



# ANNUAL REPORT

2017-2018



# Table of Contents

DOE Office of Sustainability  
Division of School Facilities  
44-36 Vernon Boulevard, 5th Floor,  
Long Island City, New York, 11101  
[sustainability@schools.nyc.gov](mailto:sustainability@schools.nyc.gov)  
Phone: 718.349.5738

<b>3</b>	<b>About This Report</b>	<b>18</b>	<b>Waste</b> Outreach & Education Waste Diversion Zero Waste Schools Other Waste Types
<b>4</b>	<b>Letter from the Chief Executive Officer</b>	<b>23</b>	<b>Water &amp; Green Infrastructure</b> Water for the Future Direct Install Program Water Refill Stations School Gardens
<b>5</b>	<b>Goals &amp; Progress Dashboard</b>	<b>27</b>	<b>Partnerships</b> Partners
<b>6</b>	<b>Our Strategy</b> Sustainability Coordinators School Sustainability Plans Annual Sustainability Survey Students Engagement and Trainings	<b>31</b>	<b>Appendix</b> Data Policies and Regulations Methodology References
<b>12</b>	<b>Energy &amp; Climate</b> Greenhouse Gas Emissions Demand Response Program Solar Program City-Funded Energy Efficiency Programs Energy Benchmarking		

## About This Report

The Annual Report is an overview of the New York City Department of Education's (DOE) sustainability programs and partnerships in Fiscal Year 2018 (FY18), spanning July 1, 2017– June 30, 2018.

This report includes information pertaining to energy and climate, waste, water, green infrastructure, and environmental education as well as compliance with local laws and Chancellor's Regulations.

To learn more about the DOE Office of Sustainability, please visit our [website](#).



Averyon Academy and Co-op Tech  
at Canarise Educational Campus, Brooklyn

## Letter from the Chief Executive Officer

Dear Educators, Staff, and Community Members,

In 2017-18, the DOE Office of Sustainability provided an unprecedented amount of material support and resources to schools. To reach more employees, we opened sustainability trainings to all DOE employees and offered our very first Climate Summit. In addition to our centralized trainings, we also led over 1,900 school outreach events addressing a critical need for building-specific support. In September, every DOE cafeteria was outfitted with a recycling station as we continue to demonstrate our commitment to the City's goal to send "zero waste" to landfill by 2030.

A key part of our strategy has been to better understand the role of the Sustainability Coordinator. This person, designated by their Principal each year, is our main liaison to lead sustainability initiatives at the school level. Through outreach and analysis of surveys, we are better able to target trainings, outreach, programming, and to leverage existing institutional channels to address specific needs.

As the largest city agency by square footage, many of the NYC's sustainability goals are reliant on the DOE's ability to operate buildings in a more efficient manner. Integral to this goal is our ability to work in Facilities with Maintenance & Optimization, Energy Management, Contract Management, Deputy Directors and Directors of Facilities, and Custodian Engineers. These teams are essential as we lead efforts to add LED exterior fixtures, expand rooftop solar, upgrade boilers, install low-flow water fixtures, and perform preventive maintenance on essential mechanical systems. We are grateful for their hard work and dedication in increasing the efficiency of building operations.

Looking ahead, the Office of Sustainability seeks more opportunities to further integrate sustainability practices across our organization. We plan to expand student and teacher engagement by working with the Office of Teaching and Learning to further imbed sustainability in the classroom. Within Facilities, we look forward to continuing our leadership in energy efficiency to help the City achieve conservation goals.

You are essential to our mission. Thank you for supporting our sustainability progress in the past year. Your support is integral to our commitment and continued progress as we make NYC schools the most sustainable in the nation.



All the best,  
John T Shea , Chief Executive Officer  
Division of School Facilities  
New York City Department of Education

## Goals and Progress



### ENERGY & CLIMATE



### WASTE



### WATER & GREEN INFRASTRUCTURE



### PARTNERSHIPS

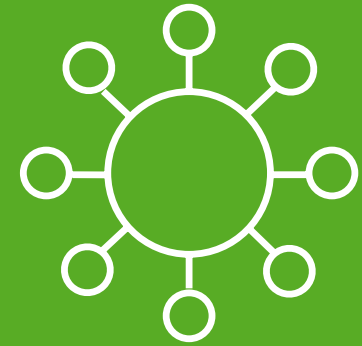
#### Goals

<p>Reduce greenhouse gas emissions from DOE buildings 80% by 2050 from a 2005 baseline</p> <p>Reduce greenhouse gas emissions from DOE buildings 35% by 2025</p> <p>Support NYC's commitment to Paris Climate Accord per Mayor de Blasio's Executive Order 26</p>	<p>Send zero waste to landfills by 2030</p> <p>Increased compliance with DSNY waste collection protocol</p>	<p>Reduce water consumption and increase water efficiency</p> <p>Promote access to gardens and green space</p>	<p>Support schools, Principals and teachers to integrate sustainability into schools</p> <p>Take part in citywide green initiatives, programs and contests that facilitate student environmental activity and education</p>
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#### Progress in FY18

<p><b>50</b></p> <p>Led projects impacting 50 facilities that prevented 2,257 metric tons of CO<sub>2</sub>e in FY18</p>	<p><b>1,937</b></p> <p>Conducted 1,937 outreach events in 376 buildings</p>	<p><b>5,634</b></p> <p>Added 5,634 high-efficiency bathroom fixtures across NYC schools with funding from the Department of Environmental Protection</p>	<p><b>13,711</b></p> <p>Impacted 13,711 students and staff members through DOE direct outreach</p>
<p><b>14%</b></p> <p>Reduced total GHG emissions 14% since FY08</p>	<p><b>2,100</b></p> <p>Provided 2,100 standardized cafeteria recycling stations to 1200 school buildings</p>	<p><b>72</b></p> <p>Added 72 school gardens across the five boroughs. Over half of DOE buildings now have a registered school garden</p>	<p><b>278,452</b></p> <p>Supported partners that engaged over 278,452 students at 584 schools</p>
<p><b>36</b></p> <p>Solar installations on 36 schools generated over 10 megawatts of solar energy</p>	<p><b>240</b></p> <p>Implemented a new waste management system that equipped 240 buildings with 1100 tilt trucks for improved storage</p>	<p><b>12</b></p> <p>Awarded 12 refill stations through our annual Sustainability Project Grant</p>	<p><b>1st</b></p> <p>Hosted the first annual DOE Climate Summit</p>
<p><b>1st</b></p> <p>Created first-ever DOE Energy Dashboard to monitor individual building consumption</p>			<p><b>56</b></p> <p>56 schools participated in the second annual Sustainability Showcase Expo</p>

# OUR STRATEGY



Given the vast scale of the DOE, systematization of certain elements of sustainability are essential to make progress and impact; as such, DOE Office of Sustainability drives educational opportunities and technical resources across all levels and stakeholders within the agency. By engaging both facility and pedagogical staff, including the Offices of STEM, Wellness, Career and Technical Education, and District 75 (citywide special education), the Office of Sustainability integrates programs into existing structures while also creating new education opportunities. The Office also partners with a diverse array of organizations to provide curriculum and programming to students and educators.



## Sustainability Coordinators

Sustainability Coordinators are school-based liaisons that work in collaboration with the Office of Sustainability and play an integral role in facilitating school awareness around established sustainability goals. Per Local Law 41 and Chancellor’s Regulation A-850, Principals are required to appoint a Sustainability Coordinator at their school every year in September. In FY18, 65% of NYC schools designated a Sustainability Coordinator by the September 29 deadline. By the start of the spring semester the designation rate had risen to 81%. The role may be assigned to any staff member, excluding Custodian Engineers and Principals. Introductory emails were sent to all Sustainability Coordinators in campus buildings (multiple schools under one roof) following designation. This is the first time we’ve connected Sustainability Coordinators in the same building as

part of our strategy to increase collaboration to address campus-wide sustainability challenges.

The Office of Sustainability integrated the Sustainability Coordinator designation process into the Galaxy platform used by Principals to assign other school roles. Incorporating the role into this internal system provided greater legitimacy for the role, but also created a drop in designation because of a change in procedure. To boost designation rates for the upcoming year, we created a compliance report for each school district that will be shared with Superintendents and Field Support Centers to they can encourage Principals to designate someone for this position by the deadline. We believe that use of Galaxy as the designation mechanism will ultimately optimize the process over time.

### Sustainability Coordinator responsibilities:

- Submit annual school Sustainability Plan and Survey in accordance with Chancellor’s Regulation A-850
- Consult with Facilities staff to develop and expand school-based sustainability initiatives
- Form Green Teams to build support at schools
- Attend trainings by the Office of Sustainability and partner organizations

## Profile of a Sustainability Coordinator

In 2017, the Office of Sustainability deepened its partnership with Teachers College, Columbia University to help us design and administer the Sustainability Plan and Survey. Their expertise and research have helped the DOE identify needs and strategic opportunities to support the institutionalization, development, and empowerment of the Sustainability Coordinator role. Teachers College also provided a Zankel Fellow to assist with the formation of six school Green Teams. Through their analysis, we are better able to understand the profile of the Sustainability Coordinator:

44% - Teachers

30% - Assistant Principals

26% - Other

50% have 8+ years experience in their school

25% volunteered to serve in the role, more than double from the previous year

47% receive some type of time allocation / support to perform duties, most common are prep or club periods.



