OFFICE OF SUSTAINABILITY
NYC Department of Education

DOE OFFICE OF SUSTAINABILITY ANNUAL REPORT

2019-2020 (FY20)

Cover Photo: As part of the Office of Sustainability's NYC Solar Schools Education Program, Career & Technical Education students received internships to install solar photovoltaic system on the rooftop at Bayside High School, Queens.

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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 2020 (FY20), spanning July 1, 2019 – June 30, 2020, reported by the DOE Office of Sustainability. This report includes information pertaining to energy and climate, waste management and reduction, school gardens, and outreach and education as well as compliance with local laws and Chancellor's Regulations.

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Letter from the Director of Sustainability

Dear Friends in Sustainability,

This is an Annual Report unlike any other from the past. Serving the largest public school system in this great city amidst defining and history-making times, we are humbly reminded that schools are the beating heart of communities. No place exemplifies strength, fortitude, and resilience quite like NYC, and schools illustrate its very soul. Schools have shown that they can and will adapt and get through anything together, and we could not be more proud to stand with our wonderfully diverse students, teachers, administrators, paraprofessionals, building and School Food staff, and families as we continue to make our way down this unknown path.

The 2019-2020 Annual Sustainability Report demonstrates that not only did work continue amidst a crisis, but the commitment and support of school sustainability only expanded and diversified. It has never been more important to operate buildings efficiently, minimize carbon footprints, fight for racial justice, and connect youth and educators with today's most pressing issues. We must prepare our young leaders but also our educators as they help to create and empower those leaders. We believe schools are the best place for sustainability because of the opportunities for students and the endless needs and/or impactful improvements to be made. We embrace the challenge, advocate for the chance to do more and better always and hope you do too.

Thank you to our network of colleagues and partners at schools, in central and borough offices, agencies, institutions, and nonprofits. As we navigate this new frontier, please know that your friends in sustainability are simply your champions for change. We can't wait to do more together.

With gratitude,

Meredith McDermott
Director of Sustainability
NYC Department of Education

2019-2020
Highlights & Impact

Education & Engagement

1,610 Sustainability Coordinators, our highest designation number to date, led front line efforts to boost sustainability programming in their schools

Pivoted during remote learning to create virtual resources, including *Keepin' Sustainabiliity Alive Inside* series, YouTube channel, and a Sustainability Challenge

Expanded participation in both our Youth Leadership Council and our second annual Youth Climate Summit, building momentum with efforts and partnerships for Climate Education

Energy & Climate

Awarded **$250,000** to five top performing S.E.E.D. Certification Schools for energy upgrades, including LED lighting and HVAC systems optimization (See Appendix for details)

Reduced greenhouse gas emissions **13%** in the last year and **27.8%** since 2008

Reduced electrical consumption by **35%** during Covid-19, more than any other City agency, yielding significant savings for City

Waste & Recycling

The Organics Collection Program expanded to **130** new schools bringing the citywide total to **885** schools

Partnership with the DOE's Office of Library Services and DSNY improved coordination around large-scale book recycling at schools

DOE Sustainability Specialists conducted **837** outreach events at **684** schools in FY20

Other

We awarded a record **$419,333** to **121** schools via the 4th annual Sustainability Project Grant, a 100% increase from the previous year (See Appendix for list of grant winners)

DOE's Annual Building Readiness Survey included sustainability items for the first time to further institutionalize sustainability within the DOE

In pursuit of greater inclusion, we gathered metrics on race and gender for the first time across programs

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 by organizational policy. The designee, 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 and are able to lead impactful sustainability initiatives.

Highlights:

↑ **16%** average increase in participation across all three compliance components: Sustainability Coordinator designation, completion of Sustainability Plan and completion of Sustainability Survey

↑ **40%** increase in Sustainability Coordinator designation at charter schools

63% Sustainability Coordinators had a Green Team in place; 52% of those green teams had been established for two or more years

234 educators engaged in Sustainability 101 training to learn fundamentals at the beginning of a new school year.

14 educators participated in Sustainability Coordinator Mentorship Program that included new tools to support peer networking and ideas exchange

Sustainability Coordinator, Bianca Biblioni with NY State Senator Jessica Ramos at P.S. 14 - Fairview, Queens

Participants at DOE Sustainability Training at The Walton Campus High School, The Bronx

Sustainability Coordinators: Who, What, Why?

Sustainability Coordinators are school-based liaisons who 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 FY20, over 1,600 NYC schools designated a Sustainability Coordinator, an increase of 16% over the previous year. Over 40% of Charter schools designated the role in DOE's central database, Galaxy, for the first time. (See Appendix for breakdown of staff roles.)

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

Liaise with DOE Office of Sustainability

Work with school and building staff to develop and expand school-based sustainability efforts, including waste/composting/recycling procedures, energy efficiency and conservation, grants, curriculum, student initiatives, and other supporting programs

Profile of NYC Sustainability Coordinator

Woman	64.00%
Man	28.52%
I do not wish to disclose	7.03%
Non-binary	0.32%
Not listed	0.13%

White	45.01%
Black	17.21%
I do not wish to disclose	16.06%
Hispanic or Latino/a	14.50%
Asian	4.03%
Not listed	1.68%
American Indian or Alaska Native	1.08%
Native Hawaiian or Not listed Pacific Islander	0.42%

Optional questions on race and gender were included for the first time in the Sustainability Plan and Survey in order to understand the demographic breakdown of this role. Our goal is to use this information to identify and target gaps in our audience and ensure equitable programming.

School Sustainability Plans

Once designated, Sustainability Coordinators are required to develop an annual Sustainability Plan to set goals and provide roadmaps for project implementation for the school year. In FY20, nearly 1,550 NYC schools completed a Sustainability Plan, a 13% increase from the previous year.

Key findings:

48%
Sustainability Coordinators have been in the role for 4 years or more

25%
Sustainability Coordinators were new to the role this year, allowing an ability to target new staff for the annual Sustainability 101 session, Mentorship Program, and other programs

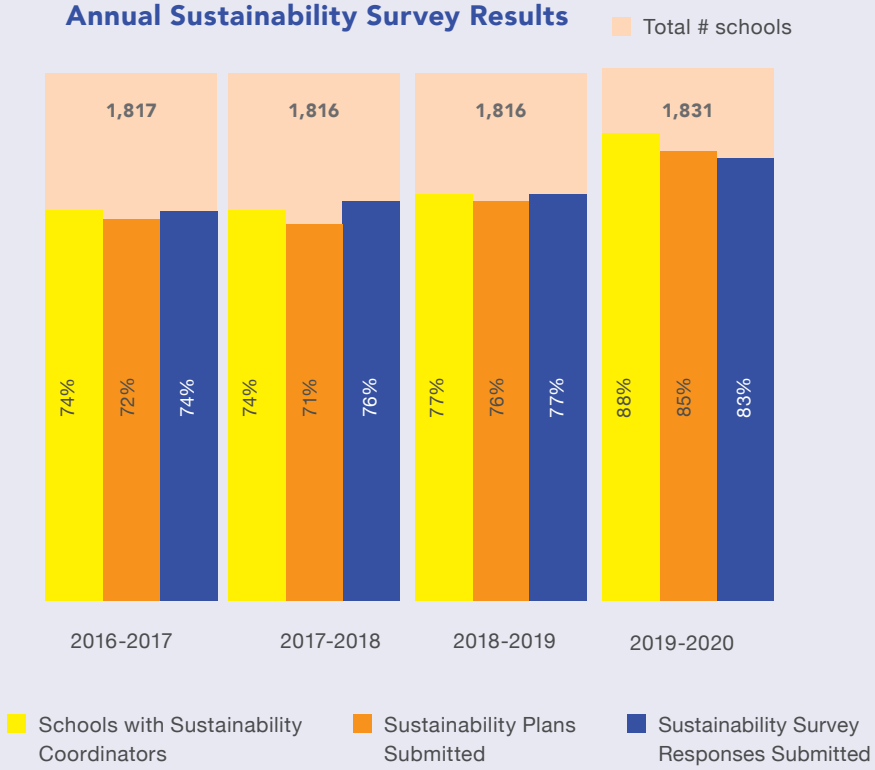
27%
schools reported student participation in Climate Week activities in September 2019 (e.g., held a climate workshop, attended the youth climate strike, etc.)

Annual Sustainability Survey

Each June, Sustainability Coordinators are required to participate in the DOE's annual Sustainability Survey. In order to increase the accuracy and integrity of the Survey as a tool to measure school participation and progress with sustainability, only schools that designated both a Sustainability Coordinator and completed a Sustainability Plan by February 28, 2020 could complete a Sustainability Survey. In FY20, nearly 1,300 eligible schools responded to the survey, **a 20% year-over-year increase**. We were thrilled by this increased participation, considering Covid-19 and remote learning adaptations were foremost on educators' minds. To provide some flexibility during remote learning, we allowed schools an additional two weeks to complete their Sustainability Survey.

Data from the Survey helps our office to understand and monitor sustainability activities across schools, measure and celebrate accomplishments and progress, and identify key areas of motivation and support. It also gives educators a chance to provide feedback on our programming, including the following:

Annual Sustainability Survey Results



"I appreciate the Office of Sustainability's persistence in building this great platform for the NYCDOE. I know it is critical work, and I want to be a more active soldier in this battle for more sustainable and healthy communities."

