



# DOE Office of Sustainability Annual Report 2018-2019

## 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 2019 (FY19), spanning July 1, 2018 – June 30, 2019, reported from the DOE Office of Sustainability. This report includes information pertaining to energy and climate, waste, school gardens and environmental education as well as compliance with local laws and Chancellor's Regulations.

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DOE Sustainability Resource Portal:  
[bit.ly/NYCDOESustainability](https://bit.ly/NYCDOESustainability)

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**Did you know?**  
**We created both a GIS Map to track school progress with sustainability and a Resource Portal to provide turn-key ideas to schools?**

# Letter from the Director

Dear Colleagues,

The 2018-2019 school year marked the tenth anniversary of the DOE Office of Sustainability as an established office within the NYC Department of Education. The year was monumental in our advancements and reach, which we humbly hope befit the significance of the anniversary!

In the last decade, the breadth and scope of the Office of Sustainability have grown significantly, and this edition of our Annual Report will highlight key developments in the areas of projects and programs. We expanded and diversified offerings to include the Arts, direct student engagement, and opportunities for schools that are both beginning or seeking to deepen their sustainability commitments. In 2018-19 we created successful pilot programs, including the S.E.E.D. Certification and Zero Waste Pledge Schools Program, that provide roadmaps to achieve milestones across a range of actions. We launched our Resource Portal as an aggregated source of materials for school stakeholders, events, trainings, and partner programs. We also hosted our first Sustainability 101 for newly designated Sustainability Coordinators in order to emphasize that sustainability can enhance existing school culture and/or interests through attainable actions. All of these demonstrate that sustainability is a supported, achievable, and fun way to bring out the best in our schools!

This past year also marked the origin of our first Youth Leadership Council (YLC), comprised of inspiring high school students committed to taking action for climate and sustainability in their schools and communities. The YLC helped to thoughtfully develop our first Youth Climate Summit in January 2019, an event that was a success due to the YLC and all Summit participants! We are excited to continue this essential work with DOE students.

The ambitious and dynamic landscape of sustainability in New York City, coupled with the commitment to equity and excellence in education, have fortified the DOE Office of Sustainability's mission to provide support to all schools. A common misperception is that efforts are wasted unless optimal circumstances exist to support; however, we believe that sustainability can be the impetus for action, leadership, and further the positive contribution of every school to the larger community.

Our office continues to deepen our commitment to relevant and meaningful engagement with all school stakeholders. Our goal is to foster the remarkable existing network as well as strive to continuously grow the professional learning community around sustainability.

Thank you for supporting the NYC DOE Office of Sustainability in our work to develop the next generation's leaders!

All the best,



Meredith McDermott  
Director of Sustainability

# 2018-2019 Highlights

DOE Office of Sustainability

## Education & Engagement

**54**

trainings and events led, reaching nearly 4,800 staff and students, a 152% increase from FY18

**1,632**

outreach events conducted at 677 schools, impacting 6,700 staff and students

**1<sup>st</sup>**

Youth Climate Summit held for high school students

**1,250**

students, staff, and partners hosted at the 3rd Annual Sustainability Showcase

**5**

new programs created to optimize stakeholder engagement: rFuture, S.E.E.D. Certification, Zero Waste Pledge, Youth Leadership Council, and Youth Climate Summit

## Energy & Climate

**18.7%**

reduction in greenhouse gas emissions since FY08

**\$2.5M**

earned from the Demand Response program and re-invested into building upgrades to boost energy efficiency, an increase of 25% over FY18

**800**

students learned solar vocational skills through partnership with DOE Office of Career and Technical Education (CTE) and Solar One

## School Resources

**\$206,333**

in grant funding awarded to 61 schools via 3rd Annual Sustainability Project Grant

**1<sup>st</sup>**

[Sustainability Resource Portal](#) launched, to consolidate content and lend ideas to support school sustainability

## Waste

**7,000**

tons of organic waste diverted from landfills

**320,000**

reusable water bottles distributed to every high school student, made possible by a donation from S'well

**20**

schools earned official Zero Waste status through our new Zero Waste Pledge School Program

# Impact



The Office of Sustainability's impact on the Department of Education is continually growing as we lead facility and instructional programs targeting every stakeholder. As our programs expand, the office relies on Geographic Information Systems (GIS) mapping to inform our strategy and outreach so we may integrate sustainability into all 1,380 DOE buildings.

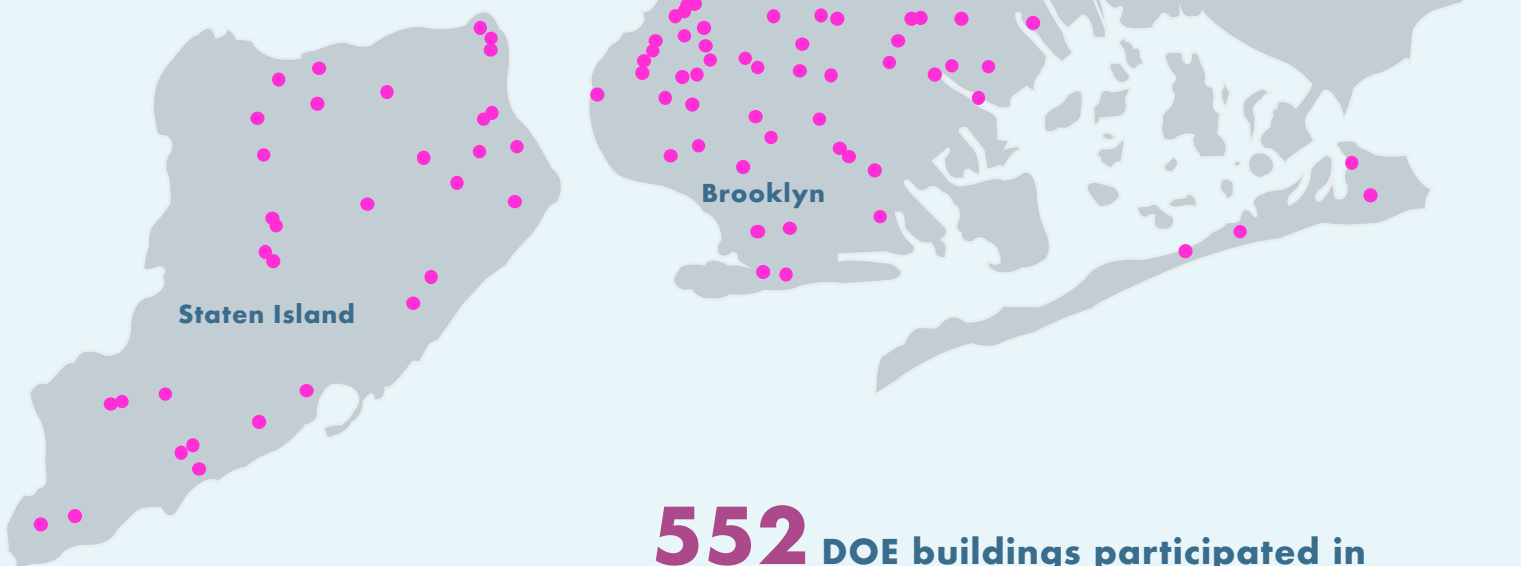
The map below captures school buildings that were awarded our annual Sustainability Project Grant and participated in the following in FY19:

#### Core Facility Programs

- Demand Response
- NYC Solar Schools
- Rat Mitigation Zone
- Zero Waste Schools

#### Core Education Programs

- Race Against Waste
- Zero Waste Pledge Schools
- S.E.E.D. Certification



**552** DOE buildings participated in Office of Sustainability core programs in FY19, up 12% from FY18.

# School Sustainability Coordinators

New York City is the only school district in the nation that requires each school to designate a Sustainability Coordinator as mandated from DOE policy. This person, along with the Custodian Engineer, are primary school-based contacts for the Office of Sustainability. Our goal is to develop programs and opportunities that support the work of the Sustainability Coordinators so they can be change-makers in their school, leading impactful sustainability projects and initiatives.

## Highlights

**12%**

increase in  
Sustainability  
Coordinator  
designation rate  
from FY18

**60%**

Sustainability  
Coordinators  
started a Green  
Team

**275**

newly designated  
Sustainability  
Coordinators  
attended the  
Sustainability 101  
training

## Sustainability Coordinators: Who, What, Why?

Sustainability Coordinators are school-based liaisons that work in collaboration with the Office of Sustainability and play an integral role in facilitating school awareness and leading programs around established sustainability goals. Per Local Law 41 and Chancellor's Regulation A-850, Principals are required to appoint a Sustainability Coordinator every year in September. In FY19, 77% of NYC schools designated a Sustainability Coordinator by the September 28 deadline, an increase of 12% from the previous year. The designation rate rose to 82% (see [Appendix](#) for breakdown of staff roles) by the start of the spring semester. This is the second year the designation process has been incorporated into the Galaxy platform, a tool that Principals use to assign other school-based roles. As Principals continue to familiarize themselves with the process, we anticipate the designation rate will continue to rise in FY20.

To support Principals with the designation process and to help them identify an ideal person on their staff, a new resource called the "Principal Checklist" was created to provide a brief description about the role, key responsibilities, and characteristics to consider. Any staff person may serve as the Sustainability Coordinator except for the Custodian Engineer and Principal. In order to foster communication within shared building spaces (campus or co-located buildings), the Office of Sustainability sends an email to introduce Sustainability Coordinators within the same building.

### Sustainability Coordinator Participation by Borough

■ Total Number of Schools

■ Schools with Sustainability Coordinators

|               |         |         |              |
|---------------|---------|---------|--------------|
| Brooklyn      | ■ 563   | ■ 430   | <b>76.3%</b> |
| Bronx         | ■ 442   | ■ 303   | <b>68.5%</b> |
| Manhattan     | ■ 353   | ■ 277   | <b>78.4%</b> |
| Queens        | ■ 378   | ■ 324   | <b>85.7%</b> |
| Staten Island | ■ 80    | ■ 68    | <b>85%</b>   |
| <b>Total</b>  | ■ 1,816 | ■ 1,402 | <b>77%</b>   |

## Key Responsibilities of Sustainability Coordinators:



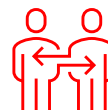
Submit annual school Sustainability Plan and annual Sustainability Survey in accordance with Chancellor's Regulation A-850



Form Green Teams to build support at schools



Attend trainings by the Office of Sustainability and/or partner organizations



Liaise with DOE Office of Sustainability



Consult with school and building staff to develop and expand school-based sustainability initiatives

## School Sustainability Plans

Principals and Sustainability Coordinators are required to develop annual Sustainability Plans to set goals at their schools and provide roadmaps for project implementation for the school year. In the 2018-2019 school year (FY19), the Sustainability Plan was enhanced to include health & wellness and environmental education in addition to previous sections on energy management/conservation, waste reduction, and outreach & communications. In FY19, 76% of NYC schools completed a Sustainability Plan, a 4% increase from the previous year.