P.S. / M.S. 108 School of Authors, Manhattan



## School Sustainability Plans

Principals and Sustainability Coordinators are required to develop annual Sustainability Plans to set communication and environmental education, recycling, and energy conservation goals at their schools and provide roadmaps for implementation. In FY18, 72% of NYC schools completed a Sustainability Plan. The plans were submitted online using a platform hosted by Teachers College, Columbia University. As a follow up to the plan, the office piloted a monthly reminder to Sustainability Coordinators to complete items they committed to do throughout the year.

## Annual Sustainability Survey

Each Sustainability Coordinator is required by Chancellor's Regulation to participate in the DOE's annual Sustainability Survey. In FY18, 76% of schools responded to the survey, a two percent increase over FY17.

The survey helps to monitor sustainability activities across schools and collects feedback on the effectiveness of tools and programs. It also measures accomplishments as it asks schools about progress on completing commitments made in the Sustainability Plan in the Fall. The survey was administered in conjunction with Teachers College, using the same platform

as the Sustainability Plan, to more easily measure trends and patterns.

## Students

The Office of Sustainability believes student voice and leadership are essential components to the fulfillment of our goals. This past year we partnered with Coro New York City's Youth Leadership Academy (YLA) to work directly with 26 high school students on strategies to leverage student leadership with sustainability. Building on this model, we worked with Coro YLA and the Borough Student Advisory Councils to design and lead a workshop for students on Youth Leadership and Sustainability at our 2018 Sustainability Showcase.

### Sustainability Coordinator Participation by Borough

- Total Number of Schools
- Schools with Sustainability Coordinators

Brooklyn	■ 566	■ 374	<b>66%</b>
Bronx	■ 442	■ 261	<b>59%</b>
Manhattan	■ 358	■ 216	<b>60%</b>
Queens	■ 373	■ 266	<b>71%</b>
Staten Island	■ 77	■ 58	<b>75%</b>
<b>Total</b>	<b>■ 1816</b>	<b>■ 1347</b>	<b>65%</b>

### Sustainability Plan Completion by Borough

- Total Number of Schools
- Sustainability Plans Submitted

Brooklyn	■ 566	■ 394	<b>70%</b>
Bronx	■ 442	■ 280	<b>63.3%</b>
Manhattan	■ 358	■ 240	<b>67%</b>
Queens	■ 373	■ 314	<b>84.2%</b>
Staten Island	■ 77	■ 70	<b>91%</b>
<b>Total</b>	<b>■ 1816</b>	<b>■ 1298</b>	<b>71.5%</b>

### Annual Sustainability Survey Response Rates

- Total Number of Schools
- Number of Survey Responses

Brooklyn	■ 566	■ 432	<b>76%</b>
Bronx	■ 442	■ 294	<b>67%</b>
Manhattan	■ 358	■ 256	<b>72%</b>
Queens	■ 373	■ 326	<b>87.4%</b>
Staten Island	■ 77	■ 68	<b>88.3%</b>
<b>Total</b>	<b>■ 1816</b>	<b>■ 1376</b>	<b>76%</b>



## Second Annual Sustainability Showcase

Building on the success of the inaugural event in 2017, the office expanded the Sustainability Showcase to include more school-based projects and featured a panel discussion on food and sustainability. The panel experts included Stephen O'Brien, DOE Office of SchoolFood; Barbara Turk, NYC Mayor's Office; Margaret Brown, Natural Resources Defense Council, and Pam Koch, Teachers College, Columbia University.



Event highlights included the recognition of 19 DOE employees for their Leadership in Sustainability and school Expo in which 56 schools presented an interactive exhibit on their sustainability projects. Participants voted on their favorite projects and three schools were awarded \$2,500 for outstanding work. The Showcase was attended by more than 400 school staff and students.

(See [Appendix](#) for list of employees recognized & Expo winners.)

## Engagement and Training

The Office of Sustainability provides annual trainings to school Sustainability Coordinators, faculty, Custodian Engineers, SchoolFood Managers, and other DOE staff. For the first time, sustainability trainings were open to all DOE employees in an effort to integrate sustainability into all facets of school life. Trainings help staff learn about new programs and resources, review roles and responsibilities, and discover ways to take action. In FY18, the Office of Sustainability hosted 22 central trainings in every borough to make information accessible, reaching nearly 1,900 DOE staff. These trainings are in addition to the school based trainings conducted by our outreach team (see [Waste](#) section).

The Sustainability Project Grant Program awarded \$170,000 to support 55 schools with funding and resources. Projects included: garden expansion & maintenance, recycling bins for all classrooms, water refill stations, and resources for green teams.

See [Appendix](#) for a complete list of winning schools.

### Highlights:

- Led our very first training in the Bronx
- Increased inner-DOE collaboration with offices of STEM, Career and Technical Education, Service in Schools, and Field Support Centers to provide more programming and engagement to schools
- Developed a D75 (citywide special education) training targeted to these teachers
- Hosted inaugural Climate Summit for DOE staff
- Expanded Sustainability Coordinator Mentorship program to include two cohorts, supporting 21 Sustainability Coordinators in all five boroughs
- Doubled participation at our second annual Sustainability Showcase with 56 schools participating in the Expo
- Incentivized training participation by offering educators the opportunity to receive Continuing Teacher and Leader Education (CTLE) credits

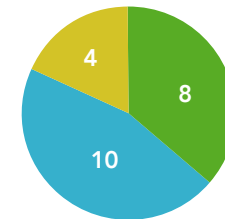
### Inaugural DOE Climate Summit

As part of a strategic outreach strategy with Solar One and in partnership with Climate and Urban Systems Partnership at the NY Hall of Science, we hosted our first ever DOE Climate Summit for educators. The Summit opened with keynote speaker, Elizabeth Yeampierre, Executive Director of UpRose. Participants engaged in climate themed workshops that addressed science, advocacy, and climate literacy.

## Sustainability Trainings in FY18

### Sustainability Trainings

- Central Sustainability Trainings for School Staff
- Custodian and Facilities Trainings
- SchoolFood Trainings

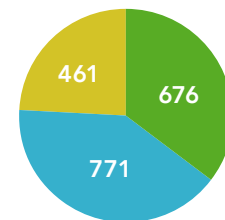


Total Trainings Held

**22**

### Staff Trained

- DOE Faculty Trained
- Custodian and Facilities Staff Trained
- SchoolFood Staff Trained



Total Staff Trained

**1,908**

# ENERGY & CLIMATE



Climate change and building energy use are key challenges facing NYC in the coming decades. As Superstorm Sandy illustrated, NYC is vulnerable to climate-related impacts including sea level rise and increasing storm regularity and strength. Under Mayor de Blasio's OneNYC Plan, the City set a goal to reduce greenhouse gas (GHG) emissions 80% by 2050 from a 2005 baseline.<sup>i</sup> In keeping with this commitment, the Mayor set forth a commitment to the Paris Climate agreement by signing Executive Order 26 for New York City on June 2, 2017. The DOE plays a significant role in reaching these critical goals as DOE buildings account for 27%<sup>ii</sup> of the total municipal energy consumption and has the largest portfolio of buildings. With support from the Department of Citywide Administrative Services (DCAS) and the Mayor's Office, the DOE focuses on reducing its carbon footprint through operations and maintenance, deep energy retrofits, energy management, renewable energy projects (e.g. solar), and education targeting behavioral change and awareness.

## Greenhouse Gas (GHG) Emissions

Most of the energy sources that provide power also emit greenhouse gases that contribute to climate change. In FY18, the DOE emitted 709,031 metric tons of CO<sub>2</sub>e (carbon dioxide equivalent), equating to approximately 152,000 passenger vehicles driven for one year. Year over year, emissions and total energy use increased in FY18 (see tables below) which can be attributed to an increase in winter heating days, occupancy growth at new DOE facilities, and an increase in building square footage. Overall, the DOE has reduced total GHG emissions by 14% since FY08 despite growing its building portfolio by approximately eight percent over that time.

