NYC DOE OFFICE OF SUSTAINABILITY

Annual Report

2021–22

OFFICE OF SUSTAINABILITY
NYC Department of Education

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 2022 (FY22), spanning July 1, 2021–June 30, 2022, reported from 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.

Accessibility: This document has been remediated to be ADA 2.0 WCAG compliant and compatible with end user's installed, dedicated screen reader software. The content has been tagged and ordered to be read in the author's intended logical reading order. Tables are keyboard navigable, and the content architecture is identifiable per the end user's software preference settings. Alt text has been inserted in the metadata of the file to describe graphics and images pertinent to the content.

On the Cover:

TOP: Students from P.S. 63 Old South School participating in Plastic Free Lunch Day (Queens)

MIDDLE: Students from P.S. 007 upcycling milk jugs as planters (Brooklyn)

BOTTOM: Solar CTE Students learning solar installation skills at Co-Op Tech (Bronx)

In This Report

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Letter from the Director of Sustainability

Dear Educators, Staff, Students, Partners, and Community Members,

Following one of the most trying years in history, many were concerned about sustainability getting demoted in terms of urgency and prioritization. Good news: *that did not happe*n. The pandemic and evidence of climate change underscored the urgency of climate action and the role that schools play in reducing environmental impacts and connecting classrooms to global and local phenomena. There is no better place to exemplify sustainability than in schools, wherein every classroom, hallway, cafeteria, and community foster unparalleled opportunity for teaching, learning, and positive change.

Key programs and initiatives returned with enthusiasm, including school composting, Green Teams, and in-person events to reconnect. Climate-driven priorities were also amplified across City strategic planning efforts, thereby solidifying the commitment of the Department of Education to reduce our carbon footprint and engage the younger generation as climate and sustainability leaders in classrooms and communities.

The future compels us to build momentum even more. We must continue to minimize carbon emissions, increase the resilience of our buildings and school communities, prepare students for climate change and a green economy, and activate climate leadership potential in all our amazing educators. Thank you to our schools, colleagues, partners, and friends whom we are proud and humbled to work with every day.

With gratitude,

Meredith McDermott
Director
DOE Office of Sustainability

Many milestones were achieved in the 2021–2022 school year, including the following:

- Achieved a 9% increase in school sustainability compliance per Chancellor's Regulation A-850 since 2019.
- Hosted numerous climate education opportunities for educators citywide, including workshops facilitated by teacher members of our Climate Education Leadership Team.
- Reinvested $4.75 million earned through the Demand Response Program to improve energy efficiency in 56 school buildings.
- In partnership with Cafeteria Culture and the DOE Office of Food & Nutrition Services, launched the first citywide DOE Plastic Free Lunch Day in over 750 elementary school cafeterias!
- Administered bi-annual DOE Garden Census to identify a total of 1,246 school gardens, nearly 300 more than previously reported.
- Awarded $537,242 to 117 schools via annual Sustainability Project Grant—our highest amount to date!

Progress Update on Equity & Inclusion

Building on our Equity and Inclusion Goals established in FY21, we identified opportunities to fine-tune and adjust our approach to this important work. We continued to target resources and support to schools with higher-than-average Economic Need Indexes (ENI), a metric that calculates the percentage of students in a school population facing economic hardship.

In FY22, we identified forty-two schools with ENIs over 95% (FY22 DOE average ENI score was 70%) who had not previously received grants or materials from our office. We targeted these schools with customized outreach about a special grant opportunity. Twelve schools took advantage of this grant, and we provided them with $50,000 for gardening, green teams, and climate education.

We sought to increase inclusivity in other ways beyond the targeted grant:

- **Special Education Professional Learning Community (PLC):** To address a need that special educators had expressed, we created a monthly PLC for Special Educators interested in sustainability, providing them a place to learn how other schools and organizations led sustainability initiatives through a special education lens.
- **Adjusting our applications:** We also recognized that written applications may bias us to certain types of learners or be more challenging for non-native English speakers, so we adjusted our Youth Leadership Council application and our Sustainability Project Grant to allow for non-written applications in the form of interviews, PowerPoints and videos.
- Explored themes of **Environmental Justice and Indigenous Land** in our Youth Climate Summit and other events.

We recognize that this important equity work involves constant reflection and adaptation. We look forward to improving these commitments for the 2022–23 school year as our dedication to this work continues.

School Sustainability Coordinators

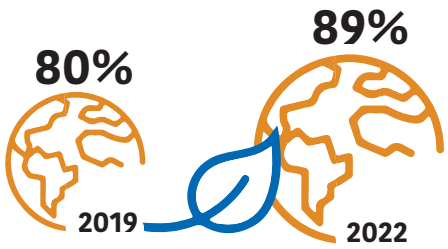
New York City is the only school district in the nation that requires each school to designate a staff member as a liaison for sustainability. The Sustainability Coordinator role, mandated by Local Law 41 and Chancellor's Regulation A-850, helps to set goals and connect available programs, events, initiatives, partnerships, and resources to other staff and students.

School Sustainability Compliance

In addition to designation, there are two other required components for annual compliance. Each fall, Sustainability Coordinators are required to develop an Annual Sustainability Plan to establish sustainability project goals for the school year. Each spring, Sustainability Coordinators are required to complete the Sustainability Survey to measure implementation success of planned goals. It is our intention to also provide a means through which Coordinators can reflect on the effectiveness of strategies, initiatives, and resources to build greater awareness, interest, and participation amongst the school community.

Between June 2019 and June 2022, we are proud to report that overall compliance across schools increased by **nine percent (from 80% in 2019 to 89% in 2022)***, thanks to improved relationships with schools, increased awareness of the Sustainability Coordinator role, and streamlined compliance communications.

Sustainability Compliance Growth 2019–2022:



** This number does not include charter schools, District 79 schools, or Pre-Ks, as the Office of Compliance Services does not monitor compliance for them.*

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.

Sustainability Coordinator Josh Blum of I.S. 227 Louis Armstrong (Queens) re-launched his school's outdoor garden space with the help of students, staff, and families.

Sustainability Coordinator Heneriatta Sekyiamah of P.S. 214 The Lorraine Hansberry Academy (Bronx) participated in our Zero Waste Pledge Schools program to divert waste and foster a school-wide culture of recycling and sustainability.

Sustainability Coordinator Maria Bella Salcedo of P.S. 226 Alfred De B. Mason (Brooklyn) created a social emotional learning garden, a vegetable garden, and explored indoor hydroponics with her students and Green Team.

Sustainability Coordinator PJ Shah of The Academy of Software Engineering (Manhattan) kept his green team engaged with school-based projects and field trips, like this one to the Newtown Creek Wastewater Treatment Plant.

Sustainability Survey—Summer Highlights

We had 1,440 responses to the Sustainability Plan in FY21, a 7.5% participation increase compared to the previous year. With summer school programs such as "Summer Rising" evolving and growing, we were curious to see if and how schools were staying engaged in sustainability over the summer months, so we asked about plans for summer sustainability initiatives. We were delighted to read about their efforts, some of which are highlighted here:

> "We are planning to install our drip irrigation to connect with our rain water harvest system. We are also planning to conduct series of Zero Waste PD's for the staff."

> "We are hoping to officially open our green roof (in the final stages of completion)."

> "We are working on maintaining our Three Sisters garden at the upper school and the other gardening spaces at both upper and lower schools in coordination with the Garden Committee."

> "Families are continuing to deliver and support our local free community fridge and free store."

> "Our Green Team will be hired part-time to run the outdoor urban garden and assist the school custodians with various projects around the building."

Looking Ahead:

We are excited about the following in 2023:

- Adapting the Sustainability Plan to be more of a useful reference and guiding document for school planning as opposed to a one-time effort to check off a compliance requirement.
- Adapting the Sustainability Plan by:
  - Adding language to frame each Focus Area around climate action.
  - Requiring schools to nominate a Sustainability Co-Coordinator to share ownership, accountability, and to help to grow the network of support at each school.
  - Embedding resource links and partner information into the Plan to highlight existing supports.
- Comparing year-to-year Sustainability Plan and Sustainability Survey data and trends since 2017 to measure progress and identify improvement areas.

Education & Engagement

The 2021–2022 school year allowed us to have more in-person interaction with school staff and students with easing of pandemic restrictions as the year progressed. At the very heart of all school sustainability efforts, from grassroots to systemic, are the *people* who are committed, interested, and/or willing to engage. Being able to get back to coalition-building and connecting in meaningful ways through impactful programs and events served to rejuvenate the efforts overall after some very challenging times.

