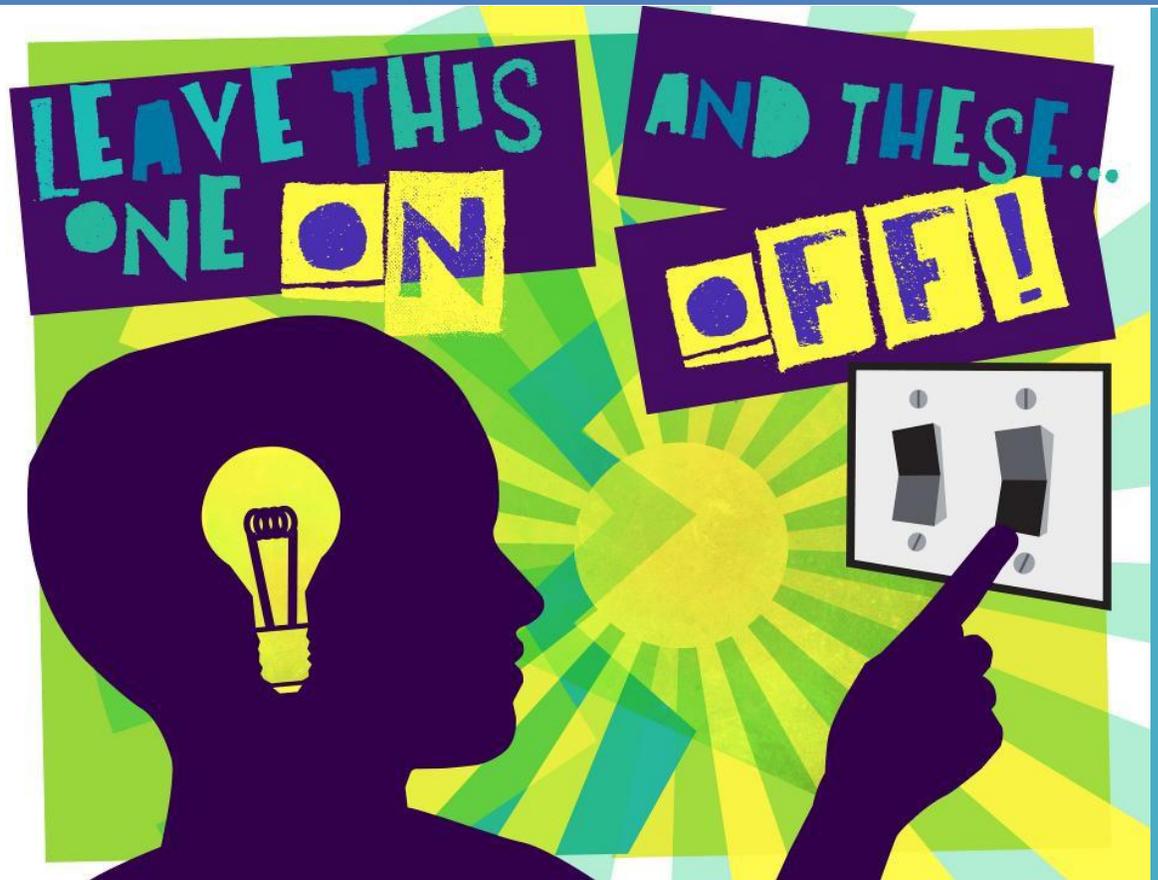




Department of  
Education

*Dennis M. Walcott, Chancellor*

# New York City Department of Education 2011-2012 Annual Sustainability Report



## ACKNOWLEDGEMENTS

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NYC School Construction Authority  
Pratt Industries  
Solar One Green Design Lab Program  
The Metropolitan Museum of Art  
U.S Green Building Council  
U.S. Environmental Protection Agency  
United Federation of Teachers

*Artwork on the cover is by LaGuardia High School student Allesandra Rao, 12th Grade*

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## **1 Preface**

The New York City Department of Education (NYC DOE) is the nation's largest school district with approximately 1,700 schools, 137,000 employees and 1.1 million students located in over 1,200 buildings. Despite the size of the system and significant budget cuts, NYC DOE has continued implementation of district-wide sustainability programs in order to transform the NYC DOE into a district focused on sustainability in operations and education. This report highlights the progress made in the 2011-2012 school year by the NYC DOE Sustainability Initiative.

## **2 Executive Summary**

### **2.1 Overview**

The vision of NYC DOE's Sustainability Initiative is to guide current and future generations toward a more sustainable future by providing students with an integrated sustainability education and by becoming the nation's leader in the operation of sustainable school facilities. There are four focus areas of the Sustainability Initiative: recycling, energy conservation, ecology and green curriculum with specific goals and targets as stated below.

- Recycling: Double annual recycling rate by 2013
- Energy: Reduce GHG emissions from buildings and operations by 30 percent by 2017
- Ecology: Participate in Citywide PlaNYC initiatives (i.e. MillionTreesNYC, School Gardens, etc)
- Curriculum: Provide sustainable curriculum resources to principals and teachers

Although NYC DOE is only required to report on recycling progress as per Local Law 41, this report details the progress made in each of the four focus areas.

### **2.2 Recycling**

NYC DOE complied with Local Law 41 (2010) during the reporting period with the appointment of sustainability coordinators, the creation of sustainability plans and a survey of progress in schools. It is the second time NYC DOE has administered the annual recycling/sustainability implementation survey and experienced a 40 percent increase in the number of respondents. The recycling initiative was boosted by a donation of 40,000 paper recycling bins from Pratt Industries, along with an expansion of the GrowNYC Recycling Champions Program and the introduction of a composting pilot.

### **2.3 Energy Conservation**

NYC DOE Sustainability Initiative has implemented building improvement projects, Solar Photo Voltaic installations, and programs for behavior change to reach the 30 percent greenhouse gas reductions by 2017. When compared with Fiscal Year 2011 (July 2010 to June 2011) total energy consumption was almost 16 percent lower and cost increased more than 5 percent in Fiscal Year 2012 (July 2011 to June 2012)

### **2.4 Ecology**

NYC DOE partnered with citywide ecology initiatives such as the MillionTreesNYC through the NYC Department of Parks and Recreation (NYC DPR) and New York Restoration Project; Grow to Learn School Gardens Initiative with GrowNYC, Mayor's Fund to Advance New York City and NYCDPR; Schoolyards to Playgrounds with NYC DPR and Trust for Public Land.

## **2.5 Green Curriculum**

NYC DOE advanced the sustainability curriculum programs with new partners and programs such as Eco Schools with National Wildlife Federation (NWF) and Children’s Environmental Literacy Foundation (CELF) Education for Sustainability series. NYC DOE continued successful curriculum programs such as the Sustainability Coordinators Training, Custodian Engineer/Building Manager Energy and Recycling Training and Solar 1 Green Design Lab curriculum enrichment program in every borough.

**END OF EXECUTIVE SUMMARY**

### 3 Office of Sustainability

#### 3.1 Vision, Mission and Goals of the Sustainability Initiative at the NYC DOE

The Sustainability Initiative’s vision is: To lead current and future generations to a sustainable future and the mission is: To have NYC DOE be the nation’s leader in the operations of sustainable school facilities and integrated sustainability education. The following are the specific goals of the Sustainability Initiative:

- Recycling: Double annual recycling rate by 2013 from its 2009 level
- Energy: Reduce GHG emissions from buildings and operations by 30 percent by 2017
- Ecology: Participate in Citywide PlaNYC initiatives
- Curriculum: Provide sustainable curriculum resources to principals and teachers

#### 3.2 Organization

##### 3.2.1 Sustainability Initiative Team

NYC DOE Department of Education Sustainability Initiative team is organized as follows



The Sustainability Initiative Office is housed in Division of School Facilities with DOE-wide responsibility. Director of Sustainability manages the Office of Sustainability staff, Deputy Director of Energy, Deputy Director of Recycling, and the Fuel Unit Manager as well as oversees the Sustainability Committee and Sustainability Coordinators in each school. The Director coordinates closely with Deputy Directors of Optimization in Manhattan.

### **3.2.2 Communication and Outreach**

The main communication vehicle for the Sustainability Office is the Sustainability Initiative website at <http://schools.nyc.gov/sustainability>. The website is organized around each of the goals and includes additional menu items for news/events, general school greening activities, partners, about sustainability team, press inquiries and contact information. The Director of Sustainability periodically e-mails the sustainability coordinators to inform them of the resources, competitions, and professional development opportunities for them to share with the principal and teachers.

## **4 Recycling**

### **4.1 Laws, Regulations and Policies**

All NYC DOE-owned and leased buildings, including both offices and schools, are required to recycle paper, cardboard, bottles, cans, milk/juice cartons, foil and bulk metal by Local Law 19 of 1989, Local Law 41 of 2010 and Chancellor's Regulation A-850.

#### **4.1.1 Local Laws**

All NYC agencies are required to recycle by Local Law 36 of 2010, which does not exclude the NYC DOE, but Local Law 41 of 2010 specifically outlines the requirements for recycling for the NYC DOE. There are redundancies between the two Local Laws, such as the requirement for the appointment of a lead agency Recycling Coordinator (LL 36 2010), the appointment of a Sustainability Director and Sustainability Coordinators for each school (LL 41 2010), with different timelines and planning requirements. The NYC DOE fully complies with Local Law 41 requirements, and is thus fully compliant with Local Law 36.

Local Law 41 of 2010 requires the following:

1. The NYC DOE Chancellor to appoint a Director of Sustainability to oversee the recycling program, set policies and goals for the agency, and submit an annual recycling report to Department of Sanitation (DSNY).
2. Each Principal is to appoint a Sustainability Coordinator from the pedagogical staff, and to prepare and submit a recycling plan for each school.
3. All schools and offices located in NYC DOE buildings (both owned and leased) will prepare and submit a recycling plan that requires a separate bin with appropriate labeling for recycling paper, and that all school cafeterias and common areas where food is consumed will have a separate bin for bottles, cans, milk/juice cartons and foil.
4. Each Principal or their Sustainability Coordinator is required to submit an annual survey to the NYC Department of Education Director of Sustainability, reporting on the school's progress on recycling activities.

#### **4.1.2 Chancellor's Regulation A-850**

The NYC DOE has always had a policy in place to recycle (Chancellor's Regulation A-850<sup>1</sup>), which underwent multiple revisions over the years. The last approved revision was in 2009, which required Principals to appoint Sustainability Coordinators from their teaching staff instead of appointing their Custodian Engineers to the task. However, the 2009 version of Chancellor's Regulation A-850 included a reporting structure that

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<sup>1</sup> <http://docs.nycenet.edu/docushare/dsweb/Get/Document-47/A-850%20Final.pdf>

needed to be revised to reflect the organizational changes that have occurred at the NYC DOE since then. This revised regulation has been forwarded to the Panel for Educational Policy in the 2012-2013 school year. The incorporated changes will better align the regulation with the Local Law 41 and its reporting requirements as well as expand it to include the other aspects of the sustainability initiatives including energy conservation, ecology and green curriculum.

#### **4.1.3 Clear Bag Policy**

NYC DOE continued with its Clear Bag Policy for garbage and recycling during the 2011-2012 school year.

#### **4.1.4 Department of Sanitation (DSNY) Collection Program**

NYC DOE Schools received collections by DSNY under one of the three services: school truck curbside collection, EZ pack (dumpster) collection and roll-on-roll-off compactor collection.

##### **School truck curbside collection**

Cardboard/paper is picked up on Monday, Wednesday and Thursday, bottles/cans/juice-milk cartons/foil on Tuesday and Friday and regular refuse every school day. About 800 school buildings are on this type of collection. DSNY uses the Dual Bin trucks (see Figure 1) that takes refuse on one side of the truck and recyclables on the other side.

##### **EZ pack (dumpster collection)**

390 school buildings receive EZ pack collection for refuse. Some schools receive EZ pack collection solely for paper recycling, with the refuse being serviced by the school truck. Including the paper only schools, about 550 receive EZ pack service.

##### **School's roll-on- roll-off compactor collection**

There are approximately 15 school buildings on this service which is for larger schools, and requires that the School Construction Authority install the compactor under DSNY specifications.



**Figure 1: Department of Sanitation Dual Bin Truck**

## **4.2 Sustainability Coordinators**

### **4.2.1 Requirements**

Sustainability Coordinators can be teachers, assistant principals, school administrative staff, parent coordinators, librarians, guidance counselors, etc., but they cannot be Principals or Custodian Engineers. Schools that reside in campus buildings (multiple schools in one building) can appoint the same Sustainability Coordinator for multiple or all schools, if all Principals agree. Each Principal still has to go online and appoint the Sustainability Coordinator, even if it is the same person for all schools, for Principal Compliance rating purposes.

