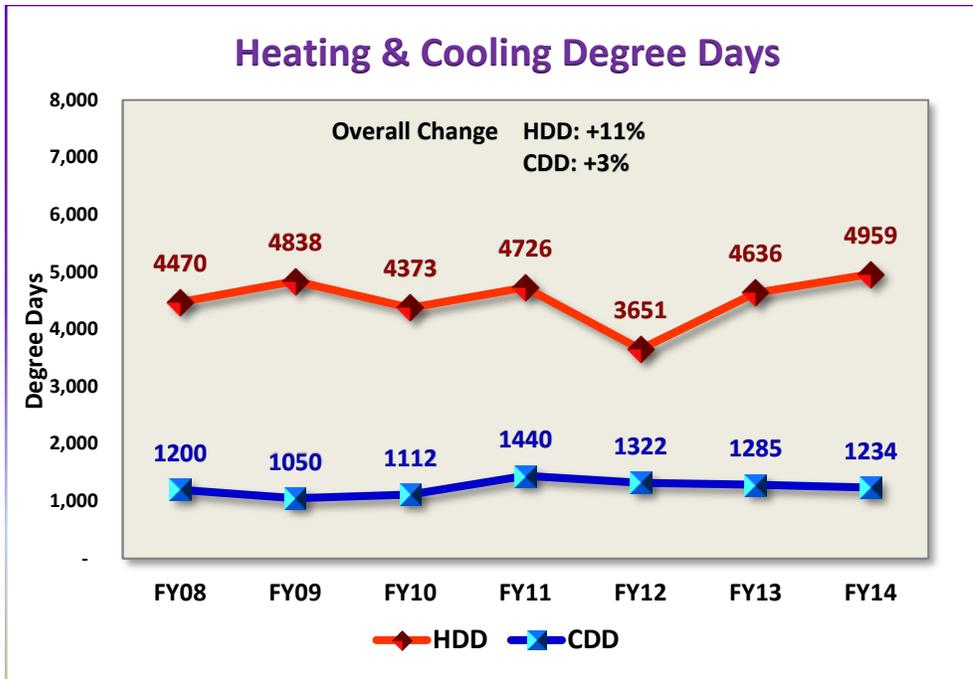


Figure 13: Heating and Cooling Degree Days FY08-FY14

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 the DOE may have made in reducing energy usage were taken away by the extreme weather as shown in Figure 14.

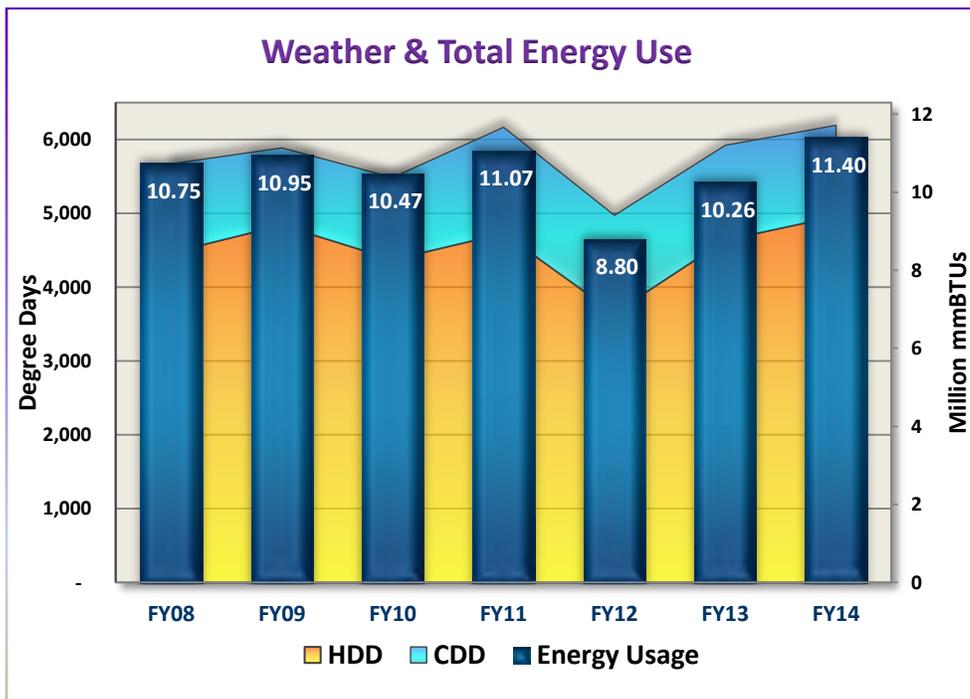


Figure 14: Heating and Cooling Degree Days with Total Energy Use FY08-FY14

The next four charts (Figures 15 through 18) show the relationship between weather and energy usage, broken down by type of energy. In Figure 15, over the six year period, without consideration for square footage, electricity use in the DOE has been reduced overall by 7 percent. This usage was affected by weather (as shown on 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 percent each fiscal year to the electricity usage agency-wide.

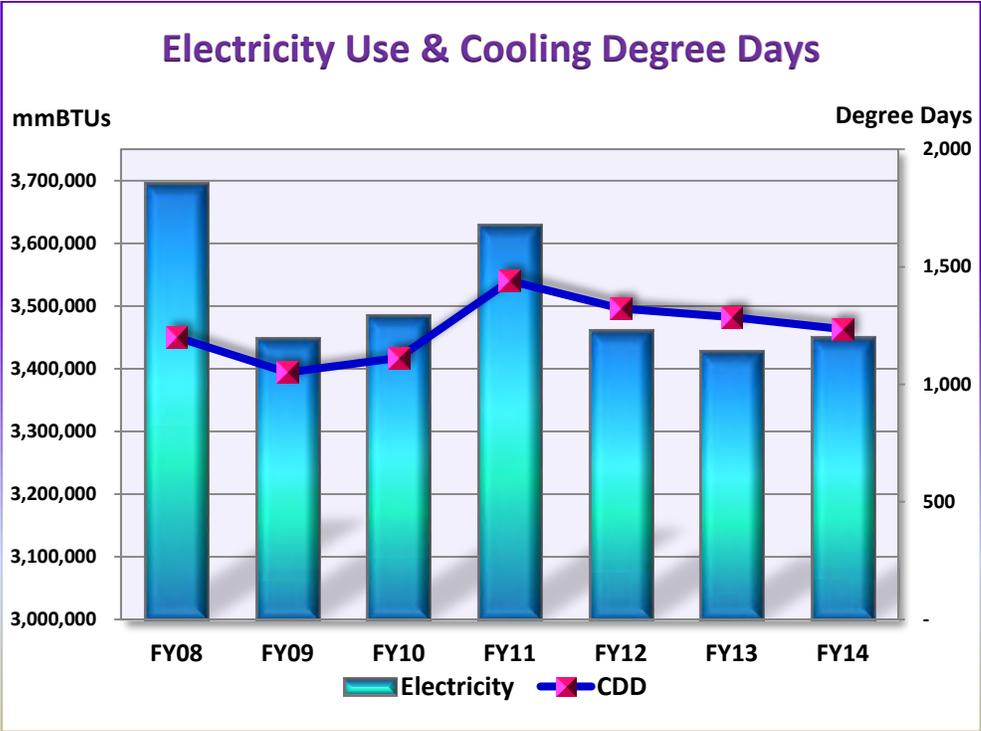


Figure 15: Electricity Use FY08-FY14 with Cooling Degree Days

Figure 16 shows a general trend in natural gas usage that also follows weather patterns with an overall increase of 20 percent. 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 usage decreases.

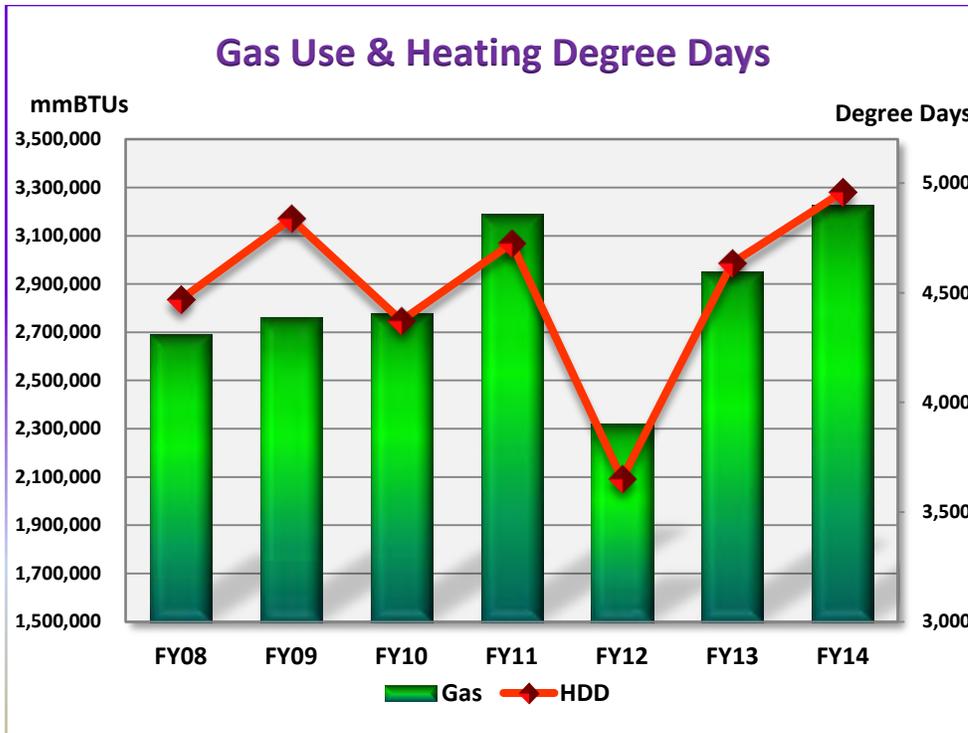


Figure 16: Natural Gas Use FY08-FY14 with Heating Degree Days

Figure 17 shows a similar trend in usage of steam following general weather trends with an overall increase of 1 percent.

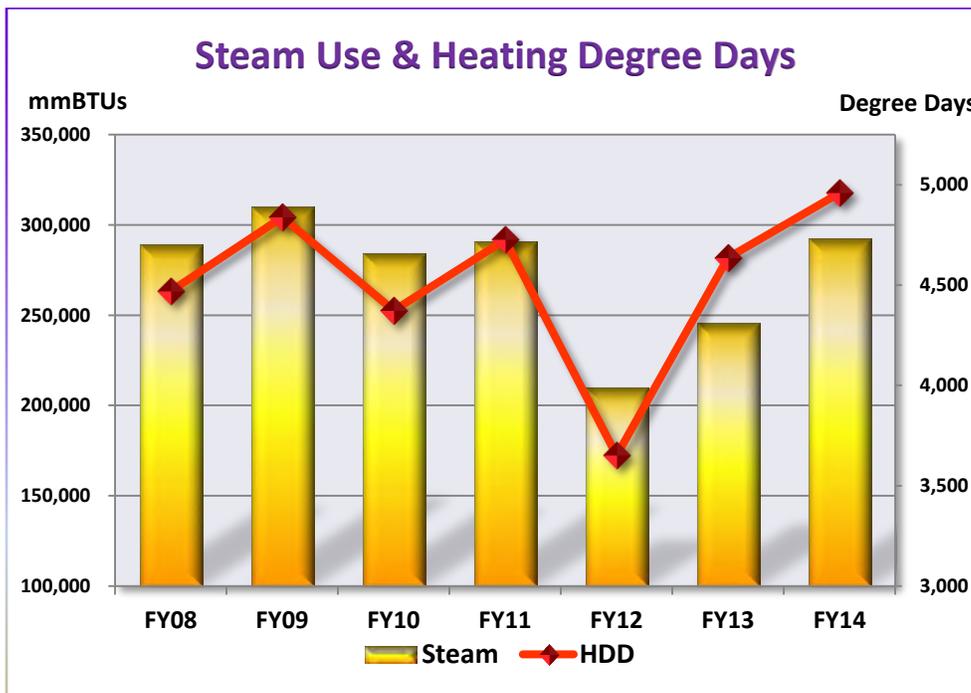


Figure 17: Steam Use FY08-FY14 with Heating Degree Days

Figure 18 again shows a trend in usage with fuel oil consumption following general weather trends with an overall increase of 9 percent.