## Energy Management

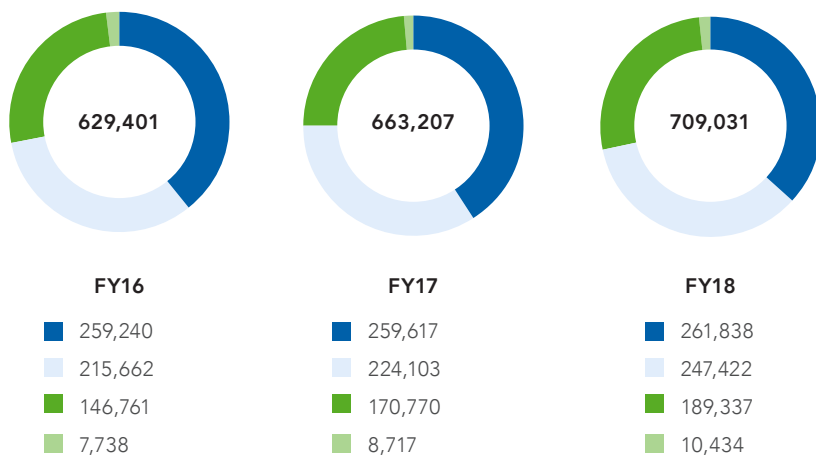
The DOE, in coordination with DCAS, oversees energy management programs and monitors performance to achieve the City's goal of reducing greenhouse gas emissions 30% by 2025 (the interim target to 80% GHG reductions by 2050). As part of our strategy to meet this goal, the DOE Energy Management team leads the energy audit and retrofit process by identifying capital and low-cost building upgrade needs and performing preventive maintenance repairs on aging infrastructure (see [City Funded Energy Programs](#)).

New energy efficiency projects are prioritized based on the existing Energy Use Intensity (EUI) of a building as determined by Energy Star

Portfolio Manager (see [Energy Benchmarking](#)). In FY18, building EUIs determined the school facilities to target with deep energy retrofits under Executive Order 26. More than 67% of our energy consumption is from natural gas, fuel oil, and steam, primarily used by building heating systems during winter. While the DOE has invested in more efficient lighting and control systems, managing growing electrical demand from smart boards, laptops, and air conditioning is an ongoing challenge. As a result of targeted strategies, the DOE's energy consumption and greenhouse emissions have declined since FY08. This can be attributed to energy efficiency projects and the conversion of fuel oil boilers to new systems that burn cleaner fuels, bio-fuels, and natural gas.

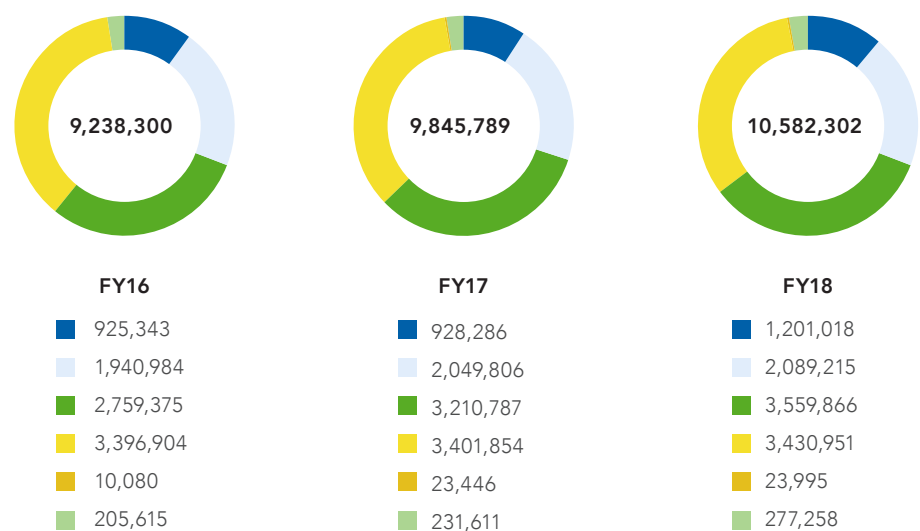
### Greenhouse Gas Emissions (metric tons CO<sub>2</sub>e)

Electricity Fuel Oil Natural Gas Steam



### Total Energy Consumption by Source (MBTUs)

#2 fuel oil #4 fuel oil Gas Electricity Solar Steam

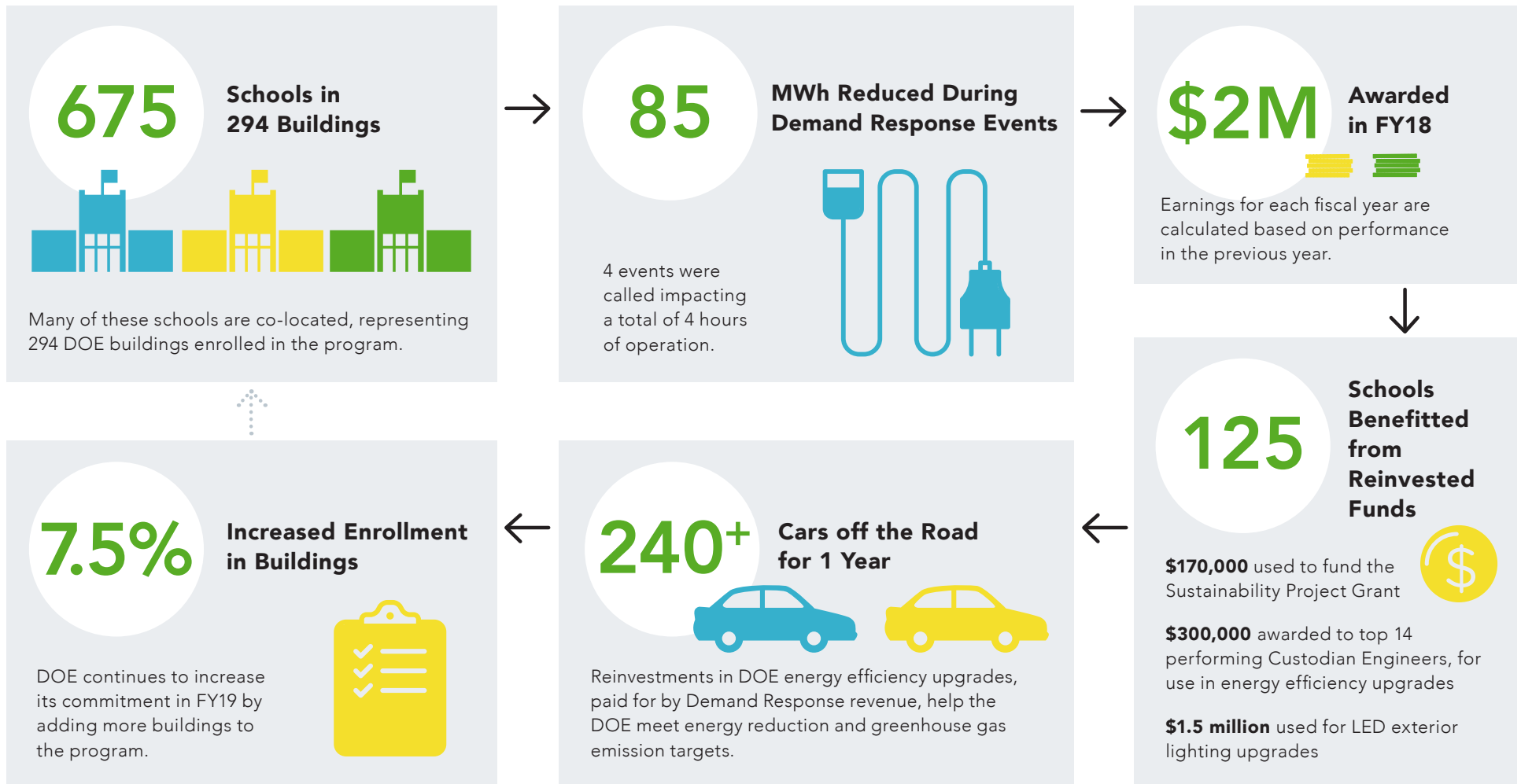


## Demand Response Program

The DOE is the leading participant in the City's Demand Response Program, accounting for nearly 75% of total City buildings enrolled. During periods of high electrical demand, such as heat waves, a Demand Response event can be called by the grid operator (e.g. Con Ed) to help mitigate stress on the NYC electrical grid. Participating DOE facilities reduce electricity consumption during an event by following building-specific protocols. As a result, the Demand Response Program provides a valuable service to utility providers and NYC residents by helping to prevent blackouts and brownouts.

Based on the previous year's event performance, the DOE earned nearly \$2 million in revenue for use in FY18 that was reinvested to support our annual Sustainability Project Grant, LED exterior lighting upgrades for 51 schools, and energy efficiency upgrades for the top performing schools.

One third of the participating Custodian Engineers were trained to use the Demand Response online portal, which provides real-time metering access to monitor the electricity load during a Demand Response event and for overall load management on a daily basis.



## Solar Program

In FY18, the Office of Sustainability established two new positions dedicated to the NYC Solar Schools Program. With a program lead in place, and continued partnership with DCAS, designs were developed for more than 20 schools. Construction began at two schools while a third project was completed by the School Construction Authority. The DOE currently has over 10 megawatts of solar capacity installed across 36 schools citywide, with plans in place to support major expansion in FY19.