Outlined below and posted on the NYC DOE Sustainability Initiative website<sup>2</sup> are the roles and responsibilities of the School Sustainability Coordinators:

<sup>2</sup> <http://schools.nyc.gov/sustainability>

- Develop and implement a site-specific Sustainability Plan
- Ensure that students are following and practicing Recycling Rules
- Be the conduit for sustainable curriculum development initiatives
- Utilize the U.S. EPA Energy Star Portfolio Manager building account to assist with energy conservation programs at the school

#### 4.2.2 Sustainability Coordinator Appointment Process

In order to comply with the Chancellor’s Regulation A-850 and Local Law 41 (2010), the NYC DOE Sustainability Initiative created a web application that allowed each Principal to go online, to appoint a Sustainability Coordinator, and to report it to the Director of Sustainability every fall semester. Below (Figure 2) is a screen shot of the 2011-2012 school year web application to appoint Sustainability Coordinators. During 2011-2012 school year, the web application was updated to collect the title of appointed Sustainability Coordinator (assistant principal, teacher, etc.)

**Figure 2: Sustainability Coordinator Appointment Web Application Screen (2011-2012)**

Friday, July 20, 2012

Sustainability Recycling Registration Application

STATISTICS REPORT COORDINATOR ROLES AND RESPONSIBILITIES HELP EXIT

Welcome to Sustainability Recycling Registration Home Page

**Step 1**

School Number / Location Code

School Name

Building ID

Geo. District  Borough

**Step 2**

Principal First Name  Last Name

School Sustainability Coordinator Title

School Sustainability Coordinator First Name  Last Name

School Sustainability Coordinator E-mail  Telephone

**Step 3**

NYC Department of Education

#### 4.3 School/Building Sustainability Plan

The NYC DOE identified the need to have a multi-stakeholder working group that meets monthly to discuss the recycling program at NYC DOE, to track progress, and to identify areas for improvement. The recycling working group consists of NYC DOE Division of School Facilities/Office of Sustainability, NYC DOE Office of Compliance Services, NYC DOE DAPS, Office of School Food, DSNY Bureau of Waste Prevention, Reuse and Recycling, Local 891, the UFT, GrowNYC, and the US EPA. In 2011, this recycling working group created the

Recycling section of the School Sustainability Plan, formerly known as the Basic Recycling Plan and the revised version for the 2011-2012 school year is depicted in Figure 3 (page 13). This section of the sustainability plan is the same for each school and provides instructions on what to recycle and how to set up school recycling. It outlines roles and responsibilities of the Principal, Sustainability Coordinator and Custodian Engineer, with the understanding that school recycling is everyone's responsibility. The contents and dates of the 2011-2012 Temporary Sustainability Plan comply with the Local Law 41, and the plan requires signatures from the Principal, Sustainability Coordinator and Custodian Engineer. Each school must adopt and implement it along with a detailed school-specific proposal, which together form the Final Sustainability Plan (see Appendix A).

#### **4.3.1 2011-2012 School/Building Recycling Plan Submission Process**

Upon the submission of the name and contact information of the Sustainability Coordinator through the web application, the program sends an email to the Sustainability Coordinator informing them that they have been appointed to the position. The email includes a .pdf attachment of the 2011-2012 Temporary Sustainability Plan (which is the recycling section of the Sustainability Plan), along with a school-customized link to the Final Sustainability Plan Application and the due date for submitting the final plan. In the 2010-2011 school year, schools had the option of choosing between a basic and comprehensive sustainability plan. During the 2011-2012 school year, that option was revoked and the Temporary Sustainability Plan, which was previously the basic recycling plan, is incorporated into the Final Sustainability Plan Application, which is a template for schools to create a Green Team and to set goals and action items for energy conservation, recycling, green curriculum and ecology programs. The application has six sections for entering information and three of those sections are required before the coordinator can submit the plan. The three required sections ask the Sustainability Coordinator to fill out information on the school's Green Team, select goals and create action items under the categories of Energy Conservation and Recycling. The Ecology and Green Curriculum sections are optional. Once completed, the plan is submitted, printed, signed by the principal, custodian engineer and Sustainability Coordinator, and filed on site.

**Figure 3: NYC DOE FY12 Temporary Sustainability Plan**

<b>FY12 SCHOOL / BUILDING RECYCLING PLAN</b>		
Geographic District _____		Borough _____
Building Code _____		School Code _____
<b>PLAN TO BE FULLY IMPLEMENTED BEFORE DECEMBER 31, 2011</b>		
<b>Every member of the school community has both an ethical and legal responsibility to recycle in accordance with the following:</b>		
<u>Local Law 19 (1989)</u>	<u>Local Law 41 (2010)</u>	<u>DSNY Recycling Rules</u>
<u>Chancellor's Regulation A-850</u>		
<b><u>MIXED PAPER &amp; CARDBOARD</u></b>		
<i>Recycling:</i>		
<ul style="list-style-type: none"> <li>• Each classroom, office, entranceway, and common area maintains a separate receptacle, container or bin appropriately labeled or decorated with recycling information for the collection of designated recyclable paper including: all white, colored, and glossy paper; any envelopes; smooth cardboard (small boxes, tubes, paper packaging); paper bags; pizza boxes (empty – no food scraps); newspapers, magazines, soft cover books, comic books, and catalogs; phone books; and corrugated cardboard (flattened boxes).</li> <li>• <b>NOTE:</b> Staples, paper clips, tape, or glue are acceptable. Spiral bindings, hardcover books, and soft paper (tissues, towels) are <b>NOT</b> acceptable.</li> <li>• Paper recycling receptacles are clearly marked "Mixed Paper ONLY" or labeled with a GREEN decal from DSNY (NYC Department of Sanitation). <u>Paper recycling receptacles are left unlined or lined with a CLEAR bag only.</u></li> <li>• All unused corrugated cardboard boxes are flattened, and either tied in a bundle or placed in CLEAR bags, and stored for pick-up in an area designated by the Custodian Engineer / Building Manager.</li> </ul>		
<i>Waste reduction:</i>		
<ul style="list-style-type: none"> <li>• Waste reduction efforts include double-sided printing, format changes (such as narrower margins, smaller fonts, or printing two-pages-per-sheet), and spellchecking before printing. Remove names from duplicate or unwanted mailing lists. Wherever feasible, paper materials are reused by staff, teachers, and students as scrap paper or for Arts &amp; Crafts projects; and corrugated cardboard boxes received through deliveries are reused as mixed paper recycling containers or other purposes.</li> </ul>		
<b><u>BEVERAGE CARTONS, BOTTLES, CANS, METAL &amp; FOIL</u></b>		
<i>Recycling:</i>		
<ul style="list-style-type: none"> <li>• School entrances (where feasible) and all locations where food and/or beverages are consumed (cafeteria, teachers lounge, and kitchen, other common areas, offices) maintains separate receptacles, containers or bins appropriately labeled or decorated with recycling information for the collection of designated metal, glass and plastic (MGP) including: milk &amp; juice cartons and drink boxes; plastic bottles &amp; jugs; glass bottles &amp; jars; and any metal or foil items.</li> <li>• MGP receptacles are clearly marked "Bottles &amp; Cans ONLY" or labeled with a BLUE decal from DSNY. Labeled lids may be cut with a circular hole to reduce contamination. <u>These recycling receptacles are lined with a CLEAR plastic bag.</u></li> <li>• All food and beverage containers are EMPTY, and rinsed if possible, prior to being placed in the designated recycling receptacle. A separate bucket to collect liquids may be placed next to MGP bins in the cafeteria, and emptied frequently.</li> <li>• <b>NOTE:</b> The following items are <b>NOT</b> acceptable: any plastics OTHER THAN bottles &amp; jugs; any glass OTHER THAN bottles &amp; jars (e.g. NO Styrofoam, dinnerware, deli tubs, yogurt containers, plastic toys or other items; NO plate glass, mirrors, dishware, ceramics, or light bulbs).</li> </ul>		
<i>Waste reduction:</i>		
Wherever feasible, staff and students are encouraged to consider reducing packaging waste, purchasing items made with recycled content, and using reusable and/or recyclable rather than disposable items such as cups and bottles.		
<b><u>E-WASTE</u></b>		
<ul style="list-style-type: none"> <li>• Disposal and recycling of owned computer and multifunctional machines is done through the PCS (Personal Computer Services) contract free of charge. The vendors (ASI or Dell) are responsible for proper disposal of broken or obsolete DOE equipment (PCs, laptops, printers, servers and monitors), as well as updating of DOE inventory databases. Each school is responsible for contacting its current specific vendor (ASI or Dell, regardless of the brand name of the equipment being disposed or recycled).</li> <li>• For BASIC plan subscribers, schools may dispose of a minimum of 20 pieces of obsolete equipment twice a year (October and April); STANDARD plan subscribers may dispose of a minimum of 20 pieces of obsolete equipment at any time during the year.</li> </ul>		
<b><u>PRINCIPAL-APPOINTED SUSTAINABILITY COORDINATOR WILL:</u></b>		
<ul style="list-style-type: none"> <li>• Ensure that teachers and staff receive a copy of this plan.</li> <li>• Post this plan in the main office, cafeterias and on bulletin boards where appropriate.</li> <li>• Promote recycling practices and support teachers in ensuring their students are following and practicing Recycling Rules.</li> </ul>		
<b><u>CUSTODIAN ENGINEER WILL:</u></b>		
<ul style="list-style-type: none"> <li>• Provide a copy of this plan to each of his/her employees and train them on recycling collection rules on this plan. Ensure all designated recycling and waste receptacles are lined with clear bags as needed. Keep designated recyclable materials separated as they are collected from recycling receptacles throughout the building and placed into larger CLEAR plastic bags (as needed) for DSNY pick-up.</li> <li>• Ensure that school collects and disposes three separate streams in <u>separate</u> CLEAR plastic bags: (1) Mixed Paper, (2) Metal Glass and Plastic and (3) Garbage, and that each stream is set out in distinct separate piles for DSNY collection at designated time and days for this building.</li> <li>• Set out bulk/scrap metal waste (large items) for scheduled metal, glass and plastic collection.</li> <li>• Notify the Sustainability Coordinator(s) and Principal(s) of any non-compliant rooms, areas or staff.</li> </ul>		
DOE Director of Sustainability, Ozgen Ormektekin at: <a href="mailto:sustainability@schools.nyc.gov">sustainability@schools.nyc.gov</a> may be contacted for assistance with custodial, Sanitation, or school concerns as related to any recycling issues. DSNY school recycling info, decals, signage, and educational materials are available at: <a href="http://www.nyc.gov/recycle">www.nyc.gov/recycle</a> .		
_____ Principal (print name)	_____ Sustainability Coordinator (print name)	_____ Custodian Engineer (print name)
_____ Signature/Date	_____ Signature/Date	_____ Signature/Date

#### 4.4 2012 NYC DOE Annual Recycling/Sustainability Implementation Survey

As required by Local Law 41, the NYC DOE Director of Sustainability created a school survey (See Appendix B) with the Recycling Working Group and sent it to all Sustainability Coordinators on May 21, 2012. There was a 40 percent increase in the number of schools that participated in the survey this year. 1,523 Sustainability Coordinators, which includes charter school Sustainability Coordinators, completed the survey, out of 1,593, for a response level of 96 percent as displayed in Figure 4. In 2011, 1,081 Sustainability Coordinators completed the survey, out of 1,525, for a response rate of 71 percent. Some of the campus schools

designated one person as the Sustainability Coordinator for the whole building and that individual responded separately for each school assigned to them.

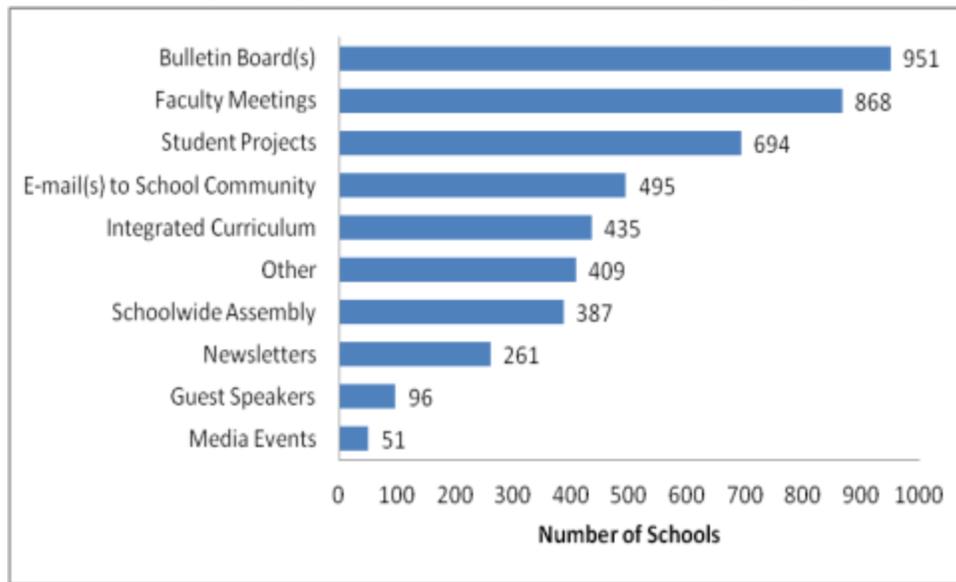
**Figure 4: 2012 and 2011 NYC DOE Annual Recycling Survey Participation Metrics**



This is the second time that the NYC DOE has conducted a survey on recycling programs and the respondent rate has increased by 25 percent; the NYC DOE expects this rate will remain consistent or increase in the 2012-2013 school year. There were seven questions on the 2012 survey (see Figures 5 through 11) and an opportunity to leave comments. Some of the questions allowed for multiple entries in order to capture it correctly and some questions were repeated from the 2011 survey.