### Sustainability Plan Completion by Borough

■ Total Number of Schools  
■ Sustainability Plans Submitted

|               |         |         |            |
|---------------|---------|---------|------------|
| Brooklyn      | ■ 563   | ■ 422   | <b>75%</b> |
| Bronx         | ■ 442   | ■ 299   | <b>68%</b> |
| Manhattan     | ■ 353   | ■ 252   | <b>71%</b> |
| Queens        | ■ 378   | ■ 332   | <b>88%</b> |
| Staten Island | ■ 80    | ■ 71    | <b>89%</b> |
| <b>Total</b>  | ■ 1,816 | ■ 1,376 | <b>76%</b> |

## Annual Sustainability Survey

Each June, Sustainability Coordinators are required to participate in the DOE's Annual Sustainability Survey. In FY19, 77% of schools responded to the survey, a two percent year-over-year increase. In order to increase the accuracy and integrity of the Survey as a tool to measure school participation and progress with sustainability, we instituted new eligibility requirements (see footnote below). As this stricter criteria is more difficult to achieve, we were particularly thrilled to see the increase in response rate, an indication that our schools are taking their sustainability responsibilities more seriously. We feel that higher-quality data is integral to drive the best programs, trainings, events, and resources possible. Data from the Survey helps our office to understand and monitor sustainability activities across schools, measuring accomplishments and identifying key areas of motivation and support.

### Annual Sustainability Survey Response Rates

■ Total Number of Eligible<sup>1</sup> Schools  
■ Number of Survey Responses

|               |         |         |            |
|---------------|---------|---------|------------|
| Brooklyn      | ■ 422   | ■ 327   | <b>77%</b> |
| Bronx         | ■ 299   | ■ 218   | <b>73%</b> |
| Manhattan     | ■ 252   | ■ 195   | <b>77%</b> |
| Queens        | ■ 332   | ■ 273   | <b>82%</b> |
| Staten Island | ■ 71    | ■ 52    | <b>73%</b> |
| <b>Total</b>  | ■ 1,376 | ■ 1,065 | <b>77%</b> |

<sup>1</sup> School eligibility to complete the Sustainability Survey is based on the school's designation of a Sustainability Coordinator and submission of a Sustainability Plan by February 28, 2019.



## Trends in School Sustainability

Through our research partnership with Teachers College, Columbia University, the annual Sustainability Plan and Sustainability Survey are designed to best measure school progress and trends with sustainability efforts. This, in turn, enables the Office of Sustainability to identify and target support to Sustainability Coordinators. As a result, three significant areas were identified:

**Time and Resources** – The Sustainability Coordinator role is always assigned to a school staff person with other full-time responsibilities within the school. Through in-depth analysis of Sustainability Plan data, however, it was discovered that approximately half (47.0%) of Coordinators receive at least one type of school support (e.g. extra prep period) to complete work, more than we had anticipated. Furthermore, we learned of United Federation of Teachers (UFT) contractual benefits that Sustainability Coordinators can exercise with Principal permission where applicable. Data also showed that Sustainability Coordinators

given as little as one extra prep period were able to accomplish significantly more on their Sustainability Plan commitments! As a result, the Office of Sustainability made a Principal Checklist outlining different ways to provide time and/or support for Sustainability Coordinators. We also created a Contractual Workday Reference Sheet because we know 40% of Sustainability Coordinators are teachers, who are UFT members. Specific options are available for UFT members to advocate for dedicated time. Both documents are intended to raise awareness of the availability of school support mechanisms to better support sustainability efforts.

**Professional Development** – Survey results around trainings offered by the Office of Sustainability revealed topic areas of the most interest to Sustainability Coordinators and that two-thirds are interested in short, web-based trainings. As a result, the Office of Sustainability updated our engagement strategy to offer four themed trainings that correlated to the highest ranked topic choices per Sustainability Survey data. Over 91% of attendees of our 2018-19 trainings and professional development

**A Green Team is a group or club, which may include a Student Government or Science Club, dedicated to improving sustainability through projects, awareness, and actions. These groups typically involve both students and adults.**

programs said that the session had a positive impact on their work as a Sustainability Coordinator; 79% reported that the session built on prior knowledge; and over 50% agreed the workshop(s) provided opportunities for both active learning and networking. Additionally, we developed and hosted ‘Sustainability 101,’ the first training dedicated solely to newly designated Sustainability Coordinators to address key information and make school sustainability more relatable, accessible, and achievable.

**Green Teams** – Research shows that 60% of all Sustainability Coordinators are currently working with a student Green Team, an 11% increase from the previous year. To support these efforts while simultaneously meeting the request for more web-based trainings, the DOE and Teachers College organized a webinar entitled “Building a Green Team” to support youth leadership and engagement efforts. Data from the Annual Survey showed that over 50% of respondents said that a Green Team contributed to student leadership skill development, understanding of sustainability, and the successful implementation of the school Sustainability Plan. The Office intends to use this data to further promote the benefits of Green Teams and the important role of student inclusion to achieve greater sustainability.

Left: Green Team from Brooklyn High School for Law and Tech

Right: Green Team from I.S. 068 Issac Bildersee, Brooklyn





## SUSTAINABILITY 101 TRAINING

Nearly one-third of Sustainability Coordinators are new to the role each year, providing us new points of entry into our schools. In order to provide Sustainability Coordinators with foundational and functional knowledge necessary to be successful in the role, we led a brand-new training for this audience on October 10, 2018 at UFT Headquarters. Two hundred and seventy five attendees were given tools to complete their mandatory annual Sustainability Plan as well as turnkey information and resources on the importance of sustainability, leadership, capacity building, and student engagement.

# Education & Engagement

Now more than ever, sustainability education and communications are important to our schools and city. As the DOE Office of Sustainability works across all offices and divisions to implement our sustainability goals, no place is more critical than classroom instruction. In 2018, we joined a group of committed organizations, programs, educators, and youth, the Climate Education Task Force to successfully add language that formally includes climate education in *OneNYC 2050* goals. This underscores the importance of the topic and strengthening opportunities to incorporate climate education into instruction. We also continue to design new trainings, events, and programs to educate and engage a wide range of stakeholders on facility operations and instructional sustainability topics. Collaboration with partner organizations and schools is essential to the momentum needed to create education opportunities.

## Highlights

**180**

students

**49**

teachers

**33**

schools participated in our first Youth Climate Summit

**19**

schools participated, and 9 earned gold certification, in our first school sustainability certification (S.E.E.D.)

**2**

music and sustainability events led with our partners at Clean Green Music Machine and DOE Office of Arts & Special Projects

**20**

Sustainability Coordinators supported in all five boroughs through our Sustainability Coordinator Mentorship program

**5**

Tours of local environmental landmarks organized for DOE faculty professional development

**87**

student expositions

**1,250**

attendees participated in our 3rd annual Sustainability Showcase, more than double participation in 2018

## Training & Events

In the last year, the Office of Sustainability developed a robust education and outreach strategy that builds on our annual trainings to Sustainability Coordinators, teachers and faculty, Custodian Engineers, and Kitchen Managers. Our training model has grown to include specialized opportunities that focus on themes, technical skills, and youth engagement, allowing us to reach more employees and students. Our trainings and events help staff learn about new programs and resources, review roles and responsibilities, and discover ways to incorporate sustainability facets into all aspects of DOE operations and instruction. In FY19, the Office of Sustainability reached nearly **4,800** DOE students and staff from **54** trainings and events, an increase of 152% from FY18. In addition, our Sustainability Specialists conducted school based outreach and education at 677 schools. These figures do not include engagement in community events, school in-service professional learning, participation at partner events, or outreach at external events.

## Student Engagement

The Office of Sustainability believes student voice and leadership are essential components to the fulfillment and improvement of goals. This past year we led our very first Youth Leadership Council (YLC) with support from NYC Service. Twenty five high school students from across the city participated in the YLC. The DOE Sustainability YLC mobilizes high school students to increase climate action in NYC schools, contributes to DOE Sustainability policies, and planned the first-ever Youth Climate Summit. The YLC meets monthly after school, and participating students received community service hours.



Urban Ecology



Environmental Justice  
& Advocacy



Green Infrastructure  
& Resiliency



Exploring NYC  
Urban Systems



## YOUTH CLIMATE SUMMIT



Organized in partnership with The Wild Center and designed with input from our high school Youth Leadership Council, the inaugural Youth Climate Summit was the first-ever DOE Sustainability event designed specifically for high school students. Held on January 18 at UFT Headquarters in Manhattan, the Summit attracted 223 students and teacher chaperones from across the city. Participants learned about global impacts of climate change from the Assistant Secretary-General of the United Nations Environment Programme (UNEP) as well as local efforts from the Director of the Mayor's Office of Sustainability. Students attended action workshops on topics such as environmental justice, food rescue, efficiency in building renewable energy, participated in a green career fair, and concluded the day writing a Climate Action Plan for their school. Students left empowered to bring climate action and awareness to their schools and communities.

## rFUTURE

Through a unique partnership with Clean Green Music Machine and Theatre Arts Production Company High School (TAPCo) in the Bronx, eleven students from five high schools were paired with a professional musician to write songs on their sustainability-related topic of choice. Through this mentorship, students and/or student groups wrote lyrics and music, and the experience culminated in a live performance alongside their music mentor. Additionally, TAPCo teachers guided a group of students to hone videography skills by documenting songwriting workshops, editing, and creating a montage to accompany the live performance. The rFUTURE program created an innovative opportunity for students to gain professional experience and learn about sustainability through a different and professional lens. One hundred fifty one adults and students attended the live performance in May. rFUTURE was made possible by Clean Green Music Machine and through a new partnership with TAPCo and the DOE Office of Arts & Special Projects.

Above right: Students from Manhattan High School

Below: Students from Success Academy Harlem East, Manhattan



**“...this was a great opportunity for people who want to let their voices be heard and make a change in the world through music. It was so much fun to be able to work with professionals and meet other people who were interested in the same topics.”**

– Student at  
Edward R. Murrow High School



## Third Annual Sustainability Showcase

Our culminating end-of-year event was also used to celebrate the tenth anniversary of the Office of Sustainability. This year we moved the event to a much larger venue, the Brooklyn Expo Center, and had 1,250 students and staff participate in the Sustainability Showcase. Over the last three years, the Showcase has grown into an end-of-year celebration that serves as an “idea exchange” between schools that sparks connections across the city and fosters innovation with students and staff. For the first time, we opened the Showcase to schools as a “field trip” so that schools could bring their Green Team, class, or any other

group of students. The main feature of the Showcase was the School Expo — 87 schools hosted interactive tables that featured their sustainability projects. Topics ranged from aquaponics gardening to reducing food waste in the cafeteria. Guest were invited to vote on their favorite projects, and four schools in different grade brackets were awarded \$2,500 for their outstanding work. The Office also recognized 32 employees for their Leadership in Sustainability at the DOE. Congratulations to all! (See [Appendix](#) for the list of our 2019 award and Expo winners.)



Students participating in expo activities at the 3rd Annual Sustainability Showcase





## S.E.E.D. CERTIFICATION



In FY19, the Office piloted a brand new sustainability certification pilot, called S.E.E.D. (Sustainability, Efficiency & Environmental Dedication) Certification, in order to establish a roadmap and means for internal recognition of school efforts. The pilot cohort consisted of 19 schools that were challenged to complete sustainability actions in eight categories to accrue points towards a certification level. Upon completion of the first year, nine schools achieved gold status, seven silver, and three reached bronze level. All schools received a plaque, banner, and funds for their accomplishments. The program challenges schools to go deeper with sustainability, provides structure and ideas to support, and recognizes school accomplishments from within the agency. The pilot will continue in FY20 as the Office of Sustainability continues to develop the S.E.E.D. Certification. Thank you to all participating schools for helping to make the program purposeful and successful! (See [Appendix](#) for list of participating schools & certification level earned.)