-Paul Joseph,
Annual Sustainability Survey,
Brooklyn High School
for Leadership and
Community Service

EDUCATION & ENGAGEMENT

The behaviors and actions of school occupants are critical to the efficient operations of our buildings, directly impacting the DOE's ability to meet commitment to the OneNYC 2050 sustainability goals. As such, we continue to design new trainings, events, and programs to educate and engage a wide range of stakeholders on facility operations and instructional sustainability topics. With the onset of Covid-19 and the transition to remote learning citywide, we quickly pivoted to offer virtual trainings and workshops for teachers, students, and Custodians, providing an even larger platform for engagement across the system.

Highlights:

Provided outreach and support to **5,343** DOE students and staff at **684** schools

Curated and led six pop-up virtual trainings for over **1,000** participants in response to remote learning, including a live Earth Day event and *Keepin' Sustainability Alive Inside* series

Launched a DOE Sustainability YouTube account and expanded our Resource Portal to deepen our engagement with teachers, students, and parents

Continued S.E.E.D. (Sustainability, Efficiency & Environmental Dedication) Certification Program pilot by accepting **17** additional schools

Participants at our Green Science training in February 2020

Participants at our Green Science Training, Long Island City, Queens

Trainings & Engagement

Prior to the disruption of Covid-19 in March 2020, we were able to deliver the majority of our trainings in person, building on our model to include specialized opportunities that focus on themes, technical skills, teacher support and youth engagement. Trainings and events help staff learn about new programs and resources, review roles and responsibilities, and discover ways to incorporate sustainability into all aspects of DOE operations and instruction. Through our trainings and events, the Office of Sustainability reached **3,350 DOE students** and staff from **20 in-person** and virtual trainings and events.

In addition, our office provides a robust education and outreach strategy that builds on baseline annual trainings for Sustainability Coordinators, teachers and faculty, Custodian Engineers, and Kitchen Managers. We also provide customized, hands-on support to all DOE buildings, making sustainability accessible and personal to all stakeholders. Our team conducted outreach and education at schools, community events, school in-service professional learning, participation at partner events and external events that reached **5,343 DOE** students and staff at **684 schools**.

Climate Education

When the pandemic hit, our first NYC DOE Summer Climate Education Institute was being planned for July 2020 in partnership with Climate Generation, NOAA's Climate Program Office, and The Wild Center. We did not want to abandon the idea, so alternatively pivoted to form a regional cohort of educators that served as a model for Climate Generation's national "Climate Stay-In-Stitute" event in July 2020. Our office, in conjunction with the DOE Office of Curriculum, Instruction, and Professional Learning,intends to use the momentum from the Stay-In-Stitute for the formation of a NYC DOE Climate Education Leadership Team in the 2020-21 school year. The Leadership Team will be comprised of educators from DOE schools across all five boroughs and will serve as a catalyst to expand climate education access and opportunities for and within the DOE. We also continue to be an active participant of the larger coalition, the NYC Climate and Resilience Education Task Force.

2019-2020 Sustainability Trainings

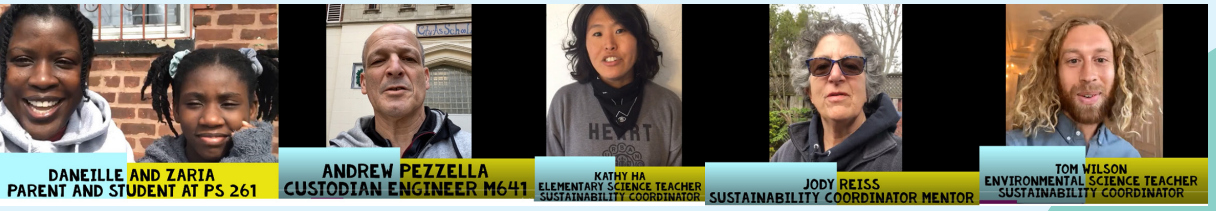
- **Living Lab: Climate and Resilience - P.S. 90, Brooklyn**
- **Sustainability in Society**
- **Green Science: Enriching Instruction through Sustainability**
- **Living Lab: Investigating School Systems Walton Campus, Bronx**
- **United Nations Sustainable Development Goals Professional Learning**

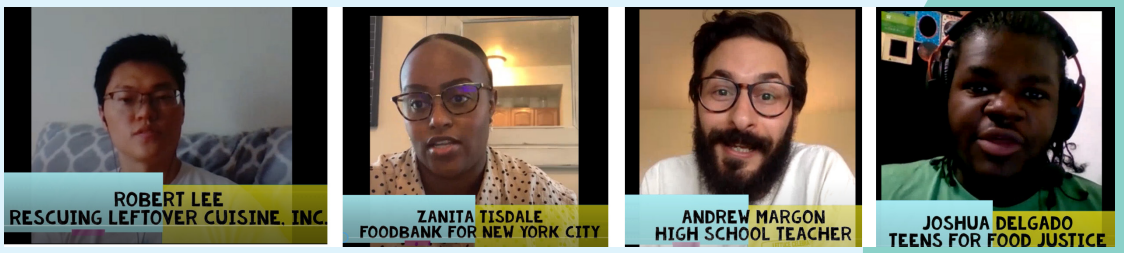
New Training: DOE Buildings as a Living Lab

For the first time, we created a new training model that utilizes DOE facilities to showcase real world connections between operations and classroom instruction. Working with two schools in two different boroughs and building types, the purpose was to highlight how school buildings themselves can "teach" sustainability. At P.S. 90 (K090: The Magnet School for Environmental Wellness) in Coney Island, Brooklyn, participants learned about climate change and how the impacts of Superstorm Sandy affected the school community and launched sustainability interest within the staff and student body. Participants investigated how energy and emergency management measures are implemented at the school and building level, and how P.S. 90 contributes to a more resilient community. A boiler room tour with the Custodian Engineer was a highlight! The second Living Lab training was held at the Walton Campus in the Bronx, where participants learned about the complexity of campus (i.e., more than one school) buildings, using shared spaces to practice sustainability actions, and an example of successful inclusion of student voice in school- based sustainability efforts.

"Keepin' Sustainability Alive... Inside!"

Furthermore, we wanted to reemphasize the DOE's commitment to sustainability programs and procedures, even in unprecedented times. These needs led to the creation of a new biweekly virtua series for students and teachers called "Keepin' Sustainability Alive Inside." From mid-April to late June, we hosted interviews, DIY segments, and mini presentations from leading scientists (including Columbia University's Lamont-Doherty Earth Observatory) on topics ranging from climate science to nature and conservation photojournalism. We also added a virtual resource section to our Resource Portal and grew our online presence by creating a YouTube account to archive online sessions.





Virtual presenters from our "Keepin' Sustainability Alive Inside" series

Students at P.S. 90 The Magnet School for Environmental Wellness, Brooklyn

STUDENT ENGAGEMENT

The Office of Sustainability believes student voice and leadership are essential components in the success, quality, and longevity of sustainability policies and goals. We have developed three key programs to help achieve this goal: the DOE Sustainability Youth Leadership Council (YLC), the NYC DOE Youth Climate Summit (YCS), and rFUTURE.

Youth Leadership Council

This year's Youth Leadership Council (YLC) continued to mobilize student sustainability action with support from NYC Service, expanding to include 27 high school students from all five boroughs in its second year. Because of Covid-19, the YLC met both in-person and virtually, and were still able to receive community service hours. The 2019-2020 school year also drove the creation of the first "YLC Core," a subset of YLC members who committed to continuing over the summer and helping to plan and lead the 2020-2021 YLC cohort. YLC Core members benefit from this opportunity to further hone leadership skills while deepening impact within the student cohort, larger student population, and Office of Sustainability team. This year, the YLC started a student newsletter, social media account, worked with their school's designated Sustainability Coordinator, expanded their leadership role in the Office's citywide outreach and training, and developed and led the Climate Action Planning workshop for all attendees of our Youth Climate Summit.

"I loved the YLC! I loved getting to meet other inspired and enthusiastic students and being able to work with them on sustainability projects and learn from them about new opportunities. The meetings we had all together were very informative and the Youth Climate Summit was incredibly inspiring. Not only did I improve my leadership abilities but I walked away feeling better about the state of our environment with so many dedicated young people on the job."

– YLC Member, 12th Grade, Stuyvesant High School

2019-20 Youth Leadership Council members at the 2nd Annual Youth Climate Summit

Youth Climate Summit

In partnership with The Wild Center, we hosted the second annual NYC DOE Youth Climate Summit on February 4, 2020. NYC high school students developed leadership and problem-solving skills, gained climate action knowledge, learned about careers, and built peer networks to expand sustainability in their schools and communities. Students heard from three youth keynote speakers: YLC core member Josie Benton; Liza Goldberg, a student research assistant at NASA Goddard Space Flight Center; and Aryaana Khan, a climate advocate who uses poetry to bring attention to impacts from climate change in her native country. Attendees chose a breakout session on a variety of sustainability topics and networked with 21 partner organizations during the Green Career Fair. With guidance from our YLC, the day ended with a Climate Action Plan to identify steps to reduce school impacts on climate. We also built interactive elements into the day including an activity designed by the YLC, a raffle, and an immersive virtual experience hosted by the Arcadia Earth Institute. Students left empowered to bring climate action and awareness to their schools and communities.