## Energy Benchmarking

According to Local Law 84, the DOE is required to benchmark and report energy performance for all buildings with a gross

To date DOE solar installations have produced nearly 18,500,000 kWhs of electricity, which is equivalent to nearly 5,000 metric tons of reduced GHG emissions.

square footage of 10,000 or more using the U.S. Environmental Protection Agency's Portfolio Manager. The tool calculates buildings' energy efficiency by evaluating over 100 metrics and assigning Energy Star Scores from 1 through 100 based on comparisons to similar facilities across the country. A score of 75 or higher indicates a building is performing better than 75% of the same type of buildings nationwide and are eligible for Energy Star certification. Currently, 1,283 DOE buildings are in Portfolio Manager, with 776 buildings (or 60%) eligible for Energy Star certification.

## Energy Conservation Challenge

The Office of Sustainability hosted its first ever DOE-wide Energy Reduction Challenge from October 2nd through December 1st, 2017. Eighty eight schools participated in the challenge which evaluated student and staff-based efforts to promote and implement actions on energy education and conservation school-wide. The top five schools with the most actions received \$10,000 each to use towards growing their Green Team or sustainability related projects (see [Appendix](#) for list of winning schools).



## Maria Kurylyk Awarded Energy Analyst of the Year

In Fall 2017, Maria Kurylyk, DOE Office of Sustainability's Energy Analyst, was named Energy Analyst of the Year for the entire city by the Department of Citywide Administrative Services (DCAS)! Among other responsibilities, Maria handles all utility metering issues, provides analytics to support DSF staff, facilitates Custodian surveys to collect building characteristics for annual Energy Star score calculations and benchmarks DOE buildings per Local Law 84. In addition, Maria created the DOE Energy Dashboard that provides energy consumption data by building, borough, and agency-wide for facilities staff. The Dashboard is updated monthly and is an invaluable tool for increasing engagement around energy use, patterns, trends, and opportunities for energy consumption reduction. We are so proud of Maria!

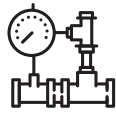
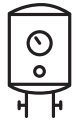


## Solar Career & Technical Education Pilot Launch

Working in conjunction with Solar One, the DOE Offices of Sustainability, STEM and Career and Technical Education (CTE), a pilot program was designed and launched in FY18 to integrate solar into CTE electrical classes. Solar One kicked off the program at 4 high schools in the Spring 2018 and reached over 180 students! Participating students learned solar electrical theory, solar photovoltaic (PV) system design, solar job trends and hands-on solar PV installation practices to prepare them for opportunities in the green workforce. It is the DOE's goal to expand this program so that more students gain access to this unique skill building course.



## City-Funded Energy Efficiency Programs Implemented in FY18



### ExCEL Energy Efficiency Funding

Boiler Tune-up

Steam Trap Replacement

Lighting Upgrades

Condensate Piping Repair

Pneumatic Controls Repair

Rooftop Unit Repair

### ACE Energy Efficiency Funding

Wireless Pneumatic Thermostats

### Total DOE Facilities Impacted

### Facilities Impacted

7

7

22

1

1

1

11

50

## City-Funded Energy Efficiency Programs

The Divisions of School Facilities' Maintenance and Optimization team works with DCAS to audit the energy performance of buildings, perform energy retrofits and retrocommissioning projects, introduce efficient operations and maintenance plans, and measure results. DCAS provides two funding programs, ACE and ExCEL, for the purpose of supporting energy efficiency projects on a fiscal year cycle. These programs provide a critical mechanism for the DOE to increase building efficiency through equipment upgrades, operational and maintenance improvements, and staff training.

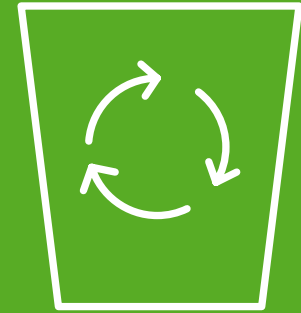
### Accelerated Conservation and Efficiency (ACE)

The ACE Program provides funding for energy efficiency projects that are identified and managed by the DOE. ACE prioritizes projects that provide high energy savings, GHG reductions, and cost savings. In FY18, DOE's Energy Management team completed wireless pneumatic thermostat upgrades in 11 schools. These projects will save the City an estimated \$285,661.20 annually and prevent 839.80 metric tons of Carbon Dioxide equivalent (CO<sub>2</sub>e) each year.

### Expenses for Conservation and Efficiency Leadership (ExCEL)

The ExCEL program enables City agencies to develop energy efficiency projects, building retrofits, and to conduct training essential to energy efficiency conservation. In FY18, ExCEL funded 19 projects across 39 DOE facilities, saving nearly \$470,000 annually in electricity and heating fuel costs, and preventing 1,418 metric tons of CO<sub>2</sub>e each year. These upgrades also have a positive impact on building operations and the comfort of occupants. The ExCEL program supports training opportunities for Custodian Engineers and Sustainability Coordinators and provides program support for the DOE's annual energy reduction competitions and challenges.

# WASTE



The DOE Office of Sustainability manages programs, processes, and resources to help schools make progress towards NYC’s goal to send zero waste to landfills by 2030. In FY18, the DOE aggressively launched a number of new programs to support school waste diversion, including the delivery of standardized cafeteria recycling stations to all DOE cafeterias, the launch of specialized waste management materials, and a new educational program called “Race Against Waste” in partnership with Service in Schools. Through these efforts, the DOE is connecting teachers, administrators, custodians, and students to support all schools in the pursuit of zero waste. Highlighting the important role of schools in achieving NYC’s zero waste goal, a Department of Sanitation waste characterization study found that 88% of school waste can be recycled or composted.<sup>iii</sup>

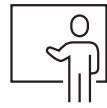
## Outreach and Education

Every NYC school and DOE building must comply with Local Law 41 and work to meet the City's zero-waste goals. The DOE Office of Sustainability provides school-based and citywide trainings for Facilities and Custodial staff, SchoolFood staff, Principals, Assistant Principals, teachers, and students. The required Annual School Sustainability Plan sets school-based commitment for waste diversion and reduction.

The DOE Zero Waste Team supports all schools by providing hands-on outreach and support citywide to improve recycling and meet waste goals. The Zero Waste Coordinators conducted 1,937 outreach events in 376 buildings in FY18. Working directly with schools, Zero Waste Coordinators are able to customize educational and operational support to match facility needs and school stakeholder interest. The ability to provide meaningful support to schools has helped move the organization to improved waste management.

In November 2018, the Office of Sustainability partnered with the DOE's Office of Curriculum, Instruction and Professional Learning's Service in School Program to launch the Race Against Waste (RAW) Program. Targeting Middle and High Schools, RAW trained 40 teachers from 20 schools to approach sustainability through service learning and empower students to lead recycling efforts at their

## FY18 ACCOMPLISHMENTS



**1,937**

Conducted 1,937 outreach events in 376 buildings



**2,100**

Provided 2,100 standardized cafeteria recycling stations to 1,200 school buildings



**1,100**

Implemented a new waste management system that equipped 240 buildings with 1,100 tilt trucks for improved storage

schools. Teachers explored concepts of waste in NYC and learned strategies of service learning to impart on their students during three full-day professional learning sessions.

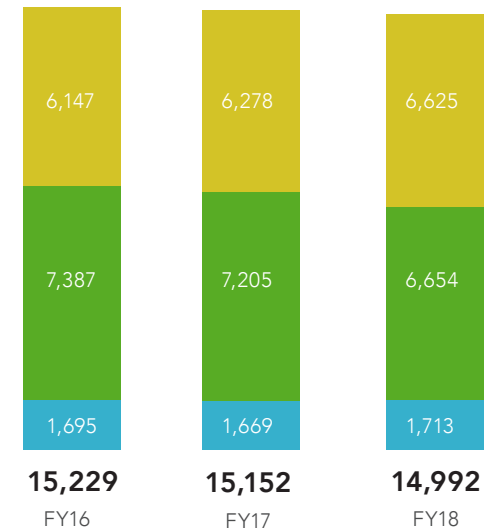
## Waste Diversion

In FY18, over 750 schools participated in the Department of Sanitation's (DSNY) Organics Collection Program to divert food scraps and food-soiled paper from landfills. Schools are able to recycle electronic waste, textbooks, textiles, and bulky items through partnerships with DSNY and numerous nonprofit organizations that support reducing waste to landfill (see [Other Waste Types](#)).

Year over year, there has been a variable change in paper diversion which is expected and attributable to increased school waste reduction efforts.

## School Waste Diverted Through Recycling (Tons)

- Organics
- Paper Recycling
- Metal, Glass, Plastics and Cartons Recycling
- Total Waste Diverted



## Zero Waste Schools

One hundred and nine Zero Waste Schools continued their third year of programming in efforts to achieve zero waste. The Office of Sustainability continues to monitor and support these schools while refining scalable best practices to implement citywide. Ongoing collaboration between our office, NYC Department of Sanitation, and GrowNYC's Recycling Champions Program (see [Partnerships](#)) provides educational and operational oversight at these schools. In May, DSNY conducted a weeklong audit of the schools in this initiative, showing that schools maintained a 50% diversion rate.