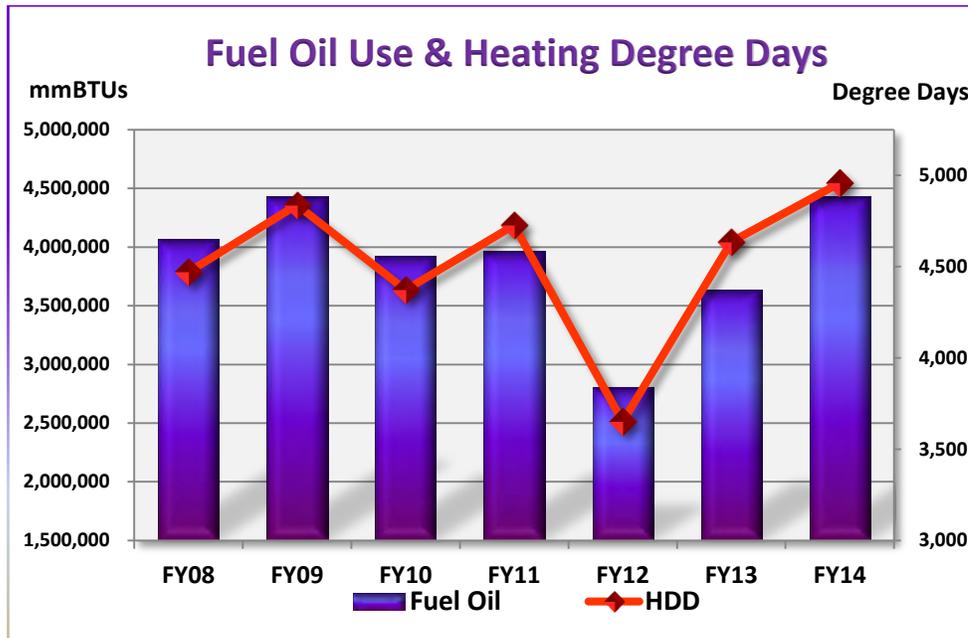


Figure 18: Fuel Oil Use FY08-FY14 with Heating Degree Days

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 engineer, and one energy analyst, managed by the Director of Maintenance and Director of Sustainability. In conjunction with the division’s energy liaison officer and maintenance, repair, and operations personnel, this team is responsible for the DOE attainment of the energy and greenhouse gas reduction goals set forth by PlaNYC.

Energy Benchmarking

In order to create a baseline for energy consumption at each school and DOE building, the DOE benchmarks its buildings energy usage by using the U.S. Environmental Protection Agency (U.S. EPA) Energy Star Portfolio Manager. Portfolio Manager allows for 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.

In June 2013, the EPA performed a major upgrade to Portfolio Manager. With over 1,300 buildings in the DOE’s portfolio, this upgrade created problems with building characteristics, meter information, and energy data. This year, the Office of Sustainability’s Deputy Director and Energy Analyst have been working with CUNY student interns to correct building information in Portfolio Manager. The Office plans on energy benchmarking data to be available by January 2015.

Capital Projects

The DSF typically does not manage capital projects, as this is managed in the City by the SCA. With the advent of multiple new programs from DEM in efforts to accelerate energy efficiency project implementation, DSF took on a large portion of work focused on retrofits of existing buildings to reduce energy consumption.

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 details DSF’s involvement in these DEM-funded programs.

Accelerated Conservation and Efficiency Program

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 encouraged agency staff to use their unique understanding of their buildings' 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, and cost savings.

In two rounds of applications during the 2013–2014 school year, DEM funded six types of projects:

Project Name	Number of Schools	Total Amount Allocated
Vacancy Sensors	90	\$ 10,000,000
Gas Fired Domestic Hot Water Heater	100	\$ 10,000,000
Steam System Optimization	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
Total Funding		\$ 42,182,063

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

Distributed Generation Program

Clean DG is on-site energy generation that uses clean or renewable fuel sources to produce electricity and, in some cases, steam or hot water. Clean DG technologies include reciprocating engines, micro turbines and fuel cells as well as solar photovoltaic (PV), solar thermal, wind, and biomass. The City is pursuing a variety of clean DG technologies. As part of this program a 117 KW solar PV system was recently installed at John F. Kennedy High School and a 247 KW solar PV

system was installed at Lehman High School, both schools in the Bronx. Both projects will be complete in Fall 2014.

Innovative Demonstrations for Energy Adaptability 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 can provide turnkey demonstration projects, in which the vendors would be responsible for installing, commissioning, and on-site training, as well as a one-year performance assessment 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 project replication, with the goal of informing larger-scale deployment of energy solutions.

The DOE was awarded three funded projects through the IDEA Program. U.S. Energy installed boiler controls and a fuel oil monitoring system at J.H.S. 127 The Castle Hill in the Bronx. REGEN installed a rooftop unit controller at building X884. And Cypress installed a wireless pneumatic thermostat system at P.S. 021 Edward Hart in Queens.

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 in their energy reduction efforts. The competitive program provides expense funding for energy efficiency projects in six categories: expense-funded retrofits, operations and maintenance measures, energy studies, diagnostic tools and equipment, training, and communication and outreach initiatives.

The Office of Sustainability receives most of its annual training and competition budgets through the ExCEL program. In the 2013–2014 school year, ExCEL provided funding for the following programs:

Program	Description	Cost
Green Cup Energy Challenge awards	Annual 4-week Green Schools Alliance competition to reduce electricity consumption. Awards go to top 10 schools.	\$100,000
Solar One Energy Challenge awards	Annual 4-month Solar One Green Design Lab competition to reduce electricity consumption. Awards go to the top five schools.	\$25,000
Energy Conservation Art Competition & Calendar	Annual energy conservation student artwork competition. Costs are for calendar printing, reception, and award prizes.	\$20,000
Sustainability Coordinator Training	Three events to train Sustainability Coordinators. Funding goes to food and substitute teachers.	\$40,000
National Wildlife Federation Green Flag awards	The NWF Green Flag required a comprehensive approach to teacher and student learning/engagement including the completion of the Energy Pathway. Schools that earn the Green Flag can submit a proposal for a monetary award.	\$20,000

Energy Audits

The Office of Sustainability works with DEM, using benchmarking and building data, to select schools that will receive DEM-funded energy audits. The energy audits assess a school’s performance in order to develop conservation measures that will help improve energy efficiency and lower costs for the DOE. The most common energy conservation measures include lighting retrofits, vacancy sensors, boiler replacements, motor replacements, chiller replacements, and reconfiguring HVAC systems.

Operation and Maintenance Initiative

The City’s Office of Long Term Planning and Sustainability (OLTPS) estimated that Municipal facilities could reduce carbon emissions by 195,000 metric tons annually and save millions of dollars by just improving the operation and maintenance (O&M) of the facilities. Common O&M initiatives include the physical upkeep of the building envelope, examining heating and hot water systems, ensuring proper ventilation and air flow, auditing building systems for proper operation (refrigeration, steam, controls, building automation, electrical, lighting, water distribution, heat recovery, compressed air), and monitoring equipment for efficiency (motors, drives, pumps, fans). Part of this initiative includes training the custodians and building managers in courses such as “Building Operators Certification,” “Building Commissioning” and “Energy Management and Auditing.”

The operations and maintenance (O&M) initiative, led by DSF’s Director of Maintenance, plans and implements strategies for ensuring that facilities are well maintained and able to promote learning, making occupants feel comfortable, as well as enhance learning and productivity by providing proper indoor environment quality. O&M practices also ensure facilities plant and equipment are in a good state of repair, reliable and available for use during occupancy.

The O&M program focuses on optimizing equipment and operational efficiency, concentrating and identifying energy saving opportunities for reducing energy costs, and increasing energy efficiency in schools. It also maintains school buildings while reducing energy costs up to 20 percent. An energy-efficient O&M program, conducted in a cost-effective manner, can save the DSF up to \$16 million to \$20 million a year on energy bills. Roll-out of the O&M initiative is a priority of the DSF.

Demand Response Program

On very hot summer days and extremely cold winter days, there are concerns about electrical outages due to the higher demand on the State’s and City’s power grid. As a result, the DOE partners with several companies to manage and reduce electrical load on the days designated as peak load. The buildings that are part of the demand response program curtail their energy consumption by shutting off unnecessary lights, air conditioners, and other equipment. The Summer 2013 and Winter 2014 demand response programs netted the Office of Sustainability \$269,000 in revenue, the majority which was spent on buildings, completing energy efficiency O&M repairs and projects.

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 request must include a list of all requested equipment (*e.g.*, air conditioner, smart board) and state how the usage of the equipment will be in compliance with the school’s sustainability plan. The Deputy Director of Sustainability and the energy team analyze the building’s energy consumption and determine whether to approve the request or not. If a request is unapproved, schools can submit detailed energy reduction plans and policies in order to have their requests reconsidered. If the plans are acceptable and the installation is approved, members from the energy team may visit the schools to verify that the energy reduction plans are in effect. If the school is found to be noncompliant with the energy reduction plan, the DSF can remove the requested equipment from the school at any time.

Energy Efficiency in Newly Constructed Schools

The SCA 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 2008 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 best practices from the SCA and the Collaborative for High Performing Schools (CHPS) rating system.

The SCA is currently in the process of constructing a new school in Staten Island that will be the City’s first net-zero energy school. Through a combination of photovoltaic solar panels, efficient 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 is looking forward to opening the school in the 2015–2016 school year.

Clean Heat Program

Over 10,000 City buildings burn heavy types of fuel, commonly known as No.6 fuel oil. Heavier forms of fuel oil contribute more pollution than all the vehicles in the City, deteriorating the air quality. In 2011, the City mandated that all buildings must convert 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. By 2015, No. 6 fuel oil will be phased out of all DOE buildings, with the intention to have all buildings converted to No. 2 fuel oil by 2030. DSF is responsible for converting boiler plants from No. 6 to No. 4 by the 2015 deadline. 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 percent by 2030.

By the end of fiscal year 2015, all boilers must have been converted to No. 2 or No. 4 fuel oil as prescribed by the clean heat program (this program is explained in more detail later in the energy section). Figure 19 shows the DOE’s progress in boiler conversions. The use of fuel oil No. 6 has been reduced more than fiscal year 2006 levels by 86 percent.