Responses to the first question as shown in Figure 5 indicate that Bulletin Boards, Faculty Meetings and Student Projects were the top three methods used to communicate the 2012 School Sustainability Plan action items. The least utilized methods were hosting media events and guest speakers.

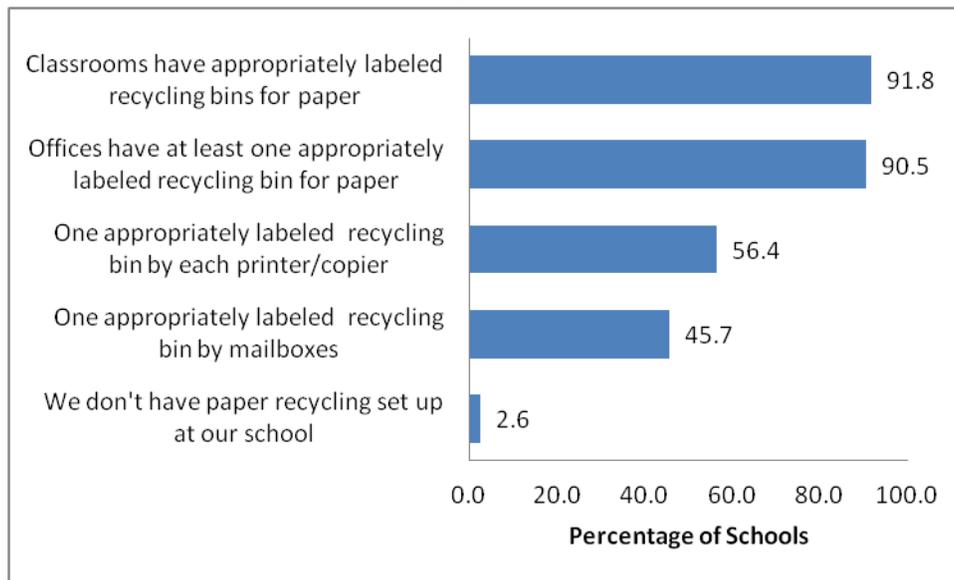
**Figure 5: How were the FY12 School Sustainability Plan action items communicated to the school community? (Respondents were able to select multiple responses)**



This question is similar to the first question on the 2011 survey that asked “How was the FY 11 School Recycling Plan communicated to the administrative staff, teachers, and students at your school?” Respondents were also allowed to choose multiple responses and the options with the highest response rates were posted on bulletin board, posted at cafeteria, and on file at school.

The second question of the survey (Figure 6) qualitatively assesses how recycling is being set up in the schools. 40 schools, less than 3 percent of the total respondents, said that they had no paper recycling set up and over 90 percent of schools have classrooms with appropriately labeled bins and offices with at least one such bin. However, we will continue to work to increase the number of appropriately labeled bins by copiers and printers because those are high-paper usage areas and doing so can potentially divert a significant amount of mixed paper from the school’s waste stream.

**Figure 6: How does your school implement paper recycling? (Respondents were allowed to select multiple responses)**



Question 3 is a follow-up to Question 2 and asks the respondents to quantitatively assess the implementation of paper recycling in classrooms. A little less than 2 percent of the respondents (28 schools) answered that they did not have any bins for paper recycling in classrooms, where as approximately 85 percent of schools had bins in more than 50 percent of their classrooms. This question was also asked on the 2010-2011 survey, with a little over 2 percent of the participants responding that zero percent of their classrooms had bins. Approximately 79 percent of respondents answered that they had appropriately labeled bins in over 50 percent of their classrooms. This shows a 6 percent improvement in getting appropriately labeled paper recycling bins in the classroom between school years 2010-2011 and 2011-2012.

**Figure 7: What percentage of classrooms have separate, appropriately labeled containers/bins for paper recycling? (Respondents could choose only a single response)**

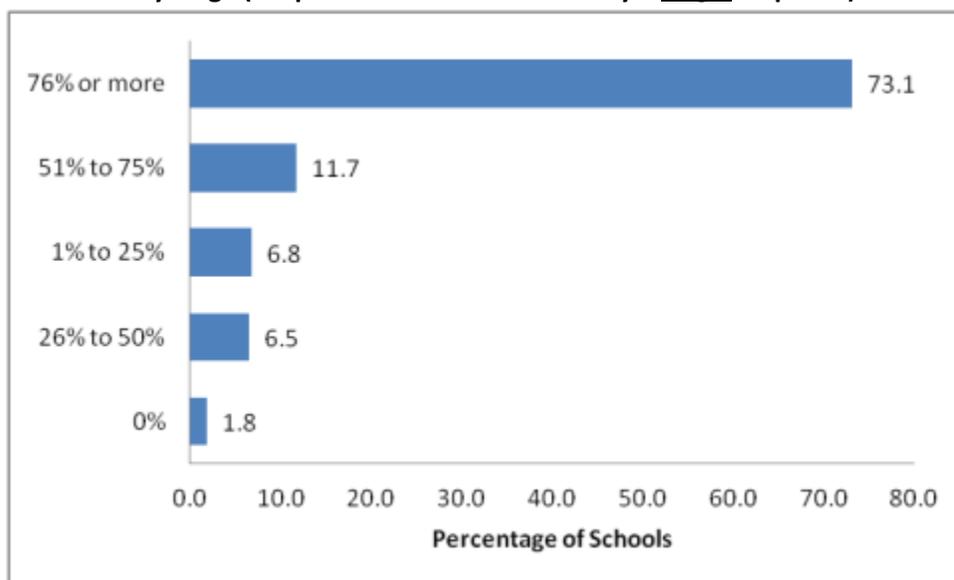
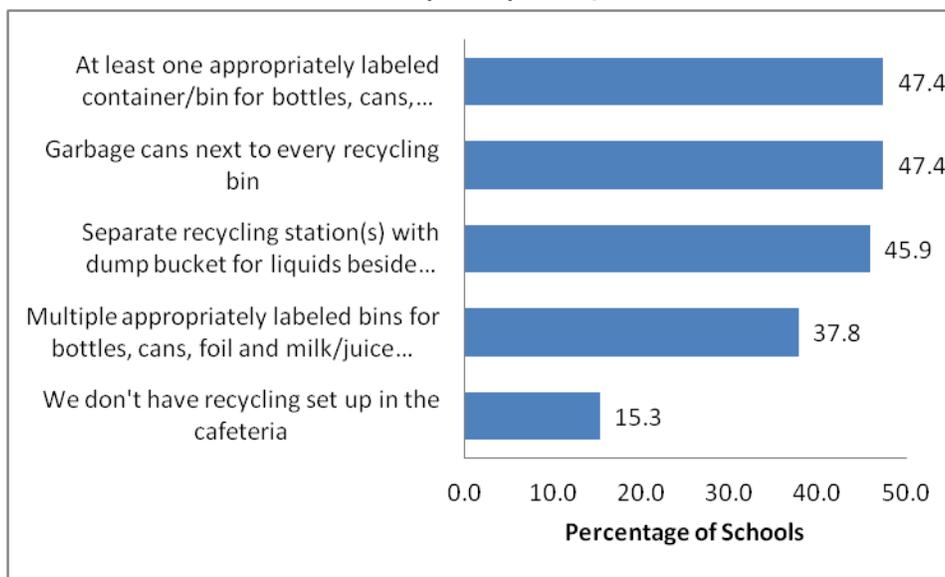
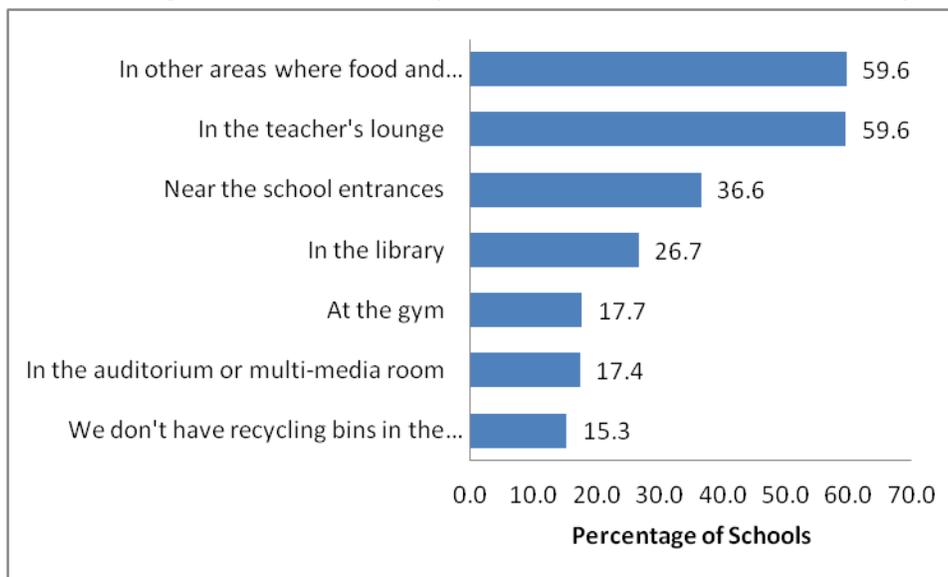


Figure 8 and Figure 9 below show that 85 percent of schools are implementing some type of bottles/cans/juice-milk carton/foil recycling in the cafeteria and common areas. The common areas where recycling bins for bottles/cans/juice-milk carton/foil are most prevalent are areas other than the cafeteria where food and drink are regularly consumed. These questions were a part of the 2011 survey and last year, 89 percent of the schools were implementing some type of recycling in the cafeteria, with 46 percent of schools with garbage cans next to every recycling bin and 47 percent with recycling stations with dump bucket. Although the 2012 survey shows 4 percent less schools without cafeteria recycling set up than in 2011 survey, there was a 40 percent increase in the number of schools participating in the survey in 2012. Comparing common areas, most schools had appropriately labeled recycling bins for bottles/cans/juice-milk carton/foil in the library, near the main entrance, or in other high traffic areas.

**Figure 8: How does your school implement recycling in the cafeteria? (Respondents were allowed to select multiple responses)**

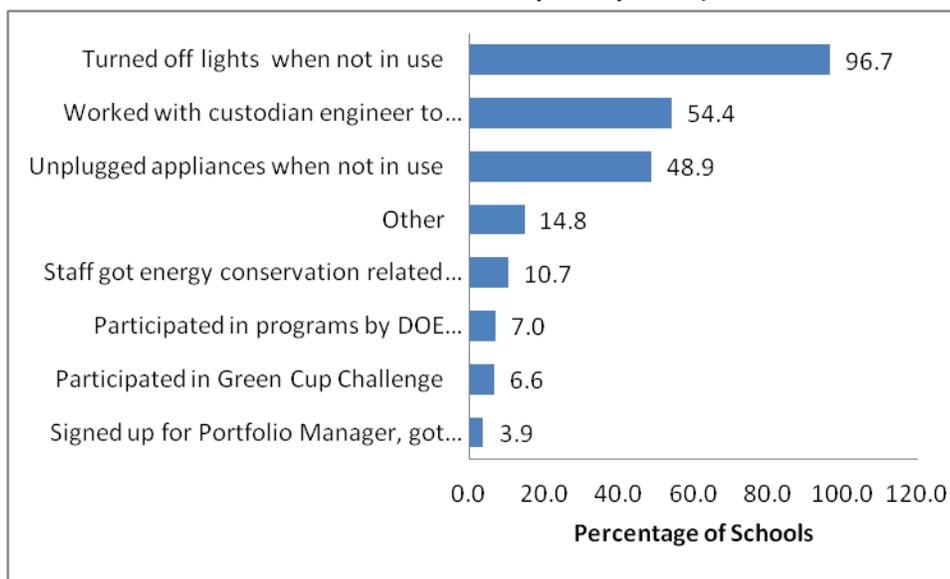


**Figure 9: Are there separate appropriately labeled recycling containers for bottles, cans, foil and milk/juice cartons in the following common areas? (Respondents were allowed to select multiple responses)**



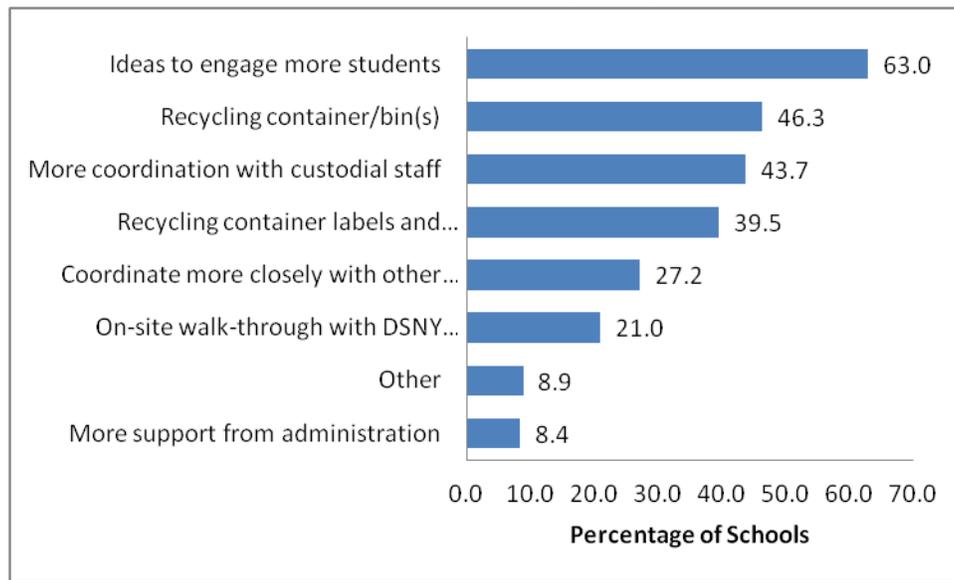
Energy Conservation goals were required as part of the 2011-2012 Final School Sustainability Plan and schools were encouraged to participate in DOE sponsored and outside programs in order to meet their energy reduction targets for the year. Figure 10 depicts the different methods that schools used to reach their goal. The most utilized method by far was turning off lights when not in use, at about 97 percent. 54 percent of schools worked with their custodian engineers to find ways to reduce energy from building operations. 101 schools were able to participate in the Green Cup Challenge. Some coordinators had difficulties navigating the Portfolio Manager interface so the NYC DOE will make an informative guide available to coordinators.