## Reach of DOE Zero Waste Team



**376**

Buildings



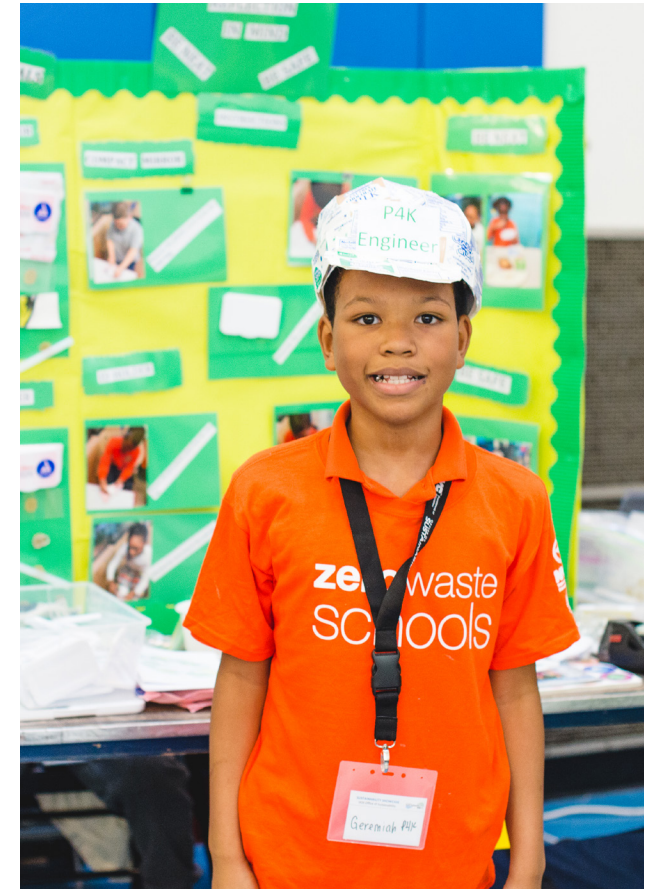
**5,245**

Adults Engaged



**6,558**

Students Engaged





## Cafeteria Stations for All

Building on best practices developed in the first 100 Zero Waste Schools, the Office of Sustainability provided standardized cafeteria recycling stations to every DOE cafeteria in Fall 2017. In this unprecedented distribution, over 2,100 recycling stations were provided to 1,200 facilities. The cafeteria recycling stations remove the hurdle of purchasing recycling bins and allow all schools an opportunity to divert cafeteria waste. To support the implementation and integration of these stations all school stakeholders were trained on set up and maintenance of the system as well as placement to encourage recycling behaviors. Student green teams, with a focus on recycling bin monitoring, were a core part of sustainability trainings to support student engagement with the cafeteria recycling stations.

## Other Waste Types

The majority of school waste can be recycled through curbside collection by the Department of Sanitation. However, some materials require special handling, such as electronic waste, lamps, textiles, and hardcover books. The Office of Sustainability works with other DOE offices, DSNY, and non-profit organizations to properly dispose of these materials.

	Units of E-Waste Recycled	76,044
	Tons of Light Bulbs Recycled	76.2
	Pounds of Textiles Recycled	28,500
	Books Recycled	57,000

### Mayor's Neighborhood Rat Reduction Plan

In Summer 2017, the Department of Health and Mental Hygiene identified three geographic areas with the highest incidence of rat infestations, leading to the creation of the Mayor's multi-agency Neighborhood Rat Reduction Plan. This plan defines the Mayoral goal of 70% reduction in active rat populations by the end of 2018 and encompasses 119 DOE buildings in three Rat Mitigation Zones (RMZ). In response, the Office of Sustainability/Division of School Facilities were able to provide all impacted schools with new exterior waste storage containers (tilt trucks) to better manage conditions in conjunction with site-specific systems and DSNY collections. All schools in RMZs were also fully equipped with interior recycling bins for use in classrooms to support proper separation of waste and recyclables by staff and students.

DOE Sustainability provided all operational and educational support in efforts to increase school recycling, produce cleaner waste streams that reduce rat populations, and increase compliance with DSNY procedures. Every RMZ school building was evaluated monthly by DSNY "Scorecard", reporting on adherence to collection schedules, cleanliness of waste set out area, and proper use of tilt trucks. DOE achieved an increase in compliance from 3% to 72% in the period of November 2017–June 2018!



# WATER & GREEN INFRASTRUCTURE



The DOE plays an integral role in meeting citywide water conservation and green infrastructure goals. We work closely with the NYC Department of Environmental Protection (DEP) to upgrade plumbing fixtures and install green infrastructure at our 500 largest schools citywide. To mitigate storm water runoff that overburdens sewage systems, the DOE works with partner organizations to install gardens and green space, permeable pavement, and rain catchment systems to prevent runoff.

## Water for the Future

NYC gets its high-quality water from over 2,000 square miles in the Catskill Mountains. With aging infrastructure that brings water to the city, the NYC Department of Environmental Protection (DEP) is preparing for the 2022 shutdown and repair of the Delaware Aqueduct. The DEP has set forth a goal to reduce citywide water consumption by five percent in order to perform necessary infrastructure work without compromising water access.

In 2013, 500 of the largest schools were selected to receive retrofit projects including high-efficiency bathroom fixtures and water meters. The project will reduce water consumption by approximately 70% at each school and save four million gallons

of water daily. To engage students in the program, participating schools receive lesson plans on topics such as water quality, infrastructure, and water stewardship from the DEP Education Office. FY18 marks the completion of the fourth year of the program resulting in 34,000 replaced bathroom fixtures in 402 schools equating to 3.3 million gallons of water saved per day. To date, water meters have been installed in 452 schools.

### Direct Install Program

Through the Direct Install Program provided by utility providers National Grid and Con Ed, schools receive plumbing fixture upgrades to reduce water consumption and lower water heating costs. Over 18,000 fixtures have been installed, leading to millions of gallons saved each school year.

## Water Refill Stations

Since 2016, The DOE Office of Sustainability, DEP and the Mayor's Office of Sustainability Water Fountain Task Force have installed 155 water bottle refill stations in 95 school buildings. The refill stations have electronic sensors that fill a bottle when it is detected beneath it, an ideal function for reusable water bottles and canteens. Many models also feature a counter for number of plastic bottles saved, reinforcing the importance of single use plastic reduction. In FY18, the Office awarded 12 refill stations to schools through our annual Sustainability Project Grant. Funding for these refill stations is made possible by the Demand Response Program (see [Energy](#)).

### Number of Low Flow Units Installed

# Installed - FY18

# Installed - Total since FY13

#### Toilets

1.28 gal/flush



4,404

25,727

#### Urinals

0.125 gal/flush



1,230

8,836

#### Total

5,634

34,563

Estimated  
water savings  
in one year:

**553,612,140**  
gallons





P.S. 41 Greenwich Village, Manhattan. © MBB Architects

## Educational Green Roof Summit

P.S. 41 Greenwich Village, National Wildlife Federation Eco-Schools USA, DEP, and the Office of Sustainability organized the first-ever Educational Green Roof Summit on Nov 15, 2017. Hosted at P.S. 41, home to one of NYC's first and largest school green roofs, the summit brought together teachers, parents, elected officials, and other city agencies to address strategy and opportunities to promote the creation of more green roofs on DOE buildings.

## School Gardens Program

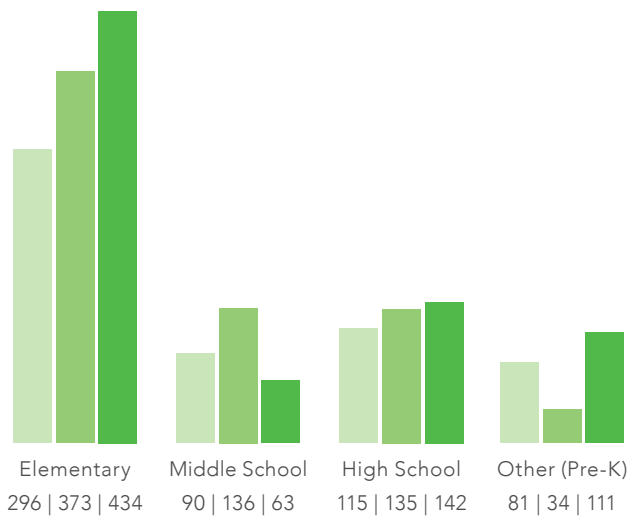
The DOE partners with GrowNYC's Grow to Learn Program to fulfill the City's mission to inspire, promote and facilitate the creation of sustainable gardens in public schools. In FY18, 72 school gardens across the five boroughs were installed, bringing the total number to 750, impacting over half of all DOE buildings! In addition, Grow to Learn supports teachers to integrate school gardens by providing hands-on professional learning opportunities, mini-grants, technical assistance, and workshops. The School Gardens Program began in 2012 and is funded through the Mayor's Obesity Task Force.