# Energy & Climate

Impacts from climate change and building energy use are key challenges facing NYC in the coming decades. *OneNYC 2050*, released in April 2019, commits NYC to achieve carbon neutrality by 2050. Because DOE buildings average 25% of the total municipal energy consumption, our efforts are critical to achieve NYC's emission and energy use reduction goals. With support from the Department of Citywide Administrative Services (DCAS) Division of Energy Management and the Mayor's Office, the DOE reduces our carbon footprint through operations and maintenance, deep energy retrofits, energy management, renewable energy projects (e.g. solar), and education targeting behavioral change and awareness.

## Highlights

**18.7%**

reduction in  
greenhouse gas  
emissions from  
FY18

**700**

educators participated  
in the NYC Solar  
Schools Education  
Program facilitated by  
Solar One

**4**

DOE students from the  
Solar Career Technical  
Education Program  
received internships  
to install solar on DOE  
schools training

**\$2.5**

million earned from the Demand Response Program, reinvested  
to support sustainability projects at 117 buildings

## NYC Legal Context for Emission Reduction

Under Mayor de Blasio's *OneNYC* Plan, the City set a goal, 80x50, to reduce greenhouse gas (GHG) emissions 80% by 2050 from a 2005 baseline.<sup>2</sup> To accelerate progress towards 80x50, the New York City Council passed the Climate Mobilization Act on April 18, 2019, charging City agencies with reducing greenhouse gas emissions 40% by 2025 and 50% by 2030 using a Fiscal Year 2006 baseline. *OneNYC 2050* was released the following day, committing NYC to achieve carbon neutrality by 2050, thus ramping up efforts even more.

### Greenhouse Gas (GHG) Emissions

Most of the energy sources that provide power to schools also emit greenhouse gases. In FY19, the DOE emitted 672,483 metric tons of CO<sub>2</sub>e (carbon dioxide equivalent), equating to approximately 143,000 passenger vehicles driven for one year. Year over year, emissions and total energy use decreased in FY19 (see

table below), and total GHG emissions have been reduced by 18.7% since 2008. The DOE building portfolio continuously expands and becomes more complex; as such, the Division of School Facilities (including Office of Sustainability) is ramping up efforts to increase efficiencies of buildings and operations. The size and scope of work needed to meet City GHG and energy consumption targets has grown significantly, and every effort is critical to achieve carbon neutrality.

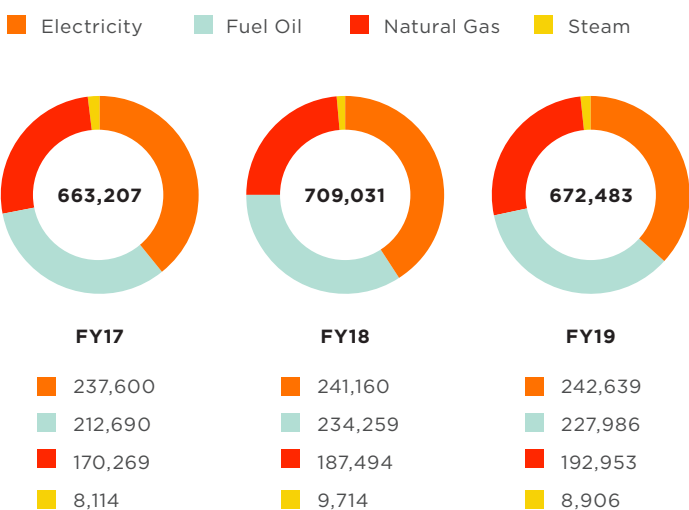
### Energy Management

The DOE, in coordination with the DCAS Division of Energy Management, oversees energy management to achieve the City's goal of reducing greenhouse gas emissions 40% by 2025 and 100% by 2050. As part of our strategy to meet this goal, the DOE Energy Management team oversees the energy audit and retrofit process by identifying capital and low-cost building upgrades and performing preventive maintenance repairs on aging infrastructure (see [City Funded Efficiency 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 Star Performance](#)). Energy management is focused on greenhouse gas emissions reductions, optimized efficiency of relevant operations and mechanical systems, and reduction in consumption.

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. Plug load (approximately 8% of total electricity) is an actionable way for all school occupants to engage in energy conservation. Through simple actions such as turning off lights when not in use, powering down smartboards and electronics, and using daylighting whenever possible, schools can

#### Greenhouse Gas Emissions (metric tons CO<sub>2</sub>e)<sup>3</sup>

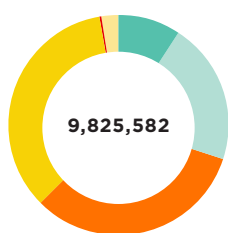


<sup>2</sup> [OneNYC 2017 report](#)

<sup>3</sup> FY17 and FY18 total emissions have been adjusted from previous reporting to reflect changes in calculations based on the use of biofuel blends for fuel oil #2 and #4 and recent utility data at the time of reporting.

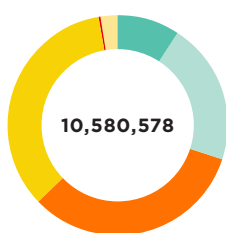
## Total Energy Consumption by Source (MBTUs)<sup>4</sup>

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



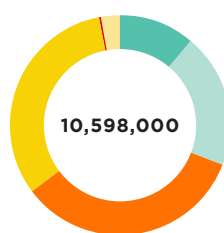
**FY16**

924,591  
2,037,170  
3,202,308  
3,406,471  
23,431  
231,611



**FY17**

1,189,931  
2,105,495  
3,526,269  
3,457,515  
24,110  
277,258



**FY18**

1,141,680  
2,071,115  
3,628,932  
3,478,712  
23,360  
254,201

<sup>4</sup> FY17 and FY18 total emissions have been adjusted from previous reporting to reflect changes in calculations based on the use of biofuel blends for fuel oil #2 and #4 and recent utility data at the time of reporting.

reduce energy consumption. Chancellor's Regulation A-850 requires schools to remove all personal electronic items, such as refrigerators, microwaves, toaster ovens, and coffee pots from classrooms. These items may only be used in a central location, such as a teachers' lounge. New communication resources are now available on our [Resource Portal](#) for use in implementing A-850.

As a result of targeted strategies, the DOE's energy consumption and greenhouse emissions have decreased since FY08. This can be attributed to energy efficiency projects and the conversion of fuel oil boilers to new systems that burn cleaner fuels such as bio-fuels and natural gas. These types of projects are critical to advance efficient buildings and operations, and the DOE is doing more now than ever.

## Demand Response Program

The DOE is the leading participant in the City's Demand Response Program, accounting for 72% of City buildings enrolled. During periods of high electrical demand, such as heat waves, a Demand Response event can

be called by the grid operator (Con Ed or New York Independent Systems Operator) to help mitigate stress on the NYC electric grid. In summer 2018, 305 DOE facilities were called upon for as many as 12 events to reduce electricity consumption by following customized building protocols. As a result, the Demand Response Program provides a valuable service to utilities and NYC residents by helping to prevent blackouts and brownouts.

The Demand Response Program also has additional benefits for our schools and school facilities. Based on the previous year's performance with Demand Response events, the DOE earned nearly \$2.5 million in revenue (a 25% increase compared to the year prior). The money was used in FY19 to support our annual Sustainability Project Grant, heating upgrades at 37 schools, and awarded to the twenty top performing Custodian Engineers with energy efficiency upgrades at their schools. Funding for these projects would otherwise not be available, so our participation and performance in the City's Demand Response Program has helped to support and propel sustainability efforts throughout DOE. (See [Appendix](#) for top performing buildings and performance data.)

Grant winners from Theatre Arts Production Company High School in the Bronx constructed a demonstration solar panel that generates electricity for their rooftop performance space.



## **ANNUAL SUSTAINABILITY PROJECT GRANT: POWERED BY DEMAND RESPONSE**

The Office of Sustainability offered its third annual grant cycle in FY19, awarding over \$200K to 61 schools! The grant is made possible through revenue earned from the Demand Response Program and has become an invaluable opportunity to reinvest back into schools while also furthering the mission of the office to make schools more sustainable. As the success of the Demand Response Program grows, so does the amount of money that is awarded to schools through this opportunity. Funded grant projects included: Gardening, Energy Conservation, Green Team, and Environmental Education projects at 29 schools, Water Refill Stations at 15 schools, 442 classroom and office recycling bins at 12 schools, and 500 S'well water bottles to 5 elementary and middle schools. Congratulations to all awardees! (See [Appendix](#) for list of winners.)



## **SOLAR CAREER & TECHNICAL EDUCATION PROGRAM LEADS TO INDUSTRY INTERNSHIPS**

The efforts of the NYC Solar Schools Program came full circle in the summer of 2019 as four Career & Technical Education students joined Solar Energy Systems, a solar installer, on the rooftops of DOE schools to install solar photovoltaic (PV) systems. This first cohort of NYC Solar CTE Interns landed this opportunity through the DOE's CTE Industry Scholars Program, managed by the Office of Postsecondary Readiness. The CTE student interns worked on laying out and assembling solar panel mounting systems, distributing wiring, and other solar installation activities with the guidance of trained solar installation professionals. Increased NYC Solar CTE Intern placement is a high priority for next year, given its unique ability to offer students a paid opportunity to impact their City while gaining hard skills in one of the fastest growing industries in the country.

## Real-Time Metering & Local Law 45

The City passed Local Law 45 in 2018, which requires any building that peaks over 300 kW in a year to have a Real-Time Meter installed. Real-Time Meters help building operators monitor the electricity load during a Demand Response event, and for overall energy performance and load management on a daily basis. Over 180 building operators were trained to use the Demand Response and Real-Time Metering online portal, which helps to identify where energy is wasted. This can result in reduced greenhouse gas emissions and energy savings. The Office of Sustainability sees great potential in the application of Real-Time Meters as a means to provide Custodian Engineers with a feedback mechanism on building operations, reducing emissions and resulting in operational and cost efficiencies.

## NYC Solar Schools

In FY19, the Office of Sustainability's work on the NYC Solar Schools Program continued to expand. Designs were developed for more than 30 school facilities while construction began at six sites in Queens. The DOE will soon have over 40 school buildings with rooftop solar. These installations spurred the incredible opportunity to link onsite renewable energy to the classroom. In its fifth year, the NYC Solar Schools Education Program has reached over 700 DOE educators through free professional learning workshops facilitated by Solar One. In addition, and in partnership with Solar One, DCAS, and the DOE Career and Technical Education (CTE) office, the NYC Solar CTE Program was developed and successfully implemented. This Program integrates solar into CTE electrical and engineering classes and, in just two years, has expanded to 11 CTE high schools. Over 800 CTE students have been directly reached through the program to date. The program partners aim to identify and create new opportunities for workforce development and job-training skill development for more students citywide.

Sustainability as a field of study and discipline has many diverse career opportunities, and it is our goal to connect as many meaningful programs as possible to NYC students and educators.

In FY19, the DOE Office of Sustainability worked in partnership with the Building Energy Exchange, the Department of Citywide Administrative Services, and Solar One to compile a case study on the NYC Solar Schools Education Program and the NYC Solar CTE Program. The intent of the case study was to provide other school districts with a roadmap for leveraging solar and other clean energy investments to advance education opportunities for students. Read the [case study](#) to learn more.

## City-Funded Energy Efficiency Programs

The Division of School Facilities' Maintenance and Optimization team works 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 provide equipment upgrades, operational and maintenance improvements, and staff training.