**Figure 10: How did your school meet your energy reduction target for the year? (Respondents were allowed to select multiple responses)**



The NYC DOE Sustainability Initiative and the DOE Sustainability Committee believe that it takes a team, and buy in from all stakeholders at the school community to make sustainability efforts successful. The last question of the survey asks sustainability coordinators what kind of support they need to better implement their sustainability plans. As seen in Figure 11, 63 percent of schools want ideas to engage more students and 44 percent need more coordination with their school custodians. Nineteen percent of the sustainability coordinators left comments in the last section of the survey which emphasized the need for increased collaboration amongst campus schools, school administrators and custodial engineers.

**Figure 11: What kind of support would you need to implement school sustainability plans? (Respondents were allowed to select multiple responses)**



#### 4.5 NYC Department of Education Office of Compliance Services Results

The Office of Compliance Services collaborates with the DOE Sustainability Initiative to measure schools' compliance with the timely appointment of Sustainability Coordinators and completion of the Recycling/Sustainability Implementation Survey as part of the implementation of Chancellor's Regulation A-850 and Local Law 41.

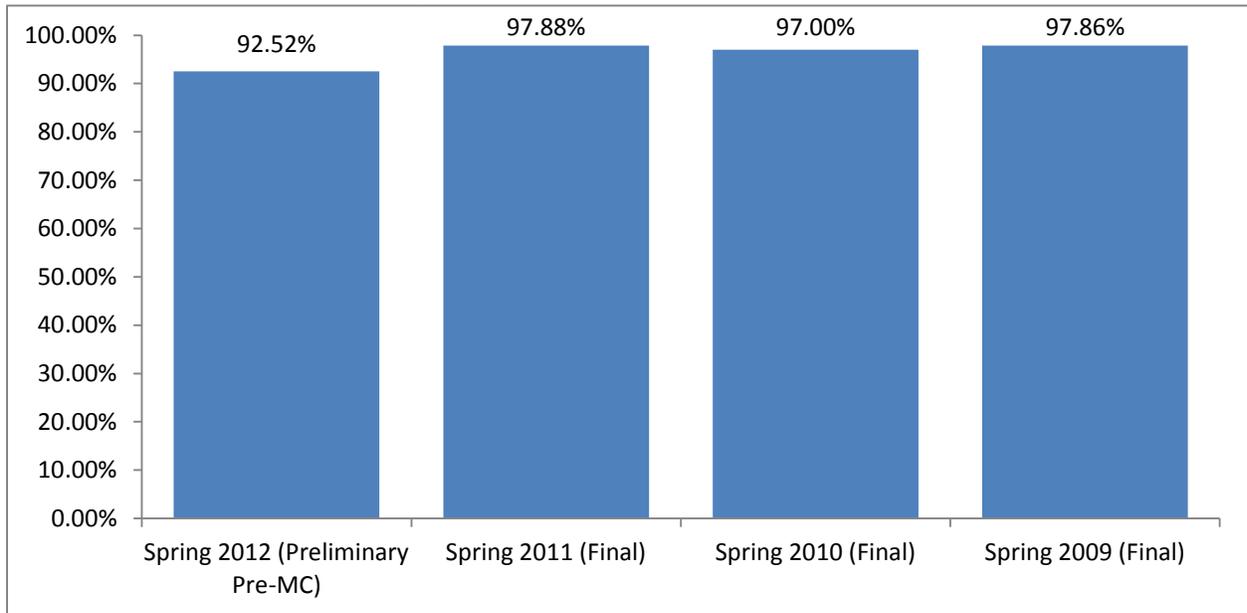
Figure 12 shows the questions that the Office of Compliance Services (OCS) has tracked and monitored from school years 2009 through 2012 and Figure 13 shows the compliance levels per year since the first time the recycling question was added to the Compliance Checklist. For the 2012 school year, the Director of Sustainability asked schools to appoint a Sustainability Coordinator by November 23, 2011 and to submit the School Sustainability Plan by December 9, 2011. This is the first year that the OCS included completion of the Annual Sustainability Survey as part of the compliance requirements. The Office of Compliance Services reported a 92.52 percent citywide compliance level with the requirements of the sustainability program for the 2011-2012 school year. The Early Childhood Education Centers, Charter Schools and Head Start Program Principals are not tracked and monitored by the NYC DOE Office of Compliance Services – therefore are not included in the citywide percentages represented in the figures below. The Office of Charter Schools reached out to all Charter Schools via e-mail and collected the Charter School Sustainability Coordinator information for Charter Schools located within the NYC DOE buildings if they submitted the information.

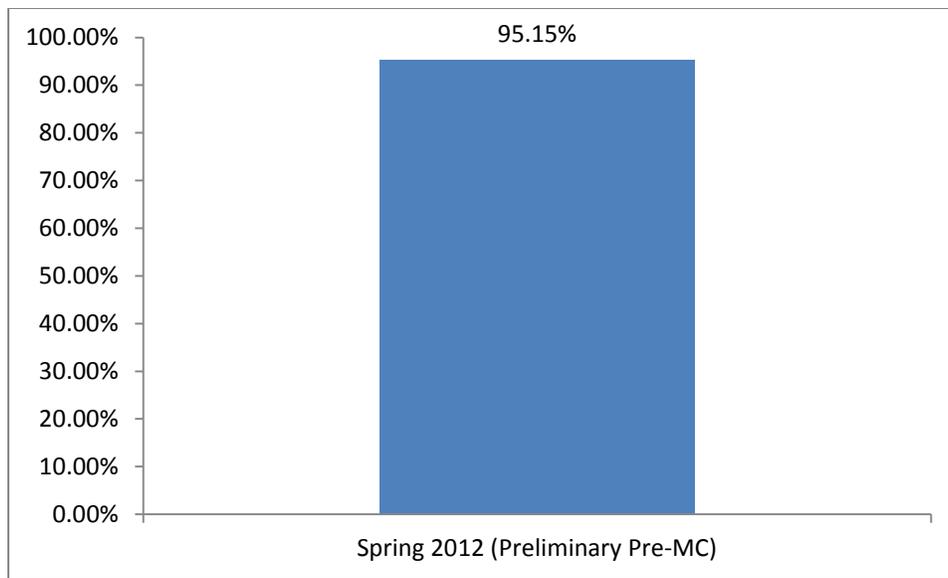
**Figure 12: NYC DOE Compliance Questions**

Period	Question	Citywide Average	# of Schools Measured
Spring 2012 (Preliminary Pre-MC)	Did your school submit a Sustainability (former Recycling) Plan by December 9, 2011 (your Sustainability Coordinator must be assigned in the web application by November 23, 2011)?	92.52%	1566
Spring 2011 (Final)	Did you submit a Recycling Plan in accordance with Chancellor's Regulation A-850 and Local Law 19 to the Division of School Facilities (DSF) by November 12, 2010?	97.88%	1555
Spring 2010 (Final)	Did your school appoint a School Sustainability Coordinator from your administrative or school staff and enter that information into SharePoint?	97.00%	1532
Spring 2009 (Final)	Did your school appoint a School Recycling and Waste Reduction Coordinator from your administrative or schools staff and enter that information into SharePoint?	97.86%	1497

Period	Question	Citywide Average	# of Schools Measured
Spring 2012 (Preliminary Pre-MC)	Did your school complete the Annual Recycling Implementation Survey by June 8, 2012?	95.15%	1566

**Figure 13: NYC DOE Compliance Levels**





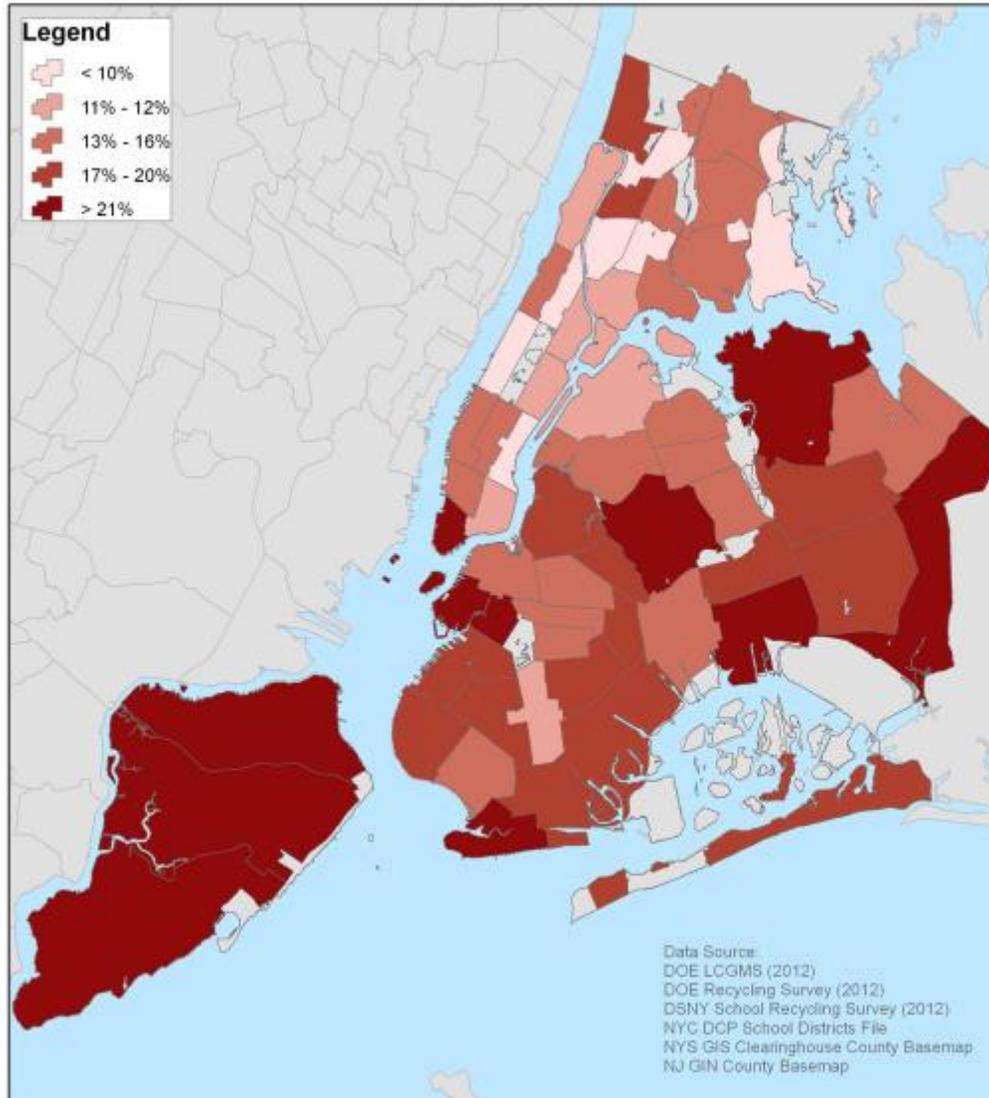
These are the results of timely appointment of Sustainability Coordinators and timely submission of School Sustainability Plans. After the internal DOE deadline, 53 DOE schools appointed Sustainability Coordinators before the end of the school year to be in compliance with Local Law 41 of 2010. In terms of compliance with the local law, the percentage of DOE schools that appointed Sustainability Coordinators is 95.9 percent, excluding charter schools, with 1,502 coordinators out of 1,566 measured schools. Including the charter schools, the number of Sustainability Coordinators is 1,593.