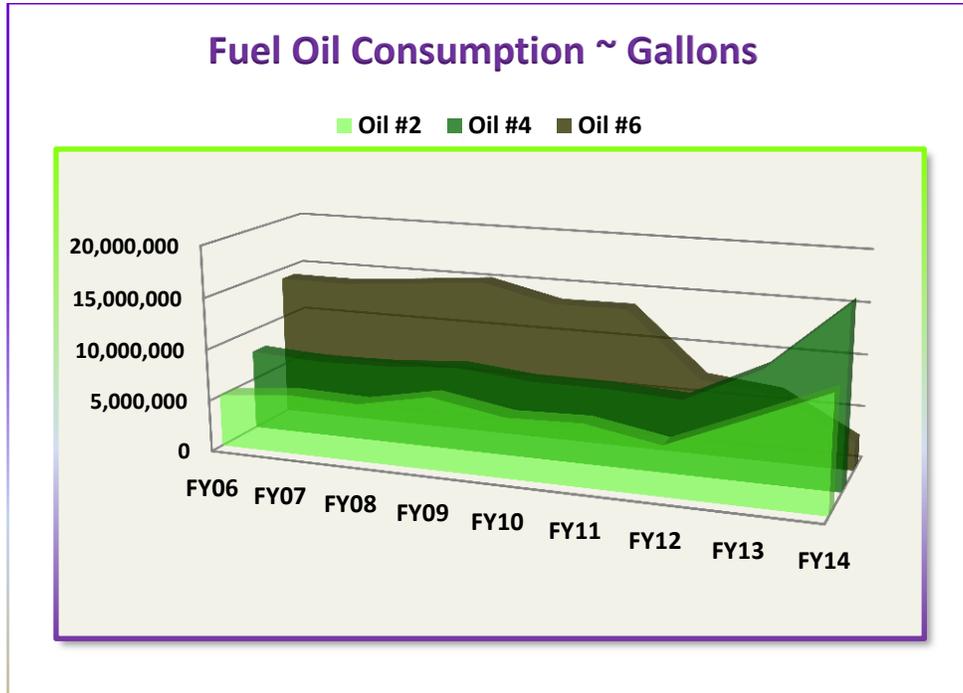


Figure 19: Fuel Oil Usage by Type FY06-FY14

Student-Led Energy Audits

DOE partner Solar One led a team of two high school students, Ashaki Gumbs and Scander Garcia, from High School for Construction Trades, Engineering, and Architecture in Queens completed a building energy audit as part of Solar One’s Clean Tech program. As a result of the audit, which included recommendations for upgrades to the lighting systems and simple payback figures, DSF committed funds to install vacancy sensors at the school. The audit was completed with a presentation by the student team and a walk-through of the building.

Future Plans

- Explore models for bulk Energy Star certification processes
- Work with DEM on solar installations on 24 DOE properties
- Improve data analytics provided to Energy Managers for O&M planning

Water Efficiency

As water becomes a larger focus in the City’s sustainability efforts, more focus on conservation efforts, retrofit projects, watershed management, education, and outreach are happening at the school building level. The Office of Sustainability partners with the DEP for all of the 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 bathrooms of 500 City schools by 2018. With the installation of nearly 40,000 bathroom fixtures by the completion of the retrofits, the City will save at least four million gallons of water per day.

In the retrofits, toilets have been targeted because toilets are the largest consumers of water in the City with 15 percent of total use. Toilets and urinals in old school buildings use 3.00 to 4.50 gallons per flush. These old fixtures will be replaced with modern fixtures that use 1.28 gallons per flush, which will save approximately 5 million gallons of water per day. In fiscal year 2014, DEP completed the retrofit of 26 schools (Figure 20), three more than originally anticipated for the year. Within these 26 schools, more than 2,500 toilets and 950 urinals were replaced. DEP finalized the list of 75 schools slated for retrofit for fiscal year 2015 and has completed fixture surveys to begin work in the summer of 2014. This work will replace 6,800 toilets and 2,600 urinals.

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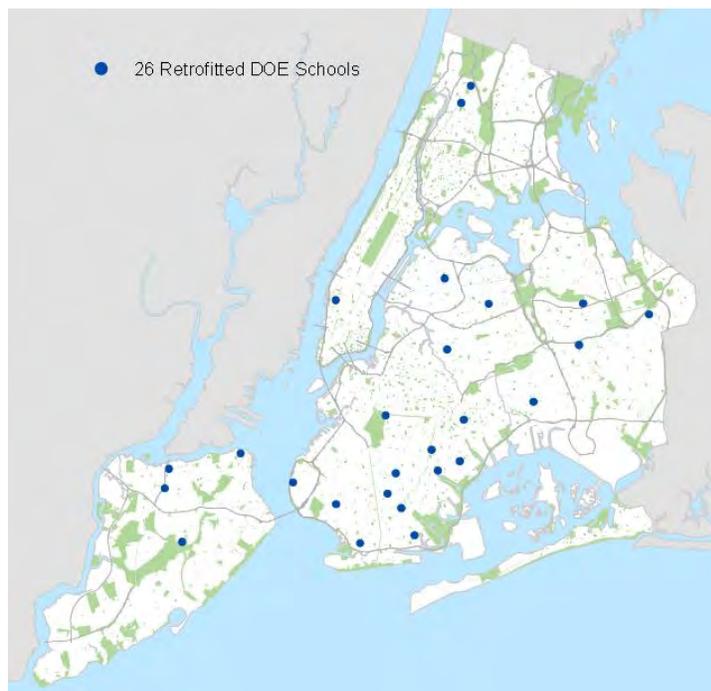


Figure 20: Water for the Future Retrofits in FY14

Encourage Water Use Efficiency

To raise water conservation awareness in the schools that underwent bathroom retrofits, signs (such as the sign in Figure 21) will be positioned, notifying students of the newly retrofitted fixtures and their benefits as well as the benefits of water efficiency and conservation. The signs are highly visible and encourage water use efficiency in the schools. Within this education outreach, DEP specifically targeted schools that had been retrofitted, to spread awareness of the Water for the Future program while also explaining the conservation that was occurring as a result of the retrofitted toilets. DEP also held sessions in multiple classrooms at William C Bryant High School in Queens, De Witt Clinton High School in the Bronx, Grover Cleveland High School in Queens, and James Madison High School in Brooklyn. Approximately 350 students participated in this targeted outreach.



Figure 21: 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 provides accurate, wireless water meter reading 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 their fixture retrofit showed a water use reduction of as much as 60 percent.

Conservation Education

The Sustainability Office works closely with DEP’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. To learn more about education program visit the [Partner Section](#).

Future Plans

- Explore meter data and options with DEP
- Collaborate on education for newly retrofitted schools

Ecology

The Sustainability Initiative has teamed up with different ecological organizations and initiatives such as GrowNYC’s Grow to Learn NYC: The Citywide School Gardens Initiative, the New York Restoration Project, and MillionTreesNYC. The partnership between DOE and the various ecology initiatives and programs allows students to actively participate and learn about green and ecological methods to reuse and recycle food and recyclable materials amongst other things. Students also learn of the mutual and important relationship between humans and the environment, and how those interactions affect the environment in which we live presently and in the future.

Programs

Grow to LearnNYC: The Citywide School Garden Initiative is a collaboration between GrowNYC, the Mayor’s Fund, the DOE’s Office of SchoolFood, and the New York Department of Parks and Recreation’s Green Thumb division. Grow to LearnNYC was founded to inspire, facilitate and promote the creation of a sustainable school garden 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 your school community. Support from Grow to LearnNYC comes in the form of mini-grants, workshops, hands-on technical assistance, material giveaways (including soil and lumber), and extensive and regularly updated web resources on topics ranging from curriculum to funding. By pooling best practices, this Citywide School Garden Initiative ensures that every public school has access to the information and support needed to create and maintain a successful garden.

Accomplishments this year:

- Registered more than 475 school gardens to date across New York City’s five boroughs
- Funded over 250 school gardens through the mini grants system
- Offered more than 30 workshops for school gardeners

Future plans:

- Fund up to 75 school gardens in the 2014-15 school year.
- Expand online offerings to include web tutorials and video/audio podcasts on a variety of technical gardening topics.
- 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.

Garden to Café (GTC) program is a collaboration of GrowNYC’s Grow to LearnNYC, DOE’s Office of SchoolFood, New York State’s Department of Agriculture & Markets, and NYC Department of Parks, GreenThumb. The GTC Program facilitates a connection between school gardens and healthy nutrition after seasonal harvests via educational events and activities. The number of registered schools has quadrupled since the program started in 2008 from 22 events to 80 events. 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 agriculture literacy and interest in our regional food system, turn the school cafeteria into a learning environment, and to build awareness of the larger local food initiatives underway at SchoolFood. GTC hosted 72 events this year. The program hopes to add another 10 schools to the roster next year, add education events at DOE summer sites, 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 percent, while achieving the many quality-of-life benefits that come with planting trees. To date, more than 903,000 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 2013–2014 school year, 533 trees were planted on school property.

Schoolyards to Playgrounds. Part of PlaNYC 2030 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.

Below are the playgrounds sites that were open during the 2013–2014 school year:

- P.S. 261 opened in September 2013, Location: 314 Pacific Street, Brooklyn, NY 11201
- P.S. 65 opened in October 2013, Location: 696 Jamaica Avenue, Brooklyn, NY 11208
- J.H.S. 218 opened in October 2013, Location: 370 Fountain Avenue, Brooklyn, NY 11208

Each of these playgrounds was designed by the students, school administration and community members through The Trust for Public Land's unique participatory design process. These playgrounds include green infrastructure elements such as rain gardens, permeable surfaces, turf fields, and tree pits which capture at least an inch of water during each rainfall. The Trust for Public Land plans to complete five sites to open in the 2014–2015 school year.

Outreach

Green Roof Guidance. The Office of Sustainability, in conjunction with the DSF, Schools Construction Authority, and the DEP Office of Green Infrastructure, created a green roof guidance document to assist schools that wish to pursue a green roof on their building. Download the guide [here](#).

Celebration of Earth Day NY on April 22, 2014. NYC Schools celebrated the 46th Annual Earth Day with a celebration at the largest green festivities in the country in Union Square and Grand Central. Schools also hosted their own events and activities in their schools during Earth Week. Students in NYC Schools roll up their green sleeves in celebration of that day. To see a snapshot of the activities at DOE schools, refer to the Earth Day Celebration newsletter on the [sustainability website](#).

Future Plans

- Expand number of schools with active garden programs
- Improve level of data collection on gardening programs
- Expand Earth Day programming options for sustainability coordinators

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.

Solar One's Green Design Lab Sustainable Schools Network (SSN) 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 May 2014, there were 345 schools in the Sustainable Schools Network; with 161 of those schools having actively participated in a SSN offered activity during the 2013–2014 school year. That is a 71 percent increase of the number of partner schools in the network and a 30 percent increase in active participation from the previous year. Out of the 345 partner schools, 234 have actively engaged and participated in SSN offered services over the past two years, which is 68 percent of total partner schools in the SSN.

Children's Environmental Literacy Foundation (CELF) Leadership Training in Sustainability Curriculum (LTSC) Project has been lauded as an exemplary model for professional development that builds environmental literacy while improving STEM and Common Core teaching and learning. Now in its third 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 School Partners.

To date, 17 DOE schools have participated in the Project. In the 2014–2015 school year, an additional nine will join as Partner Schools, each with a Mentor School and CELF Program Manager.

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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 Common Core and STEM instruction; demonstrate to grades K-12 administrators that this 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 and carrying capacity, consumerism and product life cycle. Students will practice applying these skills and knowledge to help them gain an enduring understanding of complex systems and make sound sustainable social and environmental decisions.

CELf submitted the Project’s professional learning workshops and related instructional practice and curriculum consulting to the DOE Office of Teacher Effectiveness. It was subsequently approved as a P-credit course and is now included in the DOE STEM course offerings, open to all 75,000 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 integration teachers and administrators engage 30 DOE schools in transforming standards-based curriculum through the lens of sustainability.

Green Education Foundation (GEF) is a non-profit organization committed to creating a sustainable future through education. GEF provides curriculum and resources to grades K-12 students and teachers worldwide with the goal of challenging youth to think holistically and critically about global environmental concerns and solutions. GEF offer free National Green Week Programs that empowers schools to engage in sustainability focused projects or activities for at least one week between February 2014 and Earth Day (April 22, 2014). Participating districts, schools, classrooms or youth groups choose a week, and then select from five GEF sustainability focused programs to be their “green theme.” Each team provides standards-based lessons, activities, Green Team projects, and more. The goals for national Green week is to excite schools and grades pre-k-12 students to participate in GEF’s sustainability programs; assist teachers with lesson plans and activities for their classrooms by providing standards-based lessons, activities, recommended reading, contests and more; encourage students to become the leader of their own sustainability initiatives; adopt habits at school and home to reduce waste, energy and water and to think about sustainable choice. In 2014 nearly 11,000 schools from around the world with more than 5.5 million students participated in National Green Week.