The following are details on programs for two major stakeholder groups: adults and students.

Core Adult Educational Programs:

- **Race Against Waste (RAW):**
  In partnership with DOE Service in Schools, RAW returned to in person training and providing per session to teachers to support school waste reduction and reuse projects focused on plastic, food, or textile waste. Teachers led student groups that were guided by waste and sustainability as the overarching topic for service learning.

- **Professional Learning Communities (PLC):**
  We created two PLCs, one on Green Teams and one on Special Education + Sustainability. Both of these groups met virtually throughout the school year and fostered exchange of ideas and resources while forming a supportive network of like-minded educators.

- **NYC Solar Schools Program:**
  In its seventh year, this program is funded by the Department of Citywide Administrative Services (DCAS) Division of Energy Management and facilitated by Solar One, leveraging solar installations to strengthen the connection of climate action to classrooms. There are two major programs:

  1. **NYC Solar Education Program**—free annual teacher professional learning series offered to all DOE teachers across all grades to support integration of clean energy and sustainability curricular content.

  2. **Solar Career & Technical Education Program (CTE)**—currently in 14 CTE high schools and based on hard skill development for students for solar installations and design of solar installation projects. As a rapidly growing employment industry, clean energy provides a powerful opportunity for high school students. In FY22, the Solar CTE curriculum was expanded to include site assessment and design modules utilizing Helioscope software to diversify the experience and enhance opportunities for student skill development.

- **Zero Waste Pledge (ZWP)** provided an incremental, incentivized roadmap to help guide schools in waste reduction and improved recycling behaviors. We restructured the ZWP in a Professional Learning Community (PLC) format that promoted peer-to-peer learning and encouraged the formation of inter-school relationships. In line with office Equity and Inclusion goals, we selected participants using the DOE's Economic Need Index and buildings that have received minimal past material support.

Principal Jacob Hobson and students at Explorations Academy High School (Bronx) pose with their Zero Waste Pledge banner.

- **Climate Education Leadership Team (CELT):** In its second year, the CELT is comprised of over 40 teachers to address growing demand for integration of climate education into all subjects and grades. Members have directly provided 15 unique workshops and created numerous standards-aligned lesson plans on a variety of climate education topics for fellow teachers. The second year was an exciting evolution for the team because three members were nominated to co-chair in the spirit of the "for teachers, by teachers" approach. CELT Leadership:

  — **CELT Chair:** Colby Zenter, High School of Economics and Finance

  — **CELT Co-Chair:** Sarah Slack, J.H.S. 223, The Montauk School

  — **CELT Co-Chair:** Erin Laraway, P.S. 721, Brooklyn Occupational Training Center

Students and staff at P.S. 175 (Bronx) participating in a Climate Teach-In.

CELT KEY FOCUS AREAS AND DELIVERABLES IN THE 2021-2022 SCHOOL YEAR:

- **Resource Development & Environmental Justice Committees—**developed curriculum and resources to support equity and justice as integral priority of climate education
- **DOE Organizing & Outreach Committee—**developed strategies for internal DOE advocacy for the adoption of climate education standards
- **Climate Teach-In Committee—**created turnkey events that schools can adopt for a day(s) of school-based climate action and awareness
- **Sustainability Coordinator Support—**published a monthly Climate Ed Digest for DOE Sustainability Coordinators

The CELT concluded the year by leading four different workshops at an in-person training focused on climate education, held at Teacher's College on Chancellor's Day. This event was open to school staff citywide as part of the CELT's mission to increase awareness and support teachers to integrate these critical topics into existing curriculum.

Core Student Programs

- **Sustainability-Youth Leadership Council (YLC):** In its fourth consecutive year, the YLC mobilized student sustainability action and developed the next generation of climate leaders with support from NYC Service. Alumni YLC "Core" members created content and led half of the council's bi-weekly meetings, modeling the importance of peer-to-peer learning and student ownership. The YLC played a larger role in hosting our fourth annual Youth Climate Summit by assisting with planning, emceeing, and leading post-Summit follow-up activities. In addition, the YLC continued to support the formation of middle school green teams via a student mentorship program. YLC members are often requested to represent student advocacy and climate action at non-DOE events, meetings, and panels as an optional and additional means through which they can exercise their leadership skills and interest in community engagement.

NYC DOE Office of Sustainability Youth Leadership Council members at the end-of-year celebration.

- **Youth Climate Summit:** The theme of our fourth Annual Youth Climate Summit was "Solutions in our School Communities"; it took place virtually over 6 sessions and featured over 40 youth speakers! To emphasize local climate action, each day of the Summit centered on one borough, with a local high school and a local youth-focused organization presenting about various on-the-ground sustainability efforts.

  We forged a new internal partnership with the DOE Division of Teaching and Learning's *Civics for All* team and aligned the beginning of the Youth Climate Summit with NYC Civics Week, inviting two DOE high school ambassadors to speak about their work with NYC Votes and specifically the opportunity and importance of youth voting. Every session featured Climate Action Planning, with students collecting and analyzing photos of their school communities via ArcGIS software to develop localized climate solutions.

- **rFUTURE Program:** Made possible by an ongoing partnership with Clean Green Music Machine, Inc. (CGMM) and the Bronx's Theatre Arts Production Company High School (TAPCo), we supported the development of this unique music-focused program for a fourth year. Ten student artists were paired with a professional musician mentor to write original lyrics and music on a sustainability-inspired topic of their choice, as well as partake in a music video led by TAPCo's video production students. The program culminated in a live debut event in June 2022 at TAPCo.

Student musicians at the rFUTURE red carpet premiere at the Theatre Arts Production Company High School (Bronx).

Partner Organizations

We are proud and honored to partner with numerous nonprofit organizations, institutions, and other agencies to broaden the reach and impact of sustainability and climate programs and resources for NYC public schools. A complete list of partners is available in the Appendix.

Looking Ahead:

We are excited about the following in 2023:

- Returning to an in-person format for our Youth Climate Summit after two years of virtual summits.
- Creating new opportunities that provide educators with equipment and teacher-led professional learning that focus on environmental justice issues, such as air quality monitoring and the urban heat island effect.
- Developing the first-ever NYC DOE Summer Institute on Climate Education in partnership with Teachers College, funded through Columbia University's 5-year grant from the National Science Foundation.

Energy & Climate

The DOE accounts for over a third of total municipal energy consumption in a city where over 85% of emissions come from buildings; the City's goal is to achieve carbon neutrality by 2050 (from a 2005 baseline). Due to the scale and conditions of the building portfolio, as well as the variety of work needed to achieve ambitious climate goals, emissions reductions and energy efficiency are driven by the DOE Division of School Facilities' Energy Management Team (under Maintenance & Optimization) and Office of Sustainability. We work to improve building infrastructure and operations in school buildings such that carbon footprints are reduced and all school stakeholders are better aware, prepared, and participatory in climate action.

Greenhouse Gas Emissions

Emissions and total energy use in DOE buildings increased 13% in FY22 (see tables below), but total emissions have reduced 9% since 2008. The DOE building portfolio is dynamic — new schools are built and square footage is added through such initiatives as expansion projects (e.g., annexes) and new leases to support growing programs such as Universal Pre-K and 3K. Additionally, the 2021–2022 school year still operated under strict pandemic-induced ventilation requirements that ultimately resulted in longer equipment run times to maintain stringent standards of indoor air quality. All of these factors contributed to an overall increase in energy consumption; however, the DOE still trends towards overall emissions reductions from such efforts as the following:

- Elimination of Fuel Oil #6 from City operations in FY16 due to high emissions factor
- Electrification for heating (instead of fuel oil or natural gas) with more on the way in coming years!
- Boiler conversions from fuel oil to natural gas
- Usage of cleaner biofuel blends: B5 (5% of biodiesel) and B10 (10% of biodiesel), with higher percentages of biofuel pending in future years as well
- Investments in energy efficiency upgrades for mechanical systems and lighting
- Increase in clean energy projects [see NYC Solar Schools Program]

DOE Greenhouse Gas Emissions (tCO_2e*)[1]

	FY20	FY21	FY22	Year Over Year Change	Change from 2008 Baseline
Electricity	302,301	286,112	347,717		
Natural Gas	176,924	216,154	227,409		
Municipal Steam	6,770	7,782	8,176		
Fuel Oil - All Types	179,830	208,715	230,719		
Total	**665,825**	**718,763**	**814,021**	**13%**	**-9%**

* Unit of measure is metric tons of carbon dioxide equivalent as used in greenhouse gas accounting

1 FY20 and FY21 data were updated from previous reporting years due to on-going utility billing adjustments and coefficient calculations.