#### **4.6 Citywide School Diversion Rate Analysis**

In the 2010-2011 NYC DOE Recycling Report, the NYC DOE requested waste diversion rates from DSNY in order to track progress. DSNY provided the waste diversion rates from the school truck routes in 2011 -2012 school year weekly based on truck routes and also did a one-time diversion survey at each school citywide on two random dates in April 2012. Based on the DSNY Survey in April 2012, the NYC DOE diversion rate is 14.86 percent. The Mayor’s Office of Operations conducted their own analysis on recycling rates in NYC DOE schools by merging data from a DOE School Stat survey with data from a DSNY survey by school site. The Mayor’s Office of Operations estimated that the citywide diversion rate at schools is close to 15 percent, with the lowest rates in Northern Manhattan and parts of the Bronx. From their analysis, the Mayor’s Office of Operations found that about 6 percent of buildings are not in compliance with the Clear Bag Policy and paper is the main component of the diverted waste stream at approximately 12 percent and metal, glass, and plastic makes up the final 3 percent.

Figure 14: Map of Citywide School Diversion Rates

## New York City School Recycling School Diversion Rates by Community District



0 1 2 4 6 8 Miles



## 4.7 Recycling & Waste Reduction Programs, Training, Outreach and Recognition

### 4.7.1 Recycling & Waste Reduction Programs

#### 4.7.1.1 *GrowNYC Recycling Champions Program (RCP)*

The GrowNYC Recycling Champions program was created to provide NYC schools with the tools needed to integrate a sustainable recycling program into day to day school life. Under this program a dedicated Recycling Champions Coordinator visits the participating schools, creates programming and assemblies, and helps schools implement practices that are customized for the school's culture and needs. Participating schools are chosen from a cohort where there is a lagging recycling program, but a dedicated administration.

Working with the school's Sustainability Coordinator, goals are established for the recycling program along with a 2-3 month timeline for meeting the goals.

In the 2011-2012 school year, 10 new schools participated in the RCP, developing best practices for implementing model school recycling programs. Through these schools, 8,081 students were exposed to and participated in a robust school recycling program. The Recycling Champions Coordinator delivered 17 classroom and auditorium recycling presentations to 1,117 students, 9 professional development workshops to 756 faculty and staff, which includes participation in the three NYC DOE Sustainability Coordinator Trainings and participated in 4 citywide Custodian Engineer recycling trainings.

NYC DOE recommended the expansion of this program in the 2010-2011 NYC DOE Recycling Report due its excellent track record. During 2011-2012 school year, Mayor's Office of Long Term Planning and Sustainability and DSNY agreed to fund the expansion for the 2012-2013 school year with a goal of adding five outreach coordinators, one for every NYC borough, which would develop RCP programming at 20 schools every year per borough. With this expansion, GrowNYC estimates that RCP would develop 100 model school recycling programs and outreach to 100,000 faculty, staff, and students each school year. RCP will also help to produce and develop a new instructional school recycling film, 'Green Is the Word', directed by NYC school parent and filmmaker, Pamela French and expand its Recycling Olympics program which uses fun, team-building games to teach students about recycling. In partnership with GrowNYC's Grow to Learn: The Citywide School Garden Initiative, RCP will organize and facilitate a Citywide GrowNYC Education Professional Development (PD) day for faculty and staff on November 6, 2012 (a DOE PD day).

#### ***4.7.1.2 District 3 Composting Pilot***

The District 3 Green Schools Group initiated and led the District 3 Composting Pilot, which they began in February of 2012 and completed on June 27, 2012. Through this program, 85 percent of the schools' waste was diverted from landfills and daily garbage bag usage decreased from 54 to 8. Nine schools in 5 buildings participated: PS 199, PS 334, MS 245, PS 452, PS 166, PS 333, MS 256, MS 258 and West Side High School. School Facilities and School Food staff worked with the parents and administrators to make this a successful endeavor. Council member Gale Brewer recognized DOE staff that helped with the pilot at a ceremony organized by the District 3 Green Schools Group. DSNY and DOE will expand the pilot in the 2012-2013 school year.

#### ***4.7.1.3 Trayless Tuesdays***

This program, implemented by the DOE SchoolFood in March 2010, is where schools use paper boats instead of Styrofoam trays on Tuesdays. SchoolFood created a special, relatively dry menu for Tuesdays in order to keep the boats clean and dry so that they can be recycled as paper. NYC schools use 850,000 trays each day and this program reduces the cafeteria tray waste by 20 percent annually.

#### ***4.7.1.4 Grand Falloons Circus Programs by US EPA***

The US EPA sponsored 24 schools during the 2011-2012 school year to host Grand Falloons Circus - an assembly show for elementary students to teach them about where things come from and how recycling works. The programming was a success and received many great reviews although it will not be funded during the 2012-2013 school year.

## 4.7.2 Training

### 4.7.2.1 Custodian Engineer Training

All the Custodian Engineers are required to participate in annual safety training, where the Sustainability Initiative adds 30 minutes of recycling training to this existing class. The DSNY Bureau of Waste Prevention, Reuse and Recycling and GrowNYC Recycling Champions Coordinators provided the training for all the Custodian Engineers in summer of 2011, as well as make up class in December 2011.

## 4.7.3 Recognition and Outreach

### 4.7.3.1 Pratt Industries Donated Paper Recycling Bins

Pratt Industries donated 40,000 recycling bins to be placed in every classroom at schools located in Brooklyn, Manhattan and Staten Island! This donation was made possible through the collaborative efforts of Pratt Industries, the NYC DOE Division of School Facilities and GrowNYC Recycling Champions Program and DSNY. A few extra boxes were distributed to schools in Queens and the Bronx upon request.

Figure 15: Pratt Paper Recycling Bins



### 4.7.3.2 DSNY Golden Apple Awards

NYC DOE schools participate in the Department of Sanitation annual Golden Apple Awards every year. There were not eligible entries for all competitions at all grade levels in the 2011-2012 school year, but this year's participation increased, partially due to the cash prizes that weren't part of the 2010-2011 awards. This year's citywide winners received \$6,000, Borough winners received \$3,000, Borough runner-ups received \$1,500 and Golden Shovel Award winners received an extra \$1,000. The winning schools for different categories are listed below and also available online<sup>3</sup>.

- TrashMasters! Super Recyclers
  - Elementary Schools
    - Citywide and Queens Borough Winner – Pioneer Academy
    - Queens Borough Runner up – PS 188Q Kingsbury School
    - Brooklyn Borough Winner – PS 971K
    - Manhattan Honorable Mention – PS 166 Richard Rodgers School of the Arts & Technology
    - State Island Borough Winner – PS 57 Hubert H Humphrey
  - Intermediate Schools
    - Queens Borough Winner – Nathaniel Hawthorne MS 74
    - Brooklyn Honorable Mention – Andries Hudde IS 240
  - High Schools
    - Queens Borough Winner – Newcomers High School

<sup>3</sup> <http://www.nyc.gov/html/nycwasteless/downloads/pdf/goldenapple12/GA12-winners.pdf>

- Bronx Honorable Mention – Marie Curie School for Medicine, Nursing, and Health Professions
- TrashMasters! Reduce and Reuse Challenge
  - Elementary School
    - Citywide and Manhattan Borough Winner – The Anderson School PS 334(K-5)
    - Manhattan Borough Runner-Up – PS 199 Jessie Isador Straus
  - Intermediate School:
    - Citywide and Manhattan Borough Winner – Grace Church School
    - Brooklyn Borough Winner – MS 51 William Alexander
  - High School:
    - Citywide and Manhattan Borough Winner – Urban Assembly NY Harbor School
- Golden Shovel Awards for Master School Composter
  - Elementary School
  - Brooklyn Golden Shovel Award – PS 185 Walter Kassenbrock
  - Elementary School: Staten Island Golden Shovel Award – PS 57 Hubert H Humphrey
  - High School: Manhattan Golden Shovel Award – Urban Assembly NY Harbor School
- TrashMasters! Team Up to Clean Up
  - Elementary School
    - Citywide and Brooklyn Borough Winner – PS 185 Walter Kassenbrock)
    - Queens – PS 76Q William Hallet Magnet School for Health & Wellness
  - High School
    - Citywide and Brooklyn Borough Winner – HS for Public Service: Heroes of Tomorrow
    - Brooklyn Runner-Up – Academy for Environmental Leadership
    - Queens Winner – Maspeth High School
  - High School: Bronx Honorable Mention – Cardinal Spellman High School
- New York Restoration Project “Rose Award” – The Academy of Talented Scholars, Brooklyn

#### **4.7.3.3 EPA Region 2 Webinars**

The EPA has created several webinars focused on recycling in school cafeterias. View them here: <http://www.epa.gov/region2/webinars/schools.html>.

### **4.8 Next Steps for Recycling in NYC DOE Schools**

There are many challenges that come with creating a comprehensive recycling program in a school district as large and complex as that of New York City’s. The NYC DOE and Mayor’s Office of Long-Term Planning and Sustainability (OLTPS) worked together to identify the challenges schools are facing with increasing their recycling rates. Schools face challenges with sustaining behavioral change due to high turnover of leadership (staff, administrators and teachers), and with prioritizing recycling programs while the focus is on common core standards and test scores. There are also systematic challenges to tackle, such as DSNY’s inability to track diversion rates for each school on a continuous basis. Many schools receive collection from both the school truck route and residential collection routes, clouding the accuracy of the data, and can create confusion among staff about collection schedules. DOE also needs more funding and resources to realize all initiatives.

OLTPS and DOE identified several next steps to increase school recycling rates, some of which are already being implemented, that are summarized below.

- 1. Improve communication of data between DOE and DSNY to address logistical challenges**
  - DSNY should conduct school surveys on a monthly basis to track progress at each school
- 2. Provide additional trainings and support to schools for their recycling efforts**
  - Target efforts to schools most in need of improvement based on DSNY school by school data (when it becomes available)
  - Recognize Sustainability Coordinators for their intensive volunteer work
  - Acquire a recycling staff analyst which would allow DOE to provide additional technical and analytical assistance
- 3. Await approval of funds to buy equipment/supplies to facilitate efficient recycling collection**
  - Dual bin carts would significantly improve the efficiency of waste and recycling collection by custodians
- 4. Identify resources to expand D3 Green Schools, Group cafeteria waste composting pilot**
  - In the fall of 2012 the composting pilot will expand to a total of 36 school buildings in Manhattan and Brooklyn, for a total of 67 school buildings participating. The DSNY will provide composting bins, signage and daily compost pickup, while the DOE Sustainability Initiative will provide clear instructions to every participating school's Principal, Sustainability Coordinator, School Food Staff and Custodian Engineer and ongoing support throughout the year. Data will also be collected from DSNY that detail the outcomes of each school's composting initiative and more funds will be identified to support further expansion.
- 5. Request funding for more media development on composting and recycling at schools**

**END OF RECYCLING SECTION**

## 5 Energy Conservation

The Department of Education has partnered with the Department of Citywide Administrative Services Division of Energy Management (DCAS DEM) to implement energy efficiency programs in existing school buildings. NYC DOE is also working with the School Construction Authority (SCA) on the construction of new buildings designed under green standards to ensure performance as designed once operational and turned over to DOE. DCAS DEM is responsible for realizing the PlaNYC goal of reducing municipal energy use and greenhouse gas (GHG) emissions 30 percent by 2017. Reducing energy consumption in schools is essential to this goal as one-quarter of municipal buildings' carbon emissions and light, heat and power spending come from the City's public schools.

### 5.1 Energy Analysis – Comparing FY 2011 and FY 2012 School Years

DOE energy consumption and costs were lower in Fiscal Year 2012 compared to Fiscal Year 2011. Despite warmer than normal winter temperatures (17 percent less heating degree days in FY12 compared to FY11), citywide DOE reduced heating fuel consumption (natural gas and steam) by more than 27 percent. Total energy consumption was almost 16 percent lower and cost were more than 5 percent lower.