High school students at the 2nd annual Youth Climate Summit

rFUTURE

Made possible by an ongoing partnership with Green Music Machine (CGMM) and The Bronx's Theatre Arts Production Company High School (TAPCo), we had the opportunity to design and produce a second year of rFUTURE. This program enables participating high school students to use their voices-literally- to motivate societal change through music. Eight student artists from six schools were paired with a professional musician mentor to write original lyrics and music on a sustainability-inspired topic of their choice. TAPCo teachers also provided a group of students a unique opportunity to hone videography skills by documenting songwriting workshops, editing, and creating video vignettes to accompany live performances to enhance the program. Pre-Covid-19, CGMM secured Lincoln Center as the venue for the culminating live performances to be held on Earth Day in April 2020; however, the partners and participants were inspired to adapt to the pandemic to create a virtual event. CGMM leveraged their professional industry experience to produce virtual performances from all artists, creating a live celebration hosted by climate activist Xiuhtezcatl Martinez. This one-of-a-kind program goes well beyond the typical reach of a school system, and for that reason and the enriching experience that it provides to all who engage, we are thrilled for it to continue!

rFUTURE Student Performer
from IN-Tech Academy, Bronx

Virtual Resources

The world changed in 2020. When DOE buildings closed in March, DOE teachers and students had to make a swift transition to fully remote learning for the first time ever. In an effort to effectively adapt so that we could continue to meaningfully support schools, the Sustainability team pivoted to virtual engagement to reach building staff, teachers, and students in new ways! We worked with Custodians and the Division of School Facilities Energy Management Team to curtail energy usage and developed virtual educational resources for teachers, including the following:

Sustainability Spotlights are one-pagers designed for high school students that take a thematic approach to sustainability by tackling issues of Plastic Pollution, Environmental Justice, and Climate Change and included articles for further research, quotes from student advocates, and a call to action for students to take up the mantle in their community.

Systems Explorer targets younger learners, asking them to explore their home and the systems that surround them. Designed to be fully autonomous, System Explorer "gamifies" a room-to-room tour where students click to learn about the waste, water, energy, and natural systems that co-occupy their homes.

Sustainability Challenge Small Actions, Big Impact. Using social media platforms, we challenged DOE students and teachers to complete 10 days of action, each with a different theme (e.g., Make it Meatless, Shrink Your Shower, etc.). The challenge focused on actions that everyone could take in their homes to lessen their environmental impact, raise awareness, and have fun!

Partner Organizations

We are proud to partner with numerous nonprofits, institutions, and other agencies to broaden reach and impact. Their unique and specialized expertise, technical support, and educational programming collectively reached 114,757 students during FY20. For partner summaries from FY20, please see the Partner Page on our Resource Portal and a complete list of partners in the Appendix.

Special thanks to the following partners who contributed to this report .

ENERGY & CLIMATE

Climate change and building energy use are key challenges facing NYC in the coming decades, given that buildings generate nearly 80% of NYC's total greenhouse gas emissions. Mayor de Blasio's OneNYC 2050 Plan ramped up prior targets to set forth a new goal to achieve carbon neutrality (or 100% emissions reduction) by 2050 from a 2005 baseline. The DOE plays a significant role in reaching these critical goals as our buildings account for 27% of the total municipal energy consumption. The DOE focuses on carbon footprint reduction through operations and maintenance, deep energy retrofits, energy management, clean energy projects, and education targeting operational efficiency, behavioral change, and awareness.

Highlights:

↓13% Reduction in greenhouse gas emissions in the last year

↓27.8% total greenhouse gas reduction since 2008

↓35% reduction in electrical consumption during Spring 2020 Covid-19 conditions, more than any other City agency, yielding significant savings for City

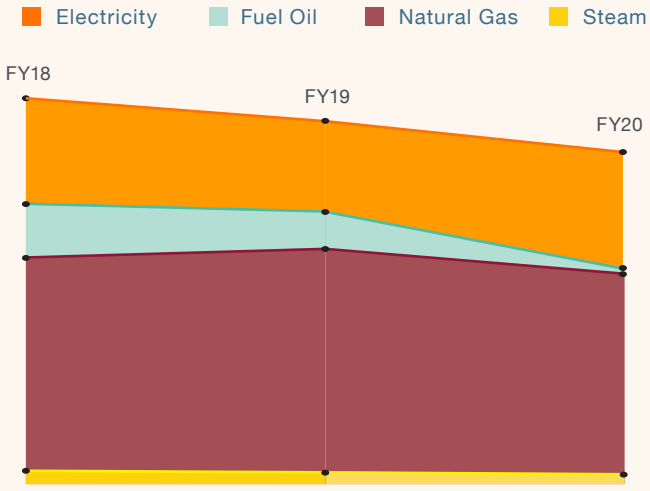
$4.1 million in revenue earned by the Demand Response Program, a 64% increase from the previous year

4 Career & Tech Education students passed the North American Board of Certified Energy Practitioners (NABCEP) Associate certification exam

Greenhouse Gas (GHG) Emissions

Most of the energy sources that power NYC buildings also emit greenhouse gases that contribute to a changing climate. Year over year, emissions and total energy use decreased by 13% in FY20 (see tables below), and total GHG emissions have reduced by 27.8% since 2008. The DOE building portfolio continuously expands and becomes more complex; as such, the Division of School Facilities (including Office of Sustainability) has ramped up efforts to increase efficiencies of buildings and operations. This year was unique because most of the DOE portfolio experienced significant reductions in building occupancies and activities due to the pandemic, leading to unforeseen energy savings and emissions reductions. We hope this and other great efforts happening citywide will help to assist NYC in our pandemic recovery and future resilience.

Greenhouse Gas Emissions (metric tons CO_2e)[3]



	FY18	FY19	FY20
Electricity	323,293	304,344	277,279
Fuel Oil	234,259	227,986	179,830
Natural Gas	189,982	196,957	177,045
Steam	11,122	9,839	8,210
	758,656	739,126	642,364

[3] *FY18 and FY19 total emissions have been adjusted from previous reporting to reflect change in the GHG accounting coefficient per the Mayor's Office of Sustainability, as well as the retroactive addition of 88 Administration for Children's Services buildings to the DOE portfolio.*

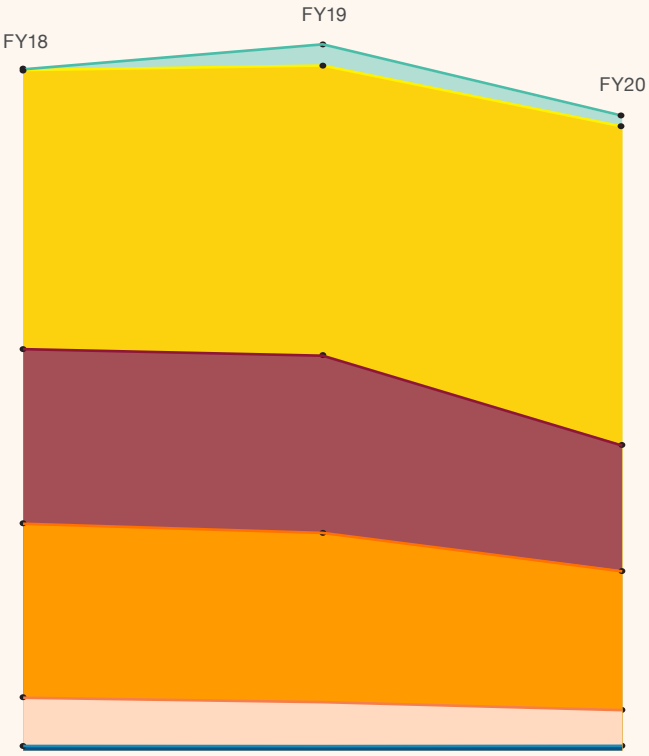
Energy Management

As part of the DOE strategy to meet the greenhouse gas emissions reduction goals of 40% by 2025 and 100% by 2050, the DOE Energy Management team oversees energy audits, retrocommissioning and retrofits, building upgrades, and maintenance repairs on aging infrastructure (see City Funded Energy Efficiency Programs). New energy efficiency projects are prioritized based on the existing Energy Use Intensity (EUI) of a building as determined by the U.S. Environmental Protection Agency's Portfolio Manager (see Energy Star Performance) tool.

DOE's energy consumption and greenhouse emissions have decreased since FY08, attributed to enhanced sustainability and maintenance programs, energy efficiency projects, minimization of personal appliances per Chancellor's Regulation, School Construction Authority capital projects (e.g. fuel oil boiler conversions to natural gas), and improved requirements/specifications for school design, construction, and operations.