### Accelerated Conservation and Efficiency (ACE)

The ACE Program funds energy efficiency projects that are identified and managed by the DOE. ACE prioritizes projects that provide maximum energy savings, GHG reductions, and cost savings. In FY19, The Division of School Facilities' Maintenance and Optimization team completed steam system optimization in thirteen schools, boiler control upgrades in twelve schools, heat-pump hot water heaters in three schools, and upgraded the building management system in one school. These projects will save the City an estimated \$315,995.02 annually and prevent 1,303.35 metric tons of CO<sub>2</sub>e each year. (See energy efficiency in [Appendix](#) for more details.)

## City-Funded Energy Efficiency Programs Implemented in FY19

### ACE Program

### Facilities Impacted

|                                     |    |
|-------------------------------------|----|
| Steam System Optimization           | 13 |
| Boiler Control Upgrade              | 12 |
| Heat Pump Hot Water Heaters         | 3  |
| Building Management System Upgrades | 1  |

### ExCEL Program

### Facilities Impacted

|                                                 |    |
|-------------------------------------------------|----|
| HVAC Pre-Cooling System                         | 31 |
| Steam System Repairs & Optimization             | 3  |
| Boiler Feedwater Treatment Station Installation | 1  |
| Boiler Insulation Replacement                   | 1  |
| LED Lighting Upgrades                           | 16 |
| Hydronic Balancing Valves Replacement           | 1  |
| Steam Trap Replacement                          | 3  |
| Building Maintenance System Re-tuning           | 1  |
| HVAC Optimization                               | 1  |
| Refrigeration Evaporator Efficiency Controller  | 1  |

**Total  
DOE  
Facilities  
Impacted**

**88**

## Expenses for Conservation and Efficiency Leadership (ExCEL)

The ExCEL program enables City agencies to develop energy efficiency projects and perform building retrofits. In FY19, ExCEL funded 29 projects across 59 DOE facilities. These projects will save nearly \$825,000 annually in electricity and heating fuel costs, preventing 1,280.32 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. Additionally, the ExCEL program supports the Office of Sustainability's reach to schools. It enables trainings and professional development for Custodians, Sustainability Coordinators, and

educators. ExCEL also provides program support for the DOE's annual energy reduction competitions. (See [Energy Conservation Challenge and Calendar Artwork Competition](#). See [Appendix](#) for more details.)

## Energy Benchmarking

According to Local Law 84, the DOE is required to benchmark and report energy performance for all buildings with a gross 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, 1,289 DOE buildings are in Portfolio Manager, with 319 buildings (or 25%) eligible for Energy Star certification. In FY19, Energy Star released new calculation formulas (previous release data was from 2009) to include updated metrics on facility usage details. With more stringent criteria, this is expected to impact eligibility for Energy Star certifications.

## Energy Conservation Challenge

The Office of Sustainability hosted its second DOE-wide Energy Reduction Challenge from October 15th through December 21st, 2018. One hundred and sixteen schools participated in the Challenge, an effort to drive and measure student and staff-based efforts to promote and implement energy conservation and education efforts. Some of the student-led projects included conducting school-wide energy audits, hosting lights out Fridays, and providing energy awareness presentations. The top three schools with the most actions received \$10,000 each, and four schools won \$5,000 each, to use towards growing their Green Team and/or sustainability projects. (See [Appendix](#) for list of winning schools.)



P.S. 177, Queens

Left Below:  
P.S. 174 William  
Sydney Mount,  
Queens

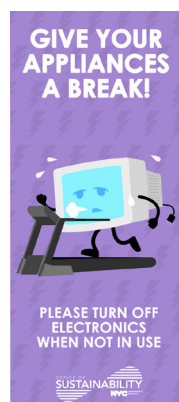
Right Below:  
I.S. 227 Louis  
Armstrong,  
Queens



## Art + Sustainability

The Office of Sustainability hosted the eighth annual Energy Conservation Artwork Contest for all DOE schools. Over 900 students from 840 schools submitted original illustrations in the theme of energy conservation and awareness. The goal of the contest is to create a unique space for dialogue about energy conservation, encouraging students, teachers, administrative staff, and parents to engage in sustainability. Fifteen students across all grade levels were recognized at an official awards ceremony held at Tweed Courthouse on May 10, 2019. The award winners received an iPad and publication in the Annual Energy Artwork Calendar that gets distributed to schools and partner organizations throughout NYC. Special thanks to DCAS Division of Energy Management for funding this great contest that brings so many people together! (See [Appendix](#) for list of winners.)

In addition, the Office of Sustainability held a contest for DOE employees to submit artwork for an Energy Sticker Competition by designing decals for light switch stickers. Four designs created by the Office of Food and Nutrition Services were selected, and printed. Stickers were distributed to attendees of our sustainability trainings.



Two of the  
four winning  
energy  
conservation  
sticker  
designs

# Waste

The DOE Office of Sustainability develops and manages programs, processes, and resources to help schools make progress towards NYC's goal to send zero waste to landfills by 2030. In FY19, we launched a new program, Zero Waste Pledge Schools, in order to directly support more schools through a roadmap and incremental steps towards waste reduction and diversion. We also leveraged the Mayor's Neighborhood Rat Reduction Plan to help schools better manage waste and increase recycling while also addressing public health issues, becoming the first city agency to meet the goal of 70% reduction in rodent activity.

## Highlights

**20**

schools achieved zero waste status in our new Zero Waste Pledge Program

**320,000**

reusable water bottles were distributed, to every high school student

Made possible by a generous donation from S'well

**20**

schools participated in the Race Against Waste program, co-led with our partners at Service in Schools

**1st**

city agency to reach the Mayor's goal of 70% rodent reduction across participating Rat Mitigation Zone schools

## Waste Diversion

Every NYC school and DOE building must comply with Local Law 41 and work to meet the City's goals. This can be challenging given the differing space and logistical constraints across schools. The DOE Office of Sustainability provides school-based and citywide trainings for Facilities and Custodial staff, Office of Food and Nutrition Services staff, Principals, Assistant Principals, teachers, and students. The mandated Annual School Sustainability Plan sets school-based goals for waste diversion and reduction.

The DOE Sustainability Specialists provide all schools hands-on outreach and support citywide to improve recycling and adherence to waste management protocols. Our Sustainability Specialists conducted 1,632 outreach events in 388 buildings in FY19. Working directly with schools,



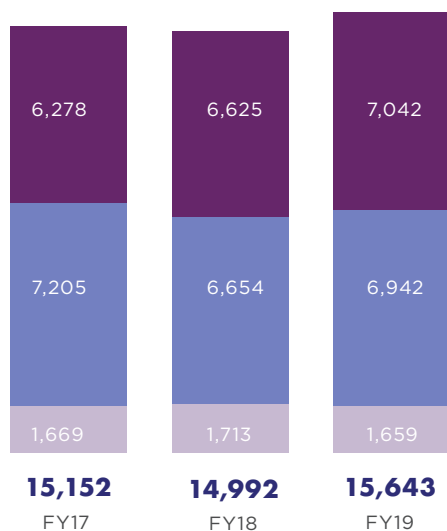
P.S. 161 Pedro Albizu Campus, Manhattan

Sustainability Specialists 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 and greater sustainability.

In FY19, over 750 schools participated in the Department of Sanitation's (DSNY) Organics Collection Program to divert food scraps and food-soiled paper from landfills. The Office of Sustainability is working with DSNY on the expansion of the Organics Collection Program to three additional truck routes in FY20. Schools are also 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](#))

### School Waste Diverted Through Recycling (Tons)<sup>5</sup>

- Organics
- Paper Recycling<sup>6</sup>
- Metal, Glass, Plastics and Cartons Recycling



<sup>5</sup> Data as reported by DSNY, Bureau of Recycling and Sustainability

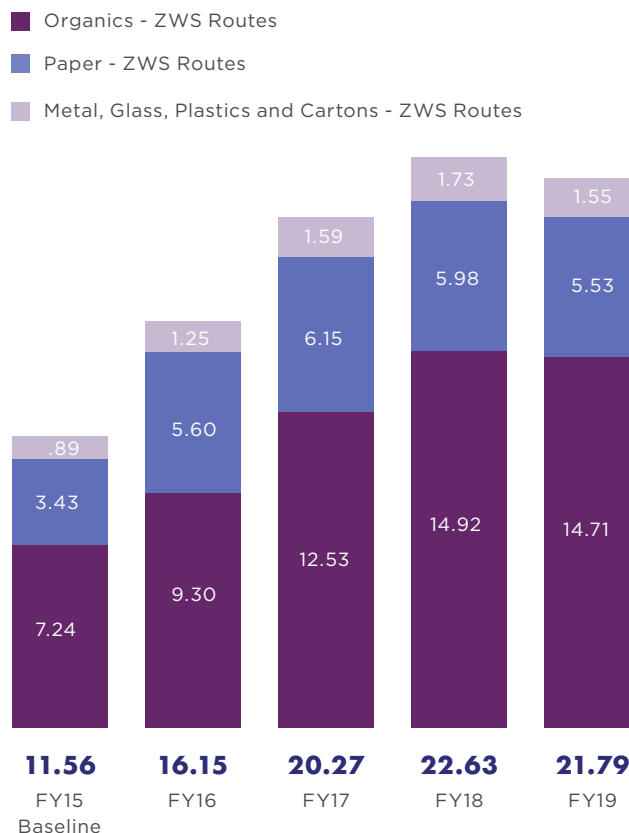
<sup>6</sup> Paper diversion is not inclusive of all schools due to DSNY limitations to separately measure school waste on all collection routes.

Year over year, there has been a significant change in Organic collection tonnage, attributable to robust outreach, communication, and programming. Additionally, we provided standardized waste sorting stations for every cafeteria citywide in FY18, an effort to minimize barriers to efficient recycling and composting as well as boost visibility for students and staff. Building on the success of the compostable plate, the DOE Office of Food and Nutrition Services introduced compostable utensils to all schools in FY19, bringing the goal of creating zero waste in cafeterias closer to reality. This effort is part of the Urban School Food Alliance, a nationwide coalition of urban schools that has created new opportunities and efficiencies in school food service procurement. One of the goals of the Alliance is to improve and reduce packaging and waste from food service operations, and the compostable plate and utensils are indicators of significant progress.

## Zero Waste Schools

One hundred and nine Zero Waste Schools continued their fourth year of programming in efforts to achieve official ‘zero waste’ status. 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. Steadily increasing diversion rates and integrating sustainability into school culture, the first 100 Zero Waste Schools boast a 54% diversion rate, with Green Team engagement at 71 schools! In FY19, the Zero Waste Pledge Schools continue to increase their curbside recycling and Organics Collection Program participation.