Figure 16: DOE Citywide Energy Consumption in FY 2011 and FY 2012

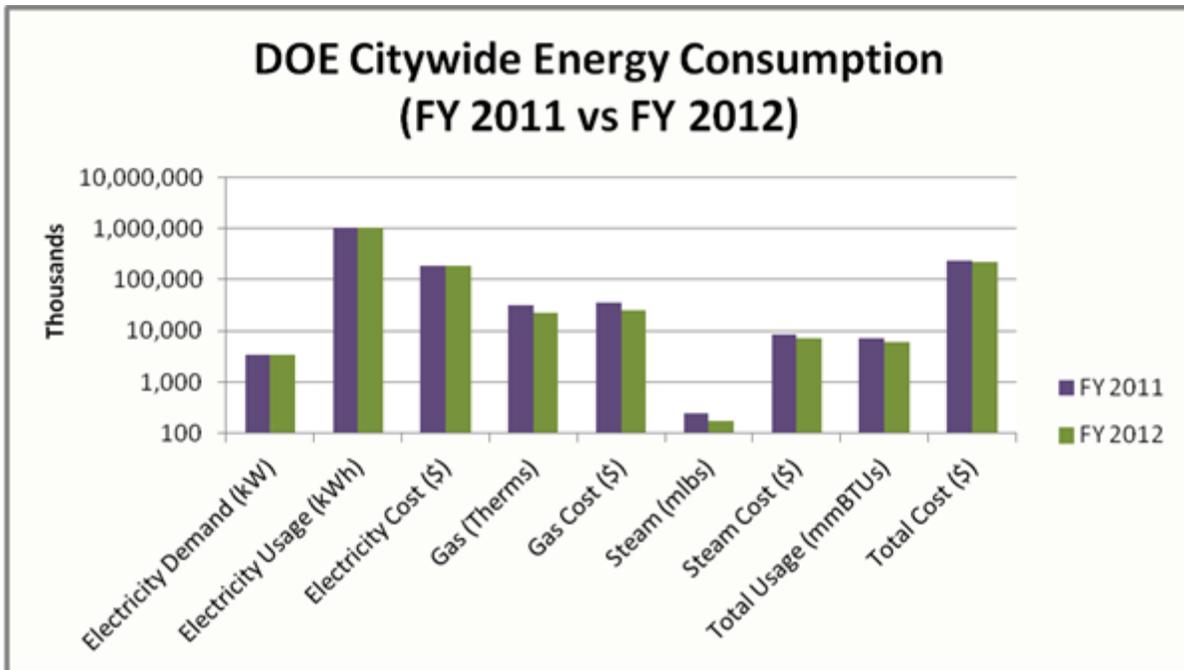


Figure 17: DOE Energy Consumption by Borough in FY 2011 and FY 2012

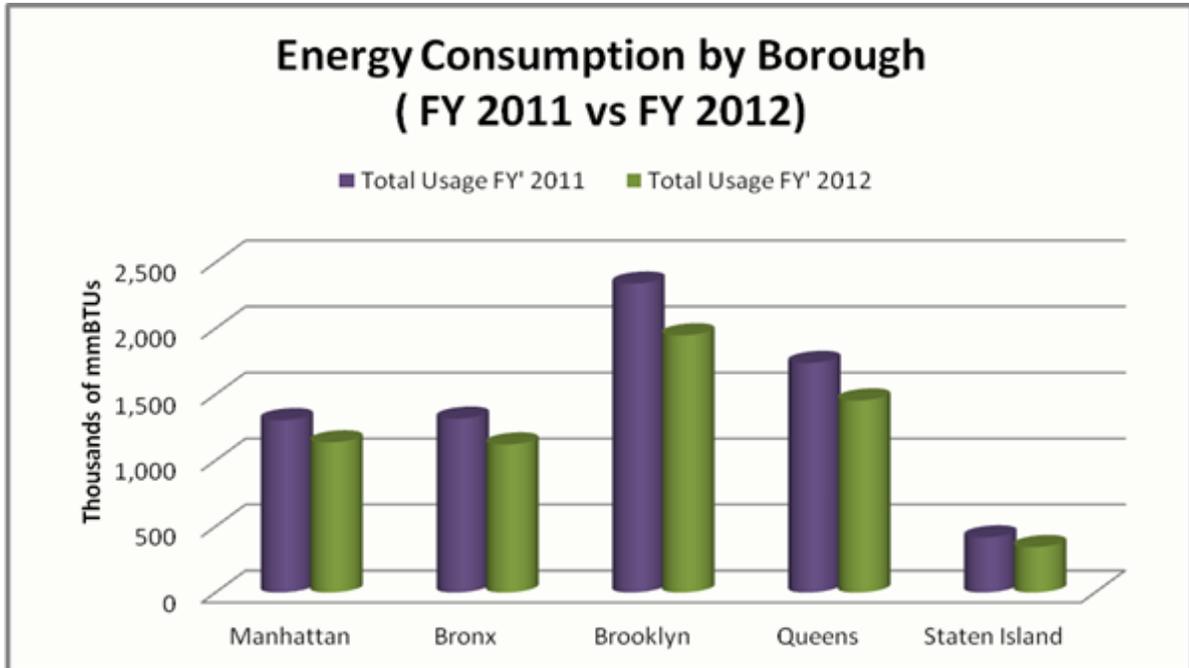


Figure 18: Percent Changes in FY 2012 Compared to FY 2011

FY 2012 Compared to FY 2011 - % change						
	<i>Citywide</i>	<i>Manhattan</i>	<i>Bronx</i>	<i>Brooklyn</i>	<i>Queens</i>	<i>Staten Island</i>
<b>Electricity Demand (kW)</b>	-1.9%	0.3%	-2.6%	-2.4%	-1.6%	-4.5%
<b>Electricity Usage (kWh)</b>	-4.5%	-0.3%	-5.8%	-5.9%	-4.0%	-6.7%
<b>Electricity Cost (\$)</b>	0.1%	3.6%	-0.5%	-1.0%	0.1%	-2.3%
<b>Gas (Therms)</b>	-27.3%	-22.6%	-28.0%	-26.4%	-30.0%	-30.3%
<b>Gas Cost (\$)</b>	-30.2%	-26.0%	-31.9%	-27.9%	-33.8%	-32.8%
<b>Steam (mlbs)</b>	-27.9%	-27.9%	NA	NA	NA	NA
<b>Steam Cost (\$)</b>	-16.4%	-16.4%	NA	NA	NA	NA
<b>Total Usage (mmBTUs)</b>	-15.6%	-12.9%	-14.8%	-16.7%	-16.3%	-17.6%
<b>Total Cost (\$)</b>	-5.2%	-3.4%	-4.7%	-6.3%	-5.4%	-6.8%

## **5.2 Building Energy Benchmarking**

The first step in reducing consumption is to identify how much energy is being used. The NYC DOE began using the U.S. EPA's Energy Star Portfolio Manager in order to create a baseline for each building's energy consumption and to track and analyze usage trends. By May 2010 each DOE building had been benchmarked, with new schools being added annually, and data on energy consumption and costs being updated monthly. Principals, Sustainability Coordinators, teachers and students are encouraged to create a free account and request access to view their school's energy data. Over thousands of DOE staff members are provided with Energy Star Portfolio Manager accounts. All Custodian Engineers and Building Managers are required to take the course Building Operator Certification 1, and as a part of the class they receive access to their school's Portfolio Manager data.

The U.S. EPA Portfolio Manager allows for easy tracking of all fuels (electricity, fuel oil, natural gas and steam) in units, costs and greenhouse gas emissions. DOE uses Portfolio Manager to benchmark their buildings' energy consumption and reports that data to the Department of Buildings, as required by Local Law 84<sup>4</sup>. DCAS DEM and NYC DOE started benchmarking all buildings prior to the implementation of Local Law 84, which states that owners of buildings of more than 50,000 square feet submit annual benchmarking data. Portfolio Manager also assigns an energy rating for the facility from 1 – 100, 100 being the best performing. Utilizing Portfolio Manager also presents curriculum integration opportunities; teachers can structure lessons on fuel types and greenhouse gases and perform statistical analyses using Portfolio Manager as the starting point.

## **5.3 Building Audit and Retrofit Program**

DCA DEM also uses Portfolio Manager Data to prioritize schools that will receive annual energy audits. These audits assess the school's current performance levels in order to develop specific energy conservation measures (ECMs) that will improve the energy efficiency of the building and lower the City's annual energy costs. The ECMs that generate the most energy savings for the least costs are implemented. Typical energy conservation measures are lighting retrofits, motor replacements, vacancy sensors, boiler replacements, variable frequency drives, smart meters, chiller replacements, district heating and cooling system reconfiguration and optimization, among other things.

The SCA recently started a comprehensive energy audit program with Energy Service Companies (ESCOs) to supplement DCAS DEM work and to accelerate the implementation of lighting upgrades, which eliminate PCBs from ballasts while also saving energy.

## **5.4 Operations and Maintenance Initiative**

The Operations and Maintenance (O&M) Initiative was created as part of the City's long-term action plan to reduce energy consumption and greenhouse gas emissions (GHG) in municipal buildings (The Long-Term Plan). The Long Term-Plan was created to realize the PlaNYC goal of reducing energy consumption and GHG emissions 30 percent by 2017. It estimates that improving O&M of existing municipal facilities could reduce GHG emissions by 195,000 metric tons annually and save millions of dollars in energy costs. Due to the DOE comprising 40 percent of the City's total municipal building square footage, it was one of two agencies to

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<sup>4</sup> <http://www.nyc.gov/html/gbee/html/plan/ll84.shtml>

participate in a yearlong O&M pilot program at 10 schools located in Northern Manhattan Neighborhoods, such as Inwood, Washington Heights and Harlem. Next year this program will be implemented citywide.

In FY 12, DOE received ARRA funds from New York State Energy Research Development Authority (NYSERDA) and implemented the following programs:

Steam Control Program:

- 65 schools citywide received replacement of steam traps, control valves and thermostats

Retro-Commissioning Program

- 26 schools were audited and 20 schools received funds to undertake low – moderate cost retro-commissioning measures, such as: fixing HVAC duct leaks, testing and balancing of the building management systems (BMS), pipe insulation, caulking the windows, rectifying any deferred maintenance items, among other things.

#### **5.4.1 O&M Progress in Manhattan**

Operating existing equipment as efficiently as possible requires reevaluating current operating standards in every DOE facility. Manhattan is the first borough to start this process, with funding from DCAS DEM, which entails systematically reviewing equipment scheduling, building set points, temperature standards and other easily adjusted, no and low cost operating parameters to reduce energy use in its schools.

In Fiscal Year 11, the Manhattan team was assigned a Deputy Director of Optimization, funded by DCAS DEM, to work on the O&M program with the Manhattan facilities team and principals to create a plan for the borough and lead the improvement projects. In FY 12, the Manhattan team spent over five and a half million dollars upgrading and repairing existing heating systems and introducing modern technologies. These changes were made as part of an effort to operate schools more efficiently and reduce overheating, while improving the safety and dependability of the HVAC systems. As part of a recent Building Code requirement, vacancy sensors were installed, which require room occupants to turn on the lights and then shut off automatically when the room is empty. The Manhattan team also upgraded old and inoperable pumps and motors with NEMA premium efficiency motors that operate safer and are estimated to be 10 percent more energy efficient. Existing thermostats were replaced with new wireless thermostats that provide the school's Custodian Engineer with greater control of the heating system, resulting in approximately 20 percent fuel savings. Steam traps were replaced in the classrooms and F&T traps on the main distribution lines, in order to reduce overheating and improve system operation and controllability. Also being installed are new hot water systems that will take advantage of already heated water in the building by recycling it to heat more water.

With these new installations, energy consumption has been reduced by 20 percent at these buildings.

#### **5.4.2 Custodian Engineers and Building Managers Energy Training**

School Custodian Engineers and Building Managers can access in-depth energy saving ideas from US Department of Energy's Online Training Program on Operating and Maintaining Energy Smart Schools. As part of DCAS DEM, DOE, CUNY, and Association of Energy Engineers, DEM currently offers four training programs to help City employees develop the skills necessary for successful building operations and maintenance: Overview of Energy Management, Building Operator Certification (BOC) –Level 1, BOC –Level 2, and the Certified Energy Manager Program. All Custodian Engineers are required to take the BOC –Level 1 class one

half-day a week for 30 weeks. Most of the required staff has been trained in FY 12 and the remaining cohort will finish the program in October of 2013.

## **5.5 Peak Load Management Program**

The New York Independent System Operator (NYISO) designates very hot summer days, where there are concerns of electrical system overload and power outages as Peak Load Management Days or Demand Respond Days. The DOE-DSF participates in Demand Response programs through two providers – The New York Power Authority (NYPA) and Energy Curtailment Specialists (ECS). On typical Demand Respond days air conditioner usage is high and providers ask DOE to curtail electricity consumption to help relieve strain on the City’s electric grid. The DOE’s actions on such days help to prevent brownouts and blackouts around the city and contribute to energy companies keeping old and inefficient power plants turned off. Currently, 118 DOE schools and office buildings participate by turning off unnecessary lighting, reducing elevator service and increasing space temperatures during very hot summer days.

## **5.6 Plug Load Policy**

In FY 12, the air-conditioning approval process was turned over to the NYC DOE Sustainability Initiative along with rest of the plug loads. Schools apply for increased plug load capacity and the Deputy Director of Energy and her team analyze the building’s energy consumption and determine whether to approve the request or not. If a request is disapproved, the principal gets an e-mail detailing the reasons why the request was denied, along with a copy of the school’s sustainability plan (see Section 4.3) for the year. Schools can submit detailed energy reduction plans and policies in order to have their requests reconsidered. The Deputy Director of Energy reviews the plans, and makes the final decision whether to approve the added load. If the plans are acceptable and the installation is approved, staff members from the Sustainability Office visit the schools to verify that the energy reduction plans are indeed being carried out.

## **5.7 Summer Kitchen Energy Conservation**

DOE’s Office of School Food introduced the Summer Kitchen Energy Conservation pilot program in 57 schools in 2009. The aim of the program is to unplug, if feasible, school cafeteria refrigerators and freezers over the summer holiday. In 2012 there were 731 schools cleaning and unplugging nearly 7,500 refrigerators, freezers, and milk chests. These actions not only saved energy all summer long, but saved in equipment maintenance and replacement costs.

The DOE created a one page training document that School Food managers used to train 5,300 kitchen staff on energy saving tips in December 2011. See Appendix C for the guide.

## **5.8 Renewable Energy**

DOE is working with the NYC Solar America City Partnership, led by Sustainable CUNY to identify possible solar projects at schools within the NYC Solar Empowerment Zones. Projects completed within these zones will receive data monitoring that will allow DOE to track the amount of energy being produced and serve as an interactive learning tool for students.