Total Energy Consumption by Source (MBTUs)[4]

[4] *FY18 and FY19 total emissions have been adjusted from previous reporting to reflect change in the GHG accounting coefficient per the Mayor's Office of Sustainability, as well as the retroactive addition of 88 Administration for Children's Services buildings to the DOE portfolio.*



	FY18	FY19	FY20
Solar	1,189,931	1,141,680	940,099
Steam	2,105,495	2,071,115	1,599,416
Electricity	3,573,071	3,704,252	3,329,746
Natural Gas	3,569,088	3,592,969	3,273,442
#4 fuel oil	277,258	254,201	212,118
#2 fuel oil	24,173	23,448	24,916
	10,739,016	10,787,665	9,379,737

Demand Response Program: Natural Gas & Electricity

The DOE comprises nearly 70% of the total participation in the City's Demand Response Program. During periods of high electrical demand, such as heat waves, the grid operator (Con Ed or New York Independent Systems Operator) can call a Demand Response event to help mitigate stress on the electric grid. In FY20, 325 DOE facilities were called upon for 13 emergency 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 school communities and facilities. Based on the previous year's performance, the DOE earned nearly $4.1 million in revenue, a 64% increase from the previous year! The funds were used in FY20 to support the largest offering of our annual Sustainability Project Grant (see Appendix for list of winners), energy upgrades at over 60 schools, and supplies for the top 135 performing Custodian Engineers (see Appendix). Demand Response activates a funding stream that would not otherwise exist, which in turn creates an incentive that is rare and necessary for strong and ongoing participation.

A new pilot program began in partnership with National Grid and DCAS in the winter of FY20: the Demand Response Natural Gas Pilot Program. Since the main program mentioned above focuses entirely on electricity, this new program expanded DOE's efforts to include natural gas usage during the heating season. If called upon by National Grid on days with temperatures below 10°F, 43 DOE buildings in Queens, Brooklyn, and Staten Island committed to switching boilers from natural gas usage to fuel oil in order to reduce stress on the City's natural gas supply. DOE participation in this program helped essential heating resources remain available to residents and simultaneously earned nearly half a million dollars in incentive funds to be reinvested back into our school buildings in the coming school year. Funds are always needed, and possibly at this time more than ever! (See Appendix for Demand Response performance data.)

Covid-19 Creates Opportunity for Energy Conservation in Spring 2020

Covid-19 presents many complex challenges in our daily lives; however, it also presented a new opportunity to optimize building operations and systems for maximum impact. With goals to reduce wasted energy and to create cost savings that are critical to the financial recovery of NYC during and post-Covid-19, Custodian Engineers monitor energy usage via the EnerTrac portal and real-time meters. Dramatically reduced building occupancies created the possibility to ramp up practical operational adjustments such asequipment scheduling and reduced lighting, the impact of which was a 35% reduction in DOE energy consumption during the Spring 2020 Covid-19 closures. This was the most significant reduction across all City agencies and will help NYC in our recovery.

Real-Time Metering & Local Law 45

Real-Time Meters help building operators monitor electricity loads during a Demand Response event as well as in everyday energy management. In FY20, 95 Custodian Engineers were trained to use the Demand Response and Real-Time Metering online portal, EnerTrac, to identify energy waste and create energy savings.

NYC Solar Schools Program

In FY20, the Office of Sustainability's NYC Solar Schools Program continued to expand despite a five month interruption to construction as necessitated under the State's Covid-19 directives. During this time, focus was shifted to developing designs for over 60 sites, identifying over 80 additional sites for upcoming contracts, and continuing stakeholder engagement. To ensure a safe and expedited restart of construction in FY21, safety guidelines for essential vendor services in DOE buildings were developed and shared with solar installation contractors for the nine sites underway.

For the sixth year, the NYC Solar Schools Education Program continued to offer free professional learning workshops facilitated by Solar One, reaching 150 new educators. Despite school closures, the Program reached 18 schools (67 teachers and over 4,228 students reported) through remote co-teaching sessions, as Solar One quickly adapted activities and lessons for virtual learning between April and June 2020.

Student participants in the NYC Solar Career and Technical Education (CTE) Program at the George Westinghouse CTE High School in Brooklyn

Rising High School Seniors Receive Industry-Standard Solar Installer Certification

The NYC Solar Career and Technical Education (CTE) Program expanded delivery to two new schools in FY20, reaching 13 CTE high schools and 216 students across the City. The program offers hands-on, skill-building training in solar installation, one of the fastest growing industries in the country. Catapulting the program to the next level, four students participated alongside their CTE instructors in a professional solar certification workshop. After completing the training, all four students passed the North American Board of Certified Energy Practitioners (NABCEP) Associate certification exam. This is an industry-standard, highly sought-after certification that the students can build upon to begin promising careers. Their success is evidence to support the need to continue the development of student certification and workforce development opportunities that prepare the City's future clean energy workforce!

City-Funded Energy Efficiency Programs

The DOE Energy Management 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 an integral mechanism for the DOE to provide equipment upgrades, operational and maintenance improvements, and staff training.

Accelerated Conservation and Efficiency (ACE)

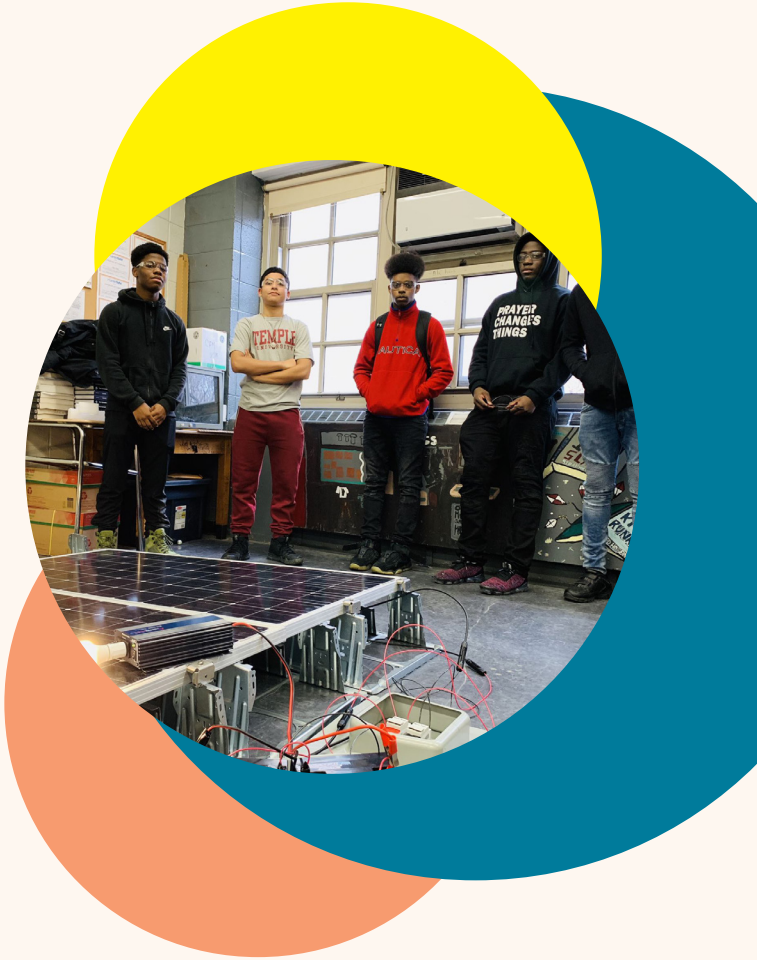
The ACE Program prioritizes energy efficiency projects that provide high energy savings, GHG reductions, and cost savings. In FY20, the DOE Energy Management Team completed steam system optimizations in 30 schools, boiler control upgrades in six schools, lighting upgrade in six schools, and fan system upgrades in two schools. These projects will save the City an estimated $994,090 annually and prevent 2,604 metric tons of CO_2e each year. (See Energy Efficiency in Appendix for ACE project details.)

Expenses for Conservation and Efficiency Leadership (ExCEL)

The DCAS ExCEL program enables City agencies to perform building retrofits that drive energy efficiency. In FY20, DOE was awarded the most funding ever received from ExCEL for 130 energy-related retrofits, repairs, and upgrades across 96 buildings. Due to delays caused by Covid-19, 62 of the projects were completed in FY20; the remaining will be finished in FY21. These projects will save nearly $825,000 annually in electricity and heating fuel costs, preventing 1,280.32 metric tons of CO_2e each year. These upgrades also have a positive impact on building operations and the comfort of occupants. Additionally, the ExCEL program supports training and event opportunities for Custodian Engineers, Sustainability Coordinators, teachers, and students. ExCEL funding also supports our annual Energy Conservation Artwork Contest, but due to the pandemic it was not fully executed until FY21. (See Energy Efficiency in Appendix for ExCEL project details.)

Energy Benchmarking

Local Law 84 requires the DOE 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, which includes 1,304 DOE buildings. This 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 that a building is performing better than 75% of the same type of buildings nationwide. Looking ahead, the DOE is preparing for the implementation of Local Law 33 that will require all benchmarked buildings to post assigned ratings based on Calendar Year 2019 data. These ratings must be posted in visible locations near each public entrance of the school by Oct 31, 2020. (See Appendix for Energy Benchmark Scores.)



WASTE & RECYCLING

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. The City's Zero Waste goals enabled the formation of the Office of Sustainability Outreach Team, provided over $5 million dollars of materials to schools, and have actualized waste management as a priority for the organization. As a result, Zero Waste Schools and associated education programs have catalyzed a ground swell of resources, support and attention of the waste management and waste diversion capabilities of DOE's 1,450+ facilities and 1.1 million students.