Energy Management

As part of the DOE strategy to meet the City's greenhouse gas emissions reduction goals of 40% by 2025 and carbon neutrality by 2050, the Energy Management Team oversees building retro-commissioning per Local Law 87 compliance, energy retrofits, building upgrades, and maintenance/repairs [see City-Funded Efficiency Energy Programs section]. Projects are prioritized based on the existing Energy Use Intensity (EUI) of a building, or energy use per square foot per year as defined by the U.S. Environmental Protection Agency's Portfolio Manager tool for energy benchmarking. Buildings with high EUIs and low benchmarking scores [per Local Law 84 compliance as described in Energy benchmarking section] have the greatest potential for efficiency improvements that save energy and operating costs.

Total Energy Consumption by Source (MMBTUs*)[2]

Energy sources, FY20-FY22								
	FY20		FY21		FY22			
Fuel type	Use (MMBTU)	Percent of total	Use (MMBTU)	Percent of total	Use (MMBTU)	Percent of total	Year over year change	Change from FY08 baseline
#2 B20 fuel oil	0	0.00%	0	0.00%	680	0.01%		
#2 B10 fuel oil	767,268	8.23%	977,115	9.45%	1,144,643	9.91%		
#2 B5 fuel oil	172,830	1.85%	231,152	2.24%	283,175	2.45%		
#4 B5 fuel oil	1,599,416	17.15%	1,745,071	16.87%	1,840,792	15.94%		
Gas	3,327,469	35.68%	4,065,298	39.31%	4,276,960	37.04%		
Electricity	3,220,975	34.54%	3,048,487	29.48%	3,704,870	32.09%		
Solar	24,916	0.27%	29,849	0.29%	38,507	0.33%		
Steam	213,060	2.28%	244,900	2.37%	257,321	2.23%		
Subtotal renewable energy	**24,916**	**0.27%**	**29,849**	**0.29%**	**38,507**	**0.33%**	**29%**	**498,978%**
Subtotal nonrenewable energy	**9,301,018**	**99.73%**	**10,312,022**	**99.71%**	**11,508,441**	**99.67%**	**12%**	**6%**
Total consumption	**9,325,934**		**10,341,871**		**11,546,949**		**12%**	**6%**

* MMBTU = one million British thermal units of heat

2 FY20 and FY21 data were updated from previous reporting years due to on-going utility billing adjustments. Fuel oil data obtained through the Division of School Facilities' Fuel Unit.

Energy Use Intensity (EUI), measured as kBtu/square foot, also increased in FY22 by 11.1% as compared to the previous year, given increased equipment usage to maintain rigorous indoor air quality standards set forth in pandemic operations protocols. Since FY08, however, EUI has decreased 4% overall [see Appendix for further detail]. Energy consumption and greenhouse emissions reductions to date can be attributed to the growing number of programs, workstreams, and coordinated efforts across multiple teams and schools. In addition, improvements in technical specifications and standards for school design and operations of sustainability and maintenance programs contribute to a more efficient building portfolio.

Energy Benchmarking: Local Law 84

Local Law 84 requires the DOE to benchmark energy and water consumption at 1,391 DOE buildings on 1,235 Borough-Block-Lots as identified by the NYC Department of Finance (data per the City's Municipal Benchmarking Report for Calendar Year 2021) through use of the U.S. Environmental Protection Agency's Portfolio Manager (PM) tool. Portfolio Manager calculates building energy efficiency by evaluating over 100 metrics and assigning Energy Star Scores from 1 through 100 based on comparisons to facilities of similar size and function across the country. For example, a score of 75 or higher indicates that a building is performing better than 75% of the same type of building nationwide [see Appendix for the full list of DOE Energy Benchmarking (LL84) Scores by Borough-Block-Lot].

To align with citywide energy efficiency building performance reporting, we updated the reporting criteria to only include the active DOE buildings published in the NYC Municipal Benchmarking Report. This is based on the City's Covered Buildings List that is annually updated by NYC Department of Finance.

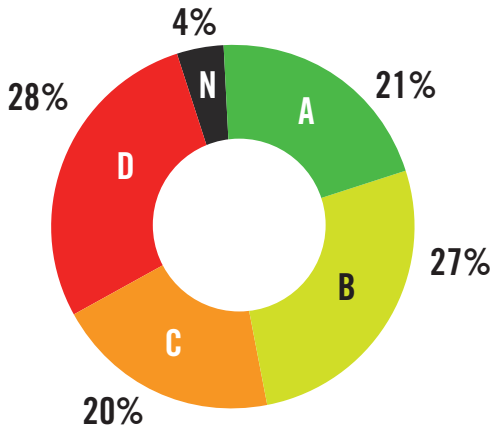
Building Energy Efficiency Rating-Local Law 33/95

Local Law 33/95 requires all NYC buildings over 25,000 square feet to post Energy Efficiency Ratings (letter grade A–F and score 1–100) based on benchmarked data from the previous calendar year. Placards must be visibly posted near all public main entrances to comply, giving visibility to the energy performance of buildings to raise public awareness of energy management and sustainability in NYC. At the DOE, FY22 ratings showed a decrease in "A" scores (from 38% to 21% of buildings) and increase in "C" and "D" scores. Some variability in ratings is expected given the height of Covid-19 captured in energy consumption trends in FY21, coupled with refined reporting criteria under a brand-new local law. Trends are in the beginning phase of formation, and we continue to closely monitor the Local Law 33 ratings as a major criterion for targeting resources and efficiency upgrades.

FY22 Breakdown of DOE Building Energy Performance*

% of School Buildings / Energy Efficiency Rating

* Based on data reported in 2021 NYC Municipal Benchmarking Report



Key to Energy Score Grades:

Energy Grade	Energy Star Score
A	85-100
B	56–84
C	55-69
D	1-54
F	Non-Compliant
N	Not Covered or Exempt

Demand Response Program: Natural Gas & Electricity

The DOE comprises nearly 70% of the total participation in the City's total Demand Response (DR) efforts with two major programs: electricity (summer and winter for cooling season) and natural gas (winter for heating season). Electricity DR programs help the grid operators (Con Ed, New York Independent Systems Operator) alleviate areas of significant stress that are vulnerable to blackouts and brownout during periods of peak demand (e.g., extreme heat). In effort to mitigate this stress on the electrical grid, 366 DOE buildings participated in 21 different emergency events in FY22 as called by grid operators.

In partnership with National Grid and the City, 45 DOE buildings also participated in the Natural Gas Demand Response Program during the Winter 2021–2022 season. These buildings were identified based on geographic areas that National Grid has identified as having a vulnerable natural gas supply, specifically areas in Brooklyn and Queens, to help protect NYC residents on cold days (<10°F) with a reliable source of heat. Participating buildings are incentivized with rebates due to the benefit they provide.

The efforts of Custodian Engineers at participating schools, with support from Division of School Facilities staff and teams, helped the DOE to earn over **$5 million in revenue** from DR Programs in FY22! Over $4.75 million was allocated for energy upgrades at 56 of the top performing buildings; in addition, DR participation also provides the Office of Sustainability a means to offer impactful programs, projects, and resources to schools citywide, including funding for our Annual Sustainability Project Grant Program. Please see the Appendix for Demand Response Program performance data.

Office of Sustainability Energy Program Manager Desmond Ofori poses with Custodian Engineer Terry Harris of MS 246 Walt Whitman (Brooklyn), who received lighting upgrades and a Pneumatic Line Repair thanks to Demand Response funding.

NYC Solar Schools Program

In FY22, we added 10 new solar photovoltaic systems as part of our NYC Solar Schools Program, bringing the total number to 69 installations to date. These projects added 2.5 mega-watts (MW) of clean energy, bringing the DOE contribution to over 77% of the City's total 100 MW commitment.