Thus far, DOE has constructed two solar sites; the first is located on two roofs at New Horizon Middle School<sup>5</sup> in Brooklyn and the second on the roof of Brandeis Education Complex<sup>6</sup> in Manhattan. The total power of each of these systems is 47.61 kW and 46.8 kW respectively. In addition, two solar installations are in progress through DCAS DEM Power Purchase Agreement. DOE is also exploring renewable energy opportunities with the NYPA and NYC School Construction Authority.

## 5.9 Energy Efficiency in New School Buildings

The DOE is committed to reducing energy consumption in new buildings. The NYC School Construction Authority (SCA), which implements all capital improvements and new construction for DOE, developed the NYC Green School Guide (GSG) as part of the City’s Local Law 86. The SCA is also constructing P.S. 62 in Staten Island, which will be a Net-Zero Energy School. This is their second Sustainability Lab project with P.S. 276 in Battery Park City being the first. Many of the design features contained in P.S. 62 surpass both minimum Code requirements and current SCA Standards. Thirty-two of these features are currently being evaluated for incorporation into the next revision of the SCA Standards. They are being discussed with the SCA review committee and recommendations will be made to the Technical Standards and Support Studio (TSS) Studio in which features to incorporate into SCA Standards.

Schools completed under the Green Schools Guide in FY 2012 School Openings (07/01/11 - 06/30/12)

School	Substantial Completion
PS 196Q	05/17/12
PS/IS 277Q	03/21/12
PS 95X	08/15/11

## 5.10 Clean Heat Program

The NYC DOE is converting all boilers using #6 heating oil to #4 heating oil, except for those boilers that have been referred for complete replacement by the SCA. In FY12, 25 schools were converted and the process is underway at more schools in order to meet the deadline of updating all schools in the DOE portfolio by 2015. In addition, the SCA converts heavy oil boiler plants to #2 heating oil or natural gas as per their capital plan and DCAS DEM converts heavy oil boiler plants to #2 heating oil or natural gas burners as part of the energy audit and retrofit programs. The NYC DOE, NYC DEP, Mayor’s Office of Operations and NYC Department of Buildings are also looking at options to pilot biofuel in lieu of #6 oil if the biofuel meets the DEP rules and regulations.

## 5.11 Energy Conservation Programs and Recognition

### 5.11.1 Programs

#### 5.11.1.1 Green Cup Challenge

The Green Cup Challenge (GCC) aims to increase energy usage awareness and facilitate relevant dialogue in the school community and educational activities for students. During a 4-week competition period, students participating in the Green Cup Challenge strive to reduce their energy consumption by achieving a certain

<sup>5</sup> <http://www.sunnyportal.com/Templates/PublicPageOverview.aspx?page=6e98ea4e-7339-4de5-8d20-10e98c18e631&plant=b9191e81-af2a-42a1-b6c4-fa87a5fc6fb4&splang=en-US#>

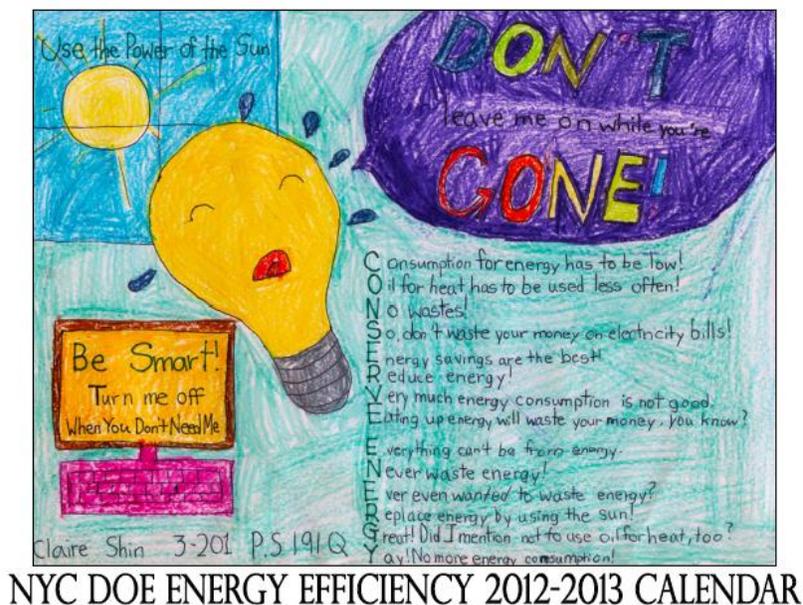
<sup>6</sup> <http://www.sunnyportal.com/Templates/PublicPageOverview.aspx?page=6ac24b63-8a98-4a8f-b2b5-497b88866126&plant=0251631d-6c97-4dbb-b41e-0e5ac34eab3f&splang=en-US>

reduction percentage. In the spring of 2012, 103 DOE schools worked from March 2<sup>nd</sup> – March 30<sup>th</sup> to conserve 687,110 kWh of electricity and prevent over 1 million pounds of carbon dioxide from entering the atmosphere. The top 3 reducing schools were Morris Heights Educational Complex, which houses 4 schools, P.S. 65 Academy of Innovative Learning, and P.S. 007 Abraham Lincoln with reductions from baseline of 54.7 percent, 49.9 percent and 35.5 percent respectively. The first place schools received a grant of \$25,000, second place received \$20,000 and third place received \$15,000. Next year's Green Cup Challenge will take place from November 5 – December 3, 2012.

### 5.11.1.2 Energy Efficiency Calendar Contest

In the spring of 2012, the NYC DOE Sustainability Initiative hosted an energy efficiency art contest, where the artwork of the 13 lucky winners would create a calendar for the 2012-2013 school year. The goal of the contest was to encourage kids to think about their environment and simple ways to reduce energy and create a more sustainable world. There were 221 participants from all grade levels in all five boroughs and entries were judged on subject relevance (energy efficiency), their ability to express the message clearly and stylistic appeal. The judges included representatives from the Metropolitan Museum of Art, the NYC DOE and other NYC offices, officials from the Mayor's Office, parents and artists. 7000 copies of the calendar will be distributed to over 1200 schools throughout the entire city and it is available for download online<sup>7</sup>!

Figure 19: NYC DOE 2012-2013 Calendar Cover



## 5.11.2 Recognition

### 5.11.2.1 Green Ribbon Schools

The NYC DOE congratulates P.S. 57 in Staten Island and P.S. 41 in Manhattan for their efforts towards becoming net zero schools. They placed 4th and 6th respectively in New York State's nominations to the U.S. Department of Education's Green Ribbon Schools program. The Green Ribbon Schools program recognizes honors schools that strive to save energy and reduce utility costs, promote the health and wellness of staff

<sup>7</sup> <http://schools.nyc.gov/community/facilities/sustainability/News/Energy+Calendar.htm>

and students and create sustainable learning environments that focus on environmental literacy and incorporate STEM, community involvement and green career pathways.

#### ***5.11.2.2 Chancellor Walcott Congratulates Students and Staff for Reducing Energy Use and Increasing Recycling in Schools***

In honor of Earth Day 2012, Chancellor Dennis M. Walcott congratulated the students and staff of NYC DOE for their efforts towards a more sustainable future. Refer to Appendix D for the press release.

#### ***5.11.2.3 Calendar Contest Reception***

In early June, the NYC DOE hosted a reception for the winners and runner-ups of the Energy Efficiency Calendar Contest and their families at the Metropolitan Museum of Art. The Grand Prize winner, 3<sup>rd</sup> grader Claire Shin received her artwork on the cover of the calendar and a laptop. All other winners received an Apple iPad and those who were awarded Honorable Mention received Barnes & Noble Nooks. For a complete list of winners see Appendix E.

#### ***5.11.2.4 Peak Load Management Custodian Recognition***

In May of 2012, DOE and ECS hosted a recognition event for DOE Custodian Engineers that exceeded the required energy curtailment rate. Each Custodian Engineer received a grant equal to the amount of savings they earned, to be used to make energy efficiency improvements to their school.

### **5.12 Next Steps for Energy Conservation in NYC DOE Schools**

- Develop an informative guide illustrating how to navigate Portfolio Manager as requested by the Sustainability Coordinators in the annual survey
- Revise the Chancellor's Regulation A-850 to include energy conservation policy including but not limited to plug loads.
- Continue to expand the Green Cup Challenge and modify the award structure so that all schools that reduced energy during challenge can get savings back to their school.
- Request funding from DCAS DEM to run the energy efficiency calendar contest again in 2012-2013 school year.
- Expand the demand response program and seek funding for low cost Operations and Maintenance repairs that would save energy.

**END OF ENERGY SECTION**

## 6 Ecology

### 6.1 Initiatives

#### 6.1.1 Grow to Learn NYC: Citywide School Garden Initiative

In partnership with the Mayor's Fund to Advance NYC, GrowNYC launched Grow to Learn NYC: the Citywide School Garden Initiative with the mission to inspire, promote and support sustainable school gardens in New York City's public schools. By helping learning gardens grow across the five boroughs, Grow to Learn increases environmental awareness and healthy food attitudes among NYC's 1.1 million students while ultimately have positive impacts on current and future consumption behaviors, leading to healthier kids, communities, and planet.

Grow to Learn connects schools with the material resources and mini-grant opportunities that they need to dig in and get gardens growing. By pooling best practices and NYC school garden efforts, Grow to Learn ensures that every school has access to information and support needed to start and maintain a successful garden. As part of their ongoing commitment to ensuring that all New Yorkers have equal opportunities to grow and learn, they provide targeted support to help gardens grow in the areas that need these programs the most—the South Bronx, Central Brooklyn, and East and Central Harlem. These areas, also known as Department of Public Health Office regions, have the highest rates of childhood obesity and diet-related illness in NYC.

Since *Grow to Learn* launched in January 2011:

- 225 schools have registered with Grow to Learn, reaching 55,783 students, training over 600 teachers and parents, and making the schools eligible for mini-grants and free resources (current list here: <http://www.growtolearn.org/view/RegisteredSchoolGardens>);
- \$224,956 distributed in mini-grants to help 138 schools start or maintain learning gardens;
- Over 1,000 city students came to Randall's Island Learning Garden to experience growing cycles, seasonality and nutrition;
- 63 schools taste what they grow with Garden to Café events (current list here: <http://www.growtolearn.org/view/RC3812>);
- 36 schools received over 5600 cubic feet of soil, compost, or mulch and 14 schools received 333 pieces of lumber; and,
- Direct support provided to 31 schools in District Public Health Office zones, reaching 6,637 students.

##### 6.1.1.1 Garden to School Café Program

Garden to School Café is a program of the NYC Office of SchoolFood and Grow to Learn NYC. The program connects school gardening and school lunch, by inspiring, facilitating and promoting the creation of a sustainable school garden in each and every public school across New York City and through seasonal harvest events and educational activities. Schools receive both technical assistance and mini grants by registering their gardens with Grow to Learn and after registering with Grow to Learn they can opt to participate in the Garden to Café Program. The continuous goal of the program is to provide NYC students with a variety of healthy food choices and to foster an environment where School Food staff work with the school community to encourage students' consumption of fresh vegetables and knowledge of healthful foods, farming and the local food system.

**Figure 20: Harvest Events of West Side High School and P.S. 32**



### **6.1.2 Earth Day NY Classroom Gardens:**

Earth Day New York donated over 100 classroom gardens called EarthBox containers with organic soil, growing lights and organic lettuce seed for students to learn how to grow plants, eat healthy and do it throughout the year with gardens on wheels!

### **6.1.3 MillionTreesNYC (MTNYC) Initiative**

MillionTreesNYC, launched by the NYC Parks Department and New York Restoration Project, is a PlaNYC initiative that aims to plant and care for one million trees in New York City by the year 2017. Sixty percent of these trees will be planted along streets, in parks and in other public spaces, like schoolyards.

From MTNYC giveaways, 68 trees were adopted in the name of DOE schools. In conjunction with the School Construction Authority (SCA), MTNYC will prep and replace the soil at P.S. 54 in Brooklyn and plant 25 new trees in the fall of 2012.

#### **6.1.3.1 MTNYC Green Points Challenge**

MillionTreesNYC (MTNYC) and Recycle Bank, along with leading environmental educators launched the Green Points Challenge for NYC schools in the fall of 2011. The challenge aims to teach children about the benefit of trees and involve them with the MTNYC initiative. Classrooms who participate in the challenge can earn

Recyclebank points through a variety of ways, like participating in environmental education programs, planting a tree or integrating free tree-themed curricula into lessons. At the end of the semester, the classrooms with the most points win.