Highlights

DSNY's Organics Collection Program expanded to **130** new schools in Queens and Brooklyn

DOE Zero Waste programming celebrated five years, reaching over 355,000 students in **562** schools

Provided **7,729** bins and tilt trucks to DOE schools citywide

Custodial Staff at P.S. 15
Patrick F. Daly, Brooklyn

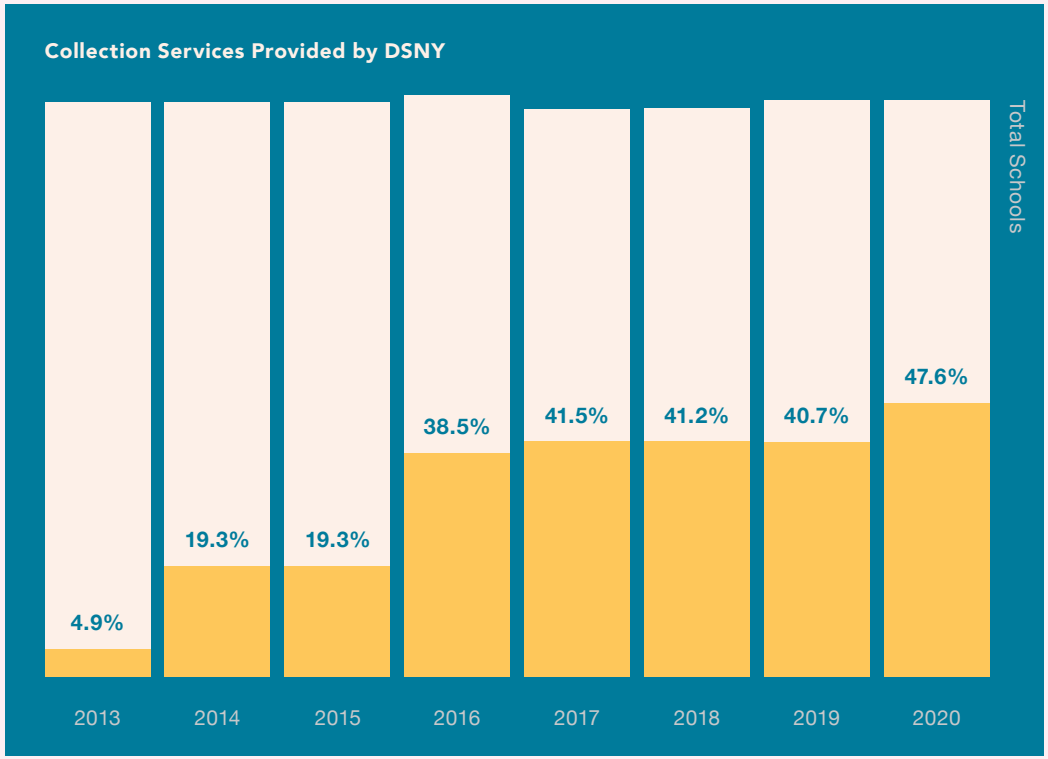
Organics Collection Program Expansion

In FY20, the Office of Sustainability worked with DSNY to expand the Organics Collection Program to three truck routes in Queens and Brooklyn, bringing the program to an additional 130 schools in 88 buildings. The total number of participating schools after this expansion is over 850. These schools are required to recycle food scraps and food-soiled paper in addition to mandated recycling of Paper/Cardboard and Metal/Glass/Plastic/Cartons. To ensure success with this service change, we worked in partnership with DSNY and GrowNYC Zero Waste Schools (formerly "Recycling Champions Program") to provide operational and personnel support and also provided a suite of new equipment to establish best practices from the first day of service. (See a list of items in the Appendix.)

A joint strategy with GrowNYC aimed to holistically engage schools in the operational change, new materials, education and training, and ongoing support to establish meaningful collaboration with school partners. Successful waste programs require awareness and investment from all school stakeholders: Staff from Facilities and Office of Food and Nutrition Services must adapt operations to collect and manage a new waste stream, and school staff, faculty and students must adopt new sorting behaviors. Prior to the launch of the Organics Collection service change, we conducted meetings at each school to discuss the program, roles/responsibilities of each stakeholder group, and practical tips for implementation. GrowNYC Outreach

DOE's Path to Zero Waste

For DOE schools to achieve Zero Waste, both DSNY collection services and program participation are essential. Over the past five years, the number of schools receiving Organics Collection has increased along with more diverse and robust waste program offerings. As a result, DOE Zero Waste programming has reached over 355,000 students in 562 schools!

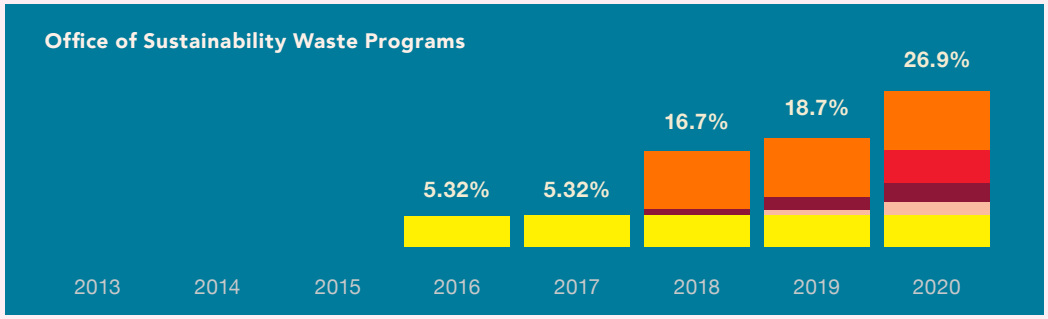


Traditional Schools

Traditional Schools receive the following DSNY collection service: Refuse, Paper Recycling, Metal, Glass, Plastic, & Carton Recycling

Organics Schools

Organics Schools receive the following DSNY collection service: Food Scraps & Food Soiled Paper, Refuse, Paper Recycling, Metal, Glass, Plastic, & Carton Recycling



Rodent Mitigation Zones
Organics Expansion
Race Against Waste
Zero Waste Pledge
Zero Waste Schools

Coordinators were assigned to each expansion school to assist with the monumental task of changing habits and providing educational connections. Coordinators conducted over 1,220 outreach events and visited schools weekly to meet with green teams, lead faculty professional development, and provide hands-on guidance with cafeteria sorting.

Greater access to a large-scale Organics program had a significant impact on school diversion rates even with services having to be halted in March 2020 due to Covid-19. The 130 new sites increased paper/cardboard recycling 22% (443 tons more), Metal/Glass/Plastic/Carton recycling 75% (174 tons more), and diverted 1,660 tons of organic material from landfills when compared to FY19. That means that 35% of the total waste sent to landfill last year was composted from these schools instead of adding to landfills, a real zero waste effort!

Zero Waste Pledge Schools Program

The Zero Waste Pledge Schools (ZWPS) Program, which began in FY19, welcomed a new cohort of 46 educators in 23 schools in FY20. As the cohorts before them, these sites followed the "Zero Waste Roadmap" to build a culture of recycling and waste awareness in their schools. They also received materials to support sorting behavior and operational efficiency, including classroom bins, cafeteria recycling stations, and tilt trucks for collection and storage of materials. Participating schools were able to establish student teams, build awareness, and change behaviors throughout their buildings. With in-person interactions halting, ZWPS participants will be invited to the first Zero Waste Professional Learning Community in Fall 2020 to continue this work.

Race Against Waste Program

The Office of Sustainability continued its partnership with the Service in School team in the DOE Office of Curriculum, Instruction and Professional Learning to recruit a third cohort of 40 educators from 20 schools in the Race Against Waste (RAW) program. RAW teachers joined service learning and sustainability experts in three days of professional learning to expand efforts to rethink waste, including student investigation, preparation, action, demonstration, and reflection. Each RAW school has dedicated support from a Sustainability Specialist throughout the program.

Mayor's Neighborhood Rat Reduction Plan

FY20 marked the third year of the Mayor's multi-agency Neighborhood Rat Reduction Plan, and we continued to work with the 115 buildings/180 schools included in the Department of Health's Rat Mitigation Zones (RMZ). Ongoing site visits provided operational and educational support to schools to increase recycling, better containerize waste to reduce rodent activity, and increase compliance with DSNY curbside collection protocols. School buildings in the RMZ continued to achieve a 70% compliance rate with DSNY evaluations, which holds steady from dramatic increases in the prior year.

Custodial Staff at John Jay Campus, Brooklyn

Waste Diversion

Every NYC school and DOE building must comply with Local Law 41 and the mandated Annual School Sustainability Plan to work towards the City's recycling goals, which can be challenging given differing spatial and logistical constraints across schools. Working directly with schools, the Office of Sustainability's outreach team (Sustainability Specialists) is able to customize operational and educational support to match facility needs and school stakeholder interest. Through this meaningful school-based support and through citywide trainings for Facilities/Custodial staff, Administrators, Office of Food and Nutrition Services staff, teachers, and students, the DOE Office of Sustainability has helped move the organization to improved waste management and greater sustainability. Our Sustainability Specialists conducted 837 outreach events at 684 schools in FY20!