School Solar Installations Completed to Date

Fiscal Year	Total Added Solar Capacity (MW)	# of Solar Installations Completed
2006-2015	1.02	12
2016	5.87	24
2018	0.17	1
2019	0.00	0*
2020	0.00	0*
2021	3.05	15
2022	2.57	10

* No installations were completed in FY19-20 due to Covid-19 construction pause

For the eighth consecutive year, we continued our partnership with Solar One to provide the NYC Solar Schools Education and Solar Career and Technical Education (CTE) Programs to connect clean energy and climate education to teaching and learning for teachers and students across the city [see Education section for program details].

Two technicians work on the solar array at Franklin Delano Roosevelt High School (Brooklyn).

City-Funded Energy Efficiency Programs

The Department of Citywide Administrative Services (DCAS) provides two funding streams to energy efficiency projects on a fiscal year cycle: Accelerated Conservation and Efficiency (ACE) and the Expenses for Conservation and Efficiency Leadership (ExCEL) Programs. These programs provide a critical mechanism for the DOE to provide equipment upgrades, operational and maintenance improvements, data transparency, and staff training.

In FY22, the Maintenance & Optimization Team completed numerous projects focused on ventilation ("HVAC") and lighting systems for maximum emissions reductions. The project types in the chart below exemplify the multi-faceted upgrade needs of school buildings on an ongoing basis:

FY22 DCAS-Funded Projects

Project Type	# Projects	Total Annual Cost Savings	Greenhouse Gas Equivalent (CO_2e)
HVAC—AHU/RTU/Ventilation	20	$160,694	720
HVAC—BMS Controls	10	$122,293	756
HVAC—Boiler Systems	16	$237,593	1,045
HVAC—Cooling Systems	3	$46,258	261
HVAC—Hot Water Systems	1	$943	5
HVAC—Insulation	6	$1,510	10
HVAC—Motors/Pumps	1	$15,592	74
HVAC—Steam System	10	$112,546	609
HVAC—Thermostats/Controls	23	$476,011	2,934
Electrical—Lighting Upgrade	65	$1,640,589	3,189
TOTAL	**155**	**$2,814,030**	**9,602 tCO_2e**

[see Appendix—Energy Efficiency section for ACE and EXCEL project details].

Looking Ahead:

We are excited about the following in 2023:

- Contribute to the Adams Administration's new Climate Strategic Plan to impart the need for climate education and school infrastructure as priority areas within sustainability and climate policy.
- Expansion of Demand Response Programs: increase number of buildings enrolled to increase resilience of energy infrastructure that supports DOE schools and NYC residents.
- Continue working towards "resilient solar" projects (i.e., rooftop solar + battery storage) on school buildings in priority environmental justice areas that also serve as emergency shelters.

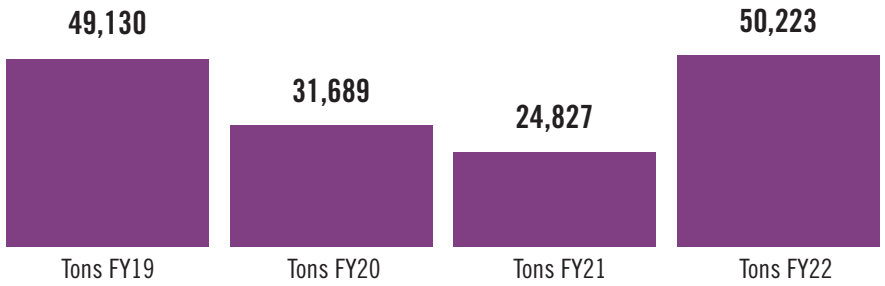
Waste & Recycling

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. We provide dedicated operational support to Division of School Facilities staff and create new opportunities for schools to reduce waste across the system.

Waste Diversion

Every NYC school and DOE building must comply with Local Law 41 and the mandated Annual School Sustainability Plan in support of recycling and waste diversion goals. Beginning in fall of 2021, in-person instruction returned, daily occupancy levels normalized at schools, and eating in cafeterias fully resumed. These significant changes also impacted the Department of Sanitation's ability to provide regular services for the Curbside Composting Program—this was paused and reinstated in FY22 at 896 schools citywide. As building occupancy returned closer to pre-pandemic levels, so did overall waste tonnages, summarized here:

Total non-hazardous* waste FY19-FY22[1]



* Non-Hazardous waste includes trash, both recycling streams (paper/cardboard and metal/glass/plastics/cartons), and compostable materials (e.g., food scraps, plates, cutlery).

1 DSNY is not able to provide all tonnage data due to containerized service (dumpsters) at some locations and other operational restrictions.

Summary of Total Waste Diversion: Fiscal Year 2022

School Waste Diversion: Recycling[2]

	FY19	FY20 (through March 2020)	FY21	FY22
Metal, Glass, Plastics and Cartons Recycling (Tons)	1,659	1,533	806	2,424
Paper Recycling (Tons)[3]	6,942	5,086	3954	7,133
Compost–Organic Material (Tons)	7,042	6,739[4]	Suspended[5]	7,963
Total Waste Diverted (Tons)	**15,643**	**13,358**	**4,760**	**17,520**

2 Data as reported by DSNY, Bureau of Recycling and Sustainability

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

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

5 In FY21, due to Covid-19, all school truck routes were converted to traditional service. There was no organics service for DOE schools.

Plastic Free Lunch Day

In partnership with Cafeteria Culture and the DOE Office of Food & Nutrition Services (OFNS), we created the first-ever citywide DOE Plastic Free Lunch Day (PFLD) on May 16, 2022. Menus were planned such that kitchen staff in over 750 elementary schools were able to prepare and serve school lunches without using any plastic. This is not only a monumental step towards reducing waste in NYC schools, but it also serves as a significant example for all school districts as the need and demand for climate action increases nationwide.

Students from P.S. 188 The Island School (Manhattan) participating in Plastic Free Lunch Day.

Middle and high schools have several food service options, complicating logistics but also establishing efforts to determine next steps in plastic reduction. Middle and high schools can participate in Plastic Free Lunch Days through such things as awareness campaigns, plastic waste audits, or bringing reusable water bottles and cutlery. Cafeteria Culture, our team, and GrowNYC's Zero Waste Schools team supported several school waste audits to measure plastic reduction efforts. The day raised awareness about plastic packaging and the volume of waste it creates, laying the groundwork for the creation of monthly Plastic Free Lunch Days throughout FY23.

End of Year Supply Swap

The end of each school year is a notoriously wasteful time as schools purge items they don't want to store over the summer, and unused supplies get discarded. Each year our office proactively reminds schools to donate, reuse, or save unused items, but the need is still vast. This year we piloted a five-day citywide end-of-year supply swap with nonprofit partner Materials for the Arts. We collectively identified one school in each borough to serve as a "drop and swap" location for school supplies. Schools could drop off items, (no furniture or electronics) and other schools could take anything they wanted or needed. At the end of each day, all unclaimed or surplus items were taken back to the MFTA warehouse in Queens for distribution. Through this event, we diverted 4,165 lbs of materials from landfill.

Staff from Materials for the Arts and The Academy for Career & Living Skills (Bronx) collecting materials at an End-of-Year Supply Swap.

Custodial Supply Grant

A second year of our Custodial Supply Grant was offered to support sustainability projects in schools. We offered three separate waste grant opportunities for Custodians to order tilt trucks, recycling bins, and cafeteria waste sorting stations. A separate energy supply grant was funded by the Department of Citywide Administrative Services (DCAS) to support Local Law 33 Building Energy Efficiency Ratings. We targeted this grant to school buildings that received lower ratings ("C" or "D" grade) to help improve and incentivize energy performance. Custodians from 348 buildings were awarded materials valued at $939,918!

Policy Update: Local Law 65-School Food Waste Prevention Plan

New York City Council passed new legislation in May 2021 that requires the NYC Department of Education to develop a plan to reduce food waste. In addition to continuing our partnership with DSNY on the Curbside Composting Program at over 850 schools, we are working with the DOE Office of Food and Nutrition Services (OFNS) to advance this effort throughout the organization. We look forward to furthering the DOE-DSNY partnership by working with DSNY's DonateNYC portal as a mechanism to connect schools to local food pantries to redistribute as much unused food items as possible to people in need.

Looking Ahead:

We are excited about the following in 2023:

- Expanding Curbside Compost collection to all Bronx schools with support from our partners at DSNY and GrowNYC Zero Waste Schools.
- Making Plastic Free Lunch Day (PFLD) a nationwide event in November and having monthly PFLDs for the remainder of the year.
- Continuing our Supply Swap with Materials for the Art to include more drop-off locations.