Department of Sanitation: 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 Sustainability Initiative trainings.

Future Plans

- Explore Education for Sustainability options with the Division of Teaching and Learning
- Explore funding options for a sustainability coordinator position within the Office of Sustainability

Recognition & Contests

New York City students are dedicated to initiating and promoting sustainable issues, and as a result of their active involvement in reducing energy consumption and promoting various other sustainable practices at a high level, local and national organizations have recognized the schools and students who have contributed in making the City a greener city to live in. The Sustainability Initiative partners with several non-profit organizations to promote sustainability issues throughout competitions with the schools and their communities.

Recognition

National Wildlife Federation’s 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. 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 five out of the total 30 Green Flag schools in the United States.

These 4 schools were recognized with the Green Flag Award by Wildlife Federation’s Eco-School USA program for conserving natural resources and integrating environmental education into the curriculum: iSchool in Manhattan, P.S. 146 in Brooklyn, P.S. 154 in Queens, and Maspeth High School in Queens.

P.S. 154 in Queens is the second school in NYC, and only the 21st in the country, to achieve "Green Flag" status. P.S. 154’s students and faculty tackled a host of sustainability initiatives that included forming an Eco-Action team; auditing facility energy efficiency, implementing a school-wide recycling initiative, with GrowNYC, that increased P.S. 154’s recycling rate by 268 percent and reduced its trash by 46 percent, launching a student health and nutrition improvement program, planting a garden, and instituting environmental-themed curricula. In addition, P.S. 154 worked with GrowNYC to become “Recycling Champions” and “Big Lift” contest winners, started an outdoor garden, formed a fourth and fifth grade student Green Team that hosts monthly meetings, conducts weekly recycling and energy conservation inspections of all classrooms, and mentors younger students about sustainability. They also launched CookShop, a Food Bank for New York City program that provides families with cooking skills and nutrition information to promote healthy eating, and participates in the Mighty Milers Program and uses Move to Improve curriculum to infuse exercise within the school day.

iSchool High School students in Manhattan tackled a host of sustainability initiatives that included forming an Eco-Action team; auditing facility energy efficiency, and instituting environmental-themed curricula. The students were led by science teacher Pete Mulroy, who created engaging,

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standards-aligned science modules using the Eco-Schools program framework as a guide to address all aspects of sustainability.

P.S. 146 in Brooklyn is the fourth school in the City to achieve “Green Flag” status. P.S. 146’s students tackled a host of sustainability initiatives that included forming an Eco-Action team, increasing green space and biodiversity on school grounds, saving energy, and implementing award-winning waste reduction measures. The school recycles and composts 75 percent of its cafeteria food waste, turns hard-to-recycle items into art projects, and is an official NYC Compost Project demonstration site.

Maspeth High School Green Club students in Queens, led by biology teacher Aaron Bell, have conducted facility-wide audits for waste and recycling, energy, and water use, initiated a study of the school’s heating and cooling systems to identify inefficiencies and conducted recycling Town Hall assemblies, set up recycling bins, energy saving tips, and recycling messages in every classroom in the school and launched indoor and outdoor composting programs. They also won the citywide and borough-wide 2013 Golden Apple Award for recycling and reducing waste and the borough-wide 2012 Golden Apple award for community beautification initiatives. The students also designed educational recycling games for the school's Halloween carnival, grew hydroponic produce in the science lab, and created an indoor learning garden.

2013-2014 Maathai Award for Civic Participation in Sustainability

Developed by The Rockefeller Foundation, The Bette Midler Family Trust, and MillionTreesNYC, the Maathai Award for Civic Participation honors two NYC DOE seniors, one male and one female, with a grant of \$10,000 each to be used towards their first year of college. The award was started in honor of Dr. Wangari Maathai, the first African woman to receive a Nobel Peace Prize for her work in sustainable development, democracy and peace. Dr. Maathai was a visionary environmentalist and founder of the Green Belt Movement – a tree-planting campaign to promote sustainable living by planting trees, woman's empowerment, and democracy in Kenya. The winners must demonstrate extracurricular commitment and achievement in civil engagement and sustainability as well as having demonstrated a sustainable effort undertaken by them that mobilized and inspired others to make their environment more sustainable. The winners for this year were Alexandra Gumas, a student from Bard High School Early College, and Jaylen Gregory, a student from NYC iSchool. Both winners are planning to pursue a degree in environmental studies.

Contests

DOE Energy Conservation Art Contest

Over 1,200 students from all five boroughs and all grade levels participated in the Sustainability Initiative’s Third Annual Energy Conservation Art Contest. The objective of this contest is to promote awareness on energy conservation and energy efficiency amongst school children. With funding from DEM, fifteen students’ artworks were selected to create the DOE 2014–2015 Energy Efficiency Calendar.



Figure 22: Grand Prize Winner

The grand prize was awarded to eleventh grader Laura Dabalsa from Fiorello H. LaGuardia High school of Music & Art and Performing Arts, Manhattan. Her artwork (shown in Figure 22) is on the cover of the 2014–2015 calendar. For the month of April, 2014 another 100 pieces of artwork were on display at the Tweed Courthouse. The DOE hosted a reception at Tweed on April 4, 2014 to award the students, their families, and school representatives. For the full list of winners refer to Appendix A.

DSNY Golden Apple Award Winners

DSNY’s Golden Apple Awards recognize schools that accomplish projects on waste prevention, recycling, composting, and neighborhood beautification. The annual competition consists of three main contests: *TrashMasters! Super Recyclers*, honoring schools with exemplary recycling programs; *TrashMasters! Reduce and Reuse Challenge*, which honoring creative waste prevention methods; and *TrashMasters! 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-ups \$2,500; and honorable mentions \$1,250. For schools with outstanding composting programs, Golden Shovel Award winners received \$1,000. This year 14 schools received recognition and cash awards. For the full list of the 2014 Golden Apple Award Winning Schools refer to Appendix D. Here are some of the highlights:

- *TrashMasters! Super Recyclers*, Citywide and Brooklyn Borough Winner, Elementary Division, P.S. 29 John M. Harrigan in Brooklyn established a green team with representatives from each class, and incorporated recycling into their lesson plans for science and literacy.
- Students at P.S. 185 Walter Kassenbrock in Brooklyn helped collect 15,000 bottle caps and created a mosaic mural for the school lobby to become the Citywide and Brooklyn Borough Winner, Elementary Division, in *TrashMasters! Reduce & Reuse Challenge*.
- Brooklyn Urban Garden School was chosen Citywide and Brooklyn Borough Winner Intermediate Division in *TrashMasters! Reduce & Reuse Challenge* and also received the NYC Compost Project’s Golden Shovel Award for Master School Composter in Brooklyn, for their wide variety of sustainability-oriented service learning projects.
- P.S. 32 Samuel Sprole Mills earned Citywide and Brooklyn Borough Winner, Elementary Division in *TrashMasters! Team Up to Clean Up* and also won Brooklyn Borough Runner-Up in *TrashMasters! Super Recyclers*, for turning an empty concrete lot into a raised bed garden that is used for learning, and for their exemplary recycling program.

- DeWitt Clinton High School was selected Citywide and Bronx Borough Winner, High School Division in *TrashMasters! Team Up to Clean Up*, and also the NYC Compost Project *Golden Shovel Award* for Master School Composter in the Bronx for their impressive accomplishments in creating a learning garden from their vacant lot, and building a three-bin compost system that converts their cafeteria food waste to compost on site.
- P.S. 54 Fordham Bedford Academy received the Bronx Borough Winner, Elementary Division in *TrashMasters! Team Up to Clean Up*, and also the Rose Award from the New York Restoration Project for building a raised-bed garden and learning to compost their cafeteria food waste on-site.

Green Schools Alliance Green Cup Energy Challenge

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 2013, 190 DOE schools participated in the Green Cup Energy Challenge in the month of October, reducing consumption by 1,373,892 kWh in just four weeks. That means more than 2 million pounds of carbon dioxide was kept out of the atmosphere! The schools achieved an average 11 percent reduction from their baselines. The top school, P.S./I.S. 66 in Brooklyn, reduced consumption 57 percent from their baseline. STEM Academy P.S. 241 in Manhattan came in second and reduced 56 percent from their baseline while W.E.B Dubois High School in Brooklyn came in third, reduced 46 percent. The full list of winners is in Appendix B.

Green Schools Alliance Green Cup Recycle Challenge

During the four-week recycle challenge, schools compete to improve recycling compliance rates, decreasing contamination, as well as raise awareness about consumption. In November 2013, 26 DOE schools joined the international Green Cup Recycle Challenge. Five DOE schools earned the title of "Recycling Hero" by reaching the highest Achievement Level for their recycling compliance and waste reduction programs. The top winner P.S. 57 Hubert Humphrey in Staten Island was also a winner in DSNY's 2014 Golden Apple contest.

Solar One's Green Design Lab Energy 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 third 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 Sustainability Initiative, is significant because it lasts for four months, from December to March, ensuring a long-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 measure their success with actual energy data from ConEdison. Over the past three years, schools with the greatest reductions won a portion of a \$25,000 prize funded by the DEM.

In the 2013-2014 energy challenge, the top 50 schools saved more than 1 million kilowatt hours of electricity during a four month period, which is equal to avoiding 1.6 million pounds of CO2 emissions (EPA) and a dollar savings of over \$76,000 to the City of New York. This year 77 schools competed in the challenge, each bringing students, teachers and custodians together with the goal of school-wide electricity reduction. Out of the 77 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 246,020 kilowatt-hours of electricity- enough to power 23 homes for one year. As a result of their efforts, they avoided 374,000 pounds of carbon dioxide from entering the atmosphere, the equivalent of burning 182,000 lbs. of coal. The top five 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 C.

Made By Milk Carton Recycling Contest

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 partner with teachers in educating children about nutrition, sustainability and environmental issues. Just by collecting schools milk cartons and designing and constructing creation made from empty school milk cartons, the winning team can earn prizes up to \$5,000.



Figure 23: Cardozo’s Winning Entry

Ninety-eight entries from schools across the U.S. submitted their recycled carton designs. This year the Spring 2014 grand prize (Figure 23) went to Benjamin N. Cardozo High School in Bayside, Queens. Cardozo used 1,250 recycled cartons to create a scene from Alice in Wonderland, titled “Alice and Absolem’s Milk Made Hideway.” The creation includes a life-size replica of Alice, Absolem the Caterpillar, and the Cheshire Cat. They plan to use their grand prize winning money to improve recycled art curriculum at the school.

Carton 2 Garden Pilot Competition

The DOE partnered with Evergreen Packaging to pilot a competition that focused on the use of recycled milk cartons in school gardens. Twenty-four schools participated in the pilot and due to its success the competition was approved for national roll-out next year. The competition was split into two categories: Schools without Gardens and Schools with Gardens. The pilot competition, co-sponsored by the DOE, NYC Parks Green Thumb, and GrowNYC’s Grow to Learn, lasted for three months.

Schools collect milk and juice cartons and put them to use by creating a sustainable garden, receiving soil and seeds from Grow to Learn. At the end of the project, schools had to submit photos of the final project with information on how many cartons were used and an essay including inspiration for creation, explanation for creation, lessons learned, and the intended use for prize money in improving school garden.