### **Spring 2012 Winners**

GRAND PRIZE - Swindler Cove Park campout: P.S. 166

FIRST PRIZE: - Afternoon of games with The Boost Mobile New York Knicks Groove Truck: PS 160

SECOND PRIZE - Brand name backpacks for classroom: Brooklyn Job Corps Academy

THIRD PRIZE - Class trip to a Garden Exploration Tour at Brooklyn Botanic Garden: Alain L. Locke Magnet School for Environmental Stewardship

### **Fall 2011 Winners**

GRAND PRIZE - Classroom celebration of trees with New York Knicks Legend John Starks: The Earth School

FIRST PRIZE - Afternoon of games with the New York Knicks' Groove Truck: P.S. 166

SECOND PRIZE - Free classroom admissions to the Big Apple Circus Performance: P.S. 166

THIRD PRIZE - A day at the Alley Pond Park Adventure Course: Young Urban Foresters of I.S. 123

#### **6.1.3.2 RespecTree Program**

The RespecTree program is part of the MTNYC initiative, led by the New York Restoration Project (NYRP). Schools with the capacity to plant 10 or more trees can participate in this program, led by an NYRP educator and partner community-based educators. Students engage in a series of lessons and activities that foster environmental stewardship and teamwork. For example, they survey the school grounds for greening opportunities, learn the role of trees in natural ecosystems and urban communities, participate in campus tree-planting designs, develop an outreach strategy to communicate their tree-planting efforts to the school community and engage the student body in tree-planting and stewardship activities. The program also includes a watershed walk to learn how trash and pollution degrade ecosystems, as well as a field trip to NYRP's Swindler Cove Park, where students participate in exercises to identify different species of trees. At the end of the program students have a schoolyard-planting day and celebration and learn about long-term tree care and maintenance.

#### **6.1.4 Schoolyards to Playgrounds**

One of the goals of the PlaNYC initiative is to ensure that all New Yorkers live within a 10-minute walk of a park or playground. The Parks Department, the Department of Education and the non-profit Trust for Public Land (TPL) are working together to improve 260 schoolyards by 2013; the capital improvements include play equipment, painted sports surfaces, trees and benches. These schoolyards will be open to the public after school and on weekends. Two hundred and nineteen sites have opened by the end of June 2012.

#### **6.1.5 Green Infrastructure Pilot with NYC Department of Environmental Protection**

The NYC Department of Environmental Protection (DEP) is working with the stakeholders of the Schoolyards to Playgrounds project to provide green infrastructure projects for five schoolyards that will open this fiscal

year. These projects are K162, K218, K261, K65 and Q175 and eight projects have been identified for the next year. These green infrastructure strategies include rain gardens – depressions where vegetation is planted to capture rainfall, porous pavements – paving materials that allow stormwater to soak back into the ground, and trees. This is part of NYC’s plan to improve water quality. With heavy precipitation, stormwater flows into the sewer system and the system exceeds capacity, resulting in a mixture of sewage and stormwater flowing into surrounding water bodies.

Through a partnership with the DOE and the SCA, the DEP created a monitoring site at P.S. 118 in Queens to investigate the effects of green roofs and blue roofs on stormwater detention versus a normal control roof. Blue roofs are less expensive than green roofs and delay runoff by using check dams to slow the water down on its way into the sewer system. This study began in September of 2010 and will continue for three years. Preliminary findings show that both roofs are performing well, with the green roof generating less run off. For more data and other case studies, see the 2011 NYC Green Infrastructure Plan Update<sup>8</sup>.

### **6.1.6 Water Conservation Pilot with NYC Department of Environmental Protection**

The goal of the Water Conservation Pilot is to retrofit 500 NYC schools by 2017. Toilets and urinals in old school buildings are using 3 to 4.5 gallons per flush and in some cases up to 7 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. The pilot started with 2 schools this year, Hillcrest High School and Bayside High School. Next year the program will expand to 23 schools all across NYC.

## **6.2 Next Steps**

### **6.2.1 Grow to Learn NYC: Citywide School Garden Initiative**

Grow to Learn has set ambitious goals for the 2012/13 school year:

1. Distribute \$100,000 in mini-grant funding to 65 NYC public and charter schools
2. Provide continued one-on-one assistance to 30 school gardens
3. Retain 75% of NYC registered school gardens and increase the number to 300
4. Continue to develop and expand the website to provide a user-friendly, “one stop shop” resource for school gardeners
5. Collaborate with HealthxDesign to create improved evaluation tools to better assess the academic, environmental and health impacts of school gardens on NYC students.

### **6.2.2 Schoolyards to Playgrounds**

43 sites need to be completed in order to reach the goal of 260 playgrounds by end of 2013. Of these 43 sites, 22 of them are funded and will be completed by the end of 2013. The remaining 21 sites still need funding to renovate and open; 19 of them have already been designed and two are still in the design phase.

## **END OF ECOLOGY SECTION**

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<sup>8</sup> [http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/gi\\_annual\\_report\\_2012.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/gi_annual_report_2012.pdf)

## 7 Green Curriculum

The purpose of the Green Curriculum Initiative is to provide sustainable curriculum resources to principals and teachers. Such resources range from in-classroom programs, like Solar One Green Design Laboratory™ to professional development workshops with a variety of different agencies, like the Children's Environmental Literacy Foundation (CELF) professional development programs.

### 7.1 Initiatives

#### 7.1.1 High School for Energy and Technology – DSF School for Sustainability

The NYC DOE Sustainability Initiative worked with Columbia University SIPA Graduate Program and asked them to prepare a strategic plan to start a new school. Using that strategic plan the DOE Sustainability Initiative submitted a new schools application that was accepted. The new school will greet its first 9<sup>th</sup> grade students in September of 2012. For more information see Appendix F.

#### 7.1.2 Solar One Green Design Lab™

Solar One is a New York City non-profit environmental and sustainability education organization that provides DOE schools with the Green Design Lab™ (GDL). The aims of the GDL are to increase environmental literacy and promote sustainable behaviors through activities that align with STEM and support common core standards. Each GDL partner school participates in a school-wide sustainability project like creating a rooftop garden or initiating composting in the cafeteria and receives a GDL coordinator who delivers curriculum, provides technical assistance for sustainability projects and professional development for teachers and building staff. According to the Green Design Lab™ annual report, Solar One, in partnership with the New York City Department of Education, delivered the GDL program to 23 schools, reaching a total of 3,858 students in 152 classrooms during the 2011-2012 school year. Twenty-two schools participated in the GDL Energy Challenge to reduce their electricity consumption. PS/MS 194, in the South Bronx, saved the most electricity, 21 percent, to receive the first place prize of \$12,000. The runners up, PS 84-Steinway, in Astoria, and the Academy for Environmental Leadership, Bushwick Campus, in Bushwick, reduced energy use by 17 and 14 percent, respectively, to win \$9,000 each. For more information see Solar One's press release<sup>9</sup>.

#### 7.1.3 Eco-Schools USA – National Wildlife Federation

Eco-Schools USA supplies a seven step framework to achieve measurable sustainability results. Certified schools succeed in organizing a comprehensive assessment of their overall environmental footprint and adhere to an action plan that is developed, implemented, monitored and evaluated by a student-faculty-volunteer coalition. As schools address each NYC DOE-aligned pathway, award levels increase. More than half of the Eco-Schools USA pathways connect to climate change mitigation, a key goal for NYC DOE.

To initiate a citywide, and eventually a nationwide, school movement to reduce climate change, NWF is implementing the Eco-Schools USA program in partnership with NYC DOE. Through PlaNYC, NYC DOE has started a district-wide sustainability effort by assigning Sustainability Coordinators in each of the district's 1,700 public schools. NWF has already trained almost 600 school sustainability coordinators in the Eco-Schools USA model.

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<sup>9</sup> [http://www.solar1.org/wp-content/uploads/2012/06/SolarOne\\_GreenDesignLab\\_EnergyChallenge\\_PressRelease.pdf](http://www.solar1.org/wp-content/uploads/2012/06/SolarOne_GreenDesignLab_EnergyChallenge_PressRelease.pdf)

In 2012-2013, NWF will be hiring a full time staff member to conduct outreach and support for NYC schools to become Eco-Schools. Already, PS 41, an Eco-School in Greenwich Village, is unveiling its new green roof in September 2012, and PS57 in Staten Island is in the process of applying for a Green Flag award. Additionally, Eco Schools will be hosting networking events for Sustainability Coordinators, and doing ongoing support and training for schools that want to advance through the Eco-Schools award levels.

#### **7.1.4 Children’s Environmental Literacy Foundation (CELF)**

In June 2012, CELF, in partnership with the NYC DOE launched the CELF Leadership Training in Sustainability Curriculum and Assessment Program, a year-long pilot program to help six NYC schools integrate sustainability and environmental themes into every-day K-12 lesson plans. Educators from each school participated in two full days of professional development and curriculum design guidance, June 28-29, 2012; an on-site CELF Educator each semester during the school year; access to the CELF Online Education for Sustainability (EFS) Curriculum Library; an EFS Curriculum Integration Template; resource lists; and assessment tools for follow-up evaluation. The CELF Educator will provide support for a school-wide sustainability project that is related to one of the redesigned curriculum units. The CELF Leadership Training Program is aligned with the Common Core Standards, National Science and STEM (Science, Technology, Engineering and Math) education standards, 21st Century Skills, and career preparation in the emerging green careers sector.

CELF representatives also gave presentations at two of the DOE’s Sustainability Coordinator Training Sessions. At these events we distributed free materials to participants.

#### **7.1.5 New York State Energy Research and Development Authority (NYSERDA) Energy Smart Students Program**

The goal of the NYSERDA’s Energy Smart Students program was to help educators learn more about energy and the impact of our energy choices on the environment through workshops, curricula, and resources. Although the program was discontinued early in the spring of 2012, from September 2011 through February 2012, 18 workshops were hosted in New York City. From these 18 workshops, 270 educators registered, an average of 15 educators per workshop, and with an average of approximately 131 students per educator, approximately 35,235 students were reached.

##### **7.1.5.1 Sustainability Coordinator Training**

The annual Sustainability Coordinator Trainings were held during the 2011-2012 school year in three sessions that took place on January 10th, February 7th and February 10 at the United Federation of Teachers (UFT) headquarters. These trainings were developed and managed by the NYC DOE Sustainability Initiative in partnership with the UFT. Coordinators were given presentations and resources on topics related to Recycling, Energy Conservation, Ecology and Green Curriculum and implementing sustainability plans. The DSNY Bureau of Waste Prevention, Reuse and Recycling team and the GrowNYC Recycling Champions Coordinator provided the recycling portion of the training. The agenda for the Sustainability Coordinator and a detailed description of presentations are located in Appendix G. The Sustainability Coordinator Trainings for the 2012-2013 school year will take place on October 11, November 13 and January 7.

#### **7.1.6 Sustainability and the City Professional Development**

On November 8, 2011, NYC DOE supported Sustainability and the City, a professional development workshop for teachers, principals, administrators and staff, sponsored by the United Federation of Teachers (UFT). Over the course of the day, participants learned how to holistically define sustainability and integrate topics of

sustainability into educational values and curriculum. A total of 21 educators participated and each received a certificate of completion (Figure 18) at the end of the program. For the program flyer, see Appendix H.

**Figure 22: UFT Professional Development Certificate of Participation**



**END OF GREEN CURRICULUM SECTION**

## **8 Appendices**

APPENDIX A: 2011-2012 School Sustainability Plan Template

APPENDIX B: 2012 NYC DOE Annual Recycling/Sustainability Implementation Survey

APPENDIX C: School Food Manager Guide

APPENDIX D: Chancellor Walcott Press Announcement

APPENDIX E: Energy Efficiency Calendar Contest Winners

APPENDIX F: High School for Energy and Technology Brochure

APPENDIX G: Sustainability Coordinator Training Agenda

APPENDIX H: Sustainability and the City Program Flyer

APPENDIX I: Acronyms and Meanings

## **APPENDIX A: 2011-2012 School Sustainability Plan Template**

## **APPENDIX B: 2012 NYC DOE Annual Recycling/Sustainability Implementation Survey**

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## **APPENDIX G: Sustainability Coordinator Training Agenda**

## **APPENDIX H: Sustainability and the City Program Flyer**

## APPENDIX I: Acronyms

ARRA	American Recovery and Reinvestment Act
BMS	building management system
BOC	Building Operator Certification
CELF	Children’s Environmental Literacy Foundation
DAPS	Division of Academics, Performance and Support
DCAS DEM	Department of Citywide Administrative Services Division of Energy Management
DEP	Department of Environmental Protection
DPR	Department of Parks and Recreation
DSF	Division of School Facilities
DSNY	Department of Sanitation
EfS	Education for Sustainability
ECMs	energy conservation measures
ECS	Energy Curtailment Specialists
ESCOs	Energy Service Companies
GCC	Green Cup Challenge (Green Schools Alliance)
GDL	Green Design Lab (Solar 1)
GHG	greenhouse gas emissions
GSG	Green School Guide (SCA)
kW	kilowatt
kWh	kilowatt hour
MTNYC	MillionTreesNYC
NYC DOE	New York City Department of Education
NYISO	New York Independent System Operator
NYP&A	New York Power Authority
NYRP	New York Restoration Project
NYSERDA	New York State Energy Research Development Authority
O&M	Operations and Maintenance
OCS	Office of Compliance Services
OLTPS	Mayor's Office of Long-Term Planning and Sustainability
PCBs	polychlorinated biphenyl
PD	professional development
RCP	Recycling Champions Program (GrowNYC)
SCA	School Construction Authority
STEM	Science, Technology, Engineering and Math
TPL	Trust for Public Land
U.S. EPA	United States Environmental Protection Agency
UFT	United Federation of Teachers