School Gardens

The Office of Sustainability recognizes the value of green space in promoting wellness and social-emotional learning through outdoor learning of all kinds: physical education, nutrition education, sustainability and climate education, and beyond. Gardens and green infrastructure help to provide physical spaces in which these connections can take place for students, staff, and school communities. 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.

Sustainability Project Grant

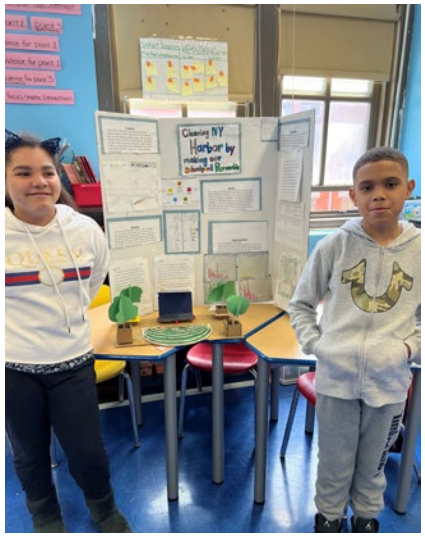
For the sixth year, our Sustainability Project Grant served as a tool for schools to create, enhance, and maintain gardens. Grant funding is provided by the Demand Response (DR) Program. As the DR program and subsequent revenue grow, we are able to offer more funding to schools. In FY22, we awarded the largest number of grants and total dollar amount to date: 117 schools for a combined $537,242! Highlights include:

- 84% was the average Economic Need Index of awarded schools (compared to the city-wide average of 71%), a direct result of our prioritization of Equity and Inclusion goals.
- 11 grants were awarded to projects at District 75 (special education) schools.
- 66% of winning schools were co-located in buildings with other schools, expanding the reach of the program.
- 14 partner organizations assisted schools in implementing sustainability initiatives, 12 of which were for the Gardening & Outdoor Learning category.

The category with the highest demand and, therefore, the highest dollar allocation, continues to be the **Gardening & Outdoor Learning** category. Garden projects from 75 schools were awarded, including projects below that highlight climate action, the importance (and fun!) of nature and ecology, and examples of experiential and collaborative learning.

Makini Velazquez of P.S. M094 (Manhattan) rejuvenated her school garden by turning food waste from the cafeteria into compost, building bee habitats, and partnering with Leave it Better to introduce students to vermicomposting and ecology!

Ruth Duran-Chea of the P.S. 315 Lab School (Bronx), partnered with CatRock Ventures to secure a permit to access nearby NYC Park "Washington's Walk," where students learned to bike, tend to tree beds, and plant seeds and flowers.



Lynn Shon of the Red Hook Neighborhood School (Brooklyn) led her students in redesigning their schoolyard to be more resilient in response to flooding and extreme heat, interviewing community stakeholders and designing green infrastructure, from raised bed planter benches to a gazebo that collects rainwater.

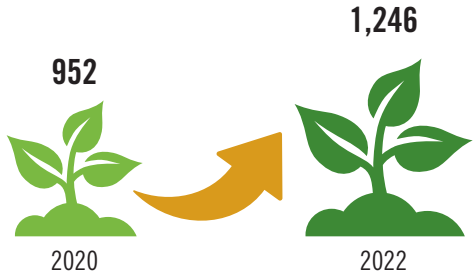
Samantha Pitta of The 47 American Sign Language & English Lower School (Manhattan) partnered with City Growers to establish a Garden Residency program, providing experiential STEM-based learning via an ASL-fluent educator and connecting garden harvests to the school's Pantry Backpack Program.

For a complete list of 2021-22 grant recipients, please see Appendix.

2022 DOE Garden Census

In the spring of 2022, we sent out a survey to over 3,200 educators to gain a better, more updated understanding of the total amount and types of school gardens in NYC. We worked with our network of garden partners to consolidate various lists and add other school-reported data from our annual Sustainability Survey to determine that the number of known school gardens increased from **952 in 2020 to 1,246 in 2022**.

Growth in DOE Gardens 2020–2022

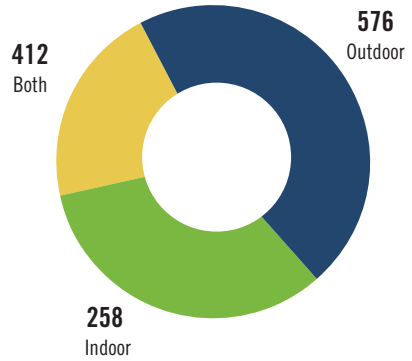


Due to limited space in NYC, school gardens come in many shapes and sizes. We characterized school garden "type" as indoor (e.g., aquaponics, aeroponics, hydroponics, greenhouses, container gardens), outdoor (e.g., raised beds, rooftop planters/beds, sub-irrigated planters, pollinator gardens, and outdoor learning areas), or both (i.e., indoor AND outdoor gardens).

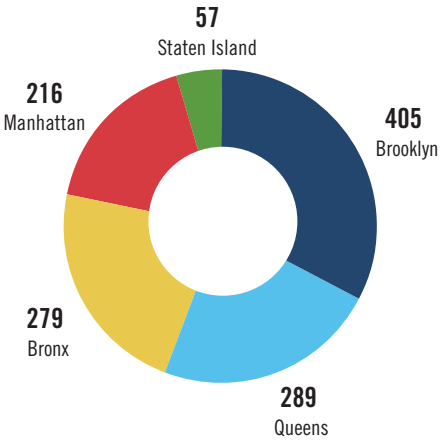
In our census, 363 schools reported that they did NOT have a garden, 149 of which also reported that they are interested in creating one. This valuable information helps us to better gauge possible schools for programming, partnerships, and future garden and/or green infrastructure projects.

Special thank you to the following partner organizations who provided us with garden data: GrowNYC School Gardens, NY Sun Works, National Wildlife Federation, Teens for Food Justice, Green Bronx Machine, City Growers, NY Botanical Gardens, City Parks Foundation, and Garden to Café.

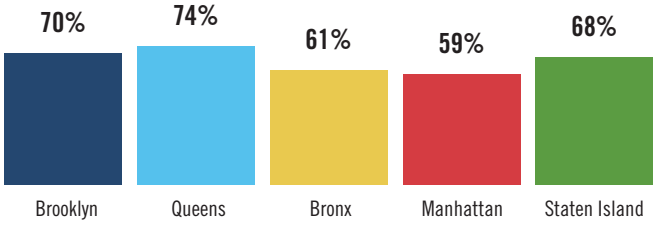
DOE School Garden Types



Number of Schools with Gardens Per Borough



Percent of Schools with Gardens Per Borough



Looking Ahead:

We are excited about the following in 2023:

- Partnering with GrowNYC School Gardens on our Sustainability Project Grant to offer workshops and on-the-ground support.
- Streamlining and easing access to purchasing garden materials through grant funds by adding new award categories and improving processes for schools.
- Strategically using Garden Census data to identify geographic gaps and support schools that expressed interest in gardening.

Conclusion

The 2021–22 school year brought along new challenges to which we readily rose, building upon successes and refining as needed to continuously improve. We expanded several of our core facility programs, such as solar installations and the Demand Response Program, and continued to provide more resources to schools through our Annual Sustainability Project Grant and Custodial Supply Grant. We launched new initiatives, from our Professional Learning Communities to Plastic Free Lunch Day to the end-of-year Swap Events. We also pivoted in the face of change; for instance, when the Covid surge hit in the winter of 2021/2022, we reversed the plan for an in-person Youth Climate Summit back to a virtual event. Adaptation to change not only exemplifies sustainability, it also defines our intention as a team and as advocates for schools. We look forward to expanding on the “Looking Ahead” items we’ve laid out in this report to continue to help NYC public schools advance sustainability and reach the City’s climate goals.

Appendix

Office of Sustainability Partners

Action for the Climate Emergency (ACE)

American Museum of Natural History

Audubon New York—For the Birds!