The table on the right details recycling and organics tonnage across all DOE sites for FY20. In March 2020, DSNY suspended Organics Collection due to Covid-19. In addition, waste tonnage from other sites were dramatically reduced due to building closures. As a result, a complete, yearly comparison of waste data for FY20 is not available. Had the school continued to operate normally, DOE was on target to achieve gains in year over year diversion of all materials.

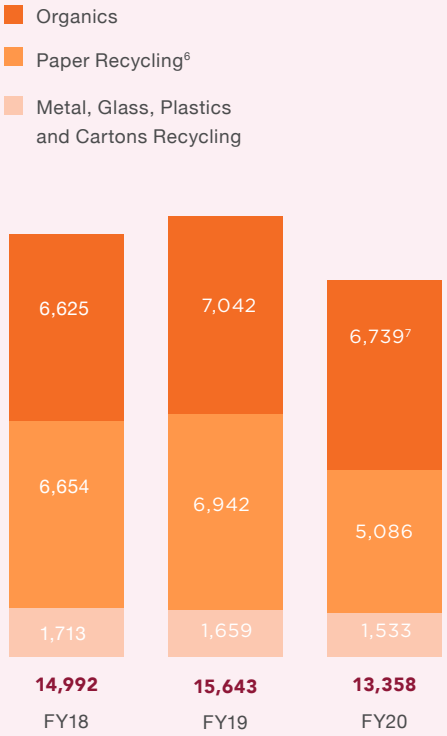
Special or Hazardous Waste Streams

The majority of school waste can be recycled through curbside collection by the Department of Sanitation, but some materials require special handling such as electronic waste, light bulbs, textiles, and obsolete hardcover textbooks. Partnerships with DSNY and numerous nonprofit organizations supported schools to be able to recycle these items. Additionally, a new partnership in FY20 with the Office of Library Services in the DOE's School Library System improved coordination around large-scale book cleanouts at schools, thereby better ensuring proper recycling of materials to the greatest possible extent. To promote reuse of larger furniture, schools can post items on DSNY's DonateNYC website. In FY20, nearly eight tons of materials were saved from landfill using this service.

P.S. 261
Philip Livingston,
Brooklyn

PS 390
The CIVIC School of Bayside
Hills, Queens

School Waste Diverted Through Recycling (Tons)[5]



[5] Data as reported by DSNY, Bureau of Recycling and Sustainability

[6] Paper diversion is not inclusive of all schools due to DSNY limitations to separately measure school waste on all collection routes.

[7] Organics Collection data is not representative of the entire year. Service was suspended in March 2020 due to Covid-19.

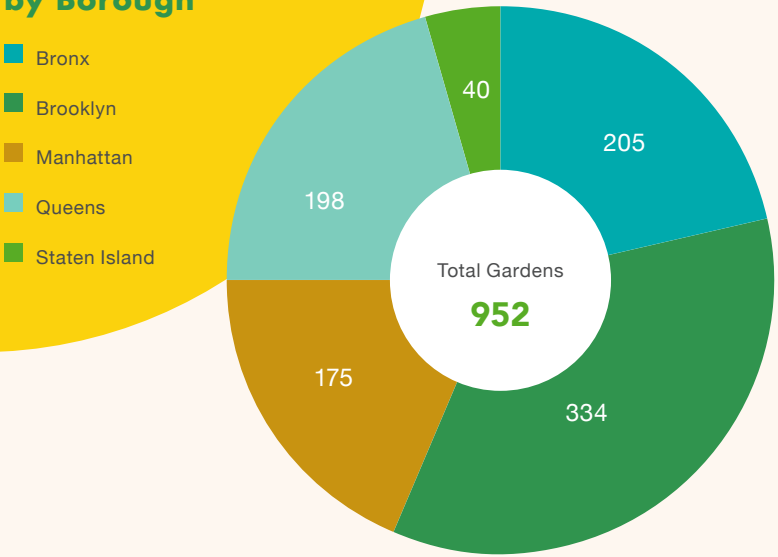
SCHOOL GARDENS + GREEN INFRASTRUCTURE

Schools play an integral role in meeting citywide green space and infrastructure goals. The Office of Sustainability recognizes the value of green space in promoting wellness through access to outdoor physical education and learning about locally grown food, as well as the role that green infrastructure plays in the City's resilience efforts. Through internal partnerships with the DOE Office of School Wellness Programs and the DOE Office of Food and Nutrition Services, we align to support healthy environments, communities, and people. Through partnerships with other City agencies and numerous nonprofit organizations, we also aim to contribute to a City that can better withstand stresses on infrastructure that are exacerbated by a changing climate.

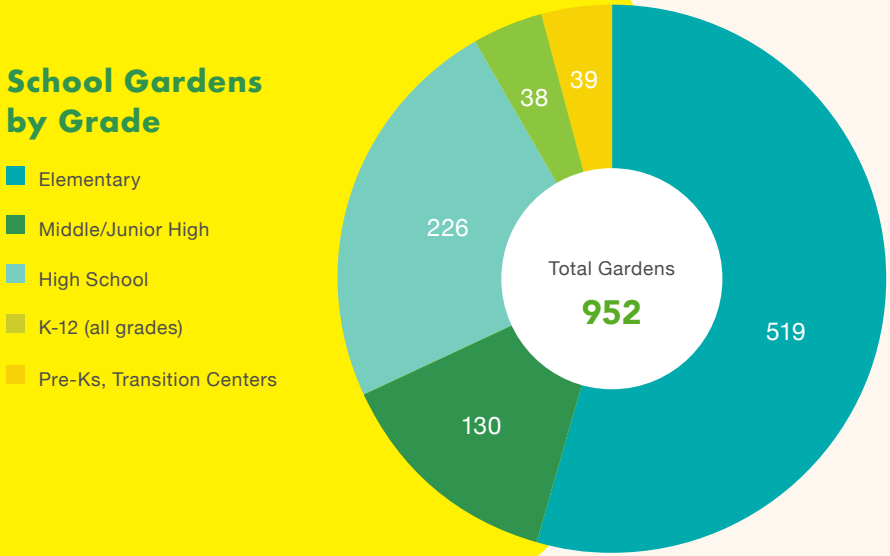
School Gardens

In previous annual reports, school garden data was only able to include registered gardens through GrowNYC's School Garden Program. This year, we sought to build on their data by collecting additional data from our larger partnership network (see Appendix for list of contributing partners) and school-based Sustainability Coordinators. As a result, we were able to generate a more comprehensive and accurate list of school gardens to do better justice to all of the great work from partners and schools. This revealed a 22% increase that identified 952 known school gardens! Due to limited space in NYC, school gardens come in many shapes and sizes, and includes Aeroponics (e.g. Tower Gardens), Aquaponics, Container Gardens, Greenhouse, Hydroponics, Living Walls, Raised Beds, Rooftop, and Sub-irrigated planters.

School Gardens by Borough



School Gardens by Grade



Green Infrastructure

During storms, the city's wastewater treatment facilities get overwhelmed, causing sewage overflow into waterways. The Department of Environmental Protection (DEP) plays the leading role in creating and implanting green infrastructure goals and programs, and the DOE partners with DEP to identify and execute school projects across the five boroughs. In FY20, City-owned sites in the Coney Island MS4 zone were prioritized based on their potential to capture runoff.

In 2015, New York City received a State Pollutant Discharge Elimination System (SPDES) permit from the New York State Department of Environmental Conservation (NYSDEC) for the City's Municipal Separate Storm Sewer System (MS4). This permit requires that the DOE implement measures to reduce pollution in stormwater runoff. As stormwater flows over streets and other impervious surfaces, it sweeps up pollutants such as oils, chemicals, pathogens, and sediments. In separate sewer areas, this pollution is carried by stormwater and discharged directly into local waterways, creating a negative impact on water quality and recreational uses. The Division of School Facilities works with all school sites covered by MS4 to ensure compliance and minimize water pollution. Additionally, the Office of Sustainability includes issues of stormwater mitigation and green infrastructure in trainings, workshops, and professional learning for DOE educators as part of MS4 public engagement efforts. (See Appendix for Green Infrastructure projects.)

In Summary

The 2019-20 school year caused our office and the entire DOE to make a significant shift in the way we operate. The challenges associated with the pandemic shed light on inequities within our City and will have lasting effects on how we engage and support our schools. Our staff and students proved once again how resilient NYC is in the face of adversity. As we rise to meet this moment, we know that sustainability will guide our way forward.

Sustainability Project Grant – Garden & Water Bottle Refill Station Funding

The Office of Sustainability supported 42 gardens with nearly $150,000 as part of our 4th Annual Sustainability Project Grant, awarding a record amount of $419,333 to 121 schools. The grant also supported other sustainability projects across many different focus areas, including the installation of 22 water bottle refill stations and 672 S'well water bottles, bolstering school wellness and reducing plastic pollution. Congratulations to all winners-please see a full list in the Appendix.

"We have been fortunate to receive grant funding from your office and it has helped our school tremendously in terms of beautifying the outside of our school as well as engaging students in green activities such as planting and gardening."