Over half of DOE buildings have access to a garden or outdoor green space!



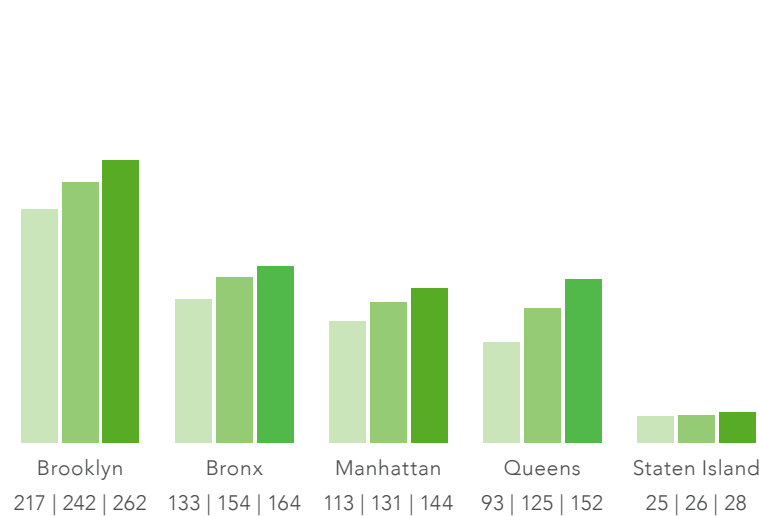
### School Gardens by School Type

■ FY16 ■ FY17 ■ FY18

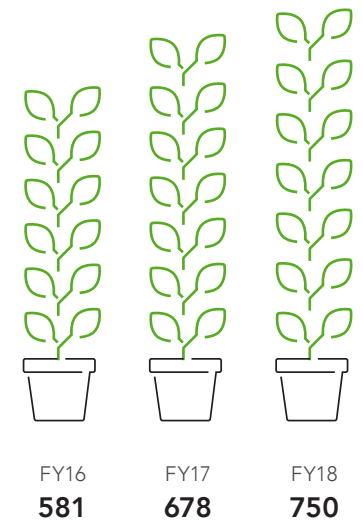


### School Gardens by Borough

■ FY16 ■ FY17 ■ FY18



### Total School Gardens



# PARTNERSHIPS



The DOE Office of Sustainability provides training and support (see [Our Strategy](#)) to teachers and administrators to integrate sustainability topics into curriculum. We are proud to partner with numerous City agencies, nonprofits, and community-based organizations that provide unique expertise, technical support for projects, educational programming, and trainings for students, teachers, staff, and communities. Our partners worked with over 278,452 students at 584 schools throughout FY18.

## Partners

For a complete list of all partners, please see the [Appendix](#). Below are highlights from the year:

### Audubon New York

Audubon New York protects birds and their habitats by connecting their vast and powerful network along the migratory flyways of the Americas through science, advocacy, education, and on-the-ground conservation programs. In FY18, 18 schools participated in Audubon New York “For the Birds!” education program, reaching over 1,500 students.

### Cafeteria Culture (CafCu)

CafCu works to create zero waste schools and climate smart communities through education, arts, media and action. In FY18, CafCu piloted a Plastic Free Waters (PFW) curriculum for grades 4-8 with P.S. 15 in Red Hook, Brooklyn, which focused on the perils of micro-plastic pollution, system-wide change, and how our plastic packaging pollution crisis relates to student lives via food service in the school cafeteria.

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

CELF provides programs that prepare K-12 students with holistic thinking skills and motivation to become agents of change for a healthier and sustainable future. In FY18, 214 teachers and administrators attended multiple professional development events held by CELF.

### City Parks Foundation

The City Parks Foundation is dedicated to transforming parks into dynamic centers of urban life for all New Yorkers. The Foundation’s environmental education programs inspire teachers and students to create meaningful relationships with parks, greenspaces, and the natural environment. In FY18, the City Parks Foundation served over 2,000 students in 26 schools, and trained and paid nearly 50 high school interns.

### Clean Green Music Machine

Clean Green Music Machine informs, inspires, and empowers a global network of young people who will co-create a just and sustainable environment for life on our planet. In FY18, Clean Green Music Machine produced the “It Matters” video on the cafeteria recycling program in partnership with the Department of Education – Office of Sustainability.

### Edible Schoolyard NYC

Edible Schoolyard NYC partners with public schools to cultivate healthy students and communities, transforming children’s relationship with food. In FY18, Edible Schoolyard NYC provided direct service in 6 schools, teaching hands-on gardening and cooking lessons and doing outreach to parents and community members.

### EcoRise

EcoRise inspires a new generation of leaders to design a sustainable future for all through student facing sustainability curriculum, local professional development for teachers, and access to a *Student Innovation Fund*. In FY18, EcoRise began offering their programs in NYC schools, supporting over 100 teachers.

### Garden to Café – SchoolFood

Through seasonal harvest events and educational activities, the Garden to Café program connects schools and community gardens with school lunch meals. In FY18, Garden to Café held 136 tasting events, with over 73,000 students participating.

### Green City Challenge

Green City Challenge educates people about ways to live, work, and eat green. Green City Challenge’s new focus is to bring

iconic interactive and educational games and challenges into all middle schools in the Bronx and Manhattan.

### Greening Forward

Greening Forward provides the support for young people to create real change for issues they are passionate about. Working with thousands annually across the country, Green Forward is paving the way for young people to learn and utilize leadership in shaping

the world they want to see. In FY18, Greening Forward held their annual International Young Environmentalists Youth Summit in New York City, co-sponsored by the Office of Sustainability. The Summit brought together about 60 students from across the region.

### GrowNYC's Recycling Champions Program

GrowNYC's Recycling Champions Program (RCP) works with the

DOE's Zero Waste Schools to educate students, faculty, and staff, and develop best practices for waste reduction. In FY18, RCP hosted 195 classroom presentations, 144 cafeteria presentations, and 139 Green Team meetings.

### GrowNYC's Grow to Learn

The Grow to Learn program creates sustainable gardens in public schools throughout NYC. In FY18, Grow to Learn hosted

45 workshops with over 700 participants. Learn more about Grow to Learn in the [Water & Green Infrastructure](#) section.

### Materials for the Arts (MFTA)

MFTA offers teachers free materials for reuse projects and conducts field trips and artist residencies with NYC schools. In FY18, MFTA provided 237 workshops to over 1,000 students including tours of reuse facilities, meetings with artists,

### Promoting Recycling through Music

This year the Office of Sustainability teamed up with Clean Green Music Machine to create a high-energy music video to encourage proper recycling throughout New York City schools, called "It Matters." Students from City-As-School's Music/Art/Design (MAD) Academy worked with music and television industry experts from Clean Green Music machine to write and produce a sustainability-themed song and music video. The video features Darryl DMC McDaniels of RUN DMC along with students from P.S. 58 - The Carroll School in Brooklyn, P.S. 114 - Luis Llorens Torres School in the Bronx, and P.S. 290 - A.C.E Academy for Scholars in Queens. The video will be officially released to all schools in the coming academic year. Stay tuned for other collaborations with CGMM that bring the arts and sustainability together!



P.S. 290 A.C.E. Academy for Scholars, Queens

and art projects linked to school curriculum.

### **National Wildlife Federation (NWF) Eco-Schools USA**

The NWF Eco-Schools program advances STEM education and connects NYC students to nature. FY18 was the third year of NWF's Greenpoint Eco-Schools program that places full time Sustainability Coaches at four schools in Greenpoint. The coaches each lead environmental-based education initiatives and STEM after school programming, which impacted over 1,800 students.

### **NY Botanical Garden**

The New York Botanical Garden is an iconic living museum, a major educational institution, and a renowned plant research and conservation organization. In FY18, the New York Botanical Garden hosted 104 workshops with over 69,000 students participating.

### **NY Sun Works**

NY Sun Works helps bring hydroponic science labs to NYC schools and trains K-12 teachers to integrate the labs into science curriculum. In FY18, NY Sun

Works built 15 new hydroponic labs bringing the total school partnerships to 86 schools across the five boroughs and New Jersey.

### **City & Urban Systems Partnership (CUSP)**

CUSP is dedicated to improving public understanding of climate change by helping urban residents see local, city-specific climate impacts and solutions. In FY18, CUSP partnered with the NYC DOE – Office of Sustainability for the first-ever Climate Summit, hosted at CUSP's home in the New York Hall of Science (NYSCI).

### **PowerMyLearning**

PowerMyLearning strengthens the learning relationships between students, teachers, and families so every student succeeds. While the main focus of their work is education, their program also incorporates a sustainability element, as they provide refurbished computer equipment to public school students and their families. In FY18, PowerMyLearning supplied 1,346 families with a refurbished Home Learning Center.