### Average Weekly Tons Collected: Zero Waste Schools FY15-FY19



## Zero Waste Pledge Schools



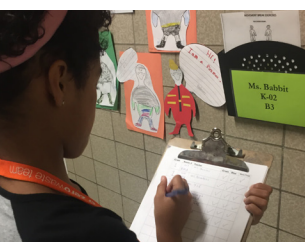
### PHASE 1

#### Getting Started:

- Set up bins correctly
- Speak with key stakeholders
- Form a Green Team

#### Schools Earn:

Recycling Bins and Materials



### PHASE 2

#### Plan for Success:

- Conduct a waste investigation
- Implement a monitoring system
- Educate students and faculty

#### Schools Earn:

Green Team Swag



### PHASE 3

#### Beyond the Bin:

- Engage school community
- Create a plan for next year

#### Schools Earn:

Official Zero Waste Status

Using lessons learned from the 100 Zero Waste Schools, the Office of Sustainability launched the Zero Waste Pledge Schools program in partnership with DSNY to bring the goal of Zero Waste Schools citywide. The Zero Waste Pledge Schools program was open to every school with any type of DSNY collection service; that is, for the first time, even schools not yet able to participate in the Organics Collection Program was able to fully engage in zero waste efforts. Twenty one schools (see [Appendix](#) for list of participating schools) participated in the Pledge program, and were given a roadmap to reduce and manage waste in three phases (see left). After completing the third phase, twenty schools earned official Zero Waste status! Participating schools were able to establish green teams, build awareness, and change behaviors throughout their buildings. The program will continue in FY20.



## BRING IT!

In Fall 2018, reusable S'well water bottles were distributed to every New York City public high school student. This unprecedented donation, made possible through partnership with S'well Bottle and the Mayor's Office of Sustainability, allowed for over 320,000 high school students to actively contribute to NYC zero waste goals by "bringing it" with their reusable water bottles. The "Bring It" awareness campaign challenges staff and students to eliminate single-use plastic bottles and share stories of reuse.

S'well also donated reusable bottles for each of the 1,800 Sustainability Coordinators and 500 bottles for inclusion in the annual Sustainability Project Grant. We are grateful to all partners involved, with extra thanks to S'well for their very generous donation to support sustainability in NYC!



Students from Mather High School, Manhattan

## Race Against Waste

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 a second year of the Race Against Waste (RAW) Program. In this second year, RAW focused on "before the bin," encouraging student-lead projects focused on reuse and reduction. Through four professional learning sessions, teachers explored concepts of waste in NYC, including a session on media and advocacy, and service learning strategies to impart stewardship on their students.

The teacher team from Mather High School took the lesson from RAW and made student voice the focus of their green team. The students focused on reducing food waste by creating a PSA video, performed a food waste rap to reduce the stigma of eating school lunch, and volunteered with City Harvest to reduce food waste in the community.

## DOE Administrative Building Recycling

The Office of Sustainability provided additional recycling support, in both materials and outreach, to the Department of Education's thirty administrative buildings. These facilities, ranging from Tweed Courthouse and the Office of the Chancellor to the Division of Instructional and Information Technology headquarters in Downtown Brooklyn, are integral to meeting the DOE's sustainability goals. All 30 of these sites received site visits from the Office of Sustainability outreach staff and were outfitted with 305 total waste sorting systems. The Office

of Sustainability plans to continue outreach in FY20 by providing 'lunch and learn' sessions as a means to further engage staff and deepen citywide efforts.

## Mayor's Neighborhood Rat Reduction Plan

FY19 marked the second year 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). The Office of Sustainability continued programmatic support by providing RMZ schools with operational and educational site visits to increase school recycling, containerizing waste to mitigate rodent activity, and increasing compliance with DSNY curbside collection procedures.

DSNY evaluates every RMZ school building monthly via the DSNY Scorecard to report on adherence to collection schedules, cleanliness of waste set out area, and proper use of tilt trucks. In November 2018, the DOE became the first city agency to meet the Mayor's goal with a 70% in rodent populations! In acknowledgment of this work in June 2019, the Deputy Mayor of Operations (Laura Anglin) recognized several key players advancing this work within the DOE with Excellence Awards: the Office of Sustainability Outreach Team and waste program manager, exemplar Custodian Engineers, and dedicated central Division of Schools Facilities staff (see [Appendix](#) for list of recipients). Congratulations and thank you to all awardees for your service and impact!

## 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, light bulbs, textiles, and hardcover books. In FY19, the DOE collected 77,388 units of electronic waste, examples include computers and laptops, smartboards, and copy machines.

To promote reuse of larger furniture, the Office of Sustainability works with DSNY to post these items on the DonateNYC website for distribution to other schools and nonprofits. In FY19, nearly 20 tons of materials were saved from the landfill using this service.



Bring Your  
Reusable bottle

BRING IT

SAVE The World  
by using  
Reusable bottles!

Winning grade get sticker!

BRING IT

Table  
3

# Wellness & School Gardens

Sustainability and wellness have many points of interconnection and common goals to promote healthy students and communities. In FY19, a focus area on health and wellness was added to the annual Sustainability Plan to encourage Sustainability Coordinators to broaden their understanding of the intersections of these areas. The Office of Sustainability partners with the DOE Office of School Wellness Programs and the DOE Office of Food and Nutrition Services to more closely align our shared goals of healthy environments, staff, and students.

## Highlights

More than

**50%**

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

**157**

Garden to Café tasting events offered to students to sample locally grown produce in their cafeteria

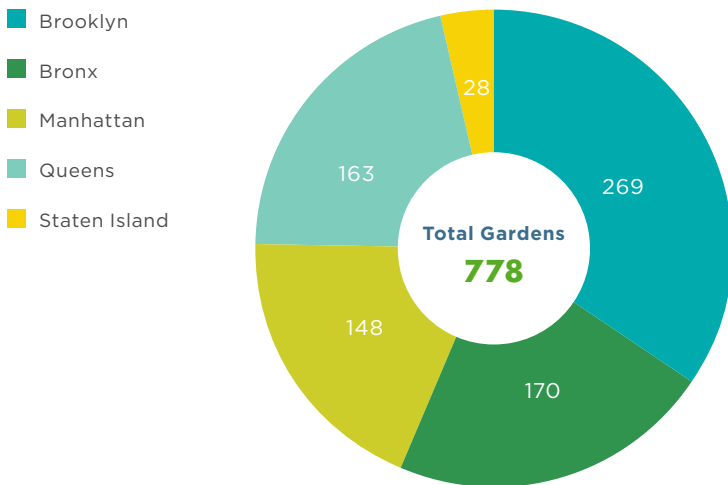
**77**

water refill stations have been provided to schools by the Office of Sustainability since FY17.

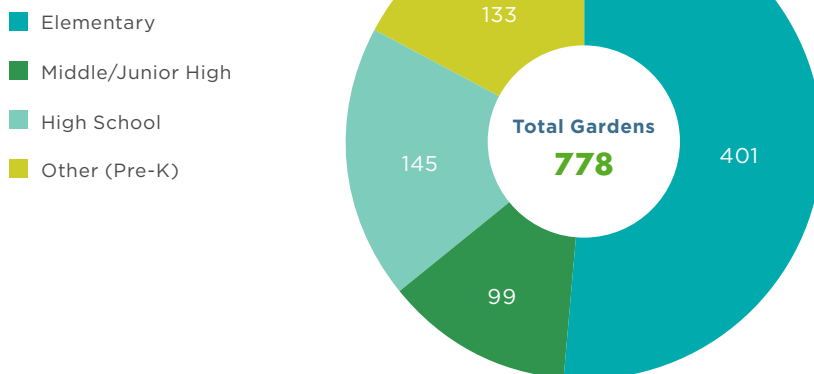
## School Gardens

The DOE partners with GrowNYC's Grow to Learn to fulfill the City's mission to inspire, promote and facilitate the creation of sustainable gardens in public schools. In FY19, 28 registered school gardens across the five boroughs were installed, bringing the total number to 778. 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.

### Registered School Gardens (Grow to Learn) by Borough



### School Gardens by School Type



P.S. 229 Emanuel Kaplan, Queens

**School gardens come in many shapes and sizes. Due to limited space at DOE schools, some gardens may be designed as classroom hydroponic systems, rooftop gardens, or raised beds.**



## GREENHOUSE GROWS OPPORTUNITIES

Through our annual Sustainability Project Grant, the Office of Sustainability awarded \$55,000 for the creation or expansion of sixteen school gardens and growing spaces. As more schools place emphasis on wellness and green spaces, resources to create or support an existing gardens are growing in demand. At M.S. 323, the Scholar's Academy in Queens, the Sustainability Coordinator and teacher (Jonathan Bradley) won a \$5,000 grant to construct an outdoor greenhouse. This extends the growing season and opportunities for his gardening club to work outside. As a result, interest in gardening has grown and more student groups are learning from the greenhouse. A 7th grade STEAM class is studying how to improve thermal properties to capture more heat, and woodworking students are building raised bed and shelves for inside the greenhouse.



## Garden to Café

The Garden to Café Program is the DOE's Office of Food and Nutritional Services' program to connect school gardens to cafeterias with the goal of increasing student knowledge of healthy food and the local food system. The program provides an immersive experience for students to try new fruits and vegetables, while learning and having fun. In FY19, the program featured 157 tasting events to demonstrate food grown onsite as it can be prepared and sampled in the cafeteria. The program also coordinated three farm trips and ten "meet the farmer" events, in which students went on field trips to learn how farmers grow food and see firsthand how agriculture works.

## Water Refill Stations

Since 2016, efforts out of the DOE Office of Sustainability, Department of Environmental Protection, and the Mayor's Office of Sustainability Water Fountain Task Force have installed 241 water bottle refill stations in 131 school buildings. The refill stations use sensors to fill a bottle, an ideal function for reusable water bottles and canteens. Many models also feature a "bottle saved" counter, reinforcing the importance of single use plastic reduction. In FY19, the Office awarded 15 refill stations to schools through our annual Sustainability Project Grant. Funding for these refill stations is part of the Demand Response Program (see [Energy](#) section).



Top: Garden to Café Program  
at NY Harbor School on  
Governor's Island

Bottom: P.S. 176 Ovington,  
Brooklyn

# Partnerships

The DOE Office of Sustainability is proud to partner with numerous nonprofits, educational institutions, and other City agencies to broaden reach and impact. Partners provide unique and specialized expertise, technical support for projects, educational programming, and professional development for staff. This wonderful network of organizations, programs, and people collectively reached 339,915 students at 930 schools throughout FY19. We are grateful to all of our partners for their meaningful and impactful contributions to DOE schools, as well as their continuing support of our comprehensive engagement strategy. For a complete list of DOE Office of Sustainability Partners, see [Appendix](#). The following pages list highlights from the year:

## Highlights

Our partner organizations/offices worked with

**339,915**

students

**930**

schools  
throughout FY19.

**22%**

more students  
were reached  
in FY19.

Audubon New York's For the Birds! is a place-based environmental education program that promotes awareness and appreciation of nature through the study of birds. During the 2018-19 school year, they brought birds and nature to life for more than 1,800 NYC students and added more than 1,000 plants for birds and other wildlife in school and community gardens.



Cafeteria Culture is an environmental education organization that merges citizen science and civics with the arts and video production, working with youth to creatively achieve zero waste schools, plastic free waters, and climate smart communities. In FY19, they worked on their feature documentary, Microplastic Madness, began phase 1 of their Plate Waste Pilot, and expanded a science curriculum focus by adding a dedicated part-time science teacher to their staff.



Children's Environmental Literacy Foundation uses sustainability as a guiding framework to help schools embed project-based learning into existing curriculum via education for sustainability (EfS), summer institutes, and Citizen Science. In FY19, CELF partnered with the NYC Department of Health, the New York Hall of Science and Mt. Sinai on the Citizen Science air quality program; they also conducted a three-day Education for Sustainability Institute at New York University.



City Parks Foundation's environmental and STEM education programs help students experience the fun of learning about their relationship to the natural world and the ways in which they can protect our natural environment. In FY19, they launched two new teacher training programs, began a new Coastal Classroom After School

Program in proximity to three NYC parks, and provided over 60 high school students and twelve college students with high quality, paid internships.