Figure 24: JFK Jr’s Winning Entry

Schools without Gardens Winners:

- Elementary School: First Grade Team’s “Plants in our Community” - P.S. 310 in Brooklyn
- Middle School: Team I.S. 59’s “Real World Gardens @ Springfield Gardens” - I.S.59 in Queens
- High School: Garden of Tomorrow’s “Wheelbarrow Wow” - John F. Kennedy Jr. in Queens (Figure 24)

Schools with Gardens Winners:

- Elementary School: Go Green P.S. 15’s “Green Dreams” – P.S. 15 in Manhattan
- Middle School: Green Magnet Sustainability Leaders’ “The Milkweed Motel - A Resort for the Birds” - JHS Robert A. Van Wyck: The Green Magnet School for Career Exploration in Queens
- High School: Green Club’s “Mad for Monarchs & Happy for Hoops” - The Marie Curie School in the Bronx

Partners

The DOE Office of Sustainability works with a wide range of environmental non-profits and advocacy organizations throughout the year. We could not make the impact that we do without the help of these organizations, so we added a new section to the annual report to highlight the amazing work the partners have done in DOE schools throughout the year.

Alliance for Climate Education (ACE)

ACE 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 more than 16,000 DOE students through direct delivery of the ACE climate science and solutions assembly
- Sent 14 DOE students to Power Shift 2013 (the nation’s premier youth climate conference)
- Held three Youth Action Labs attended by more than 30 DOE students
- Collaborated on production of the Sustain-A-Mania event with the Sustainability Initiative & Global Kids

Future plans:

- Improve climate science knowledge of high school students in the City by providing ongoing curriculum support for teachers
- Execute the ACE Climate Action Fellowship program that builds knowledge, skills and confidence for students to be action-ready participants in climate solutions
- Engage youth in learning and climate action beyond ACE Assembly through a powerful virtual network
- Amplify youth voice to elevate public urgency to take action on climate
- Provide students with hands-on experience in a locally-relevant climate solution and advance fundraising through partnership with Global Kids, a NYC-based global learning and youth development organization

Barefoot Foundation

Barefoot Foundation provides sustainability education to schools, non-profits, youth, civil groups and religious organizations, focusing on aspects of recycling, reusing, reducing, and composting in ways never explored before.

Accomplishments this year:

- Educated more than 500 students
- Saved and diverted more than 3 million pounds of textiles of going in to the landfill
- Saved more than 1 billion gallons of water
- Diverted more than 4.2 million tons of CO₂ from polluting Earth

Future plans:

- Increase their impact by 25 percent
- Educate and bring their program to a lot more schools

Bike NY

Bike NY is a not-for-profit organization whose mission is to facilitate and promote cycling in all five boroughs of the City 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 compliment to New Yorkers' daily lives by providing access to safe cycling practices and engaging events.

Accomplishments this year:

- Reached 8,361 students with Bike Driver's Ed assemblies
- Taught 1,500 children how to ride a bicycle for the first time at parks, schools, and community centers
- Reached 500 children with the after school program

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 (CafCu)

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 in NYC's 1,700 DOE schools. DOE's purchasing consortium, Urban School Food Alliance, will drive down cost and eliminate three million styrene foam trays used per day in NYC, Los Angeles, Chicago, Dallas, Miami and Orange County, Florida schools.

Accomplishments this year:

- Lead a public school community grassroots campaign to ensure a citywide ban of Styrofoam from the City’s food establishments
- Piloted ARTS+ACTION Cafeteria Waste Reduction program at P.S./M.S. M034, P.S./I.S.7, GTP, and M.S. K246(these locations are not clear)
- Piloted a middle school “Youth Made Media” workshop
- Piloted adult training for the ARTS+ACTION CWR program
- Piloted an after school version of ARTS+ ACTION CWR
- Piloted teaching a one period “Garbology 101” lesson (the “why” and “how”) to every student in the classroom at each P.S. and M.S partner program school

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
- Expand our Media and Alternative Messaging Campaigns in collaboration with NYC youth to educate engage communities on post consumption and Climate Change
- Launch first school program in Queens to further refine their programs by collaborating with a range NYC’s diverse ethnic communities
- Pilot School District-wide “resource sharing” and training program in partnership with D15

CUNY Institute for Urban Systems Building Performance Lab (BPL)

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

In the area of workforce education the BPL offers a range of energy-management focused trainings for personnel in the real estate and facilities-management industry 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 Lending 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 completed 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

CUNY Center for Urban Environmental Reform (CUER)

CUER works with young people at the Judge Charles Vallone School, P.S. 85 in Queens, and the Mamie Fay School, P.S. 122 also in Queens, to build their capacity to participate in civic decisions that affect them and their communities. In the 2013-2014 school year, CUER led 100 students through an eight-week environmental justice workshop using “*Mayah’s Lot*”, CUER’s environmental justice comic book. “*Mayah’s Lot*” is a visually stunning book that provides an accessible entry point into some very complex environmental justice ideas, and offers the opportunity for conversations about the intersection of science, law and policy. They have found that it can successfully engage even reluctant readers. As a tool for environmental education, *Mayah’s Lot* has received critical acclaim, and has been adopted and disseminated by Illinois EPA and Mississippi DEC, and featured prominently on EPA’s environmental justice blog.

Children’s Environmental Literacy Foundation (CELF)

CELF, a not-for-profit corporation, 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 on-going policy. In partnership with the DOE’s Sustainability Initiative, in June 2012 CELF launched NYC Leadership Training 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, visit Green Curriculum Section.](#)

Earth Day New York

Earth Day New York is a non-profit 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 schools with Earth Day Organic Indoor Learning Gardens and support schools who have received the gardens in past years. Over time, 150 gardens have been placed in DOE schools
- Participated in sustainability coordinator trainings, providing information on the indoor learning garden program

Future plans:

- Introduce the new Earth Day/Every Day Food Toolkit, which aims to educate young people about sustainable and healthy food resources; help young people map the existing food resources in their communities; and advocate for those food resources when they are lacking

Edible Schoolyard NYC

Edible Schoolyard NYC is a non-profit organization that partners with 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 in Manhattan.

Accomplishments this year:

- 1,200 students served through core “showcase schools” program (90 percent of students served are low-income)
- 324 educators served through professional development classes

Future plans:

- Continue serving the same number of students at the same level in their two showcase schools
- Continue provide at least 15 days or partial days of professional development workshops to educators
- Provide a new, sustained, multi-workshop professional development program to 10 teachers in five different Title 1/DPHO schools
- Develop a lower cost model for direct programing to students to be launched in the 2015–2016 school year

Energy Teachers.org (ETO)

ETO is a non-profit network for educators at all levels, grades K-12 and college, in all settings, formal and informal, interested in teaching about energy production and use. ETO offers a web site with many sets of resources, like field trip ideas, annotated links to various resources like equipment manufacturers and college programs, fresh approaches to student-centered energy education like our Energy Haiku, notes on special projects like bike generators, and a forum for discussions. ETO also offers consultation and expertise on solar cooking, teaching physics with the tools of energy production and use, and more. In the 2014–2015 school year, the organization would like to begin helping NYC schools and other organizations navigate resources for energy education, finding the best curriculum for specific situations. ETO would also like to find partners to bring Green Dollhouse Challenge, a non-competitive architecture event for all ages, to New York City.

Garden to Café (GTC)

GTC is a program of the DOE Office of SchoolFood and a partner of GrowNYC’s Grow to LearnNYC: 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 students' consumption of fresh vegetables and knowledge of healthful foods, farming and the local food system; increase 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:

- Program grew from 68 schools to 80 schools participating in the program
- Fifty-seven GTC School Events
- Twelve Community Health Events
- Four Big Apple Harvest events with Grow to Learn NYC

Future plans:

- Projecting to add 9-10 schools to the program
- Host Garden to Cafe Events at School Food summer feeding sites (6-8 events total); includes working with DOE Sustainability and DOE Wellness at feeding sites to promote healthier eating habits, wellness and sustainability
- Create workshops with kitchen staff of schools participating in GTC. Highlighted during "off season" (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 the chefs in preparing the food
- Develop options for "monthly harvests" instead of only seasonal (twice a year)

Global Kids, Inc. (GK)

Global Kids is a non-profit educational organization for global learning and youth development that works to ensure that urban youth have the knowledge, skills, experiences and values they need to succeed in school, participate effectively in the democratic process, and achieve leadership in their communities and on the global stage. Young people examine global issues, make local connections, and create change through peer education, social action, digital media, and service learning, while receiving intensive support from GK staff.

The Global Kids Human Rights Activist Project (HRAP) trains high school youth to become human rights activists while developing a campaign to influence public policy and create community impact. Students identify and research human rights issues and develop a campaign for social change, which includes public outreach, direct action, media messaging, meeting with elected officials, and collaborating with other organizers. HRAP fuses organizing techniques with Global Kids' unique approach to youth development, supporting students to lead human rights campaigns that impact policies, while equipping them to become lifelong human rights activists.

Accomplishments this year:

- Sixty GK student leaders representing 15 DOE schools in all five boroughs worked with HRAP to create a sustainability campaign, voting to start a campaign to convince DOE officials and elected leaders to mandate climate education for grades K-12 students in DOE schools.
- The students led a rally/press conference at city hall and were able to gain the support of two city council members.

Green City Challenge

Green City Challenge was founded in 2010 and is a non-profit 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 their knowledge about sustainability. The Traveling Green City Challenge Program 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 the second year.

Green School Alliance (GSA)

The mission of the Green Schools Alliance is to connect and empower schools worldwide to lead the transformation to global sustainability. Since its inception in October 2007, as a result of Mayor Bloomberg’s challenge to all NYC facilities to reduce carbon emissions, the GSA has grown to a network of more than 3,000 member schools in 42 U.S. states and 36 countries, representing more than 2 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 two annual competitions, the Green Cup Energy and Recycle Challenge. [To learn more about those challenges go to Recognition and Contest Section.](#)

Accomplishments this year:

- Supported MillionTreesNYC in October 2013: GSA volunteers from public and private school joined more than 1,100 others to plant trees in Rockaway Community Park. In total they planted 20,713 trees and 2,025 shrubs more than 11 acres of Rockaway Community Park
- Supported S.T.O.P. Bags-Ban the Bag: students and faculty from 10 DOE schools attended events throughout the year to promote the banning of plastic bags in the City
- Green Schools NYC-GSA Spring Conference & Resource Fair at the Lycee Francais de New York: coordinated by GSA for Public, Private and Independent Schools of NYC
- In October 2013, 189 DOE schools participated in the Green Cup Energy Challenge, saving more than 1.37 million kWh of electricity over the 4-week program. The schools achieved an average 11 percent reduction from their baselines
- In November 2013, 26 DOE schools completed the Green Cup Recycling Challenge. Of those 26, five schools reached the highest achievement level for their recycling compliance and waste reduction programs. The national winner for the Challenge was P.S. 57 Hubert H. Humphrey in Staten Island.
- Twelve 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. All students received financial aid.

Future plans:

- Offer at least three events for DOE students and teachers
- To have more than 250 schools participate in the Green Cup Energy Challenge and over 50 schools participate in the Green Cup Recycle Challenge
- To collaborate with GrowNYC to incorporate organic waste collection into the Green Cup Recycling Challenge
- Attendance of at least 10 students from DOE schools at Sc3, and provide financial aid, will continue to be a priority.
- 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.