-Alan Ackerman, Teacher / Sustainability Coordinator, P.S. 093 William H. Prescott, Brooklyn

Appendix

Key to Borough Abbreviations:

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

Sustainability Coordinators

Sustainability Coordinator Staff Roles in FY20		
Teacher	45.72%	716
Assistant Principal	27.84%	436
Other	6.45%	101
Parent Coordinator	4.41%	69
Counselor	4.09%	64
Operations/Business Manager	3.13%	49
Dean	2.43%	38
Secretary/Administrative Assistant	1.79%	28
Instructional Coach	1.09%	17
Para Professional	0.70%	11
Social Work	0.64%	10
Aide	0.57%	9
Coach	0.57%	9
Librarian	0.57%	9
Total	100%	1566

Sustainability, Efficiency, Environmental Dedication (S.E.E.D.) Certification Program Top Performers - $50,000 Energy Upgrade:

Central Park East High School: MN
Thermostats and steam trap replacement

P.S. 90 The Magnet School for Environmental Studies and Community Wellness: BK
LED Lighting

P.S. 176 The Ovington School: BK
LED Lighting

Maspeth High School: QN
Optimization of HVAC System & Building Management System

P.S. 721 Manhattan Occupational Training Center: MN
LED Lighting

Sustainability, Efficiency, Environmental Dedication (S.E.E.D.) Certification Program Energy Challenge Winners:

P.S. 13 Margaret Lindemeyer School SI

Bronx H.S. of Science BX

P.S. 90 The Magnet School Environmental Studies and Community Wellness BK

P.S. 176 The Ovington School BK

P.S. 6 Lillie D. Blake MH

Manhattan Occupational Training Center MH

Maspeth High School QN

Brighter Choice Community School BK

P.S. 151 Lyndon B. Johnson BK

World View High School BX

The Marie Curie School for Medicine, Nursing, and Health Professions BX

P.S. 129 John H. Finley MN

Stephen T. Mather Building Arts & Craftsmanship High School MN

P.S. 108 Assemblyman Angelo Del Toro Educational Campus MN

Scholars' Academy QN

The David Marquis School of Arts SI

P.S. 20, Anna Silver MN

P.S. 452 MN

Energy Management

Energy Use Intensity (EUI)			
	Total square footage	EUI (KBTU/sq. ft.)	EUI change from FY08 baseline
FY18	159,675,865	67.3	-8.2%
FY19	161,193,866	66.9	-8.6%
FY20	162,006,267	57.9	-21.0%
Average	160,958,666	64.0	-12.6%

Note: FY18 and FY19 EUI has been adjusted because of the retroactive addition of 88 Administration for Children's Services buildings to the DOE portfolio.

Energy Efficiency

Energy Star Performance						
	FY18 (CY17 Rpt)		FY19 (CY18 Rpt)		FY 20 (CY19 Rpt)	
Score	Number of Properties	Percentage of Properties	Number of Properties	Percentage of Properties	Number of Properties	Percentage of Properties
75 or higher	370	29%	319	25%	535	41%
50-74	482	38%	491	38%	411	32%
25-49	244	19%	278	22%	218	17%
24 or below	152	12%	170	13%	96	7%
No score available	35	3%	31	2%	44	3%
Total school buildings	1,283		**1,289**		**1304**	

*FY18 data was updated from previous year reporting to include new EPA calculations, bringing scores in line with FY19 and FY20.

ACE Energy Efficiency Projects in FY20				
Project type	Number of buildings implemented	Energy saved (MBTU)	GHG emissions prevented (CO_2e)	Costs saved
Fan System Upgrade	2	4,259	302	$64,885
Lighting Upgrade	6	1,518	130	$65,115
Steam System Optimization	30	29,975	1,970	$346,361
Boiler Controls Upgrade	6	3,547	202	$517,729

ExCEL Energy Efficiency Projects completed in FY20				
Project type	Number of buildings implemented	Energy saved (MBTU)	GHG emissions prevented (CO_2e)	Costs saved
Heating Plant Upgrades	1	213	15	$2,296
HVAC Controls Upgrade	12	4,279	231	$36,205
Demand Controlled Ventilation	10	3,123	206	$51,753
Pumps and Motors Upgrades	6	129	9	$5,973
Miscellaneous Energy Conservation Measures	4	146	9	$1,853
Insulation (Pipe, Tanks, Boilers)	13	1,683	103	$17,446
BMS Upgrades	1	2,215	153	$27,159
Refrigeration Controls	2	67	5	$20,351
Exterior Lighting Upgrades	8	465	32	$15,594
Interior Lighting Upgrades	5	3,438	252	$190,596

Demand Response Program Data Overview					
Fiscal Year (FY)	Schools enrolled	Capacity enrolled (KW)	Event length (hours)	Total energy saved (kWh)	Total cost saved
FY18	294	26720	4 HR	115,495	$20,789.26
FY19	305	37,265	25 HR	657,165.70	$118,289.83
FY 20	325	47,020	42 HR	365,493.63	$65,788.86

Organics Expansion Program - Materials Provided		
Material Provided	Purpose	Total
Brown Organics Bins	Used in cafeteria and kitchens for source separation of organics material and curb set out & collection by DSNY.	542
Cafeteria Recycling Station Components (sign stands, liquid bucket, colanders, blue bin and lid)	Used to create cafeteria recycling stations and/or supplement existing stations (all schools were originally supplied sorting stations in FY18).	522 - sign stands 174 -liquid buckets, colanders, blue bins
Black, 1-yard Tilt Truck (with lid)	Used for storage of material on non-collection days; increased efficiency of waste management.	278
Orange, 1-yard Tilt Truck (with lid)	Used for curb set out & collection of organic materials for DSNY.	180

Demand Response Top Performing Buildings – FY20

Academy for Young Writers	BK
Aspirations Diploma Plus High School	BK
Brooklyn Arts and Science Elementary School	BK
Brooklyn Collegiate: A College Board School	BK
East New York Family Academy	BK
Edward R. Murrow High School	BK
Franklin Delano Roosevelt High School	BK
High School of Telecommunication Arts and Technology	BK
J.H.S. 259 William McKinley	BK
J.H.S. 383 Philippa Schuyler	BK
John Dewey High School	BK
M.S. 246 Walt Whitman	BK
M.S. 267 Math, Science & Technology	BK
Medgar Evers College Preparatory School	BK
New Heights Middle School	BK
New Utrecht High School	BK
Origins High School	BK
P.S. 065	BK
P.S. 109	BK
P.S. 133 William A. Butler	BK
P.S. 160 William T. Sampson	BK
P.S. 229 Dyker	BK
P.S. 244 Richard R. Green	BK
P.S. 346 Abe Stark	BK
P.S. 503: The School of Discovery	BK
P.S. K721 - Brooklyn Occupational Training Center	BK
P.S./I.S. 30 Mary White Ovington	BK
Parkside Preparatory Academy	BK
Pathways in Technology Early College High School (P-Tech)	BK
Sunset Park High School	BK
Urban Assembly School of Music and Art	BK
Academy for Scholarship and Entrepreneurship: A College Board School	BX
Bronx Collegiate Academy	BX
Bronx Health Sciences High School	BX
Bronx Latin	BX
Bronx Studio School for Writers and Artists	BX
Community School for Social Justice	BX
Eagle Academy for Young Men	BX
In-Tech Academy (M.S. / High School 368)	BX
P.S. 110 Theodore Schoenfeld	BX
P.S. 279 Captain Manuel Rivera, Jr.	BX
P.S. 306	BX
P.S. X015 Institute for Environmental Learning	BX
P.S./M.S. 194	BX
Pan American International High School at Monroe	BX
PS/MS 20 P.O. George J. Werdann, III	BX
Riverdale / Kingsbridge Academy (Middle School / High School 141)	BX
School of Performing Arts	BX
South Bronx Academy for Applied Media	BX
Theatre Arts Production Company School	BX
Urban Assembly School for Applied Math and Science, The	BX
P.S. 83 Annex	BX
Central Park East II	MN
Eleanor Roosevelt High School	MN
Ella Baker School	MN
Fiorello H. LaGuardia High School of Music & Art and Performing Arts	MN
Food and Finance High School	MN
High School of Economics and Finance	MN
M.S. 131	MN
P.S. 008 Luis Belliard	MN
P.S. 051 Elias Howe	MN
P.S. 112 Jose Celso Barbosa	MN
P.S. 153 Adam Clayton Powell	MN
P.S. 89	MN
P.S. M169 - Robert F. Kennedy	MN
Spruce Street School	MN
Stephen T. Mather Building Arts & Craftsmanship High School	MN
Stuyvesant High School	MN
The Urban Assembly School for Green Careers	MN
Thurgood Marshall Academy for Learning and Social Change	MN
Urban Assembly School of Business for Young Women, The	MN
Wadleigh Secondary School for the Performing & Visual Arts	MN
West End Secondary School	MN
Martin Luther King, Jr High School	MN
Academy of Finance and Enterprise	QN
Benjamin N. Cardozo High School	QN