The Department of Environmental Protection's Education Office continued to offer a wide range of free education programs, resources, and professional learning opportunities to pre-K- 12th grade students and teachers throughout the 2018-2019 school year. They facilitated a three-day teacher workshop on Sound and Noise in the Urban Environment at DOE's STEM Summer Institute and participated in more than 25 professional learning workshops.



The Department of Sanitation's Bureau of Recycling and Sustainability works closely with Office of Sustainability to remedy collection issues with school recycling and trash set-out and to develop joint programming for Zero Waste Schools and future expansion of the school organics collection program. In addition, DSNY supports school recycling programs citywide by providing free decals and posters. Via the Zero Waste Schools website, they also provide financial incentives to schools with their Green Team Mini Grant and the Zero Waste Schools Award.



The NYC Department of Health and Mental Hygiene's Active Design program promotes physical activity and wellness through built environment enhancements in schools that encourage stair climbing, walking, bicycling, active recreation, and healthy eating. In FY19, they worked with eight schools and reached over 7,000 students, 91% of whom meet the poverty indicator for the DOE.



Edible Schoolyard NYC partners with New York City public schools to cultivate healthy students and communities through hands-on cooking and gardening education, lunch-time cafeteria programming, after-school family programming, and free professional development for teachers. In FY19, they taught 1,868 hours of cooking and gardening lessons to 5,885 children, their workshops reached approximately 400 educators, and 97% of their students tasted fruits and vegetables during their classes.



EcoRise develops the next generation of creative problem solvers by enlivening conventional classrooms with academically-aligned K-12 curriculum that introduce students to environmental literacy, social innovation and hands-on design skills. In FY19, EcoRise enrolled 124 teachers in the Sustainable Intelligence Program from 111 NYC Schools, 97% of whom will be returning next year.



FABSCRAP is a textile recycling non-profit that diverts fabric waste from landfill in NYC and provides opportunities for students to learn about fabric recycling and fashion sustainability through tours and service opportunities. In FY19, they reached over 160 students with sessions on fabric recycling and fashion industry waste and led a workshop for educators at a Race Against Waste training.

## GARDEN TO CAFÉ

The Garden to Café program is the NYC DOE's Farm-to-School project, using cafeteria tasting and hands-on gardening to bridge the gap

between a student's growing an edible item and actually eating and enjoying that item. In FY19, they hosted over 157 tastings at schools, three farm trips, and ten "Meet the Farmer" events at Fulton Stall Market.



Through service learning, design, STEM and stewardship, Gowanus Canal Conservancy teaches students and community members about the complex ecological issues of Gowanus so they can become better advocates for a sustainable future. In FY19, they engaged 1,047 students in citizen science and stewardship in place-based education programs; in addition, 200 middle and high school Brooklyn students participated in a spring semester design challenge to develop green infrastructure proposals for their schoolsheds and present to a professional jury of reviewers.



Green City Challenge educates people about ways to live, work, and eat green, with a new focus on bringing interactive games and challenges to middle schools in the Bronx and Manhattan. They presented their games to about 300 students in FY19.

## GREENING FORWARD

Greening Forward is a youth-led environmental non-profit working to develop young environmental problem-solvers. In FY19, they hosted the Empowered Young Environmentalist Summit and held a Green Media Contest, which encouraged students to work on and submit environmental artwork, documentaries, and pictures.



Grow to Learn NYC, the Citywide School Gardens Initiative, has a mission to inspire,

promote and facilitate the creation of sustainable gardens in public schools throughout New York City. In FY19, they expanded staff, streamlined programming, and updated their website and newsletter to enable them to serve over 700 school gardens. The Grow to Learn Mini Grant Program also funded 68 new or existing school gardens.



In partnership with DOE Office of Sustainability and NYC Department of Sanitation, GrowNYC's Recycling Champions Program is the education provider for the Zero Waste Schools program. In FY19, RCP reached 138 schools, more than 65,000 students and over 12,500 faculty and staff. RCP also worked with over 100 student Green Teams and 40 adult School Sustainability Councils to build lasting capacity towards zero waste.



Materials for the Arts works to redistribute reusable materials to schools and to teach schools how to creatively reuse their materials creatively for deeper engagement across the curriculum, reaching over 16,500 NYC DOE students in FY19. They also expanded their CTLE and P-credit offerings for teachers and trained nearly 1,400 faculty members.



The National Wildlife Federation Eco-Schools USA is a leader in using nature and wildlife conservation to improve K-12 student achievement, particularly in the STEM disciplines. In FY19, they coordinated

and supported the #YouthStrike4Climate, helped three Brooklyn Eco-Schools establish pollinator gardens in their schoolyards, and, through their Resilient Schools Consortium (RiSC) collaboration, hosted their second annual summit, where students showcased projects and presented Resilience Guidelines for NYC schools.



A National Historic Landmark site, the New York Botanical Garden is an advocate for the plant kingdom through its horticulture and plant science education programs and the wide-ranging research programs of the International Plant Science Center. In the 2018-19 school year, their tours and workshop reached over 55,000 students.



The New York Hall of Science serves schools, families and underserved communities in the NYC, offering informal, hands-on learning through various products and services that use the “design-make-play” method of bringing excitement to educating science, technology, engineering and math (STEM). In FY19, NYSCI ran a week-long “Sustainable Spring Break”, which featured sustainability-themed activities and workshops for over 10,000 visitors.



NY Sun Works is a non-profit organization that builds innovative science labs in urban schools, using hydroponic farming technology to educate students and teachers about the science of sustainability. In FY19, they developed an online platform to support their curriculum, built 35 new hydroponic Greenhouse Classroom labs, and held over 80 workshops that reached more than 65,000 students.



While the main focus of PowerMyLearning's work is education, their program also provides refurbished computer equipment to public school students and their families through their Family Learning Workshops. They supplied 1,695 families with a refurbished Home Learning Center in FY19.



Queens Botanical Garden is a 39-acre living museum that, through educational workshops and tours, guides students through inspiring gardens and real-world applications of environmental stewardship. In FY19, their programs, ranging in topics from honeybees to biomes, reached over 25,500 students.



Sims Municipal Recycling is the processor of 100% of the metal, glass and plastic and 50% of the paper collected by the NYC Department of Sanitation. During the 2018-19 school year, they brought 3,700 NYC DOE students into contact with the City's recycling program through place-based education on waste and sustainability by offering free tours of their sorting facility in Sunset Park, Brooklyn.



Solar One looks at the sustainability of local energy, water, food and materials systems and teaches students and teachers the skills needed to make these systems healthier and more efficient. During the 2018-19 school year, they expanded our Solar Career & Technical Education program into 13 schools, allowing for NABCEP certification for teachers, GPRO training for students, a career expo, and paid

solar internships. Solar One facilitates the content and delivery of our NYC Solar Schools Education Program, delivering hands-on environmental STEM lessons to reach over 3,799 DOE students.



Teachers College, Columbia University supports the DOE Office of Sustainability through a research-practice partnership to better understand sustainability programs and the role of the Sustainability Coordinator to ultimately improve how school's support NYC sustainability goals. In FY19, Teachers College designed a sustainability webinar series for teachers and supported the Office of Sustainability with the development of the annual Sustainability Plan and Sustainability Survey.



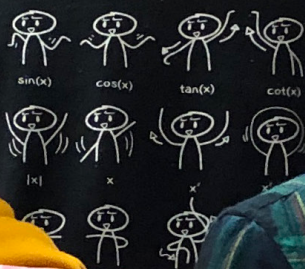
The Wallerstein Collaborative for Urban Environmental Education at NYU provides year-round programs developed especially for public school teachers in the metropolitan NYC region to learn how to incorporate environmental education in their classrooms. The Collaborative provides environmental education opportunities for pre-service teachers through field work, course modules, and direct experience in the urban environment.



Wearable Collections creates access to proper clothing and textile disposal to schools across NYC by providing drop boxes and education to schools. They also help school host clothing drives, like one in April of 2019 at I.S. 88, where they collected almost 3,000 pounds of clothing.



Beatiful Dance Moves



Our home,  
Our future,  
Our responsibility

# Appendix

Key to Borough Abbreviations:

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

## Sustainability Coordinators

| Sustainability Coordinator Staff Roles in FY19 |       |        |
|------------------------------------------------|-------|--------|
| Teacher                                        | 669   | 46.56% |
| Assistant Principal                            | 387   | 26.93% |
| Coach                                          | 7     | 0.49%  |
| Instructional Coach                            | 15    | 1.04%  |
| Counselor                                      | 62    | 4.31%  |
| Parent Coordinator                             | 65    | 4.52%  |
| Operations/Business Manager                    | 41    | 2.85%  |
| Secretary/Administrative Assistant             | 32    | 2.23%  |
| Dean                                           | 32    | 2.23%  |
| Librarian                                      | 8     | 0.56%  |
| Aide                                           | 8     | 0.56%  |
| Para Professional                              | 9     | 0.63%  |
| Social Worker                                  | 6     | 0.42%  |
| Other                                          | 96    | 6.68%  |
| Total                                          | 1,437 | 100.0% |

## Awards & Recognition

### 2019 Leadership in Sustainability Awards (Sustainability Showcase)

|                       |                                                                      |                                                                                  |
|-----------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Ron Link              | Principal                                                            | X225 - Theatre Arts Production Company, BX                                       |
| Barbara Tremblay      | Principal                                                            | K721 - Brooklyn Occupational Training Center, BK                                 |
| Eugene Connolly       | Custodian                                                            | X445 - Bronx Science, BX                                                         |
| Andrew Pezzella       | Custodian                                                            | M641, MH                                                                         |
| Jose Taveras          | Building Fireman                                                     | PS 971 School of Math, Science, & Healthy Living, BK                             |
| Judith Caraballo      | Custodian                                                            | X115, BX                                                                         |
| Dennis Agostino       | Supervisor of Mechanics (BK North)                                   | Division of School Facilities, BK                                                |
| Nicholas DelBianco    | Deputy Director of Facilities                                        | Division of School Facilities, BK                                                |
| Thomas Fanizzi        | Deputy Director of Facilities                                        | Division of School Facilities, MH                                                |
| Demetra Platis        | Deputy Director of Optimization                                      | Division of School Facilities                                                    |
| Lily Shames           | Deputy Director of Optimization                                      | Division of School Facilities                                                    |
| Joe Chavez            | Senior Energy Manager & Strategist                                   | Division of School Facilities                                                    |
| David Ward            | Deputy Director of Optimization                                      | Division of School Facilities                                                    |
| Aram Aslanian-Persico | Deputy Director of Optimization                                      | Division of School Facilities                                                    |
| Bill Horan            | Deputy Director of Optimization                                      | Division of School Facilities                                                    |
| Ramesh Narayan        | Building Mgmt Sys Energy Manager                                     | Division of School Facilities                                                    |
| John Miola            | Sustainability Coordinator & Teacher                                 | K721 - Brooklyn Occupational Training Center, BK                                 |
| Margaret Negrelli     | Sustainability Coordinator & Teacher                                 | PS 370, BK                                                                       |
| Karen Phillips        | Sustainability Coordinator & Teacher                                 | M.S. 217 Robert A Van Wyck: The Green Magnet School for Career Exploration, QN   |
| Marc Rolla            | Sustainability Coordinator & Teacher                                 | K090 Edna Cohen Magnet School for Environmental Studies & Community Wellness, BK |
| Judy Lewis            | Sustainability Coordinator & Teacher                                 | Mt. Eden Children's Academy, BX                                                  |
| Lisa Giaimo           | Sustainability Coordinator & Teacher                                 | I.S. 51, SI                                                                      |
| Luis Meddoza          | SchoolFood (Office of Food & Nutrition Services) - Heavy Duty Person | PS/MS 34, MH                                                                     |
| Akiel Mignott         | SchoolFood (Office of Food & Nutrition Services) - Heavy Duty Person | PS/MS 188, MH                                                                    |
| Andrew Yu             | SchoolFood (Office of Food & Nutrition Services) - Graphic Designer  | Office of Food & Nutrition Services                                              |
| Anthony Nguyen        | SchoolFood (Office of Food & Nutrition Services) - Graphic Designer  | Office of Food & Nutrition Services                                              |
| Cara Coffina          | Coordinator of Applied Learning, D75                                 | Central DOE Staff                                                                |
| Greg Heath            | Coordinator of Mathematics, D75                                      | Central DOE Staff                                                                |
| Tara Davidson         | Deputy Superintendent, D26                                           | Central DOE Staff                                                                |
| Nancy Woods           | Director of STEM Initiatives                                         | Central DOE Staff                                                                |
| Greg Borman           | Director of Science                                                  | Central DOE Staff                                                                |
| Ellen Zielinski       | Deputy Assistant Commissioner                                        | DCAS Division of Energy Management                                               |