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Materials for the Arts, NYC Department of Cultural Affairs (MFTA)

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 gather 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 250 students attend MFTA tours and workshops
- Provided five residencies at P.S. 201 in Queens, P.S. 141 in Brooklyn, P.S. 107 in Queens, P.S. 209 in Queens, and P.S. 3 in Manhattan
- Provided after-school program at M.S. 35 in Brooklyn
- Provided ASPDP Certified Teacher Training in two 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
- All day PD for teachers at MFTA in Creative Reuse techniques for the classroom

- MFTA Workshop at the NY Art Teachers Association UFT conference
- MFTA workshop Materials Conference at Williamsburg North-side School

New York Botanical Garden (NYBG)

Since its founding more than 100 years ago, 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 two programs single session programs: How to Build a Worm Bin that teaches kids about recycling and The Water Cycle that explains how climate effect plants in different biomes; and the Bronx Clean-Up the community gardening outreach program 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 Clean-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 Restoration Project (NYRP)

NYRP is a non-profit organization driven by the conviction that all New Yorkers deserve beautiful, high-quality public space within ready walking distance of their homes. As New York's only citywide conservancy, they bring private resources to spaces that lack adequate municipal support, fortifying the city's ageing infrastructure and creating a healthier environment for those who live in the most densely populated and least green neighborhoods.

NYRP offers hands-on garden education, targeted to kindergarten through fifth grade students enrolled in DOE schools. "Garden Growers" is a three-part series of garden education classes introducing students to a local community garden—a safe place to plant, grow, and maintain healthy fruits and vegetables. The program includes "Introduction to Garden Space" where students explore the community garden; "Garden Maintenance" where students learn about the proper techniques to watering, weeding, and composting the garden bed; "Harvest Party," where students will taste the harvested fresh fruits and vegetables based on the growing season. "Nature in My Neighborhood" is the umbrella for five unique environmental education programs centered on the

urban forest and aquatic ecology. This past spring, the educational programs “Garden Growers” served 236 students and 40 adults and “Nature In My Neighborhood” served 486 students and 84 adults.

New York Power Authority (NYPA)

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).

New York City Compost Project

The NYC Compost Project was created by DSNY’s Bureau of Waste Prevention, Reuse and Recycling in 1993 to build public support for composting by providing compost-related workshops and classes, and provides technical supports. NYC Compost Project connects with tens of thousands of residents annually and supports local composting initiatives. The Project is hosted at nine different cultural institutions and nonprofit organizations throughout the five boroughs. Through these nine host sites, the NYC Compost project works with more than 200 community compost sites and 700 community groups, organizations, and institutions.

Accomplishments:

- 15,000 residents reached at 724 public events
- 3,000 calls and emails to the compost help line
- 5,000 residents attended 244 educational workshops
- 5,000 students and teachers engaged at 250 school events
- 2,000 NYC residents volunteers at community-based composting sites
- 290 events led by NYC Master Composters, reaching 6,502 New Yorkers
- 295,000 pounds of food waste collected at the 16 drop-off sites at public events
- 60,000,000 pounds of compost and mulch distributed to public greening initiatives
- 10,000 residents attended 599 events at community compost and demonstration sites

New York City Department of Environmental Protection (DEP)

The 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 and 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 watersheds; Trout in the Classroom program; Classroom presentations; Teacher professional development training; Curriculum assistance; Publications; and Online education modules.

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

New York Department of Sanitation (DSNY)

DSNY is the world’s largest department of sanitation, collecting more than 10,500 tons of residential and institutional refuse and 1,760 tons of recyclables a day. DSNY works with the DOE to promote a healthy school environment through the efficient management of solid waste and the development of environmentally sound long-range planning for handling refuse. DSNY operates 59 district garages and manages a fleet of 2,022 rear-loading collection trucks, 450 mechanical brooms and 365 salt/sand spreaders. DSNY clears litter, snow and ice from approximately 6,000 miles of City streets and removes debris from vacant lots as well as abandoned vehicles from City streets. The Golden Apple Awards are a vital component of the DSNY’s education and awareness campaigns in the DOE schools. These three competitions, open to all schools in NYC, offer cash rewards for exemplary recycling programs (Super Recyclers), innovative waste prevention practices (Reduce & Reuse Challenge), effective cleanup and beautification efforts, including school gardens (Team Up to Clean Up). For more about DSNY, refer to the Waste Management Section.

National Wildlife Federation’s NYC Eco-Schools

The NYC 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 four DOE schools, whose sustainability progress qualified them for NYC Eco-Schools Green Flag

awards, received \$5,000 grants from the DOE (P.S. 154 in Queens, iSchool High School in Manhattan, and P.S. 146K, Maspeth High School). There are only 35 Green Flag schools in the nation and the City has five of them (one in 2012-2013 and four in 2013-2014). Learn how those four schools earn the Green Flag Award in the Recognition and Contest Section.

Queens Botanical Garden (QBG)

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 (SMR)

In late 2013, the Sims Municipal Recycling 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. As a part of this new facility, SMR recently 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.

The Nature Conservancy (TNC)

TNC is the leading conservation organization working around the world to protect ecologically important lands and waters for people and nature. They work in all 50 states and more than 30 countries internationally where they address threats to conservation involving climate change, natural water bodies, and conservation lands. TNC provides education programs like “Nature Works Everywhere”, a digital education program that brings the science expertise of more than 600 staff scientists to the classroom. Nature Works Everywhere has recently launched a school gardening program with standards-aligned curriculum to help teachers use a garden as an outdoor science laboratory to teach conservation science. TNC provides curriculum and educational resources for teachers, as well as build gardens in cities across the country including Washington D.C., Los Angeles, Baltimore, New York, and Philadelphia.

Future plans:

- Build or amend 20 new gardens in New York City and Philadelphia to help bring the program to new students
- Increase curriculum access at the national level, where it is free and available to all educators at www.natureworkseverywhere.org

U.S. Environmental Protection Agency-Region 2 (EPA)

EPA Region 2 advances educational efforts to develop an environmentally conscious and responsible public, and to inspire personal responsibility in caring for the environment. EPA Region 2’s Sustainable Communities Program, which covers New York, New Jersey, Puerto Rico and the USVI, works with grades K-12 schools to promote sustainability as an integrating context for curriculum, community partnerships and campus practices. This holistic approach allows Region 2 to curate EPA programs, materials, and tools to enable schools to become more sustainable. Region 2 staff provides guest lectures, professional development workshops, and even tours of EPA facilities providing a unique experience for students. They also participate in green/sustainable schools conferences and events, and work directly with schools and school districts, providing outreach and assistance as requested.

U.S. Green Building Council Center for Green Schools

The Center for Green Schools at the U.S. Green Building Council engages educators in creating sustainable learning environments for their students through the Green Classroom Professional Certificate and the Trailblazing Teacher Award. The non-profit also informs school leadership and staff with solid research about the benefits of healthy, high-performing schools during their annual School Sustainability Leaders’ Summit and through other means. The Center serves to convene conversations with key decision makers, collaborate with leading education and environmental associations and create tools and resources that help make green schools possible. In their annual Green Apple Day of Service event in 2013 (in which many DOE schools participated), 253,507 volunteers contributed more than 1,120,000 hours on sustainability-themed projects.

Wellness in the Schools (WITS)

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. Through our WITS Labs and WITS BITS, a series of seasonal cooking and nutrition classes, WITS Cooks also teach children and their families how to prepare healthy, delicious, and affordable recipes using whole, unprocessed foods.

Coach for Kids program 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. As part of our anti-bullying initiative, WITS has created “Power Play”, an elective class which is offered at select sites. Coach for Kids teaches students to exercise in a safe and fun way, to work together in teams and to develop pro-social behaviors that help them navigate the social and emotional landscape of school. After school, WITS offers Family Fitness Fun Nights (FFFNs), opportunities for the entire family to exercise and play together, followed by a healthy communal meal.

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.

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 2014, the DOE Sustainability Initiative conducted its third annual sustainability survey. Out of 1,614 sustainability coordinators, 1,349 completed it for a response rate of 84 percent (Figure 25).

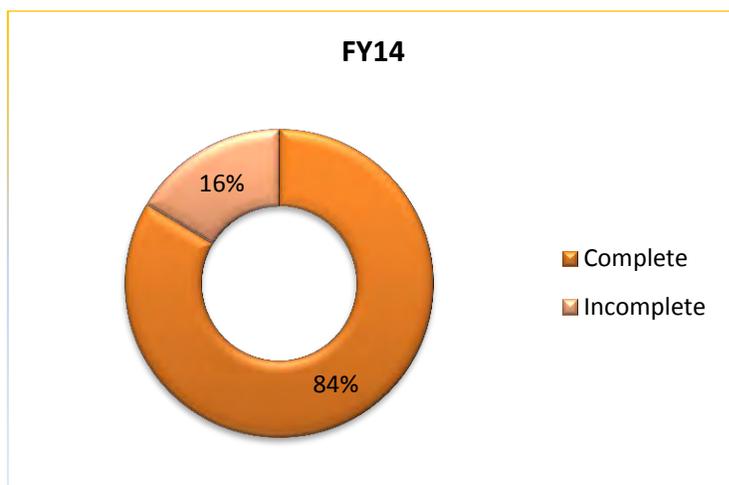


Figure 25: 2014 DOE Sustainability Survey Participation

Survey Format

The design of the 2014 sustainability survey did not change much from the 2013 survey. The Initiative added two new questions to the survey and changed several answer choices. There were a total of 10 questions and all but one question allowed multiple responses (see Appendix E). 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 bulletin board postings (60 percent), faculty meetings (59 percent), and student projects (47 percent). The least used methods were having media events (2.7 percent), guest speakers (9.9 percent), and school web site (13.3 percent). 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 (shown in Figure 26).

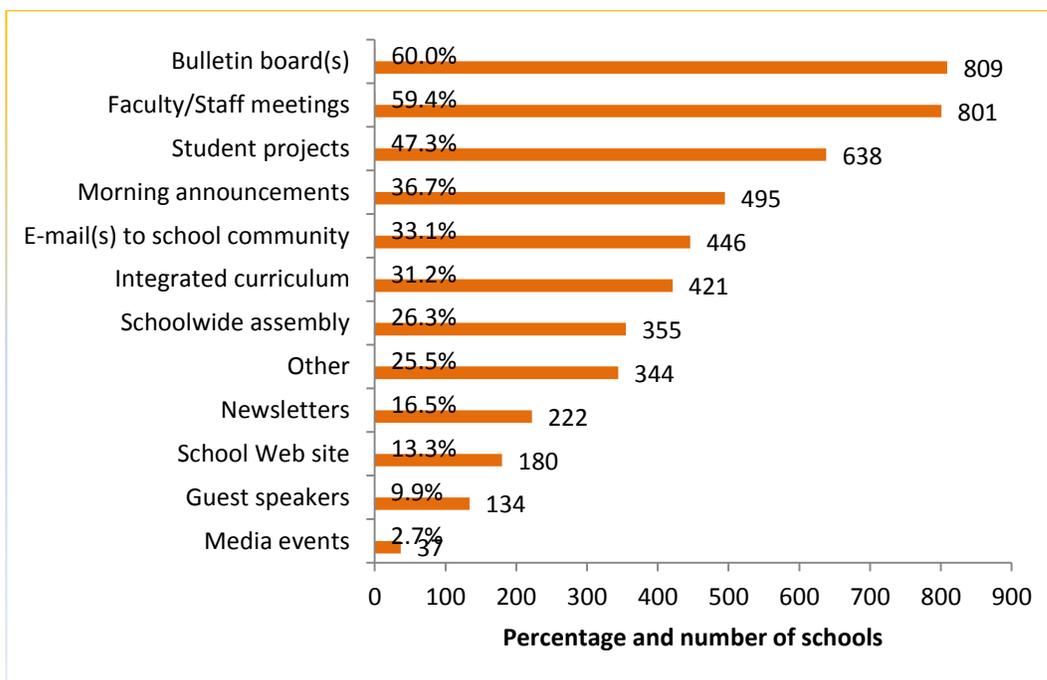


Figure 26: How did you communicate action items from your sustainability plan to your school's community?