### **Queens Botanical Garden (QBG)**

Queens Botanical Garden is an urban oasis where people, plants, and cultures are celebrated through inspiring gardens, innovative educational programs, and real-world applications of environmental stewardship. QBG hosted 480 workshops and tours, with over 25,000 students participating.

### **Sims Municipal Recycling**

Sims Municipal Recycling processes and markets approximately 500,000 tons of plastic, glass, metal, and paper that New Yorkers put into recycling bins each year. In FY18, Sims provided over 150 class field trips, bringing over 4,300 students from NYC public and charter schools into contact with the City's recycling program.

### **Solar One**

The Solar One Green Design Lab provides NYC students with environmental stewardship learning opportunities throughout the year. In FY18, Solar One reached over 400 students through the program. Additionally, Solar One partners

with the Office of Sustainability to lead Solar Professional Development and Career and Technical Education programs.

### **Teens for Food Justice (TFFJ)**

Teens for Food Justice works to ensure universal equitable access to healthy, fresh, affordable food. In FY18, TFFJ reached over 225 students through curricular day, after-school, hydroponic farming, food justice, and advocacy programming.

# APPENDIX

## Our Strategy

Sustainability Coordinator Staff Roles in FY18		
Teacher	597	43.2%
Assistant Principal	390	28.2%
Other	99	7.2%
Parent Coordinator	62	4.5%
Counselor	56	4.0%
Operations/Business Manager	44	3.2%
Dean	35	2.5%
Secretary/Administrative Assistant	33	2.4%
Para Professional	12	0.9%
Instructional Coach	13	0.9%
Coach	10	0.7%
Social Worker	10	0.7%
Unspecified	8	0.6%
Aide	7	0.5%
Librarian	7	0.5%
	1383	100.0%

As reported in annual Sustainability Plan, compliance deadline of October 27, 2017.

### Key to Borough Abbreviations:

BK - Brooklyn  
 BX - Bronx  
 MH - Manhattan  
 QN - Queens  
 SI - Staten Island

## Awards & Recognition

2018 Leadership in Sustainability Awards		
Shamika Gamble	Assistant Principal	I.S. 68, BK
Dana Raciunas	Assistant Principal	P.S. 110 The Monitor, BK
Joseph Natoli	Fireman	P.S. 321 William Penn, BK
JJ Johnson	Cleaner	John Jay School for Law, BK
Ciaran Lee	Custodian Engineer	Bedford Academy High School, MH
Jerry Jones	Handyman/Cleaner	Mott Hall High School, BK
Martin Sweeney	Trucking Department	Division of School Facilities
Richard Andersen	Trucking Department	Division of School Facilities
Harry Lalousis	Assistant Supervisor of Trucking	Division of School Facilities
Robert Moss	Deputy Director of Facilities	Division of School Facilities
Ken Mahadeo	Director of Maintenance & Optimization	Division of School Facilities
Keith Wynne	Instructional Lead, STEM	Brooklyn North Field Support Center
Stephen O'Brien	Director, Strategic Partnerships	SchoolFood
Kerri Durante	Sustainability Coordinator	School of Math, Science, and Healthy Living, BK
Bernadette Heffernan Gloster	Sustainability Coordinator	P.S. 203 Oakland Gardens, QN
Danielle Meyer	Sustainability Coordinator	Gramercy Arts High School, MH
Nessa Arnold	Sustainability Coordinator	P.S. 032 Belmont, BX
Pat Lockhart	Sustainability Coordinator	P.S. 057 Crescent, SI
Lynn Shon	Teacher	M.S. 88, BK
Andy Zimmermann	Teacher	M.S. 88, BK

Sustainability Showcase Expo Awards	
Most Impactful	Maspeth High School, QN
Most Innovative	Pathway to Graduation, QN
Best in Show	Cooperative Tech High School, MH



2017 Sustainability Grant Winners

Gardening	Green Team	Water Refilling Station	Recycling Bins
P.S. 8 - Robert Fulton school, BK	J.H.S. 383 Philippa Schuyler, BK	M.S. 443, BK	P.S. 261 - Philip Livingston, BK
P231K @54, BK	P.S. 108 - School of Authors, MH	Sunset Park High School, BK	P.S. 396, BK
P141K, BK	John F. Kennedy Jr., QN	P.S. 132, BK	Academy of Science & The Environment, BK
P.S. 90 - The Magnet School for Environmental Studies & Community Wellness, BK		The Academy for Career & Living Skills, BX	P.S./I.S. 226 - Alfred De B. Mason, BK
Bronx Theater H.S., BX		The Marie Curie School, BX	Roy Campanella Occupational Training Center, BK
P.S. 555 - Mt. Eden Children's Academy, BX		P.S. 032 Belmont, BX	P.S. 89 - Cypress Hill Community School, BK
Morris Academy for Collaborative Studies, BX		Columbia Secondary School, MH	Connie Lekas School, BK
NYC Lab School for Collaborative Studies, MH		The Young Women's Leadership School of East Harlem, MH	P.S. 327 - The Dr. Rose B. English School, BK
Urban Assembly School for Emergency Management, MH		P.S. 125 - Ralph Bunche School, MH	Teachers Prep High School, BK
P721, MH		Maspeth High School, QN	International High School, BK
P.S. 50 Vito Marcantonio STEAM Prep Academy, MH		Village Academy, QN	International Community High School, BX
P.S. 104Q The Bays Water School, QN		Susan Wagner High School, SI	P.S. 24 - The Spuyten Duyvil School, BX
Walter H. Crowley School of Leadership, QN			University Neighborhood High School, MH
P.S. 221 The North Hills School, QN			The High School for Fashion Industries, MH
P.S. 013 M. L. Lindemeyer, SI			Paula Hedbavny, MH
			P.S./I.S. 180 - Hugo Newman, MH
			Food & Finance High School, MH
			Success Academy Midtown West High School, MH
			Benjamin N. Cardozo High School, QN
			P.S. 210, QN
			M.S. 355 Collaborative Arts Middle School, QN
			J.H.S. 190, QN
			Channel View School for Research, QN
			P.S. 195 William Haberle, QN

## Energy Management

Energy Use Intensity (EUI)			
Fiscal Year	Total square footage	EUI (KBTU/sq. ft.)	EUI change from FY08 baseline
FY15	155,916,000	59.2	-19%
FY16*	156,649,200	62.8	-14%
FY17	157,831,200	66.4	-9%

\*In FY16, EUI dropped in part due to 45 new facilities (2,691,000 sq ft.) added to the portfolio. The facilities were only partially occupied and therefore used less energy.

## Energy Efficiency

ACE Energy Efficiency Projects in FY18			
Project type	Number of buildings implemented	GHG emissions prevented (metric tons CO <sub>2</sub> e)	Cost Savings
Wireless Pneumatic Thermostats	11	839.80	\$285,661.20

ExCEL Energy Efficiency Projects in FY18			
Project type	Number of buildings implemented	GHG emissions prevented (metric tons CO <sub>2</sub> e)	Cost Savings
Boiler Tune-ups for Bronx Schools	7	91.39	\$15,554.46
Steam Traps Replacement at Bronx Schools	6	175.58	\$31,546.39
Steam Traps Replacement at K440	1	21.99	\$12,439.63
LED Lighting Upgrade & Vacancy Sensors at K179	1	18.77	\$10,620.57
LED Exterior Lighting Upgrade at K218 (exterior)	1	17.60	\$9,955.27
LED Gym & Exterior Lighting Upgrade at K275	1	525.30	\$94,547.94
LED Lighting Upgrade (gyms) & Vacancy Sensors (classes/offices) at K455	1	79.72	\$45,099.31
LED Lighting Upgrades at Queens Schools	10	48.67	\$27,534.25
LED Lighting Upgrade M088	1	3.83	\$2,165.30
LED Lighting Upgrade M164	1	32.42	\$18,341.34
LED Lighting Upgrade M189	1	6.19	\$3,502.69
LED Lighting Upgrade M435	1	12.66	\$7,164.59
LED Lighting Upgrade at R004	1	159.00	\$89,950.57
LED Gym Lighting Upgrade at R027	1	9.50	\$5,373.44
LED Exterior Lighting Upgrade at R880	1	19.35	\$10,947.49
Lighting Vacancy Sensors at R880	1	71.19	\$40,274.52
Condensate Piping at X120	1	63.43	\$9,809.79
Pneumatic Controls Repair at X455	1	50.06	\$26,387.24
Roof Top Unit Repairs at X970	1	11.32	\$6,405.82
<b>Total</b>	<b>39</b>	<b>1417.97 CO<sub>2</sub>e</b>	<b>\$467,620.61</b>

## Energy Star Performance

Building Energy Star Scores						
Score	FY16		FY17		FY18	
	Number of schools	Percentage of school buildings	Number of schools	Percentage of school buildings	Number of schools	Percentage of school buildings
75 or higher	659	52%	787	62%	776	60%
50-74	325	26%	250	20%	261	20%
24-49	154	12%	124	10%	129	10%
24 or below	96	8%	85	7%	82	6%
No score available	30	2%	26	2%	35	3%
Total school buildings	1,264		1,272		1,283	