### Sustainability Showcase Expo Awards - Best in Show

|                                  |      |
|----------------------------------|------|
| P.S. 115 Alexander Humboldt, MH  | K-2  |
| P.S. 046 - Alley Pond, QN        | 3-5  |
| I.S. 068 Isaac Bildersee, BK     | 6-8  |
| Brooklyn HS for Law and Tech, BK | 9-12 |

## 2018 Sustainability Project Grant Winners

### Recycling Bins

P.S. 015 Jackie Robinson, QN  
P.S. 208 Elsa Ebeling, BK  
P.S. 272 Curtis Estabrook, BK  
Brooklyn Arts and Science Elementary School, BK  
P.S. 168, BX  
Queens Transition Center, QN  
Eleanor Roosevelt High School, MH  
P.S. 139 Alexine A. Fenty, BK  
The Longwood Academy of Discovery, BX  
The High School for Enterprise Business and Technology, BK  
P.S. 216 Arturo Toscanini, BK  
P.S. 020 Clinton Hill, BK

### Water Refill Station

P.S. K077, BK  
P.S. 90 Edna Cohen School, BK  
P.S. 197 - The Kings Highway Academy, BK  
J.H.S. 223 The Montauk, BK  
P.S. 370 - The Jim Thorpe School, BK  
P.S. 020 Anna Silver, MH  
P.S. 059 Beekman Hill International, MH  
P.S. 108 Assemblyman Angelo Del Toro Educational Complex, MH  
P.S. 183 Robert L. Stevenson, MH  
Central Park East High School, MH  
Manhattan Comprehensive Night and Day High School, MH  
P.S. 017 Henry David Thoreau, QN  
World View High School, BX  
Young Leaders Elementary School, BX  
Bronx High School of Science, BX

### S'Well Water Bottles

P.S. 048 Joseph R. Drake, BX  
P.S. 226 Alfred De B. Mason, BK  
Fort Hill Collaborative Elementary School, SI  
P.S. 123 Suydam, BK  
The David Marquis School of the Arts, SI

### Energy Conservation - \$5,000

Theatre Arts Production Company School, BX  
J.H.S. 217 Robert A. Van Wyck, QN

### Gardening - \$5,000

P.S. 026 Jesse Owens, BK  
P. S. 093 William H. Prescott, BK  
P.S. K141, BK  
The Brooklyn New School, P.S. 146, BK  
Sunset Park High School, BK  
High School M560 - City As School, MH  
Life Sciences Secondary School, MH  
P.S. 014 Fairview, QN  
P.S. 052 Queens, QN  
P.S. 104 The Bays Water, QN  
The Scholars' Academy, QN  
The Children's Lab School, QN  
The Highbridge Green School, BX  
Frederick Douglass Academy III Secondary School, BX  
Longwood Preparatory Academy, BX  
J.M. Rapport School Career Development, BX

### Green Team - \$5,000

P.S. 199 Jessie Isador Straus, MH  
College Point Collaborative, QN  
The Marie Curie School For Medicine, Nursing,  
and Health Professions, BX  
P.S. X811, BX

### Environmental Education Programming - \$5,000

P.S. 151 Lyndon B. Johnson, BK  
P.S. 176 Ovington, BK  
P.S. 503: The School of Discovery, BK  
High School for Environmental Studies, MH  
Central Park East II, MH  
Robert E. Peary, QN  
P.S. 107 Thomas A Dooley, QN

## Energy Management

| Energy Use Intensity (EUI) |                      |                    |                               |
|----------------------------|----------------------|--------------------|-------------------------------|
| Fiscal Year                | Total square footage | EUI (KBTU/sq. ft.) | EUI change from FY08 baseline |
| FY17                       | 156,649,200          | 62.7               | -15%                          |
| FY18                       | 157,831,200          | 67.0               | -9%                           |
| FY19                       | 159,349,200          | 66.5               | -9%                           |

FY17 and FY18 total emissions have been adjusted from previous reporting to reflect changes in calculations based on the use of biofuel blends for fuel oil #2 and #4.

## Energy Efficiency

| ACE Energy Efficiency Projects in FY19 |                                 |                                                         |              |
|----------------------------------------|---------------------------------|---------------------------------------------------------|--------------|
| Project type                           | Number of buildings implemented | GHG emissions prevented (metric tons CO <sub>2</sub> e) | Cost Savings |
| Steam System Optimization              | 13                              | 703.18                                                  | \$172,645.37 |
| Boiler Controls Upgrade                | 12                              | 301.76                                                  | \$54,561.43  |
| Heat-Pump Hot Water Heaters            | 3                               | 226.54                                                  | \$61,584.06  |
| Building Management System Upgrade     | 1                               | 71.87                                                   | \$27,204.16  |
| Total                                  | 29                              | 1303.35                                                 | \$315,995.02 |

## ExCEL Energy Efficiency Projects in FY19

| Project type                                                      | Number of buildings implemented | GHG emissions prevented (metric tons CO <sub>2</sub> e) | Cost Savings  |
|-------------------------------------------------------------------|---------------------------------|---------------------------------------------------------|---------------|
| Pre-Cooling Season HVAC @ 28 Facilities                           | 31                              | 197.42                                                  | \$ 489,930.96 |
| Steam System Repairs at K465                                      | 1                               | 91.20                                                   | \$ 14,374.72  |
| Boiler Feedwater Treatment Station Installation at K505           | 1                               | 12.33                                                   | \$ 2,285.91   |
| Boiler Insulation Replacement at K505                             | 1                               | 26.45                                                   | \$ 4,912.69   |
| LED Lighting Upgrades at K505                                     | 1                               | 20.93                                                   | \$ 12,052.46  |
| LED Lighting Upgrades at K217                                     | 1                               | 5.08                                                    | \$ 2,926.43   |
| Hydronic Balancing Valves Replacement at K012                     | 1                               | 29.69                                                   | \$ 5,212.13   |
| LED Lighting Upgrade (Auditorium & Exterior) at K210              | 1                               | 7.37                                                    | \$ 4,245.97   |
| Steam Trap Replacement at K105                                    | 1                               | 80.83                                                   | \$ 12,956.23  |
| HW Valves and BMS Retuning at K422                                | 1                               | 124.40                                                  | \$ 47,685.05  |
| LED Lighting Upgrade at K130 (Cafeteria)                          | 1                               | 9.69                                                    | \$ 5,578.92   |
| LED Lighting Upgrade at K113                                      | 1                               | 32.89                                                   | \$ 18,939.63  |
| Steam Traps Replacement at K435                                   | 1                               | 91.15                                                   | \$ 14,240.33  |
| HVAC Optimization at K801                                         | 1                               | 338.00                                                  | \$ 75,067.52  |
| Steam Traps Replacement at M084                                   | 1                               | 14.72                                                   | \$ 2,987.77   |
| LED Lighting Upgrade at M142 (Auditorium, Cafeteria, & Gymnasium) | 1                               | 6.95                                                    | \$ 4,002.67   |
| LED Lighting Upgrade at M149 (Exterior)                           | 1                               | 8.15                                                    | \$ 4,693.26   |
| LED Lighting Upgrades at M136 (Auditorium & Gymnasium)            | 1                               | 11.47                                                   | \$ 6,603.40   |
| LED Lighting Upgrade at M173 (Auditorium)                         | 1                               | 7.51                                                    | \$ 4,325.92   |
| LED Lighting Upgrade at M477 (Auditorium)                         | 1                               | 36.14                                                   | \$ 20,812.83  |
| Steam System Optimization at M199                                 | 1                               | 14.66                                                   | \$ 8,542.05   |
| LED Lighting Upgrade M199                                         | 1                               | 15.33                                                   | \$ 8,828.06   |
| LED Lighting Upgrade for Exterior & Café/Gym at Q088              | 1                               | 16.08                                                   | \$ 9,260.43   |
| LED Lighting Upgrade for Exterior at Q445                         | 1                               | 12.41                                                   | \$ 7,145.77   |
| LED Lighting Upgrade at R075                                      | 1                               | 13.65                                                   | \$ 10,634.98  |
| Steam System Optimization at R075                                 | 1                               | 14.80                                                   | \$ 2,748.20   |
| LED Lighting Upgrade (Athletic Field) at R455                     | 1                               | 34.11                                                   | \$ 19,641.67  |
| LED Lighting Upgrade (Gymnasium) at X425                          | 1                               | 2.66                                                    | \$ 1,533.09   |
| Refrigeration Evaporator Efficiency Controller at X455            | 1                               | 4.23                                                    | \$ 2,435.04   |
| Total                                                             | 59                              | 1280.3                                                  | \$824,604.09  |

## Energy Star Performance

| Building Energy Star Scores |                   |                                |                   |                                |                   |                                |
|-----------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|
| Score                       | FY17              |                                | FY18              |                                | FY19              |                                |
|                             | Number of schools | Percentage of school buildings | Number of schools | Percentage of school buildings | Number of schools | Percentage of school buildings |
| 75 or higher                | 787               | 62%                            | 776               | 60%                            | 319               | 25%                            |
| 50-74                       | 250               | 20%                            | 261               | 20%                            | 491               | 38%                            |
| 24-49                       | 124               | 10%                            | 129               | 10%                            | 278               | 22%                            |
| 24 or below                 | 85                | 7%                             | 82                | 6%                             | 170               | 13%                            |
| No score available          | 26                | 2%                             | 35                | 3%                             | 31                | 2%                             |
| Total school buildings      | 1,272             |                                | 1,283             |                                | 1,289             |                                |

In FY19, Energy Star released new calculation formulas (previous release data was from 2009) to include updated metrics on facility usage details. With more stringent criteria, the percentage of schools eligible for Energy Star certification dropped.