Bronx Health Reach

Bronx River Alliance

Brooklyn Bridge Park

Cafeteria Culture (CafCu)

Children's Environmental Literacy Foundation (CELF)

Citizens Committee of New York (CCNY)

City Growers

City Parks Foundation

Clean Green Music Machine

Climate Generation

Coalition for Healthy School Food

Department of Sanitation New York City (DSNY)

Earth Day Initiative

EcoRise

Edible Schoolyard NYC

FABSCRAP

Farm to School

Garden Train

Genovesi Environmental Study Center

Gowanus Canal Conservancy

Green Bronx Machine

Green City Challenge

Green Schools Alliance

Greening Forward

GrowNYC School Gardens & Zero Waste Schools

Materials for the Arts (MFTA)

National Wildlife Federation Eco-Schools USA

Newtown Creek Alliance

NY Botanical Garden

NY Hall of Science

NY Restoration Project

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—Division of Teaching and Learning

NYC DOE—Office of Food and Nutrition Services

NYC DOE—Office of School Wellness Programs

NYC DOE – Service in Schools

NYC Department of Health and Mental Hygiene (DOHMH)—Healthy Living By Design

NYC Mayor's Office of Food Policy

NYC Mayor's Office of Climate and Environmental Justice

NYC School Construction Authority

NYU Wallerstein Collaborative for Urban Environmental Education

Passive House for Everyone

PowerMyLearning

Queens Botanical Garden

Resilient Schools Consortium Program (RISC)

SIMS Municipal Recycling

Solar One

STEMteachersNYC

Teachers College, Columbia University

Teens for Food Justice

The Climate Museum

The Horticultural Society of NY

United Federation of Teachers (UFT)

WE ACT for Environmental Justice

Wearable Collections

Wellness in the Schools

Wildlife Conservation Society

Energy Management

Demand Response (Electricity)

Fiscal Year (FY)	Schools enrolled	Capacity enrolled (KW)	Event length (hours)	Total energy saved (kWh)	Total cost saved
FY20	325	80,375	52 HR	337,778.95	$60,800.21 @ $0.18/kWh
FY21	338	65,385	77 HR	216,028.40	$30,243.98 @ $0.14/kWh
FY22	366	55,650	65 HR	221,033.49	$35,365.36 @ $0.16/kWh

Demand Response (Gas) National Grid

Fiscal Year (FY)	Max Schools enrolled	Max Capacity enrolled Dekatherm (Dth)/Event	Total Event length (hours)	Total Energy saved (Dth/ Event/Hr)	Total cost saved
FY21	45	1586	3 HR	1,698.00	$1,324.44 @ $0.78/therm
FY22	45	2015	6 HR	28,904.10	$27,458.90 @ $0.95/therm

Energy Use Intensity (EUI)

	Total square footage	EUI (KBTU/sq. ft.)	EUI year over year change	EUI change from FY08 baseline
FY20	160,161,600	58.2	-14.2%	-21.6%
FY21	161,329,200	63.9	9.9%	-13.8%
FY22	162,082,800	71.24	11.1%	-4.0%
Average	**161,191,200**	**65**	2.4%	-13.0%

The DOE shifted on reporting Energy Star Performance from number of properties to Borough-Block-Lot or BBLs as required by NYC Departments of Buildings and Finance to align with their naming convention. The Energy Star scores for FY22 (using CY21 data), under this new reporting criteria are below as reported in the NYC Municipal Benchmarking Report.

Energy Star Score	# of Borough-Block-Lot (BBLs)	% of School Buildings
A	262	21%
B	326	26%
C	241	20%
D	355	29%
N	51	4%

Energy Star Performance for DOE Properties

	FY21 (CY 20 Rpt)		FY22 (CY 21 Rpt)	
Score	Number of Bldgs.*	% of Bldgs.	Number of Bldgs.*	% of Bldgs.
75 or higher	858	59.2%	548	39.4%
50-74	353	24.4%	464	33.4%
25-49	138	9.5%	211	15.2%
24 or below	52	3.6%	121	8.6%
No score available	48	3.3%	47	3.4%
Total school buildings	**1449**		**1391**	

* To align with citywide energy efficiency building performance reporting DOE updated reporting criteria from EPA Energy Star Portfolio Manager property accounting to report only active DOE buildings published in Municipal Benchmarking Report. This is based on City Covered Buildings List annually updated by NYC Department of Finance.

ACE Energy Efficiency Projects in FY22

Borough	Building Code	Type of Work	Annual Cost Savings	GHG Savings
Brooklyn	K017	HVAC—Boiler Systems	$4,429.98	21.89
Brooklyn	K096	HVAC—Thermostats/Controls	$15,154.08	85.77
Brooklyn	K101	HVAC—Boiler Systems	$4,592.45	23.37
Brooklyn	K106	HVAC—Boiler Systems	$4,441.41	21.83
Brooklyn	K123	HVAC—Boiler Systems	$4,524.48	23.94
Brooklyn	K138	HVAC—Thermostats/Controls	$23,919.34	135.10
Brooklyn	K145	HVAC—Boiler Systems	$4,905.75	25.49
Brooklyn	K169	HVAC—Boiler Systems	$3,588.98	18.99
Brooklyn	K214	HVAC—Boiler Systems	$4,150.19	21.19
Brooklyn	K284	HVAC—Boiler Systems	$4,218.74	22.32
Brooklyn	K306	HVAC—Boiler Systems	$66,044.51	255.69
Manhattan	M117	HVAC—Boiler Systems	$106,475.95	415.97
Manhattan	M121	HVAC—Steam System	$5,039.14	33.34
Manhattan	M446	HVAC—Steam System	$4,664.59	27.33
Queens	Q019	HVAC—Steam System	$13,400.31	56.24
Queens	Q081	HVAC—Steam System	$4,680.44	30.97
Queens	Q089	HVAC—Steam System	$2,651.27	17.54
Queens	Q125	HVAC—Steam System	$9,877.90	65.36
Queens	Q226	HVAC—Steam System	$15,254.71	100.94
Queens	Q475	HVAC—Steam System	$34,460.62	174.67
Staten Island	R032	HVAC—Thermostats/Controls	$18,738.21	124.41
Staten Island	R460	HVAC—Thermostats/Controls	$68,005.39	468.89
Bronx	X027	HVAC—Steam System	$8,944.27	45.34
Bronx	X074	HVAC—Thermostats/Controls	$20,909.90	113.20
Bronx	X104	HVAC—Steam System	$13,572.34	56.96
Bronx	X132	HVAC—Thermostats/Controls	$23,981.52	165.35
Bronx	X141	HVAC—Thermostats/Controls	$17,968.72	103.61
Bronx	X166	HVAC—Thermostats/Controls	$26,595.91	183.38
Bronx	X279	HVAC—AHU/RTU/Ventilation	$34,337.07	153.70
Bronx	X445	HVAC—Thermostats/Controls	$43,331.78	234.58
Bronx	X450	HVAC—Thermostats/Controls	$61,589.16	333.42