Civic Leadership Academy	QN
High School for Construction Trades, Engineering and Architecture	QN
High School for Law Enforcement and Public Safety	QN
Hunters Point Community Middle School	QN
I.S. 025 Adrien Block	QN
I.S. 061 Leonardo Da Vinci	QN
I.S. 077	QN
I.S. 125 Thom J. McCann Woodside	QN
I.S. 145 Joseph Pulitzer	QN
I.S. 227 Louis Armstrong	QN
I.S. 230	QN
I.S. 237	QN
I.S. 238 - Susan B. Anthony Academy	QN
Information Technology High School	QN
J.H.S. 210 Elizabeth Blackwell	QN
John F. Kennedy Jr. School	QN
M.S. 137 America's School of Heroes	QN
Maspeth High School	QN
Metropolitan Expeditionary Learning School	QN
P.S. 007 Louis F. Simeone	QN
P.S. 013 Clement C. Moore	QN
P.S. 063 Old South	QN
P.S. 070	QN
P.S. 100 Glen Morris	QN
P.S. 102 Bayview	QN
P.S. 108 Captain Vincent G. Fowler	QN
P.S. 128 The Lorraine Tuzzo, Juniper Valley Elementary School	QN
P.S. 161 Arthur Ashe School	QN
P.S. 195 William Haberle	QN
P.S. 234	QN
P.S. 239	QN
P.S. 254 - The Rosa Parks School	QN
P.S. 58 - The School of Heroes	QN
P.S. Q016 The Nancy DeBenedittis School	QN
P.S. Q177	QN
P.S./I.S. 208	QN
P.S./I.S. 268	QN
Queens Gateway to Health Sciences Secondary School	QN
The Queens College School for Math, Science and Technology	QN
Thomas A. Edison Career and Technical Education High School	QN
Townsend Harris High School	QN
William Cullen Bryant High School	QN
P.S. / I.S. 312	QN
DOE Admin Facility, Q800	QN
DOE Admin Facility, Q801	QN
I.S. 072 Rocco Laurie	SI
I.S. 075 Frank D. Paulo	SI
New Dorp High School	SI
P.S. 005 Huguenot	SI
P.S. 044 Thomas C. Brown	SI
P.S. 048 William G. Wilcox	SI
P.S. 055 Henry M. Boehm	SI
P.S. 057 Hubert H. Humphrey	SI
P.S. 060 Alice Austen	SI
P.S. 069 Daniel D. Tompkins	SI
P.S. 65 The Academy of Innovative Learning	SI
Port Richmond High School	SI
The Eagle Academy for Young Men of Staten Island	SI
The Michael J. Petrides School	SI

2019-20 Sustainability Project Grant Winners

Energy Conservation

I.S. 220K John J. Pershing	BK
PS 185	BK
PS 102 The Bayview School	BK
PS 180	MN
P.S. 333 Manhattan School for Children	MN
PS 20 Anna Silver	MN

Environmental Education

AmPark Neighborhood School	BX
DeWitt Clinton High School	BX
Genovesi Environmental Study Center (GESC)	BK
Brooklyn High School of the Arts	BK
P.S. 219K	BK
P.S.12-The Dr. Jacqueline Peek-Davis School	BK
Ralph R. McKee Career and Technical High School	SI
P.S. 015 The Patrick F. Daly	BK

Green Team Support

P224@710	QN
PS/MS 108 School of Authors	MN
Professor Juan Bosch P.S. 178	MN
PS 56 The Louis DeSario School	SI
MS 442, School For Innovation	BK
The Marie Curie High School for Medicine, Nursing & Health Professions	BX
PS/IS 102Q	QN
International High School at Prospect Heights	BK
School of Cooperative Technical Education	MN
P233Q@Metropolitan High School	QN
Manhattan East School of Arts and Academics	MN
Harvest Collegiate High School	MN

Recycling Bins

P17X@43	BX
Brooklyn School For Career Development	BK
P.S. 43 Jonas Bronck	BX
Bronx Aerospace High School	BX
PS 41 The Gun Hill Road School	BX
Community Math and Science Prep	MN
Queens College School for Math Science and Technology	QN
Future Leaders Elementary School	SI
P.S. 369, Coy L. Cox School	BK
I.S. 145 Joseph Pulitzer	QN
PS/MS 147 The Ronald McNair School	QN
Stephen T Mather High School	MN
Science & Technology Academy: A Mott Hall	BX
Academy of Innovative Technology H.S.	BK
Intermediate School 96 Seth Low	BK
Explore Excel Charter School	BK
Hillcrest High School	QN
PS 100 Coney Island School	BK
P.O. Michael J. Buczek School (PS48)	MN
Hudson High School of Learning Technologies	MN
Paula Hedbavny School	MN
Community Health Academy of the Heights	MN
High School for Teaching and the Professions	BX
Jean Nuzzi Intermediate School, IS 109Q	QN
ELLIS Preparatory Academy	BX

S'Well Bottles

East New York Family Academy	BK
Young Diplomats Magnet Academy	MN
PS 148Q	QN
Young Leaders Elementary	BX
Nathaniel Hawthorne Middle School 74	QN
PS 183	MN

Refill Stations

Academy for Career and Living Skills	BX
CS 211	BX
PS 721K Roy Campanella Occupational Training Center	BK
Origins High School	BK
K811 Connie Lekas School	BK
The Family School	BX
JHS 217 Robert A. Van Wyck	QN
PS/IS 295	QN
East Brooklyn Community High School	BK
Irwin Altman Middle School	QN
Frances Lewis High School	QN
Belmont Prep High School	BX
International School for Liberal Arts	BX
the SEEALL Academy	BK
Fort Hill Collaborative Elem School	SI
PS 009 Teunis G Bergen	BK
M721 - Manhattan Occupational Training Center	MN
School of the Future	MN
Independence High School	MN
Bedford Park Elem School	BX
PS 360	BX
Queens School of Inquiry	QN

Gardening

Midtown West	MN
IS289	MN
Bronx Writing Academ	BX
William H. Prescott Elementary School, P. S. 93	BK
MS 915	BK
Brooklyn Preparatory High School	BK
P.S 115 Daniel Mucatel School	BK
High School for Innovation Advertising and Media	BK
The Scholars' Academy	QN
PS 196Q	QN
MS 358	QN
P141K	BK
P373R	SI
JM Rapport School for Career Development	BX
Mt. Eden Children's Academy, PS 555	BX
Bayside High School	QN
Pathways to Graduation	QN
Isaac Clason PS 100	BX
P.S. 13/Margaret Lindemeyer School	SI
International Community High School	BX
Sunset Park School/PS169	BK
JHS 223 - The Montauk School	BK
The STEAM Bridge School	BX
The Louis Armstrong Middle School, IS 227Q	QN
PS 343 Peck Slip School	MN
The High School for Global Citizenship	BK
Franklin D Roosevelt HS	BK
PS023Q@Lifeline	QN
Dr. Richard R. Green	QN
P53K @ MS88	BK
Philip Livingston - PS261	BK
P.S. 133	BK
P.S. 145 Andrew Jackson	BK
176X at Truman High School	BX
PS 239 - RAMON SUAREZ SCHOOL	QN
PS/IS 87Q	QN
New Design High	MN
PS 26K The Jesse Owens School	BK
I.S. 240 Magnet School of STEM/Andries Hudde	BK
PS 104Q The Bayswater School	QN
P.S.133	QN
John Dewey High School	BK

Partners who contributed to Garden Survey

Special thanks to: Brooklyn Botanical Garden, City Growers, Edible Schoolyard NYC, Audubon: For the Birds!, GrowNYC School Gardens, National Wildlife Federation, NY Sun Works, NY Botanical Garden, NY Restoration Project, NYC DOE Office of School Wellness, Teens for Food Justice, and The Horticultural Society of NY

FY20 Green Infrastructure Projects

Completed via MS4 Program:

- P.S. 95 The Gravesend, BK: Subsurface retention
- P.S. 212 Lady Deborah Moody, BK: Synthetic turf with subsurface stone storage
- P.S. 238 Anne Sullivan, BK: Bio retention and subsurface retention
- J.H.S. 234 Arthur W. Cunningham, BK: Subsurface stormwater chamber

Active DEP funded Green Infrastructure Projects:

- P.S. 139 Rego Park, QN – Rain garden
- P.S. 012 James B. Colgate, QN – Rain garden
- P.S. 089, BX – Subsurface water retention system
- P.S. 932, BK - Subsurface water retention system

Partners

Alliance for Climate Education (ACE)
American Museum of Natural History
Audubon New York – For the Birds!
Bronx Health Reach
Bronx River Alliance
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
NYS Department of Environmental Conservation (DEC)
Department of Sanitation New York City (DSNY)
Earth Day Initiative
EcoRise
Edible Schoolyard NYC
FABSCRAP
Garden to Café
Garden Train
Genovesi Environmental Study Center
Gowanus Canal Conservancy
Green City Challenge
Green School Alliance
Greening Forward
GrowNYC School Gardens & Zero Waste Schools
Materials for the Arts (MFTA)
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
Power My Learning
Queens Botanical Garden
Resilient Schools Consortium Program (RISC)
SIMS Municipal Recycling
Solar One
Teachers College, Columbia University
Teens for Food Justice
United Federation of Teachers (UFT)
WE ACT for Enviromental Justice
Wearable Collections
Wildlife Conservation Society

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

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.

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.

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.

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 (CO2), methane (NH4) and nitrous oxide (N2O) were normalized into metric tons of carbon dioxide equivalent (CO2e), 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, as these calculations are the foundation for funding requests. 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 the program provider, NuEnergen.