## Energy Competitions

Energy Competition Results	
NYC DOE Energy Conservation Challenge (\$10,000)	Energy Calendar
P.S. 031 Samuel F. Dupont, BK	P.S. 138, MH
P.S. 203 Oakland Gardens, QN	Bayside High School, QN
River East Elementary, MH	P.S. 169 - Robert F. Kennedy, MH
P.S. 100 The Coney Island School, BK	The Judith S. Kaye High School, MH
Central Park East High School, MH	P.S. 003 The Margaret Gioiosa School, SI
	Brooklyn Technical High School, BK
	J.H.S. 220 John J. Pershing, BK
	M.S. 158 Marie Curie, QN
	P.S. 197 - The Kings Highway Academy, BK
	Yorkville East Middle School, MH
	P.S. 811 - Mickey Mantle School, MH
	James Madison High School, BK
	P.S. 120, QN

## Demand Response Program

Demand Response Top Performing Building Awards			
Demand Response (DR) Top Performer Award	Award	Energy Champion Award	Award
The School of Integrated Learning, BK	\$15,000	P.S. 234, QN	\$50,000
Urban Assembly School for Music and Art, BK	\$20,000	P.S. 016 John J. Driscoll, SI	\$50,000
P.S. 5 Head Start, MH	\$20,000		
Eleanor Roosevelt High School, MH	\$20,000		
M.S. 137 America's School of Heroes, QN	\$15,000		
P.S./I.S. 208, QN	\$20,000		
P.S. 234, QN	\$20,000		
P.S. Q233, QN	\$15,000		
P.S. 373, SI	\$30,000		
Space Shuttle Columbia School, SI	\$30,000		
Theatre Arts Production Company School, BX	\$20,000		
The Bronxwood Preparatory Academy, BX	\$15,000		

Demand Response Program Data Overview					
Fiscal Year	Buildings enrolled	Capacity enrolled (KW)	Event length (hours)	Total energy saved (kWh)	Total cost saved
FY16*	108	9750	2 HR	43,428.5	\$6,948.56
FY17	246	18755	23 HR	274,386	\$43,901.71
FY18	294	26720	4 HR	115,495	\$20,789.26

\*Data has been updated from previous reporting years due to the change from calendar year reporting to fiscal year reporting.

## PARTNERS

[Alliance for Climate Education \(ACE\)](#)  
[Audubon New York](#)  
[Bronx Health Reach](#)  
[Cafeteria Culture \(CafCu\)](#)  
[Children's Environmental Literacy Foundation \(CELF\)](#)  
[Climate & Urban Systems Partnership \(CUSP\)](#)  
[Citizens Committee of New York \(CCNY\)](#)  
[City Growers](#)  
[City Parks Foundation](#)  
[Clean Green Music Machine](#)  
[CORO New York](#)  
[Department of Sanitation New York City \(DSNY\)](#)  
[Earth Day Initiative](#)  
[Edible Schoolyard NYC](#)  
[Garden to Café – SchoolFood](#)  
[Garden Train](#)  
[Green City Challenge](#)  
[Green School Alliance](#)  
[Greening Forward](#)  
[GrowNYC: Grow to Learn NYC](#)  
[GrowNYC: Recycling Champions Program \(RCP\)](#)  
[Materials for the Arts \(MFTA\)](#)  
[Million Trees NYC](#)  
[National Wildlife Federation Eco-Schools USA](#)  
[NY Botanical Garden](#)  
[NY Sun Works](#)  
[NYC Compost Project hosted by BIG Reuse](#)  
[NYC Department of Citywide Administrative Services \(DCAS\) – Energy Management](#)  
[NYC Department of Environmental Protection \(DEP\)](#)  
[NYC Department of Parks & Recreation](#)  
[NYC DOE – Office of Curriculum, Instruction and Professional Learning](#)  
[NYC DOE – Office of Emergency Management](#)  
[NYC DOE – Office of School Wellness](#)  
[NYC DOE – SchoolFood](#)  
[NYC DOE – STEM](#)  
[NYC Department of Health and Mental Hygiene \(DOHMH\) – Healthy Living By Design](#)  
[NYC Mayor's Office of Recovery and Resiliency](#)  
[NYC Mayor's Office of Sustainability](#)  
[NYC School Construction Authority](#)  
[NYU Wallerstein Collaborative for Urban Environmental Education](#)  
[NYS Department of Environmental Conservation \(DEC\)](#)  
[NYS Department of Environmental Protection \(DEP\)](#)  
[Power My Learning](#)  
[Queens Botanical Garden](#)  
[Resilient Schools Consortium Program \(RISC\)](#)  
[SIMS Municipal Recycling](#)  
[Solar One](#)  
[Teachers College, Columbia University](#)  
[Teens for Food Justice](#)  
[United Federation of Teachers \(UFT\)](#)  
[Wearable Collections](#)

## POLICIES AND REGULATIONS

### Energy

**Local Law 84:** Requires owners of large buildings to measure (benchmark) energy consumption and submit the data to the city.

**Local Law 85:** Requires building renovation and alteration projects to meet New York City Energy Conservation Code (NYCECC).

**Local Law 86:** City-funded capital projects with construction costs of \$2 million or more must be designed to LEED Silver or higher ratings; projects with costs of \$12 million or more must reduce energy costs by 20-30% below ASHRAE standards.

**Local Law 87:** Buildings over 50,000 square feet or larger must undergo audits and retro-commissioning every ten years to determine energy consumption.

**Local Law 88:** Large non-residential buildings are required to upgrade lighting fixtures to NYCECC code and electrical sub-meters must be installed.

**Executive Order 26:** New York City's commitment to Principles and Goals of Paris Climate Agreement.

### Waste

**Local Law 36:** Every New York City agency, including the DOE, must submit a waste prevention, reuse, and recycling plan, designate a lead recycling or sustainability coordinator and each agency building must be designated to one assistant sustainability coordinator.

**Local Law 41:** Outlines the recycling requirements for the Department of Education, including:

> 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 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 47 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.

> 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:** requires the NYC Department of Sanitation to establish a voluntary residential organic waste curbside collection pilot program and school organic waste collection pilot program.

**Chancellor's Regulation A-850:** Outlines the roles of the CEO of Division of School Facilities (DSF), Director of Sustainability, Deputy Director of Recycling, Deputy Director of Energy, Principals, Custodian Engineers, and Sustainability Coordinators. All school building requests from the principal that would increase the energy consumption of the building must be submitted to the CEO of DSF, including equipment specific energy load information and how it complies with the energy conservation and reduction portion of the Sustainability Plan. Personal appliances that would unnecessarily increase school plug load, such as personal refrigerators and microwaves, are banned from DOE offices and classrooms

### Green Procurement

**Local Law 118 (2005):** 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):** Reviews 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.

## METHODOLOGY

### Climate

To calculate greenhouse gas emissions, we examined energy bills received by the DOE. Electricity, natural gas and steam bills were obtained through the Department of Citywide Administrative Services (DCAS)'s online portal, EC3, under the assumption that all metered buildings were accurately reported and billed. Fuel oil and biodiesel was tracked through the number of orders placed in the Department of School Facilities' fuel tracking system, under the assumption that the amount of fuel ordered reflects fuel usage during the year.

Greenhouse gases included in these calculations are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Emissions factors for electricity and steam were obtained through the New York City Greenhouse Gas Inventory. Emissions factors for fuel oil and biodiesel were obtained through the U.S. EPA. They all were normalized into metric tons of carbon dioxide equivalent (CO<sub>2</sub>e), using Global Warming Potential (GWP) rates obtained through the World Resources Institute's Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories.

The greenhouse gas profiles described in the Energy and Climate section refer to emissions from all buildings under DOE's operational control, meaning those under the supervision of a DOE Custodian Engineer and the Division of School Facilities.

### Energy

Energy data for electricity, natural gas and steam was obtained through DCAS's online portal, EC3, under the assumption that all metered buildings were accurately reported and billed. Fuel oil and biodiesel was tracked through the number of orders placed in the Division of School Facilities' fuel tracking system, under the assumption that the amount of fuel ordered accurately reflects fuel usage during the year. All energy data was converted into MBTUs for accurate comparison across energy types.

For energy efficiency projects, estimated energy, emissions, and cost savings were obtained through grant applications for ACE and ExCEL funding. Solar data was calculated based on capacity information and online dates provided by the DCAS Clean Energy and Innovative Technologies office. Demand response data comes from our program provider, NuEnerg.

## REFERENCES

- <sup>i</sup> [OneNYC 2017 report](#)
- <sup>ii</sup> <https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-Characterization-Study.pdf>
- <sup>iii</sup> <https://www.grownyc.org/grow-to-learn>