ExCEL Energy Efficiency Projects completed in FY22

Borough	Building Code	Type of Work	Annual Cost Savings	GHG Savings
Brooklyn	K009	HVAC—Thermostats/Controls	$10,372	213
Brooklyn	K027	Electrical—Lighting Upgrade	$30,823	60.9
Brooklyn	K054	HVAC—Thermostats/Controls	$14,865	66.8
Brooklyn	K072	HVAC—AHU/RTU/Ventilation	$1,708	9.6
Brooklyn	K091	Electrical—Lighting Upgrade	$15,287	26.8
Brooklyn	K124	Electrical—Lighting Upgrade	$19,862	47
Brooklyn	K151	Electrical—Lighting Upgrade	$15,127	29.6
Brooklyn	K170	Electrical—Lighting Upgrade	$20,779	41.7
Brooklyn	K175	Electrical—Lighting Upgrade	$21,207	30
Brooklyn	K178	Electrical—Lighting Upgrade	$23,211	45.5
Brooklyn	K179	HVAC—AHU/RTU/Ventilation	$224	1.5
Brooklyn	K183	Electrical—Lighting Upgrade	$19,572	45.1
Brooklyn	K184	Electrical—Lighting Upgrade	$26,647	52.3
Brooklyn	K186	Electrical—Lighting Upgrade	$16,845	23.4
Brooklyn	K186	HVAC—Thermostats/Controls	$3,953	27.4
Brooklyn	K197	HVAC—AHU/RTU/Ventilation	$703	4
Brooklyn	K197	Electrical—Lighting Upgrade	$26,714	36.5
Brooklyn	K197	HVAC—Cooling Systems	$372	2.1
Brooklyn	K202	Electrical—Lighting Upgrade	$35,231	68.5
Brooklyn	K204	Electrical—Lighting Upgrade	$23,780	43.2
Brooklyn	K215	HVAC—Boiler Systems	$1,743	13
Brooklyn	K215	HVAC—Insulation	$110	0.8
Brooklyn	K255	Electrical—Lighting Upgrade	$14,114	17.9
Brooklyn	K260	Electrical—Lighting Upgrade	$8,918	18.8
Brooklyn	K260	HVAC—Thermostats/Controls	$10,528	85.3
Brooklyn	K264	Electrical—Lighting Upgrade	$11,192	17.7
Brooklyn	K270	HVAC—Thermostats/Controls	$9,131	57.4
Brooklyn	K313	Electrical—Lighting Upgrade	$40,294	78.83
Brooklyn	K356	HVAC—AHU/RTU/Ventilation	$2,378	10.22
Brooklyn	K356	HVAC—Boiler Systems	$2,456	19
Brooklyn	K356	Electrical—Lighting Upgrade	$34,321	32.2
Brooklyn	K390	Electrical—Lighting Upgrade	$27,232	41.1
Brooklyn	K420	Electrical—Lighting Upgrade	$56,528	99
Brooklyn	K422	Electrical—Lighting Upgrade	$43,086	83.5
Brooklyn	K465	Electrical—Lighting Upgrade	$185,857	375
Brooklyn	K480	Electrical—Lighting Upgrade	$44,340	87.7
Brooklyn	K490	HVAC—AHU/RTU/Ventilation	$5,733	33.1
Brooklyn	K564	Electrical—Lighting Upgrade	$49,074	97.69
Brooklyn	K615	HVAC—AHU/RTU/Ventilation	$1,641	10.8
Brooklyn	K615	HVAC—Insulation	$184	1.3
Brooklyn	K615	Electrical—Lighting Upgrade	$39,185	76.6
Brooklyn	K798	Electrical—Lighting Upgrade	$35,506	69.6
Brooklyn	K798	HVAC—BMS Controls	$14,485	90.94
Brooklyn	K801	HVAC—Cooling Systems	$45,471	256
Brooklyn	K801	Electrical—Lighting Upgrade	$64,292	73
Brooklyn	K801	HVAC—AHU/RTU/Ventilation	$45,471	256
Brooklyn	K807	Electrical—Lighting Upgrade	$27,592	27.6
Brooklyn	K807	HVAC—BMS Controls	$12,378	74.78
Brooklyn	K818	Electrical—Lighting Upgrade	$2,588	5.33
Brooklyn	K848	Electrical—Lighting Upgrade	$3,932	7

ExCEL Energy Efficiency Projects completed in FY22 continued

Borough	Building Code	Type of Work	Annual Cost Savings	GHG Savings
Manhattan	M005	Electrical—Lighting Upgrade	$179	0.4
Manhattan	M009	Electrical—Lighting Upgrade	$15,015	30.3
Manhattan	M013	HVAC—Boiler Systems	$21,865	134
Manhattan	M013	HVAC—Hot Water Systems	$943	5.29
Manhattan	M036	Electrical—Lighting Upgrade	$1,183	3.9
Manhattan	M089	Electrical—Lighting Upgrade	$1,355	9
Manhattan	M089	Electrical—Lighting Upgrade	$37,921	77.2
Manhattan	M093	HVAC—Cooling Systems	$415	2.8
Manhattan	M093	HVAC—Thermostats/Controls	$2,636	17.6
Manhattan	M093	Electrical—Lighting Upgrade	$20,876	40.9
Manhattan	M102	Electrical—Lighting Upgrade	$3,807	10.3
Manhattan	M125	Electrical—Lighting Upgrade	$3,683	8.63
Manhattan	M130	HVAC—AHU/RTU/Ventilation	$3,729	19.3
Manhattan	M130	Electrical—Lighting Upgrade	$2,435	11.3
Manhattan	M130	Electrical—Lighting Upgrade	$37,321	75.4
Manhattan	M133	HVAC—AHU/RTU/Ventilation	$7,562	28
Manhattan	M133	Electrical—Lighting Upgrade	$490	3
Manhattan	M133	HVAC—Thermostats/Controls	$4,004	15
Manhattan	M169	Electrical—Lighting Upgrade	$30,472	68.21
Manhattan	M173	HVAC—AHU/RTU/Ventilation	$7,733	31.4
Manhattan	M173	HVAC—Thermostats/Controls	$5,906	28.2
Manhattan	M175	HVAC—AHU/RTU/Ventilation	$5,315	19.4
Manhattan	M175	Electrical—Lighting Upgrade	$1,523	4.6
Manhattan	M175	HVAC—Thermostats/Controls	$8,011	29.2
Manhattan	M194	HVAC—AHU/RTU/Ventilation	$2,295	11.9
Manhattan	M194	Electrical—Lighting Upgrade	$15,033	29.9
Manhattan	M263	HVAC—AHU/RTU/Ventilation	$1,667	7.9
Manhattan	M263	Electrical—Lighting Upgrade	$26,411	54.87
Manhattan	M271	Electrical—Lighting Upgrade	$70,821	204.3
Manhattan	M281	HVAC—BMS Controls	$11,607	68.67
Manhattan	M490	Electrical—Lighting Upgrade	$82,661	225.9
Manhattan	M501	Electrical—Lighting Upgrade	$20,392	56.3
Queens	Q028	HVAC—AHU/RTU/Ventilation	$11,454	30.6
Queens	Q062	HVAC—AHU/RTU/Ventilation	$2,627	14.7
Queens	Q101	HVAC—Thermostats/Controls	$4,251	30.3
Queens	Q212	Electrical—Lighting Upgrade	$3,051	7.8
Queens	Q244	HVAC—BMS Controls	$8,266	49.93
Queens	Q254	HVAC—Insulation	$118	0.8
Queens	Q297	HVAC—BMS Controls	$5,629	33.69
Queens	Q520	HVAC—BMS Controls	$12,895	80.42
Staten Island	R001	Electrical—Lighting Upgrade	$9,832	13
Staten Island	R006	Electrical—Lighting Upgrade	$45,351	73.1
Staten Island	R013	HVAC—Boiler Systems	$3,086	16
Staten Island	R013	Electrical—Lighting Upgrade	$11,920	22.9
Staten Island	R041	Electrical—Lighting Upgrade	$30,796	38.4
Staten Island	R042	HVAC—Insulation	$427	2.9
Staten Island	R043	Electrical—Lighting Upgrade	$17,501	36
Staten Island	R043	HVAC—BMS Controls	$17,324	111.41
Staten Island	R045	Electrical—Lighting Upgrade	$28,018	41.2

ExCEL Energy Efficiency Projects completed in FY22 continued

Borough	Building Code	Type of Work	Annual Cost Savings	GHG Savings
Staten Island	R045	HVAC—Thermostats/Controls	$3,793	21.5
Staten Island	R056	Electrical—Lighting Upgrade	$66,850	95
Staten Island	R058	HVAC—AHU/RTU/Ventilation	$13,383	19.5
Staten Island	R058	Electrical—Lighting Upgrade	$5,353	16.4
Staten Island	R450	HVAC—AHU/RTU/Ventilation	$10,504	45.3
Staten Island	R450	Electrical—Lighting Upgrade	$33,524	55
Staten Island	R848	HVAC—Boiler Systems	$0	6
Staten Island	R861	Electrical—Lighting Upgrade	$7,536	17.2
Staten Island	R880	HVAC—Motors/Pumps	$15,592	74
Bronx	X029	HVAC—Insulation	$612	3.8
Bronx	X029	Electrical—Lighting Upgrade	$1,003	1.2
Bronx	X037	Electrical—Lighting Upgrade	$1,667	11.4
Bronx	X093	HVAC—AHU/RTU/Ventilation	$1,377	8.1
Bronx	X093	HVAC—Boiler Systems	$1,071	6
Bronx	X154	HVAC—AHU/RTU/Ventilation	$853	5.2
Bronx	X154	Electrical—Lighting Upgrade	$2,206	8.3
Bronx	X189	Electrical—Lighting Upgrade	$8,489	25.5
Bronx	X189	HVAC—BMS Controls	$17,021	107.18
Bronx	X192	HVAC—Thermostats/Controls	$2,070	15.6
Bronx	X285	HVAC—BMS Controls	$10,929	66.89
Bronx	X362	HVAC—Insulation	$59	0.3
Bronx	X362	Electrical—Lighting Upgrade	$10,659	38.2
Bronx	X440	HVAC—Thermostats/Controls	$76,297	379
Bronx	X465	HVAC—BMS Controls	$11,759	71.85
Bronx	X790	Electrical—Lighting Upgrade	$2,121	14.5