## Energy Competitions

| Energy Competition Results                               |                                                                          |
|----------------------------------------------------------|--------------------------------------------------------------------------|
| NYC DOE Energy Conservation Challenge (\$5,000-\$10,000) | Energy Calendar Competition                                              |
| P.S. 015 Jackie Robinson, QN                             | Archimedes Academy for Math, Science and Technology Applications, BX     |
| P.S. 208 Elsa Ebeling, BK                                | Brooklyn Technical High School, BK                                       |
| P.S. 272 Curtis Estabrook, BK                            | Brooklyn Technical High School, BK                                       |
| Brooklyn Arts and Science Elementary School, BK          | Fiorello H. LaGuardia High School of Music & Art and Performing Arts, MH |
| P.S. 168, BX                                             | High School for Medical Professions, BK                                  |
| Queens Transition Center, QN                             | M.S. 158 Marie Curie, QN                                                 |
| Eleanor Roosevelt High School, MH                        | P.S. 009 Teunis G. Bergen, BK                                            |
|                                                          | P.S. 122 Mamie Fay, QN                                                   |
|                                                          | P.S. 122 Mamie Fay, QN                                                   |
|                                                          | P.S. 154 Queens, QN                                                      |
|                                                          | P.S. 172 Beacon School of Excellence, QN                                 |
|                                                          | P.S. 172 Beacon School of Excellence, QN                                 |
|                                                          | P.S. 221 The North Hills School, QN                                      |
|                                                          | Queens Transition Center, QN                                             |
|                                                          | The Science And Medicine Middle School, BK                               |

## Demand Response Program

| Demand Response Top Performing Building Awards |             |
|------------------------------------------------|-------------|
| School/Building Name                           | Award       |
| P.S. 22 , BK                                   | \$15,000.00 |
| P.S. 66 , BK                                   | \$20,000.00 |
| Middle College High School, BK                 | \$15,000.00 |
| Harry Vanarsdale Vocational High School, MH    | \$25,000.00 |
| Brooklyn North NYC DOE Borough Office, BK      | \$20,000.00 |
| Fiorello Laguardia High School - MH            | \$30,000.00 |
| Martin Luther King, Jr. High School - MH       | \$30,000.00 |
| P.S. 58, QN                                    | \$10,000.00 |
| I.S. 61, QN                                    | \$15,000.00 |
| P.S. 239, QN                                   | \$25,000.00 |
| P.S. 268, QN                                   | \$20,000.00 |
| High School For Law Enforcement, QN            | \$20,000.00 |
| P.S. 56, SI                                    | \$15,000.00 |
| New Dorp High School, SI                       | \$15,000.00 |
| P.S. 80, SI                                    | \$25,000.00 |
| P.S./I.S. 194, BX                              | \$20,000.00 |
| P.S. 306, BX                                   | \$10,000.00 |
| M.S./H.S. 368, BX                              | \$20,000.00 |
| Bathgate High School, BX                       | \$10,000.00 |

| Demand Response Program Data Overview |                  |                        |                      |                          |                  |
|---------------------------------------|------------------|------------------------|----------------------|--------------------------|------------------|
| Fiscal Year                           | Schools enrolled | Capacity enrolled (KW) | Event length (hours) | Total energy saved (kWh) | Total cost saved |
| FY17                                  | 246              | 18755                  | 23 HR                | 274,386                  | \$43,901.71      |
| FY18                                  | 294              | 26720                  | 4 HR                 | 115,495                  | \$20,789.26      |
| FY19                                  | 305              | 37,265                 | 25 HR                | 657,165.70               | \$118,289.83     |

### Sustainability, Efficiency, Environmental Dedication (S.E.E.D.) Certification Schools

| Bronze S.E.E.D. Certification Winners (\$500 each) | Silver S.E.E.D. Certification Winners (\$750 each)                    | Gold S.E.E.D. Certification Winners (\$1000 each)                          |
|----------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------|
| I.S. 68 / Issac Bildersee, BK                      | Roy Campanella Occupational Therapy Center, BK                        | P.S. 90 The Magnet School Environmental Studies and Community Wellness, BK |
| Pathways to Graduation, QN                         | P.S. / I.S. 323, BK                                                   | P.S. 176 The Ovington School, BK                                           |
| The Marathon School, QN                            | Sunset Park High School, BK                                           | P.S. 971 School of Math, Science, and Healthy Living, BK                   |
|                                                    | Robert A Van Wyck: The Green Magnet School for Career Exploration, QN | P.S. 6 Lillie D. Blake, MH                                                 |
|                                                    | P.S. 13/Margaret Lindemeyer School, SI                                | Central Park East High School, MH                                          |
|                                                    | CS 55 Benjamin Franklin School, BX                                    | High School for Environmental Studies, MH                                  |
|                                                    | Bronx H.S. of Science, BX                                             | Manhattan Occupational Training Center, MH                                 |
|                                                    |                                                                       | P.S. 229 Emanuel Kaplan School, QN                                         |
|                                                    |                                                                       | Maspeth High School, QN                                                    |

### Neighborhood Rat Reduction Awards

| Group Awards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Individual Awards                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>DOE Office of Sustainability Outreach Team</b> <ul style="list-style-type: none"> <li>• Joy Rifkin, Sustainability Specialist</li> <li>• Christina Langone, Sustainability Specialist</li> <li>• Michelle Ogman, Sustainability Specialist</li> <li>• Eliza Brenman, Sustainability Specialist</li> <li>• Peter Barker, Sustainability Specialist</li> <li>• Jaqueline (Jaxie) Friedman, Sustainability Specialist</li> <li>• Rosemary Han, Sustainability Specialist</li> <li>• Aharon Kestenbaum, Sustainability Specialist</li> </ul> | Kathleen Corradi, Program Manager, DOE Office of Sustainability                                                  |
| <b>DOE Integrated Pest Management Team</b> <ul style="list-style-type: none"> <li>• Michael Siciliano, Director of Pest Management, Office of Food and Nutrition Services</li> <li>• Donald Velapoldi, Supervising Exterminator, Office of Food and Nutrition Services</li> </ul>                                                                                                                                                                                                                                                           | Joseph Lazarus, Director of Facilities , BK North<br><br>Judith Caraballo, Custodian Engineer, X115 and X254, BX |
| <b>DOE Division of School Facilities-Brooklyn North Team</b> <ul style="list-style-type: none"> <li>• Alea Stormer, Deputy Director of Facilities</li> <li>• Carmine Franzese, Deputy Director of Facilities</li> <li>• Joseph Calderon, Deputy Director of Facilities</li> <li>• Chris Bortle, Deputy Director of Facilities</li> <li>• Michael Gonzalez, Deputy Director of Facilities</li> <li>• Patrice Miano, Deputy Director of Facilities</li> <li>• Phaniel Markin, Deputy Director of Facilities</li> </ul>                        | Christopher Donnelly, Custodian Engineer, M084, MH                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Wolfgang Hellman, Custodian Engineer, K274 and K865, BK                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Dennis Agostino, Supervisor of Mechanics, BK North                                                               |

## Zero Waste Pledge Schools

|                                                                 |
|-----------------------------------------------------------------|
| P.S. 009 Teunis G. Bergen, BK                                   |
| P.S. 151 Lyndon B. Johnson, BK                                  |
| J.H.S. 220 John J. Pershing, BK                                 |
| P.S. 250 George H. Lindsay, BK                                  |
| P.S. 327 Dr. Rose B. English, BK                                |
| Edward R. Murrow High School, BK                                |
| The Math & Science Exploratory School, BK                       |
| P.S. 108 Assemblyman Angelo Del Toro Educational Complex, MH    |
| P.S. 115 Alexander Humboldt, MH                                 |
| P.S. 183 Robert L. Stevenson, MH                                |
| Paula Hedbavny School, MH                                       |
| World Journalism Preparatory: A College Board School, QN        |
| I.S. 227 Louis Armstrong, QN                                    |
| Corona Arts & Sciences Academy, QN                              |
| Thomas A. Edison Career and Technical Education High School, QN |
| P.S. Q233, QN                                                   |
| Port Richmond School for Visionary Learning, SI                 |
| Bronx Park Middle School, BX                                    |
| World View High School, BX                                      |
| Bronx Leadership Academy High School, BX                        |

## Partners

[Alliance for Climate Education \(ACE\)](#)  
[American Museum of Natural History](#)  
[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](#)  
[Climate Museum](#)  
[Coalition for Healthy School Food](#)  
[CORO New York](#)  
[Department of Sanitation New York City \(DSNY\)](#)  
[Earth Day Initiative](#)  
[EcoRise](#)  
[Edible Schoolyard NYC](#)  
[FABSCRAP](#)  
[Garden to Café - SchoolFood](#)  
[Garden Train](#)  
[Green City Challenge](#)  
[Green School Alliance](#)  
[Greening Forward](#)  
[GrowNYC](#)  
[Grow to Learn NYC](#)  
[Materials for the Arts \(MFTA\)](#)  
[Million Trees NYC](#)  
[National Wildlife Federation Eco-Schools USA](#)  
[NY Botanical Garden](#)  
[NY Hall of Science](#)  
[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 - Office of Food and Nutrition Services](#)  
[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](#)  
[Recycling Champions Program \(RCP\)](#)  
[Resilient Schools Consortium Program \(RISC\)](#)  
[SIMS Municipal Recycling](#)  
[Solar One](#)  
[Teachers College, Columbia University](#)  
[Teens for Food Justice](#)  
[United Federation of Teachers \(UFT\)](#)  
[WE ACT for Environmental Justice](#)  
[Wearable Collections](#)

# Policies and Regulations

## DOE Policy

**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.

## Energy

**NEW: Local Law 45:** Requires the Department of Citywide Administrative Services (DCAS) to report on electricity and fossil fuel usage, real-time metering, and assessments of or improvements made to the envelopes of covered facilities

**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.

**NEW: Local Law 94:** Both new construction and properties that are undergoing replacement of the entire roof deck or roof assembly are required to install a sustainable roofing zone

**NEW: Local Law 97:** Requires a reduction in emissions by a minimum of 40% by 2025 and 50% by 2030, with One City Built to Last requiring a 63% reduction in building emissions by 2050.

**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 school principals must appoint a sustainability coordinator from the school staff. The sustainability coordinator cannot be the principal or the custodian engineer.
- All schools and administrative offices must prepare and submit a viable recycling plan, which at a minimum requires that every class have separate and appropriately labeled bins for trash and 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. The Director of Sustainability must submit an annual recycling report to the NYC Department of Sanitation.
- 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.

**NEW: Executive Order 42:** City agencies must stop purchasing single-use plastic foodware and replace it with compostable or recyclable alternatives by year's end; a small supply of plastic items must be available upon request for people who need them.

## 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.

## Water

**MS4 (Municipal Separate Storm Sewer System) Permit:** This permit is required under the Clean Water Act, issued by New York State Department of Environmental Conservation (DEC), and coordinated by the NYC Department of Environmental Protection (DEP). The intent is for the City to implement measures to reduce pollution in stormwater runoff.

# Methodology

## Energy & 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 based on summary of data from fuel oil delivery payments as tracked through the Department of School Facilities' financial operations, accounts payable, under the assumption that the amount of fuel ordered accurately 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) were normalized into metric tons of carbon dioxide equivalent (CO<sub>2</sub>e), using emission factors and conversion units obtained through 2017 New York City Greenhouse Gas Inventory and United States Environmental Protection Agency utilizing Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories. Emissions factors for various fuel oil and biodiesel blends were derived as proportional estimate for respective fuel oil type, based on the percentage share of biodiesel at each facility.

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.

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, NuEnergen.