Location of recycling containers for paper: This is a new question we asked sustainability coordinators about where recycling containers are available in their buildings. There were 1,095 (81.2 percent) of the schools indicating that every classroom has separate appropriately labeled recycling containers for paper recycling. Only 56 (4.2 percent) coordinators stated that they did not have any paper recycling set up at their schools (shown in Figure 27).

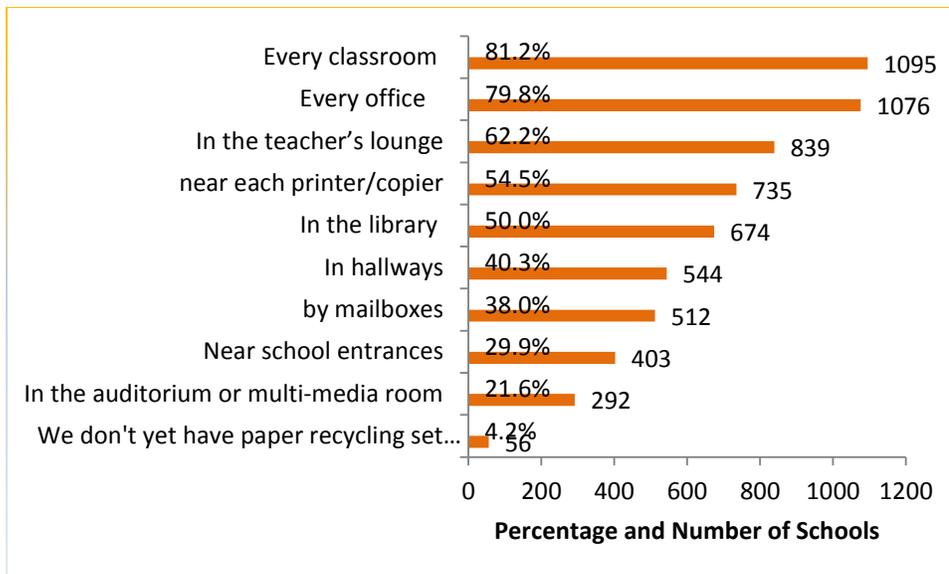


Figure 27: Are there separate appropriately labeled recycling containers For paper in the following areas?

Classrooms with Appropriate Recycling Bins: A total of 922 (63.8 percent) of surveyed school indicated that 76 percent or more of their classrooms have separate and appropriately labeled bins for paper recycling. A little more than 12 percent of sustainability coordinators indicated that at least 51 percent or more of their classrooms are fitted with appropriate paper recycling bins (shown in Figure 28).

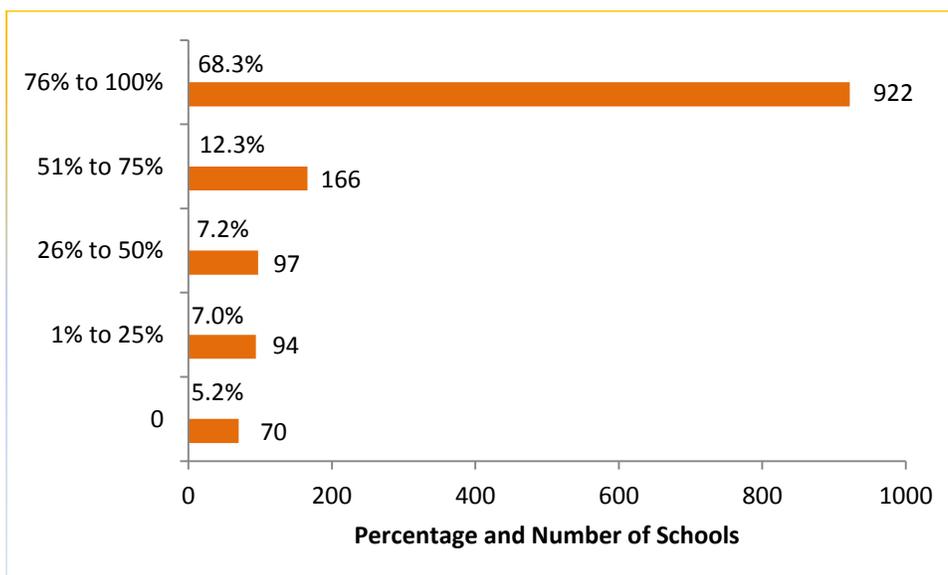


Figure 28: What percentages of classrooms have separated, labeled containers/bins for paper recycling?

The following chart examines results from the past three years of surveys in respect to the classroom paper recycling bin question (shown in Figure 29).

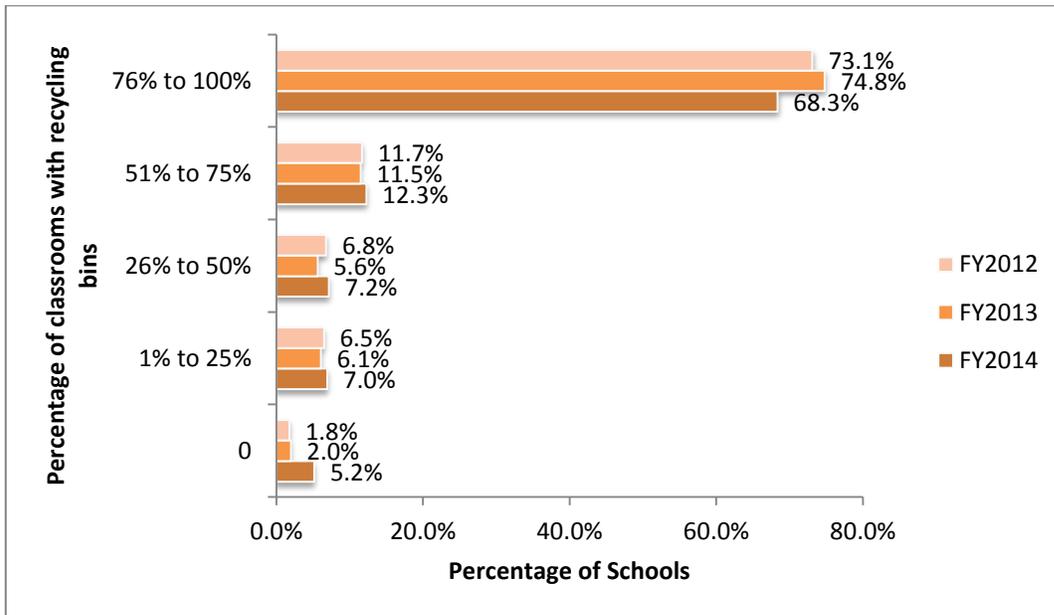


Figure 29: Year to year comparison on percentages of classrooms with separate, labeled containers/bins for paper recycling.

Location of Recycling Bins: The majority of recycling bins for MGPC are located in “other” areas, excluding the cafeteria, where food and beverage is routinely consumed (66.4 percent). 611 (45.3 percent) of schools indicated that MGPC bins are in the teachers’ lounge and 433 (32.1 percent) indicated that they are near the school entrances (shown in Figure 30).

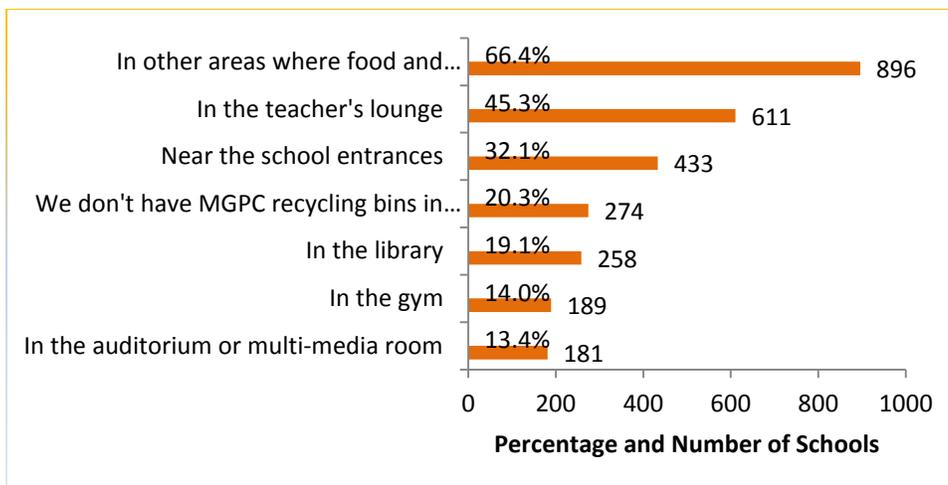


Figure 30: Are there separate, labeled recycling containers/bins for “Metal, Glass, Plastic, Cartons” in the following common areas?

Cafeteria Recycling Bins: 914 (67.8 percent) surveyed schools indicated that there are liquid dump buckets in their cafeteria to manage waste and 908 (67.3 percent) indicated that there are MGPC bins to manage waste. Only 284 (21.1 percent) of schools currently have organic collection bins in the cafeteria (shown in Figure 31).

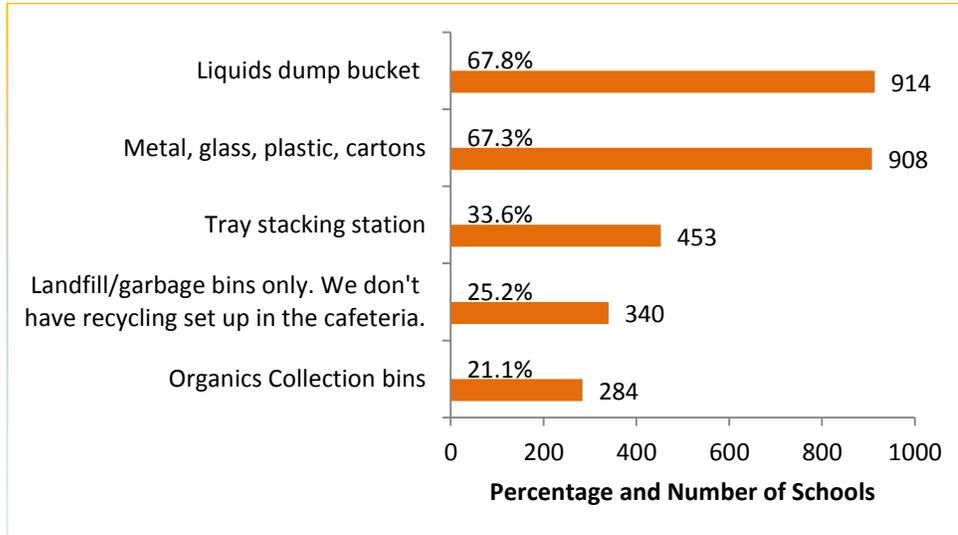


Figure 31: What containers are in your cafeteria to manage waste?

Set up of Recycling Center: The majority of the containers are in centralized stations with one or more of each bin (59.3 percent). 354 (26.2 percent) of schools have bins dispersed throughout the cafeteria with no pairing or centralization (shown in Figure 32).