Sustainability Project Grant Winners

Category: Gardens & Outdoor Learning

School Name	Borough
47 The American Language and English Secondary School	Manhattan
Accion Academy	Bronx
Astor Collegiate Academy	Bronx
Bedford Park Elementary School	Bronx
Bronx Center for Science and Mathematics	Bronx
Bronx International High School	Bronx
Bronx Leadership Academy High School	Bronx
Conselyea Preparatory School	Brooklyn
Cultural Academy for the Arts and Sciences	Brooklyn
EBC High School for Public Service—Bushwick	Brooklyn
Elm Tree Elementary School	Queens
Fairmont Neighborhood School	Bronx
High School of World Cultures	Bronx
I.S. 219 New Venture School	Bronx
I.S. 281 Joseph B Cavallaro	Brooklyn
I.S. 5 The Walter Crowley Intermediate School	Queens
I.S. 584	Bronx
International Community High School	Bronx
J.H.S. 088 Peter Rouget	Brooklyn
J.H.S. 162 The Willoughby	Brooklyn
J.H.S. 210 Elizabeth Blackwell	Queens
John Dewey High School	Brooklyn
Juan Morel Campos Secondary School	Brooklyn
Lower East Side Preparatory High School	Manhattan
M.S. 129 Academy for Independent Learning and Leadership	Bronx
P.S. 006 Lillie D. Blake	Manhattan
P.S. 013 M. L. Lindemeyer	Staten Island
P.S. 021 Philip H. Sheridan	Bronx
P.S. 028 Wright Brothers	Manhattan
P.S. 042 Claremont	Bronx
P.S. 048 Mapleton	Brooklyn
P.S. 059 William Floyd	Brooklyn
P.S. 065 Mother Hale Academy	Bronx
P.S. 068 Cambridge	Queens
P.S. 093 William H. Prescott	Brooklyn
P.S. 110	Queens
P.S. 123 Suydam	Brooklyn
P.S. 131 Brooklyn	Brooklyn
P.S. 142 Amalia Castro	Manhattan
P.S. 149 Sojourner Truth	Manhattan
P.S. 159 Isaac Pitkin	Brooklyn
P.S. 161 Juan Ponce De Leon School	Bronx
P.S. 170	Bronx
P.S. 192 Jacob H. Schiff	Manhattan
P.S. 194 Countee Cullen	Manhattan
P.S. 200 The James McCune Smith School	Manhattan
P.S. 226 Alfred De B. Mason	Brooklyn
P.S. 233 Langston Hughes	Brooklyn
P.S. K004	Brooklyn
P.S. K141	Brooklyn
P.S. K231	Brooklyn
P.S. K721 Brooklyn Occupational Training Center	Brooklyn
P.S. Q004	Queens
P.S. Q233	Queens
P.S. Q811	Queens
P.S. X176	Bronx
P.S. X811	Bronx
P.S./I.S. 224	Bronx
P.S./I.S. 30 Mary White Ovington	Brooklyn
Pathways in Technology Early College High School (P-Tech)	Brooklyn
Pelham Academy of Academics and Community Engagement	Bronx
Pelham Gardens Middle School	Bronx
Pioneer Academy	Queens
Red Hook Neighborhood School	Brooklyn
Restoration Academy	Brooklyn
Soundview Academy for Culture and Scholarship	Bronx
Special Music School	Manhattan
Sunset School of Cultural Learning	Brooklyn
The 47 American Sign Language & English Lower School	Manhattan
The Bronx Mathematics Preparatory School	Bronx
The Brooklyn Green School	Brooklyn
The SEEALL Academy	Brooklyn
Urban Scholars Community School	Bronx
West Bronx Academy for the Future	Bronx
West Prep Academy	Manhattan

Sustainability Project Grant Winners continued

Category: Demonstration Solar Installation

School Name	Borough
Bronx High School for Writing and Communication Arts	Bronx
George Westinghouse Career and Technical Education High School	Brooklyn
New Explorations into Science, Technology and Math High School	Manhattan
P.S. 070 Max Schoenfeld	Bronx
P.S. 171 Peter G. Van Alst	Queens
P.S. 306 Ethan Allen	Brooklyn
World View High School	Bronx

Category: Green Team Supports

School Name	Borough
Academy for New Americans	Queens
Art and Design High School	Manhattan
Arturo A. Schomburg Satellite Academy Bronx	Bronx
East New York Family Academy	Brooklyn
Harvest Collegiate High School	Manhattan
J.H.S. 074 Nathaniel Hawthorne	Queens
Manhattan Bridges High School	Manhattan
New Utrecht High School	Brooklyn
P.S. 011 Highbridge	Bronx
P.S. 023 Carter G. Woodson	Brooklyn
P.S. 045 John Tyler	Staten Island
P.S. 149 Danny Kaye	Brooklyn
P.S. 360	Bronx
I.S. X318 Math, Science & Technology Through Arts	Bronx

Category: Sustainability Education

School Name	Borough
Brighter Choice Community School	Brooklyn
Bronx Little School	Bronx
Brooklyn Gardens Elementary School	Brooklyn
Evergreen Middle School for Urban Exploration	Brooklyn
I.S. 528 Bea Fuller Rodgers School	Manhattan
J.H.S. 123 James M. Kieran	Bronx
Lafayette Academy	Manhattan
Leaders High School	Brooklyn
P.S. 007 Abraham Lincoln	Brooklyn
P.S. 025 Bilingual School	Bronx
P.S. 034 Franklin D. Roosevelt	Manhattan
P.S. 085 Great Expectations	Bronx
P.S. 109 Sedgwick	Bronx
P.S. 124 Silas B. Dutcher	Brooklyn
P.S. 150 Christopher	Brooklyn
P.S. 188 The Island School	Manhattan
P.S. 270 Johann DeKalb	Brooklyn
P.S. 315 Lab School	Bronx
P.S. 723	Bronx
P.S. M094	Manhattan
The Gregory Jocko Jackson School of Sports, Art, and Technology	Brooklyn

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. 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 33/95:** Requires that all buildings covered by Local Law 84 (Energy Benchmarking) post the building's Energy Efficiency Rating (A-D) and score (1-100) near all public main entrances to increase transparency on energy performance. Grade and score are determined by the EPA ENERGY STAR data established by LL84 from the previous calendar year to be posted annually by October 31.
- **Local Law 24:** Outlines DOE contribution to solar readiness assessment for NYC municipal buildings.
- **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 92/94:** 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—Climate Mobilization Act:** 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 report.
- **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 and 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 recycling plan, which at a minimum requires that every class have separate and appropriately labeled bins for trash and recyclable paper, and for school buildings to have recycling bins for metal, glass, and plastic materials as close to the school exit as possible without violating safety codes.

  - The school principal or sustainability coordinator must participate in an annual survey conducted by the DOE Director of Sustainability; which helps review each school's and the City's progress on recycling activities. The Director of Sustainability must submit an annual recycling report to the 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 65:** Requires the NYC Department of Education to develop a plan to reduce food waste.
- **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; 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 (GHG) emissions, we examined DOE energy bills. Electricity, natural gas and municipal steam consumption was obtained through the Department of Citywide Administrative Services (DCAS)'s Energy Cost Control and Conservation online portal EC3 using the latest available data at the time. Fuel oil and biodiesel blends consumption was based on fuel oil delivery bills as tracked by Division of School Facilities' Office of Finance Accounts Payable Unit under the assumption that the amount of fuel oil delivered reflects its usage during the year.

Greenhouse gases included in these calculations (carbon dioxide (CO_2), methane (NH_4) and nitrous oxide (N_2O)) were normalized into metric tons of carbon dioxide equivalent (CO_2e), using emission factors and conversion units established by the 2020 NYC City Government GHG Inventory and United States Environmental Protection Agency utilizing Global Protocol for Community-Scale GHG Inventories. Emissions factors for fuel oil and biodiesel blends were derived as proportional estimates for respective fuel oil type, based on the percentage 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 future savings of energy consumption and cost, GHG emissions reduction were obtained through ACE and ExCEL grant applications. Solar data was provided based on capacity information of new solar installations and project completions dates provided by the DCAS Clean Energy and Innovative Technologies Office. Demand Response summary was contributed by Demand Response program provider NuEnergen.

NYC DOE OFFICE OF SUSTAINABILITY

Annual Report

2021–22