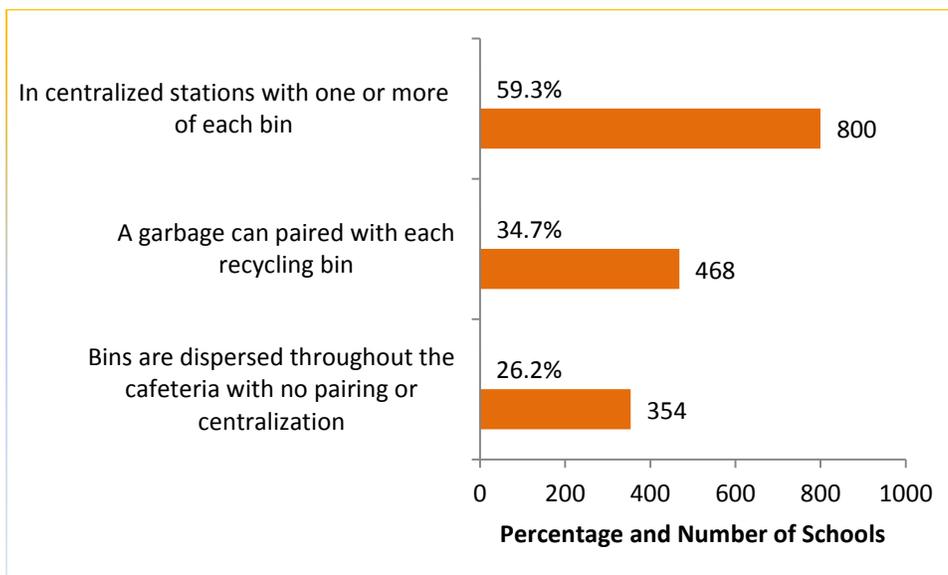


Figure 32: How are the containers/ bins setup in cafeteria?

Energy Reduction Methods: Turning off lights when not in use remained the most popular method of reducing energy usage (96.6 percent). There was however an overall increase in other methods (shown in Figure 33). 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.

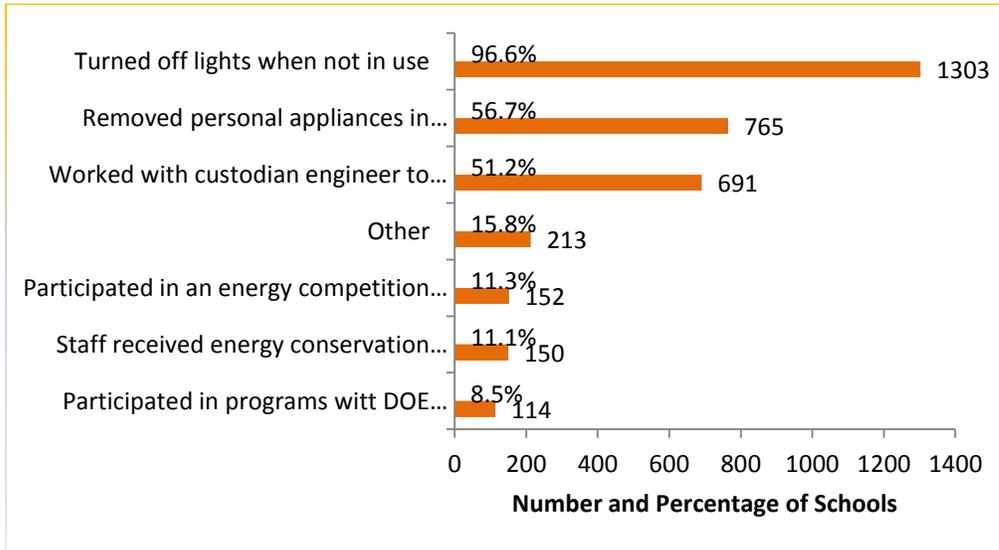


Figure 33: Did your school take any of the following steps to meet your energy reduction target for the year?

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. 43.7 percent of schools indicated that they need recycling container labels and signage from the DSNY (shown in Figure 34).

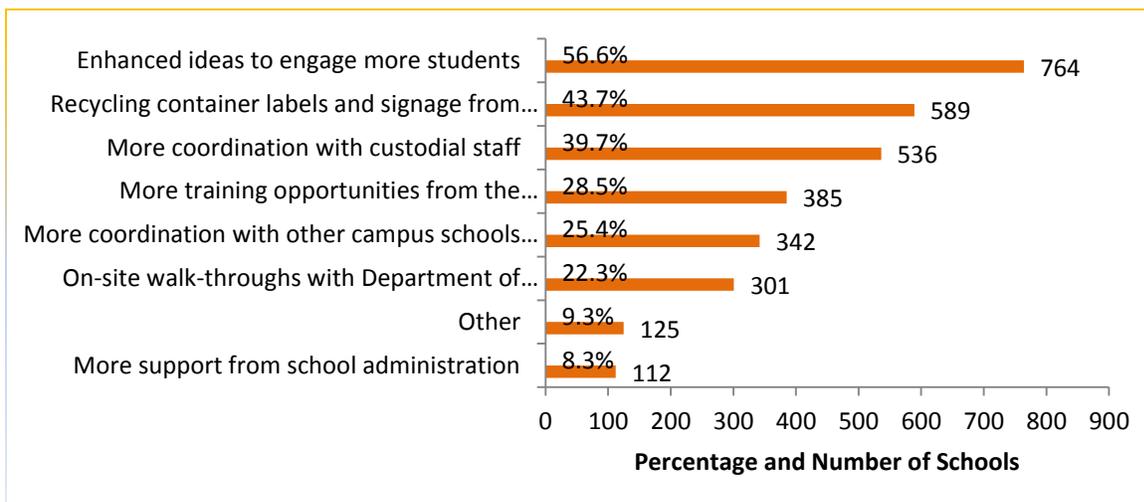


Figure 34: What kind of support would you need to implement school sustainability plan?

Comments: At the end of the survey, coordinators were allowed to leave open-ended comments. There were a total of 568 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.

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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 PlaNYC goals and to improve environmental stewardship of the City.

Energy

Local Law 84: This law requires owners of all large buildings to 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).

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 Schools 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. Also, electrical sub-meters must be installed in large non-residential buildings to provide energy statements to the tenants of the office spaces.

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.

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, Principals, 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: Energy Conservation Art Work Contest Winners

APPENDIX B: Green Cup Energy Challenge Winners

APPENDIX C: Solar One Energy Challenge Winners

APPENDIX D: DSNY Golden Apple Award Winners

APPENDIX E: Survey Questions and Format

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Waste

Energy

Water

Ecology

Curriculum

Recognition

Partners

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Appendices

APPENDIX A: Energy Conservation Art Work Contest Winners:

Grand Prize: Laura Dabalsa, eleventh grade, Fiorello H. LaGuardia High School of Music & Art and Performing Arts, Manhattan

September: Shalisia Johnson, twelfth grade, Gramercy Arts High School, Manhattan

October: Katarina Albano, fifth grade, P.S. 003 Margaret Gioiosa School, Staten Island

November: Alba Nolasco, eighth grade, I.S. 98 The Bay Academy, Brooklyn

December: Juliana Lay, sixth grade, I.S. 125 Thom J. McCann, Queens

January: Amin Nasari, Kindergarten, P.S. 154, Queens

February: Olivia Lee, ninth grade, Fiorello H. LaGuardia High School, Manhattan

March: Alaniss Garcia, fourth grade, P.S. 206 Horace Harding School, Queens

April: Maeryam Nasari, fourth grade, P.S. 154, Queens

May: Destiny Ashley, fifth grade, P.S. 121 The Throop School, Bronx

June: Thomas Farrell, tenth grade, Maspeth High School, Queens

July: Yumi Wu, third grade, P.S. 21 Edward Hart, Queens

August: Sophia Chen, second grade, P.S. 130 Hernando DeSoto, Manhattan

Back Cover: Jay Shah, first grade, P.S. 133, Queens

Certificate: Sherleen Montan, seventh grade, P.S./I.S. 157 The Benjamin Franklin Health and Science Academy, Brooklyn

APPENDIX B: Green Cup Energy Challenge Winners:

Placement	Org Location Code	School Name	Award Amount
1st Place	K066	P.S./I.S. 66	\$ 12,500
2nd Place	M241	STEM Academy P.S. 241	\$ 10,000
3rd Place	K489	W.E.B Dubois High School	\$ 7,500
4th Place	Q137	M.S. 137 America's School of Heroes	\$ 5,000
5th Place	K038	P.S. 38	\$ 2,500
6th Place	K299	P.S. 299 Thomas Warren Field School	\$ 2,500
7th Place	X194	P.S./M.S. 194	\$ 2,500
8th Place	M163	Alfred E. Smith	\$ 2,500
9th Place	X169	P.S. 169 The Wille Ella Paschal Bowman School	\$ 2,500
10th Place	K126	John Ericsson Middle School 126	\$ 2,500
Video Winner 1 st Place	M575	Manhattan Comprehensive Night and Day High School	\$ 1,000

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

Placement	Org Location Code	School Name	Award Amount	% Energy Reduction
1st Place	M126	P.S. 126 Jacob August Riis	\$5000	33% reduction
2nd Place	K256	P.S. 256 Benjamin Banneker	\$5000	22.9% reduction
3rd Place	K126	John Ericsson Middle School 126	\$5000	21.5% reduction
4th Place	Q204	I.S. 204 Oliver W. Holmes	\$2,500	19.6% reduction
4th Place	Q258	Energy Tech High School	\$2,500	19.6% reduction
5th Place	K003	P.S. 003 The Bedford Village	\$5000	18.2% reduction

APPENDIX D: DSNY Golden Apple Award Winners:

Division	Borough	Award	Prize	School
Elementary	Brooklyn	Citywide & Borough Winner	\$10,000	PS 29 John M Harrigan
Elementary	Brooklyn	Borough Runner-Up	\$2,500	PS 32 Samuel Mills Sprole
Elementary	Brooklyn	Honorable Mention	\$1,250	PS 316 Elijah G Stroud
Elementary	Manhattan	Borough Winner	\$5,000	PS 6 Lillie D Blake
High School	Bronx	Notable Student Effort	(n/a)	Cardinal Spellman High School
High School	Manhattan	Notable Student Effort	(n/a)	Stuyvesant High School

TrashMasters! Reduce & Reuse Challenge

Division	Borough	Award	Prize	School
Elementary	Brooklyn	Citywide & Borough Winner	\$10,000	PS 185 Walter Kassenbrock
Elementary	Brooklyn	Borough Runner-Up	\$2,500	Brooklyn Arbor
Elementary	Queens	Borough Winner; Queens Golden Shovel	\$6,000	PS 209Q Clearview Gardens
Intermediate	Brooklyn	Citywide & Borough Winner; Brooklyn Golden Shovel	\$11,000	Brooklyn Urban Garden School (BUGS)

TrashMasters! Team Up to Clean Up

Division	Borough	Award	Prize	School
Elementary	Brooklyn	Citywide & Borough Winner	\$10,000	PS 32 Samuel Mills Sprole
Elementary	Bronx	Borough Winner; NYRP Rose Award Winner	\$5,000	PS 54 Fordham Bedford Academy
High School	Bronx	Citywide & Borough Winner; Bronx Golden Shovel	\$11,000	DeWitt Clinton High School
High School	Queens	Borough Winner	\$5,000	Maspeth High School
High School	Staten Island	Notable Student Effort	(n/a)	St Joseph Hill Academy

APPENDIX E: Survey Questions and Format

1. General Information

School/Location 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
- Schoolwide assembly
- Guest speakers
- E-mail(s) to school community
- Student projects
- Faculty/Staff meetings
- Newsletters
- School website
- Integrated curriculum
- Media events
- Other

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 mailbox
- Near school entrances
- In hallways
- In the library
- In the teacher's lounge
- In the auditorium or multi-media room
- We don't have recycling set up at our school

4. What percentage of **classrooms** has 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 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 are in your cafeteria to manage waste? Check all that apply.
- Metal, glass, plastic, cartons
 - Liquids dump bucket
 - Organics collection bin
 - Landfill/garbage
 - Tray stacking station
7. How are the containers/ bins set up? 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 by DOE partners (ex. Eco-Schools, Solar 1CELF, etc.)
 - 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
 - On-site walk-through with Department of Sanitation Recycling Specialist
 - Recycling container labels and signage from Department of Sanitation
 - More training opportunities from the Sustainability Initiative and its partners

Other

10. Here's your opportunity to tell us what is working, what is not working, and how the Sustainability Initiative and the DOE can support you in making your school more sustainable.
Additional comments:
