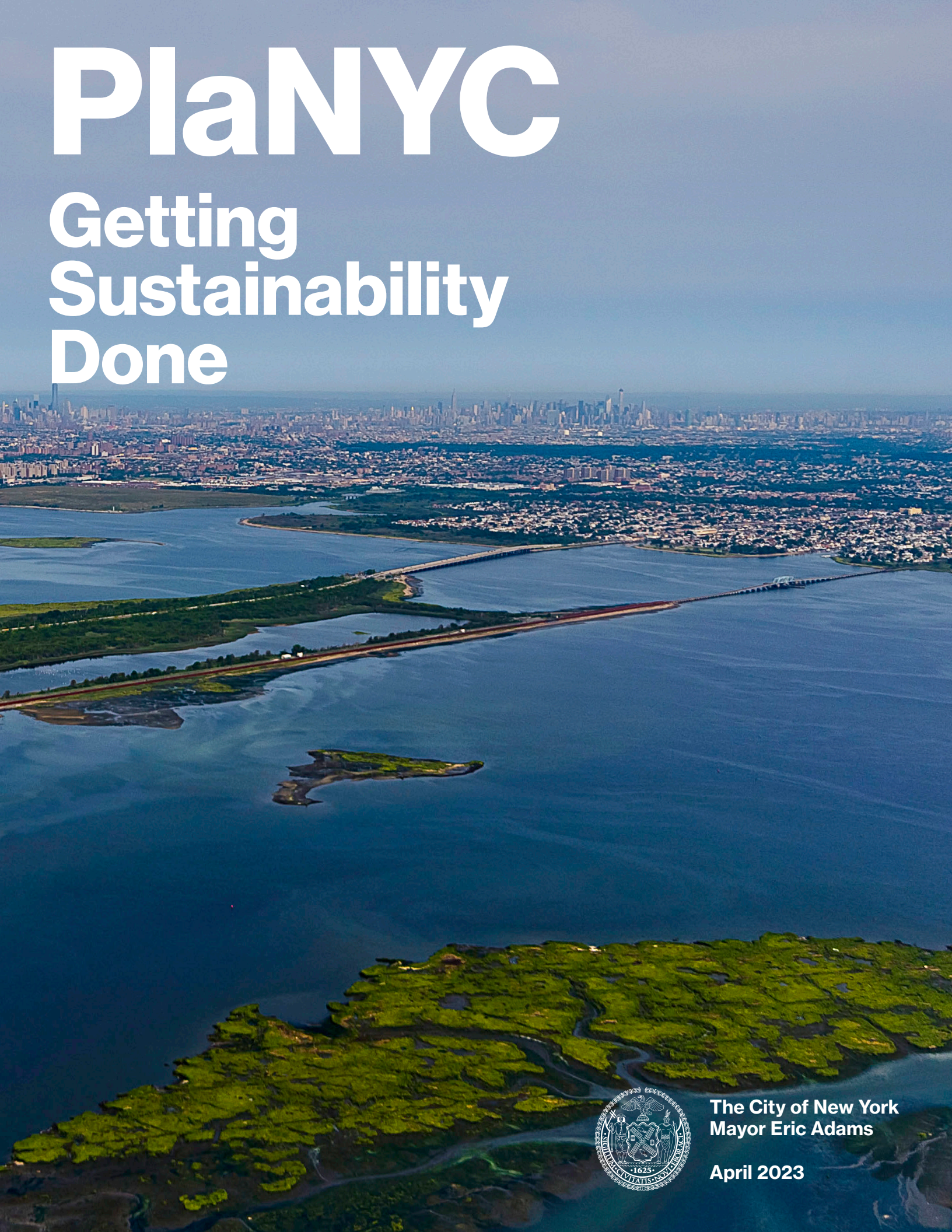
PlaNYC

Getting Sustainability Done



The City of New York
Mayor Eric Adams

April 2023

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Brookyn's Prospect Park with Manhattan skyline in the distance. Source: NYC & Company

LETTER FROM THE MAYOR

To my fellow New Yorkers:

From torrential rainstorms to viciously high tides to sweltering temperatures, New Yorkers are feeling the brutal effects of climate change. The results are devastating and all too often tragic. They have the worst impact on our most vulnerable communities. And they demand action.

Action is what *PlaNYC: Getting Sustainability Done* is all about. This is the Get Stuff Done *PlaNYC*.

PlaNYC: Getting Sustainability Done is an action plan for a cleaner, greener, and more just city for all as we reckon with decades of economic and environmental injustice.

The GSD *PlaNYC* is for the senior citizen whose health depends on being able to afford an air conditioner and the monthly utility bill that makes cooling possible, and for the high school graduate who wants to secure their future by mastering an emerging green trade, so they can move from a low-wage job to a career in an in-demand job market. We will bring relief to those who live in flood-prone zones and high-pollution neighborhoods. Fundamentally, *PlaNYC: Getting Sustainability Done* is about protecting New York City and making it more livable and vibrant for today's New Yorkers and future generations.

Over the past two decades, we have taken remarkable steps to make our city more sustainable, resilient, and equitable. Thanks to this team and the leadership of my predecessors, New York City has led the way on urban climate solutions. We've invested tens of billions of dollars in resilience projects; enacted Local Law 97 to reduce emissions from large, private buildings; and created nearly 1,000 miles of bike lanes. We've established ambitious goals to prepare our city for the future. Today, we are making a commitment to New Yorkers to deliver on them.

PlaNYC: Getting Sustainability Done will produce results that New Yorkers will feel all year long, in blue skies and gray skies alike. This plan will help ensure that every New Yorker is protected from climate threats, has an improved quality of life, and can take advantage of some of the more than 230,000 green economy jobs that this city will host by 2030.

We will reduce carbon emissions from our transportation network and building stock, bolster our waterfront infrastructure, and ramp up our transformation to a circular economy. And we will reduce air pollution and clean our waterways; increase the availability of healthy food; and protect New Yorkers from higher temperatures, extreme rainfall and coastal flooding.

The urgent threat that climate change poses to our communities demands a similarly urgent response. It compels us to get sustainability done, because billions of dollars — and millions of lives — are at stake. We will bring an all-of-government effort to bear against this threat, and we will deliver the solutions that New Yorkers have been promised and deserve.

Eric Adams

Introduction

Climate change has shifted from a threat on the horizon to a recurring aspect of our lives with impacts felt disproportionately in vulnerable communities, leading to hundreds of preventable deaths every year. At the same time, the benefits of climate action are increasingly clear in growing green jobs and businesses, cleaner air, better mobility, and safer homes. Responding to and preparing for climate change means improvements to our daily lives today and a future that is more equitable, healthy, and resilient.

Domino Park was constructed as part of the ongoing redevelopment of the Domino Sugar Refinery site in Williamsburg, Brooklyn. The park attracts pedestrians and cyclists for its diverse plantings and sweeping views of the East River, among other recreational opportunities.

Source: Mayor's Office of Climate & Environmental Justice

FUTURE OF NYC

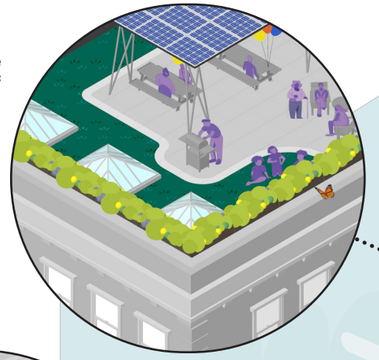
The initiatives in this plan will make NYC safer, more vibrant, and more resilient to climate change impacts. These illustrations show how some of the plan's initiatives might look and feel.

Curbside Electric Vehicle Charging and Weatherized Bike Storage

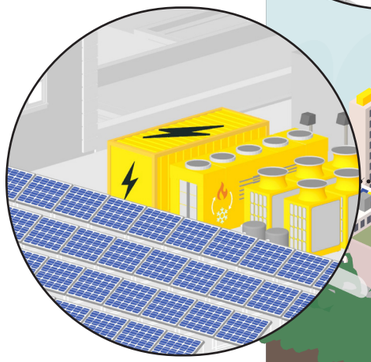
Upgraded Office Space in a Local Law 97 Retrofitted Building

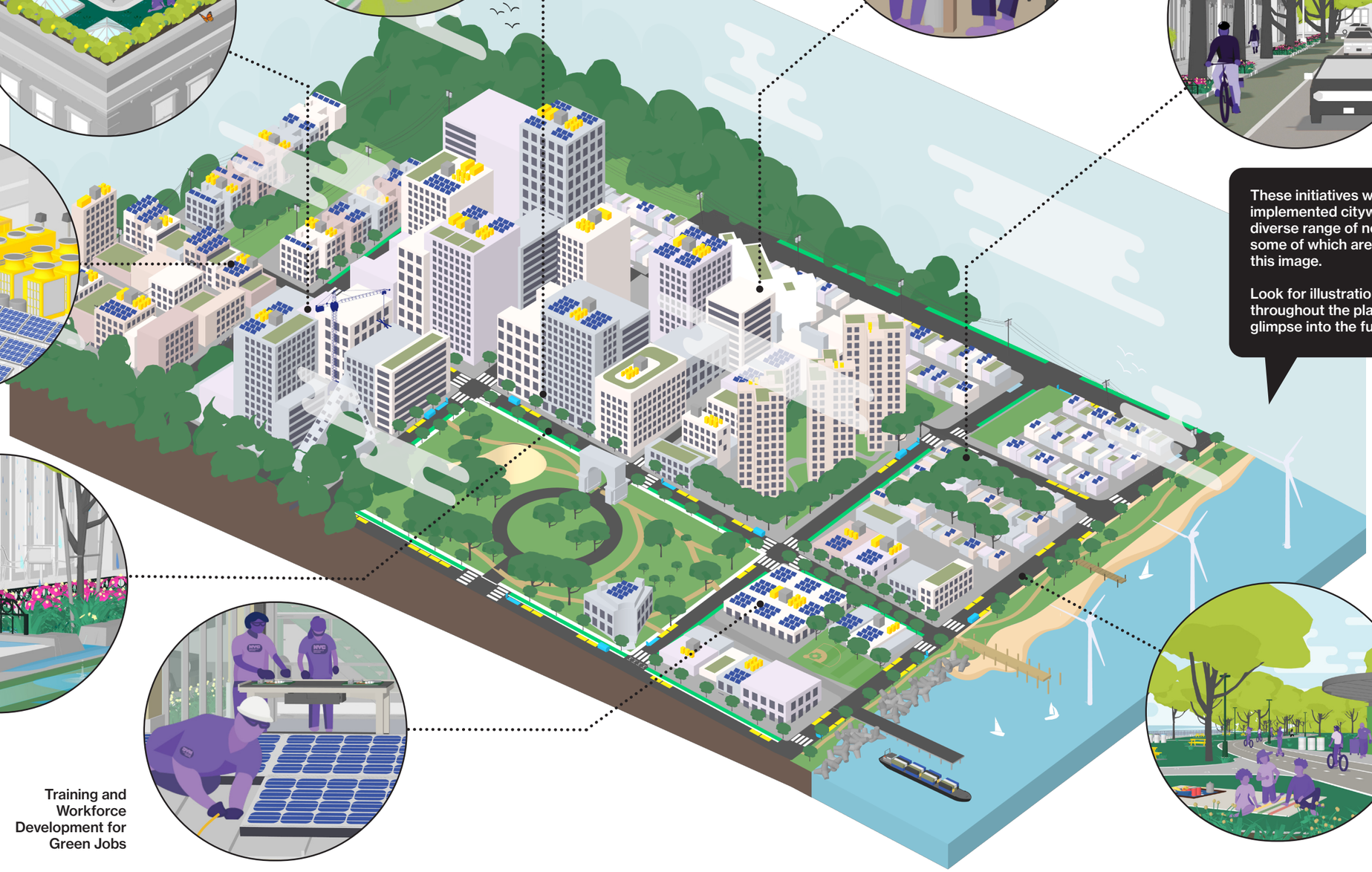
Increased Tree Canopy

Accessible Green Roof



Rooftop Solar Panels, Electric Storage, and Heat Pump





These initiatives will be implemented citywide across a diverse range of neighborhoods, some of which are depicted in this image.

Look for illustrations like these throughout the plan for a glimpse into the future of NYC.

Rain Garden

Training and Workforce Development for Green Jobs

Active Greenway and Resilient Waterfront

OUR PLAN

OBJECTIVE	GOAL	INITIATIVE	ACTION
Protecting Us From Climate Threats	EXTREME HEAT	1 Maximize access to indoor cooling	● Develop a maximum summer indoor temperature policy to protect all New Yorkers from extreme indoor heat by 2030 ● Include mandatory cooling requirements for new construction by 2025 ● Reform the Home Energy Assistance Program to cover equipment and energy costs for cooling
		2 Cool our built environment	● Install 1 million square feet of cool roofs annually ● Invest in pools and swim safety programs in environmental justice communities
		3 Achieve a 30% tree canopy cover	● Expand the Tree Risk Management Program, and in 2023, establish the Climber and Pruner Training Program pilot ● Ensure that all new buildings meet the City's street tree planting requirements through improved enforcement by 2035 ● Incentivize New Yorkers to steward green spaces by 2035 ● Maximize tree preservation and planting opportunities, including in areas with challenging site conditions, by 2035
	FLOODING	4 Create a new leadership structure for coastal flood resilience in 2023, headed by DEP	● Create a new leadership structure for coastal flood resilience in 2023, headed by the Department of Environmental Protection
		5 Implement a multilayered strategy for flood resilience	● Develop minimum flood resilience standards for shoreline assets by 2026 ● Continue to design and construct world-class neighborhood scale coastal protection projects and partner with the United States Army Corps of Engineers' (USACE) New York & New Jersey Harbor & Tributaries Feasibility Study (NYNJHATS) process ● Develop a stormwater flooding adaptation plan by 2024 to establish a citywide flood protection target for stormwater infrastructure ● Create nature-based stormwater management solutions that provide multiple functions, including shade, water and air quality improvement, and wildlife habitats
		6 Launch a voluntary housing mobility and land acquisition program to provide housing counseling and facilitate future land acquisition with Federal and State funds	● Enable the City to engage with interested residents and acquire difficult to protect flood-vulnerable properties that can support flood control, natural areas, or parklands
	BUILDINGS	7 Support building owners in complying with Local Law 97 emissions reduction goals by 2030	● Develop financing tools and innovative mechanisms to accelerate Local Law 97 compliance by 2030 ● Develop trainings and certifications to support Local Law 97 compliance and implement resilience retrofits by 2024 ● Expand NYC Accelerator by 2024
		8 Decarbonize affordable housing	● Install window heat pumps in 10,000 NYCHA units and unlock Federal funding for further upgrades and efficiency investments by 2030 ● Implement HPD design guidelines to address energy efficiency, sustainability, and resilience retrofits by 2026
		9 Pursue fossil fuel free City operations	● Phase out City capital spending on fossil fuel equipment and infrastructure
		10 Reduce localized air pollution in NYC	● Develop a new air quality monitoring program by 2024
		11 Reduce the carbon footprint of the construction industry by 2033	● Implement performance-based standards for low-carbon materials and equipment by 2025 ● Expand ConstructNYC in 2023
	CLEAN & RELIABLE ENERGY	12 Maximize climate infrastructure on City-owned property	● Evaluate all City roofs undergoing repair work for climate infrastructure installation by 2025 ● Install solar energy, electric building infrastructure, green roofs, or other renewable energy on all viable City-owned property by 2035
		13 Connect NYC to clean electricity resources	● Actively support the development, access, and interconnection of large-scale renewable energy projects like offshore wind and hydropower
		14 Assist building and homeowners with clean energy projects and solar installation	● Launch Public Solar program for one- to four-family low-income homeowners in environmental justice communities by 2025 ● Advocate to the State to continue and expand the solar tax abatement program for NYC residents ● Advocate for enactment of the City of Yes for Carbon Neutrality Citywide Text Amendment in 2023 to expand renewable energy generation in the city
Improving Our Quality of Life	GREEN SPACE	15 Create an accessible and connected network of open spaces	● Connect over 300 miles of trails and make 12,000 acres of natural areas accessible to all New Yorkers ● Create over 10 acres of new open space and safe connections between parks as part of the greenway network expansion
		16 Improve the health of our forested areas	● Restore and steward 1,000 acres of forests across 10 sites, planting more than 30,000 native trees and shrubs
	WATERWAYS	17 Reduce combined sewer overflows by more than 4 billion gallons per year by 2045 to improve water quality	● Deliver the Long-Term Control Plans by 2045 ● Expand the implementation of the NYC Green Infrastructure Program, the largest of its kind in the nation ● Capture stormwater at the source through the Unified Stormwater Rule
		18 Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060	● Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060
		19 Improve the health and ecological function of wetlands	● Restore wetlands for flood risk reduction, conservation, and open space benefits
	TRANSPORTATION	20 Get polluting trucks off NYC streets	● Pilot the East Coast's first low-emission zone centered on environmental justice through incentives and other methods ● End unlawful truck idling ● Create shared charging depots by 2030 to support the transition to electric trucks ● Accelerate adoption of cargo bikes for deliveries by 2026 ● Reactivate the marine highway by 2025 to move freight off trucks and onto waterways
		21 Prioritize public transit, walking, and biking first	● Bring New Yorkers back to the transit system to achieve a sustainable mode share of 80% by 2050 ● Implement congestion pricing and use it to promote environmental justice ● Transform our streets and public spaces under the leadership of the Chief Public Realm Officer ● Implement our ambitious bike, pedestrian, and Vision Zero infrastructure agenda ● Increase sidewalk cleanliness by expanding waste containerization
		22 Ensure every New Yorker can access a bike or scooter	● Create the next generation of bike lanes and facilities so every New Yorker can travel safely and efficiently ● Create thousands of secure public bike parking spots, starting in 2025 ● Expand dockless e-scooter and e-bike share systems
		23 Help New Yorkers who must drive to drive electric	● Ensure every New Yorker is no more than 2.5 miles from an electric vehicle fast-charging hub by 2035 ● Mandate private parking garages and lots to make electric vehicle charging available by 2030 ● Transition taxis and for-hire vehicles to electric vehicles ● Electrify school buses by 2035
	FOOD	24 Reduce emissions of City agency food purchases 33% by 2030	● Reduce emissions of City agency food purchases 33% by 2030
		25 Promote reduction in institutional food-related emissions 25% by 2030	● Promote reduction in institutional food-related emissions 25% by 2030
		26 Reduce emissions from commercial cooking	● Require retrofitting of charbroilers by 2027 ● Develop an NYC Restaurant Accelerator Program to assist businesses with compliance
		27 Support NYC's watershed farmers in expanding sustainability practices and food production	● Advance agricultural best management practices to improve GHG reduction and carbon sequestration ● Create an incentive program to support farmers in the NYC watershed who expand agricultural production of fruits and vegetables
Building the Green Economic Engine	GREEN ECONOMY	28 Launch new climate education and training programs for public schools	● Integrate climate education in public school classrooms across all subjects and grade levels ● Launch new Career Connected Learning Programs for public school students dedicated to green job training and placement
		29 Grow NYC's green workforce	● Position New Yorkers for fulfilling green economy careers ● Cultivate the offshore wind sector to provide residents with opportunities for economic mobility ● Establish a Green Economy Advisory Council in 2023 ● Activate NYC's climate resource hubs and natural areas for workforce development
		30 Support entrepreneurship and industry innovation	● Launch new partnerships and projects in 2023 to support the growth of sustainability-focused biotechnology and materials innovation ● Launch and expand climate technology innovation, commercialization, and scaling opportunities across local industries ● Launch portal to connect public agencies with private startups and investors by 2024 ● Provide resources to attract international investments in climate technologies
	WASTE & CIRCULAR ECONOMY	31 Collect organic materials and turn into energy and reusable assets	● Launch citywide curbside organics collection by 2024 ● Expand commercial organics separation requirements to all food businesses by 2026 ● Leverage existing Department of Environmental Protection infrastructure to process collected organics into biogas and compost within the city as much as possible
		32 Develop new markets and expand recycling and reuse	● Expand production and use of recycled asphalt ● Expand NYC Parks' tree wood reuse pilot ● Expand the Clean Soil Bank program by 2030

CROSS-CUTTING THEMES: PROSPERITY · VITALITY & COMMUNITY · ENVIRONMENTAL JUSTICE · HEALTH EQUITY · GHG EMISSIONS REDUCTION · CLIMATE RESILIENCE

BACKGROUND & APPROACH

The City of New York has spent the past decade and a half setting ambitious climate targets and groundbreaking policies, yet tremendous work remains to achieve our goals and secure the future of our city and our world. With our population density, economy, and consumption rate, we have a unique opportunity to be a global leader in greenhouse gas (GHG) emissions reduction. Further, as a leading global city, we must do our part not only to reduce our emissions and protect New Yorkers, but also to protect the future of our planet. *PlaNYC* is centered in delivering climate justice through bold, swift action to reduce our contributions to climate change and protect New Yorkers – especially the most vulnerable among us – from impacts we are already experiencing.

PlaNYC: Getting Sustainability Done is the fifth in a series of climate action plans released by New York City, pursuant to Local Law 84 of 2013.[1] Like previous plans, it is the result of deep interagency coordination and the advice of the City's Sustainability Advisory Board. It also reflects the leadership of Mayor Eric Adams and the evolution of New York's action on climate change.

ENGAGEMENT

This strategic plan has been developed with input from the following individuals, stakeholders, and partners:

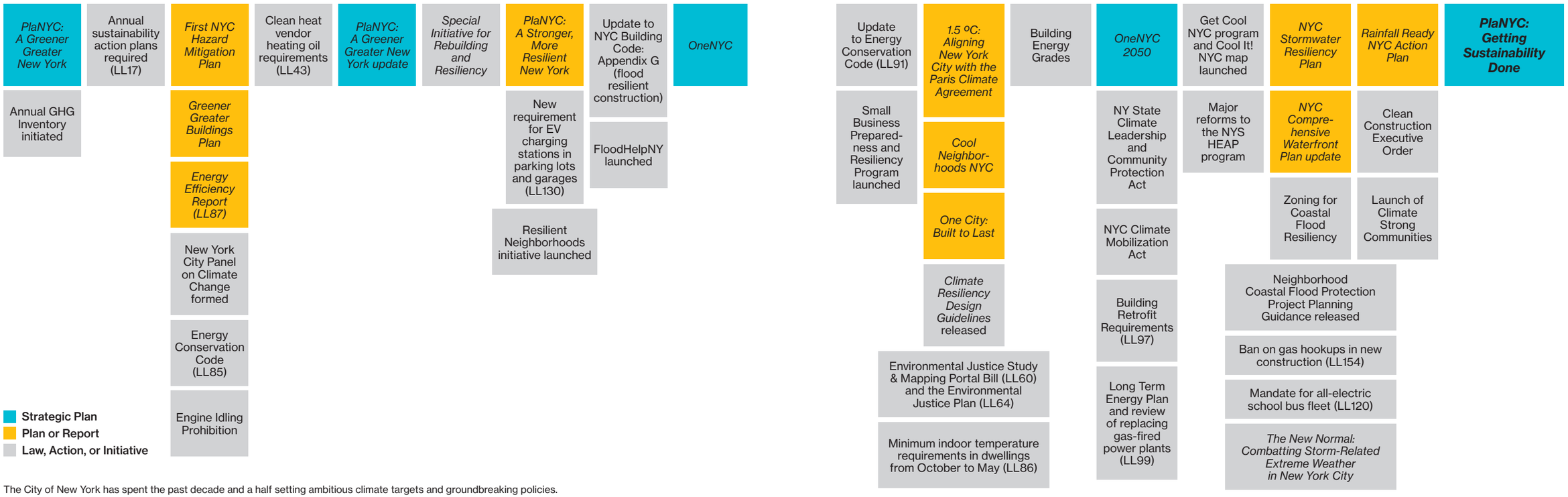
- A Climate Cabinet consisting of the heads of 22 City agencies
- A Sustainability Advisory Board of 29 mayoral appointees
- Staff from more than 35 City agencies and offices
- Targeted stakeholder engagement sessions on key issues

The first *PlaNYC* in 2007 was an assertion by the Bloomberg Administration that New York City had both the need and the power to plan for long-term growth.[2] Following the decline of the 1970s, along with the more recent September 11th attacks, that both left the future of the city in question, this commitment to the long-term planning and investment was a bold statement with an outlook to a prosperous future. The City also recognized that it was critical to address long-range challenges, including climate change, which was and is an existential threat to the future of our city. At the time, there was resistance to climate action and a general sense that climate adaptation was not an urgent need. Nonetheless, *PlaNYC* established much of our current climate infrastructure, including an annual GHG inventory; the requirement of a regularly updated sustainability plan incorporated by Local Law 17 in 2008; and the New York City Panel on Climate Change (NPCC) scientific advisory body.[3] The plan also charted new paths forward, making energy-efficiency mandates for existing buildings a priority and encouraging a shift away from cars toward walking and cycling.

Under the de Blasio administration, *PlaNYC*'s scope dramatically expanded under the title of *OneNYC*, a result of three changes.[4] The first was to expand beyond sustainability to include resilience. Climate change had become more real to New Yorkers in the wake of Hurricane Sandy's devastation in October 2012, shifting resilience from a long-term contingency to a near-term priority. The second was a focus on equity, which was integrated into all aspects of sustainability policy. The third was expanding the sustainability plan to a strategic plan for the entirety of City government. *OneNYC 2050* included long-term targets for the City's climate efforts.[5] These included goals for building decarbonization codified in Local Law 97 of 2019, the 2021 ban on gas hookups in new buildings, the establishment of commercial waste zones, and Executive Order No. 99, which created a framework to decarbonize City operations.

Building on the equity focus of the last plan, this plan centers environmental justice in all of our work, while focusing on taking concrete actions towards achieving our long-standing climate goals. Focus is essential for action and implementation, so this plan targets sustainability broadly defined as climate action, ambient air quality, water quality, and open space.

NYC'S CLIMATE MILESTONES



The City of New York has spent the past decade and a half setting ambitious climate targets and groundbreaking policies.
Source: Mayor's Office of Climate & Environmental Justice, 2023.

GUIDING PRINCIPLES

PlaNYC: Getting Sustainability Done builds on the prior four plans while facing the challenges and seizing the opportunities that are specific to today. *PlaNYC* is grounded in a more comprehensive understanding of climate change impacts in the city as well as a more complete picture of our GHG footprint, including a new consumption-based inventory. For the first time, we have a complete picture of our emissions both within the city's geography as well as the full lifecycle emissions from the food and products we consume as New Yorkers. Lastly, this plan has a greater focus on environmental justice and public health. Despite overall improvements in the city's air quality, environmental justice communities continue to face increasingly negative health outcomes related to air pollution and climate hazards. At the same time, these challenges present opportunities to improve the city's environmental conditions and build prosperity, equity, and community.

The following principles have shaped this plan:

1. **Act with urgency and focus on implementation**

The policymaking and legislation of the last 16 years has left a significant amount of work on the table. In some cases, this is by design, knowing that projects can take decades; in other cases, it is due to pandemic-related delays or the unimagined complexity of implementing groundbreaking climate laws and policies. This plan prioritizes implementation and getting sustainability done.

2. **Achieve near-term benefits for New Yorkers while implementing long-term goals**

Due to their size and scale, many climate and equity actions are long-term by nature. Yet the New Yorkers of 2023 cannot wait for local benefits in job creation, protection from climate risks, or air pollution reduction. This plan prioritizes actions that have near-term benefits.

3. **Center environmental justice and health equity in our work**

A long history of environmental burdens on low-income New Yorkers and communities of color has led to deep-seated health disparities that are apparent in everyday lives of some New Yorkers. This plan centers environmental justice and health equity in every action we take, with an urgency to achieve near-term health benefits for environmental justice communities.

4. **Create economic activity through climate action**

The investments we make today for climate action have the ability to contribute to the city's overall economic recovery and long-term prosperity. Further, this is an opportunity to create good jobs for people of color in emerging sectors – allowing for long-term economic mobility.

5. **Strengthen private sector investments through both incentives and mandates**

Budget constraints have forced us to think creatively about how to fund climate action and what is most critical to moving the needle on our climate goals. This plan features broad new policies that will apply to both the public and private sectors while highlighting where the City is leading by example.

6. **Lead by example as a City**

The City aims to be a model for other cities and nations and the private sector, which is central to New York's economy. Further, while the City sets ambitious policies across the public and private sectors, we recognize the need to lead by charting new pathways and testing new technologies.

7. **Make full use of unprecedented Federal and State funding**

Progress on our climate initiatives requires collaboration and investment from our Federal and State partners. Since both the United States and the State of New York are spending significant amounts of money on climate action and equity, and NYC contributes more to the Federal and State governments than it typically receives in return, it is critical that we fully leverage these new funding sources and obtain our fair share. As a result, several of the initiatives in this plan are dependent on new and expanded Federal and State grants. A primary objective of the Adams administration's climate policy will be to ensure that New York State's climate action gives New York City residents and businesses their fair share of all types of funding and support.

8. **Implement climate budgeting to align City resources with sustainability and resilience goals**

To ensure that we remain focused on prioritizing climate change and environmental justice in our investments and decision-making, New York City will be one of the first global cities, and the first major city in America, to launch a Climate Budgeting initiative. Climate budgeting is a process that incorporates science-based climate considerations into the City's budget decision-making process by evaluating how actions and spending today contribute to meeting longer-term climate targets. The process will allow us to understand the climate impact of the dollars we spend, identify where more investment is needed, and champion forward-looking investments. For example, while switching buildings to efficient electric heating may have a higher cost than replacing fossil fuel equipment today, electrification reduces GHG emissions and improves local air quality over its lifetime. Similarly, although protecting vulnerable communities from heat waves will require significant investments, taking these steps will mitigate medical costs associated with increasingly intense heat and save lives.

9. **Streamline the City's procurement processes to expedite project delivery**

Identifying process inefficiencies can help the City become nimbler and better able to deploy resources where and when they are most needed. In addition to the Capital Process Reform Task Force recommendations, *Get Stuff Built: A Report of the Building and Land Use Approval Streamlining Task Force* was released in 2022 and identified 111 ways the development process is broken, accompanied by recommendations for solutions that simplify and shorten the review and approval of new projects.[10] By improving contracting and procurement efficiency and the way we implement public projects, our City's response to climate change will be expedited. The City is committed to improving contract and procurement processes – including looking at ways to undertake the most efficient structures – to implement our projects. When all projects have a climate resilience or sustainability component, all projects are climate projects.

LEVERAGING FEDERAL AND STATE FUNDING

NYC Federal Infrastructure Funding Task Force

In November 2021, Congress passed the Bipartisan Infrastructure Law, a once-in-a-generation $1.2 trillion investment in our nation's infrastructure that prioritizes sustainability, resilience, and equity over the next five years.[6] The following year, the landmark Inflation Reduction Act (IRA) advanced clean energy policy by designating almost $370 billion for energy and climate change investments.[7] The IRA is meant to increase production of clean and renewable energy sources, decrease energy costs, and lower GHG emissions. Most recently, at the State level, the Clean Water, Clean Air and Green Jobs Environmental Bond Act authorized $4.2 billion for climate change and environmental projects.[8]

Responding to these tremendous investments, the City has formed the NYC Federal Infrastructure Funding Task Force to maximize all the funding from these Federal and State sources. The City's task force is helping to select strong shovel-worthy and shovel-ready projects that meet the guidelines and standards of new and existing competitive grant opportunities. The City has received $305 million in competitive grant funds since the beginning of the Adams administration, and applied for more than $1.3 billion in competitive grant funding in 2022.[9] As the breadth of opportunity grows, so will the City's efforts to secure funds.

Expediting Project Delivery

Mayor Adams convened the Capital Process Reform Task Force in April 2022 to study ways to reform capital project delivery, reduce costs, and speed projects to completion. In October 2022, the task force released 17 initial recommendations, followed in early January 2023 by 22 additional recommendations. The task force has four charges: to reduce project timelines, reduce costs, increase diversity and inclusivity in the capital projects process, and expand the City's capacity to address emergencies.[11]

We will implement the recommendations from the Capital Process Reform Task Force, including working with the State legislature on progressive design-build authority. Many of the reforms already identified, such as advocating in the State legislature for design-build methodology, are directly applicable to climate projects. Likewise, increased flexibility and contracting limits for minority and women-owned businesses will further diversify the workforce and help ensure that jobs and income related to City capital expenditure are shared by working New Yorkers.

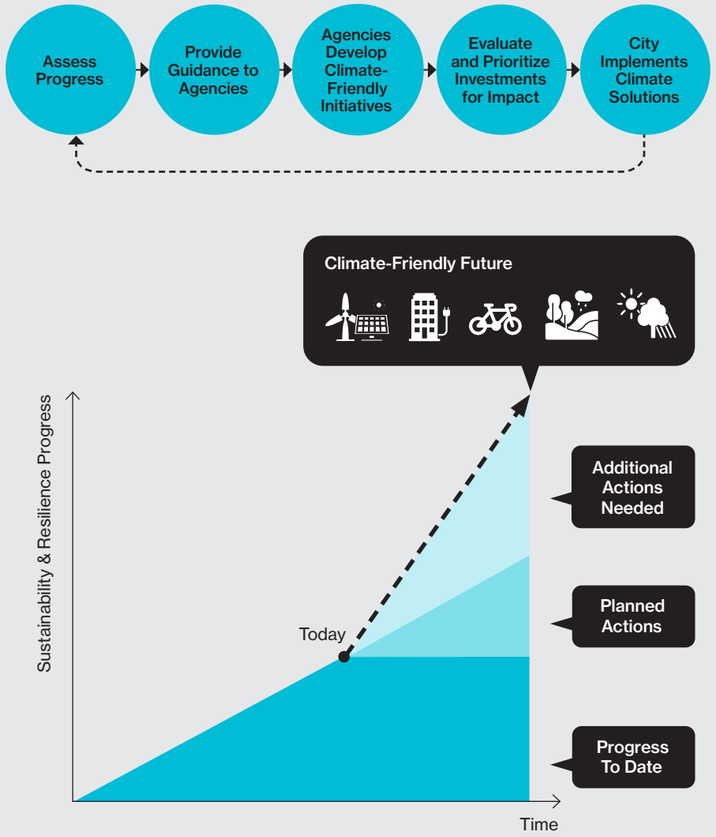
In 2023, the task force will continue implementing already approved initiatives and advocating to the State for needed legislative reforms. Applying an "every project is a climate project" lens and an environmental justice lens will support identification of additional reforms and implementation pathways.

Climate Budgeting

Climate Budgeting is a paradigm shift from status quo to holistic decision-making that will ensure we follow through on meeting our ambitious climate goals. The City oversees a multi-billion dollar capital portfolio that shapes our buildings, transportation, recreational spaces, energy supply, and infrastructure. Some investments are made with the specific intent to reduce emissions or increase resilience. Other programs and services, including increasing affordable housing, maintaining infrastructure in good repair, and procuring food for students, impact our climate goals as well. For each of our investments, we need to understand: will they keep us on course, steer us in the wrong direction, or accelerate our progress? Furthermore, we need to understand the collective impact of the City's policies and investments toward achieving both our near- and long-term targets.

The New York City Mayor's Office of Management and Budget's (OMB) newly established Environmental Sustainability & Resiliency Task Force, a group that coordinates and guides smart sustainability and investments, will lead this initiative in partnership with the Mayor's Office of Climate & Environmental Justice (MOCEJ). Climate budgeting will be continuous and include an annual publication that will be part of the City's Executive Budget. This climate budget publication will highlight the City's new and ongoing investments and provide a snapshot of the projected impacts of our collective actions on the path toward meeting long-term climate goals. Monitoring and reporting on progress will ensure transparency and accountability and will help guide the City's continued work. The first Climate Budget publication will be released in April 2024.

NYC'S CLIMATE BUDGETING PROCESS



Through climate budgeting, the City will regularly forecast progress against near- and long-term climate goals to mobilize action, address gaps, and drive continuous implementation towards a climate-friendly future.

Source: Office of Management & Budget, 2023

While the costs of preparing for and responding to climate change are significant, the cost of inaction is far greater. Climate change poses risks to our health, safety, housing, environment, and economy, and has a disproportionate impact on communities that are already vulnerable. Without climate budgeting, we risk investing in projects that are incompatible with our long-term goals, locking in technology that may harm communities for decades, missing opportunities to save money by addressing multiple threats at once, or stranding assets that are paid for but must be abandoned in the near future for better alternatives. A budget informed by climate science and equity will ensure resources are used effectively now and save the City money in the long term.

The greenway along Shore Boulevard in Queens offers safe pedestrian walkways and bike lanes (top). Battery Park in lower Manhattan attracts New Yorkers for its green space, fountains, playgrounds, and waterfront views of Ellis Island (bottom). Source: Department of Transportation

CLIMATE CONTEXT

To create a safer and more livable city in the face of environmental challenges, we must ground our work in baseline conditions as well as future projections. The following lays out the key data and science behind this plan.

CLIMATE CHANGE HAZARDS

Climate change is already impacting our lives, not only during extreme events but on a regular basis. In September 2021, extreme rainfall from Hurricane Ida broke the city's hourly rainfall record with unprecedented flooding far from the coastline – killing 13 New Yorkers and causing hundreds of millions of dollars of damage.[12]

In December of 2022, a nor'easter caused coastal flooding in southern Brooklyn and Queens, stranding New Yorkers at home and in transit, and putting a halt to many daily activities.[13] Additionally, the National Climate Assessment reclassified New York City's climate from a "humid continental" to a "humid subtropical" climate in 2020, meaning that on average our summers and winters are both increasingly hotter.[14] The summer of 2022 was one of the warmest in NYC's history and the winter of 2022-23 set record temperature highs as well.[15]

Our understanding of the four major climate hazards in New York City – extreme heat, coastal storm surge, chronic tidal flooding, and extreme rainfall – are informed by the latest projections from the New York City Panel on Climate Change (NPCC). The NPCC provides up-to-date climate projections for use by the City and our agencies in climate-related decision-making. NPCC will publish a *Special Climate Report* in summer 2023.[16] The graphs in this introduction section reflect the latest data, while some maps and figures in subsequent chapters reflect 2019 data.

Extreme Heat

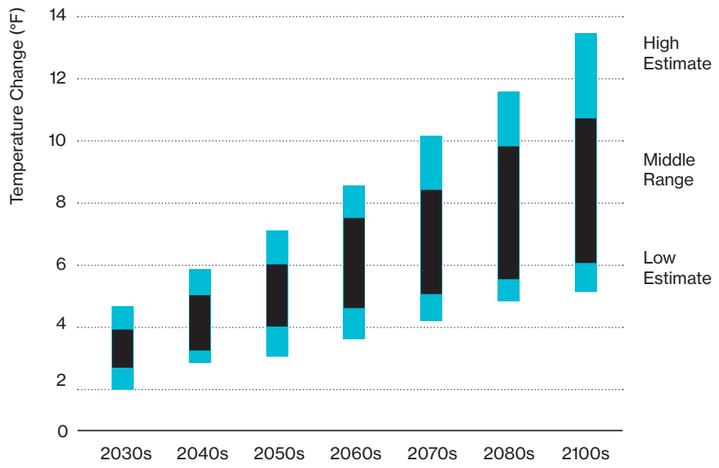
In an average year in the 2030s, there are projected to be up to three times as many days with temperatures over 90 degrees Fahrenheit (°F) and up to nearly four times as many heat waves as there have been in the recent past.[17] Average annual temperatures are also projected to increase.[18]

Up to 6×
as many days
above 90 °F
per year by the 2080s

Up to 5×
as many
heatwaves
by the 2080s

Source: New York City Panel on Climate Change, 2023.

PROJECTED ANNUAL AVERAGE TEMPERATURE INCREASE



NYC's average annual temperature is expected to increase steadily through the 2100s, increasing the severity and frequency of extreme heat events. Projected increases are relative to a 1981–2010 baseline and shown as low (10th to 25th percentile), middle (25th to 75th percentile), and high (75th to 90th percentile) estimate ranges.

These projections demonstrate conditions in an average year and show a general upward trend in temperatures; yet due to natural variability in weather, we will see both hotter and cooler days than the average as well as both hotter and cooler years.

Source: New York City Panel on Climate Change, 2023

Coastal Storm Surge

Our coasts are vulnerable to flooding from storm events such as hurricanes, tropical storms, and nor'easters. A storm surge occurs when atmospheric pressure changes and wind associated with a storm event causes a rush of water onto land with the potential to significantly damage coastal communities and infrastructure. New York City's low-lying coastal communities are currently exposed to coastal surge flooding with nearly a sixth of the city's land area in the 100-year floodplain, based on the Federal Emergency Management Agency's (FEMA's) 2015 Preliminary Flood Insurance Rate Map (PFIRM). This area contains more than 400,000 residents and roughly 14,500 private businesses that employ about 270,000 people.[19] Over time, as sea levels rise, the floodplain will reach further inland.

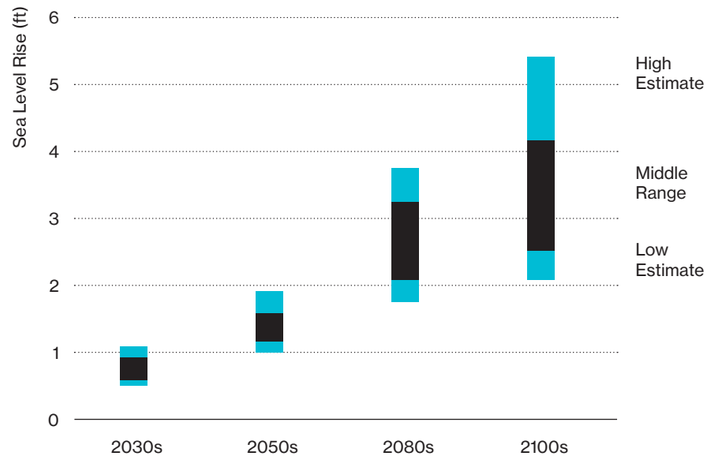
Chronic Tidal Flooding

Chronic tidal flooding occurs when low-lying areas off the coast are inundated with water absent a storm event. Today there are natural variations in the tides that cycle with the moon, which can be observed at beaches, where water levels rise and fall over the course of a day. As sea levels continue to rise, the highest tides will come further onto land, causing flooding more frequently and in more communities – even on sunny days with no rain or coastal storm event. By the 2080s, large portions of some coastal neighborhoods could flood more than every other week on average, such as communities around Jamaica Bay.[20]

Extreme Rainfall

While Hurricane Sandy was a wake-up call to our coastal communities, the more recent Hurricane Ida underscored an emerging threat – stormwater flooding. Extreme rainfall events are becoming more frequent, and the city will likely experience more days with high amounts of rainfall in the future, disrupting and even potentially taking the lives of New Yorkers.[21] In between extreme rainfall events, the city may experience short-term drought, impacting ecological habitats. Without intervention, coastal and inland communities across the city will continue to face these hardships.

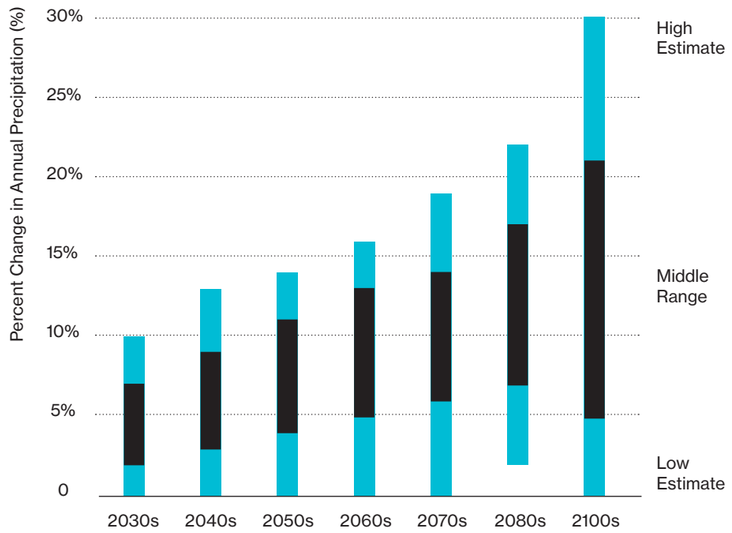
NYC PROJECTED SEA LEVEL RISE



Sea levels in New York City have already risen by a foot since 1900 and are expected to rise by up to 5.4 additional feet by the end of the century, contributing to chronic tidal flooding and heightened coastal storm surge. Projected increases are relative to a 1995–2014 baseline and are shown as low (10th to 25th percentile), middle (25th to 75th percentile), and high (75th to 90th percentile) estimate ranges.

Source: New York City Panel on Climate Change, 2023

PROJECTED ANNUAL AVERAGE PRECIPITATION INCREASE



NYC is projected to experience an increase in average annual precipitation levels through the 2100s. Projected increases are relative to a 1981-2010 baseline and are shown as low (10th to 25th percentile), middle (25th to 75th percentile), and high (75th to 90th percentile) estimate ranges.

Source: New York City Panel on Climate Change, 2023

GREENHOUSE GAS EMISSIONS INVENTORY

While we must respond to the climate hazards we are already experiencing, we must also take swift, bold action to lead the transition to net-zero emissions as our city and planet depend on us to stem the worst potential impacts of climate change in the future. This year, NYC measured emissions from household consumption and integrated it into our GHG inventory for the first time. Household consumption includes life cycle emissions from the consumption of food, energy, and services by New York City residents.

The integrated inventory found that GHG emissions from household consumption are lower in NYC than in surrounding areas, and lower than the national average, but are still a large component of our city's total emissions.

Since 2005, NYC's annual GHG inventory has guided our climate policy priorities and has allowed us to track our progress in reducing emissions. The inventory has shown us that, within the five boroughs, energy used in buildings is our largest source of emissions, followed by energy used for transportation and emissions generated from solid waste and wastewater.[22] These insights have been the foundation of much of the last 15 years of policymaking and have supported world-leading legislation such as energy benchmarking, building energy grades, and NYC's building performance standard, Local Law 97.[23]

However, many of our goods and services are produced outside of New York City's borders and have not traditionally been counted as a part of the GHG inventory. This means that our traditional inventory does not account for the full carbon impact of our activities or identify opportunities to holistically reduce global emissions. By adding the new household consumption-based inventory to our citywide inventory, we have created an integrated inventory for the first time that provides a more complete picture of our carbon emissions.

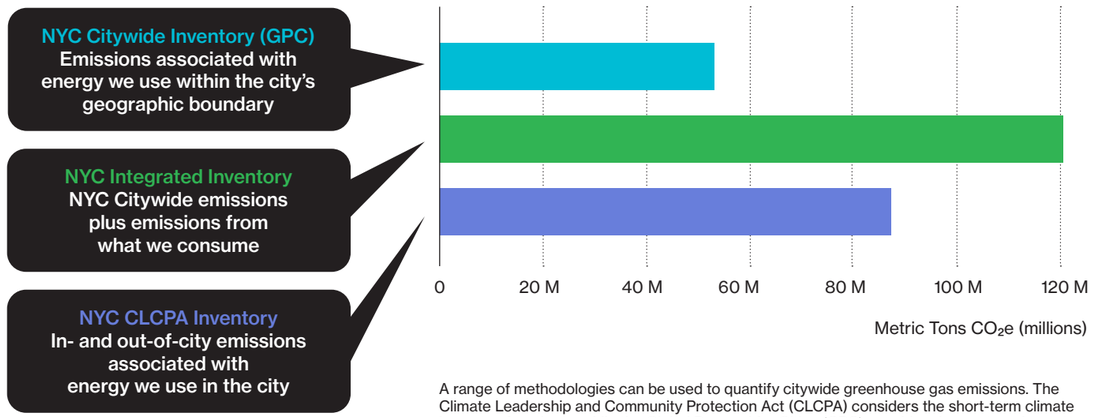
The integrated inventory reveals that emissions from our food consumption comes in as a close third, behind buildings and transportation.[24] More specifically, our consumption of healthcare services, natural gas, meats, poultry, fish, and eggs, as well as eating at restaurants, are all significant sources of emissions. Having a more complete picture of our GHG emissions as New Yorkers offers valuable insights on how awareness, programs, and policies can help us reduce emissions from what and how we consume goods and services.

In addition to the new integrated inventory, we also calculated our emissions using the New York State Climate Leadership and Community Protection Act (CLCPA) methodology from 2019 – making us the first city in the state to take this on.[25] This inventory incorporates emissions from imported electricity and fossil fuels used to power our buildings, transportation, and electricity grid. It also highlights the near-term warming impacts of methane, a potent greenhouse gas that results from fugitive natural gas emissions, fossil fuel combustion, landfills, and wastewater treatment. Under the CLCPA methodology, NYC's calculated base year (2005) emissions increased by 54%, highlighting the importance of accounting for natural gas and methane emissions.[26] Using the CLCPA methodology also narrowed the reduction in emissions since 2005, observed in our traditional citywide inventory, from 18% to 12%.[27] This analysis will further inform grid greening, building retrofits, and electrification efforts across the city.

In sum, the City has developed three inventories that provide a more holistic picture of our GHG emissions from different perspectives:

- NYC Citywide Inventory (GPC)
- NYC Integrated Inventory
- NYC CLCPA Inventory

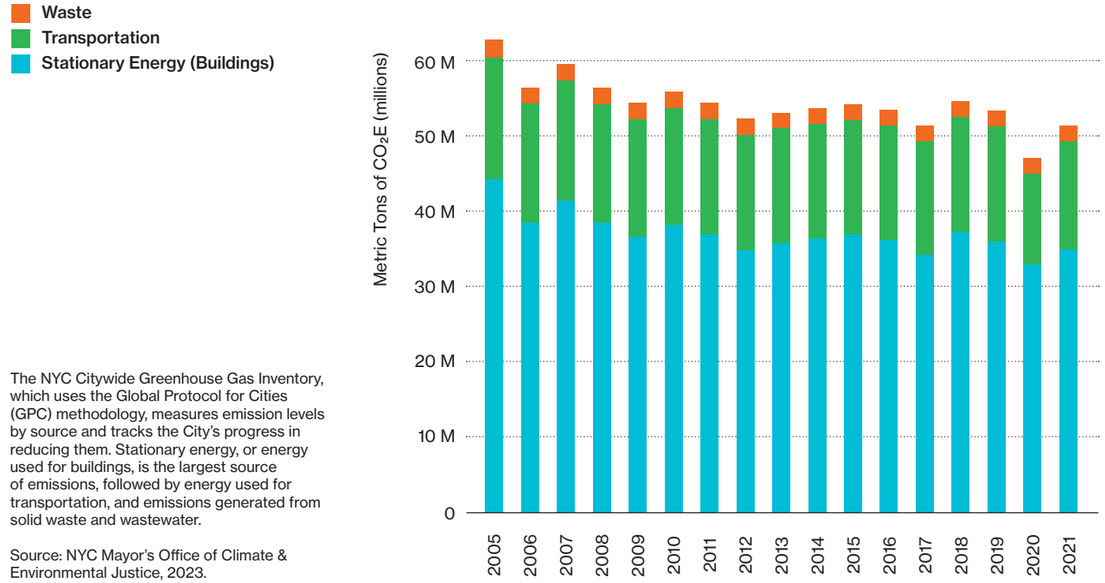
NYC GREENHOUSE GAS INVENTORY BY METHODOLOGY, 2021



A range of methodologies can be used to quantify citywide greenhouse gas emissions. The Climate Leadership and Community Protection Act (CLCPA) considers the short-term climate impacts of methane, while the Global Protocol for Cities (GPC) considers longer term impacts. CLCPA also includes fugitive emissions from the transmission and distribution of energy and from the combustion of fossil fuels. The NYC Integrated Inventory incorporates emissions from household consumption into the traditional NYC Citywide Inventory.

Source: NYC Mayor's Office of Climate & Environmental Justice, 2023

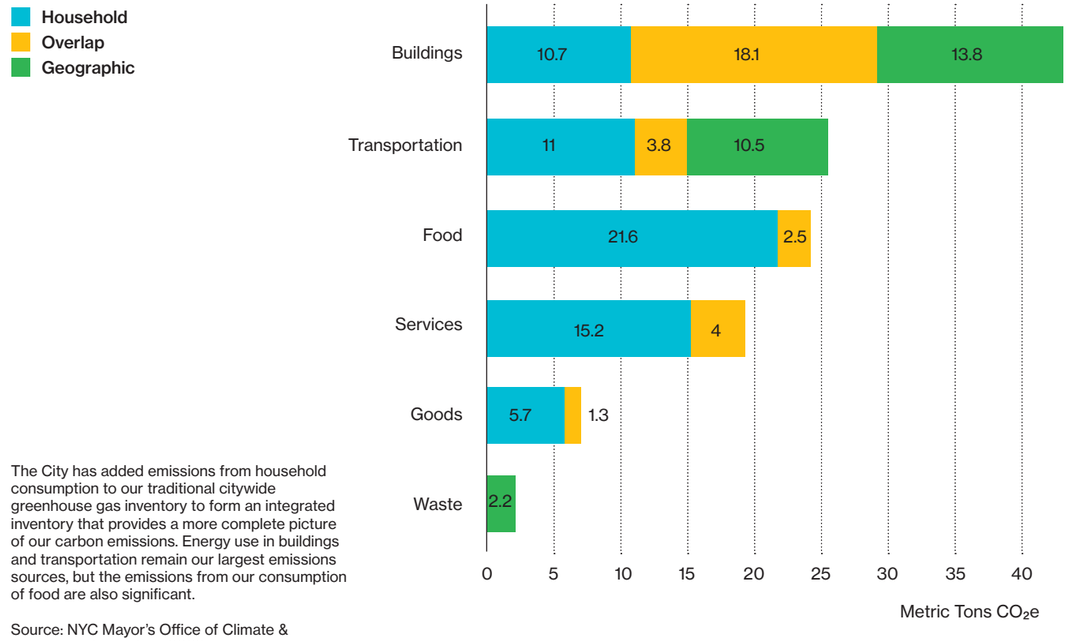
NYC CITYWIDE GREENHOUSE GAS INVENTORY



The NYC Citywide Greenhouse Gas Inventory, which uses the Global Protocol for Cities (GPC) methodology, measures emission levels by source and tracks the City's progress in reducing them. Stationary energy, or energy used for buildings, is the largest source of emissions, followed by energy used for transportation, and emissions generated from solid waste and wastewater.

Source: NYC Mayor's Office of Climate & Environmental Justice, 2023.

NYC INTEGRATED INVENTORY: HOUSEHOLD CONSUMPTION-BASED AND CITYWIDE GREENHOUSE GAS INVENTORY, 2021



The City has added emissions from household consumption to our traditional citywide greenhouse gas inventory to form an integrated inventory that provides a more complete picture of our carbon emissions. Energy use in buildings and transportation remain our largest emissions sources, but the emissions from our consumption of food are also significant.

Source: NYC Mayor's Office of Climate & Environmental Justice, 2023.

PUBLIC HEALTH

Climate change is the most pervasive and persistent public health crisis across the globe. Increasing temperatures, coastal flooding, and extreme rainfall all place people's health at risk both now and in the future. We embark on climate action to enable New Yorkers to live their best lives in a sustainable and healthy city, with clean and safe air, homes, and public spaces.

Air pollution, including pollutants like fine particulates (PM2.5), nitrogen dioxide, nitric oxide, and sulfur dioxide, has decreased dramatically over the past decades as measured by NYC's neighborhood level air monitoring program, the NYC Community Air Survey.[28] These improvements are a result of CIty, State, and Federal regulations for emissions from vehicles, power plants and the fuel we use to heat our buildings. While levels of PM2.5 in NYC are now below EPA National Air Quality Standards, the City still has work to do.[29] Studies have shown that there is no safe level of PM2.5, the pollutant most harmful to health.[30] Further, ground-level ozone concentrations, another unhealthy pollutant, have remained constant over time.[31] Addressing ozone is more complicated than other emissions as it is formed from pollutants emitted both inside and outside of NYC. More ozone is formed on hotter days, so as temperatures continue to rise, so will ozone levels.[32] As the City reduces GHG emissions, these actions will have the added benefits of reducing air pollution.

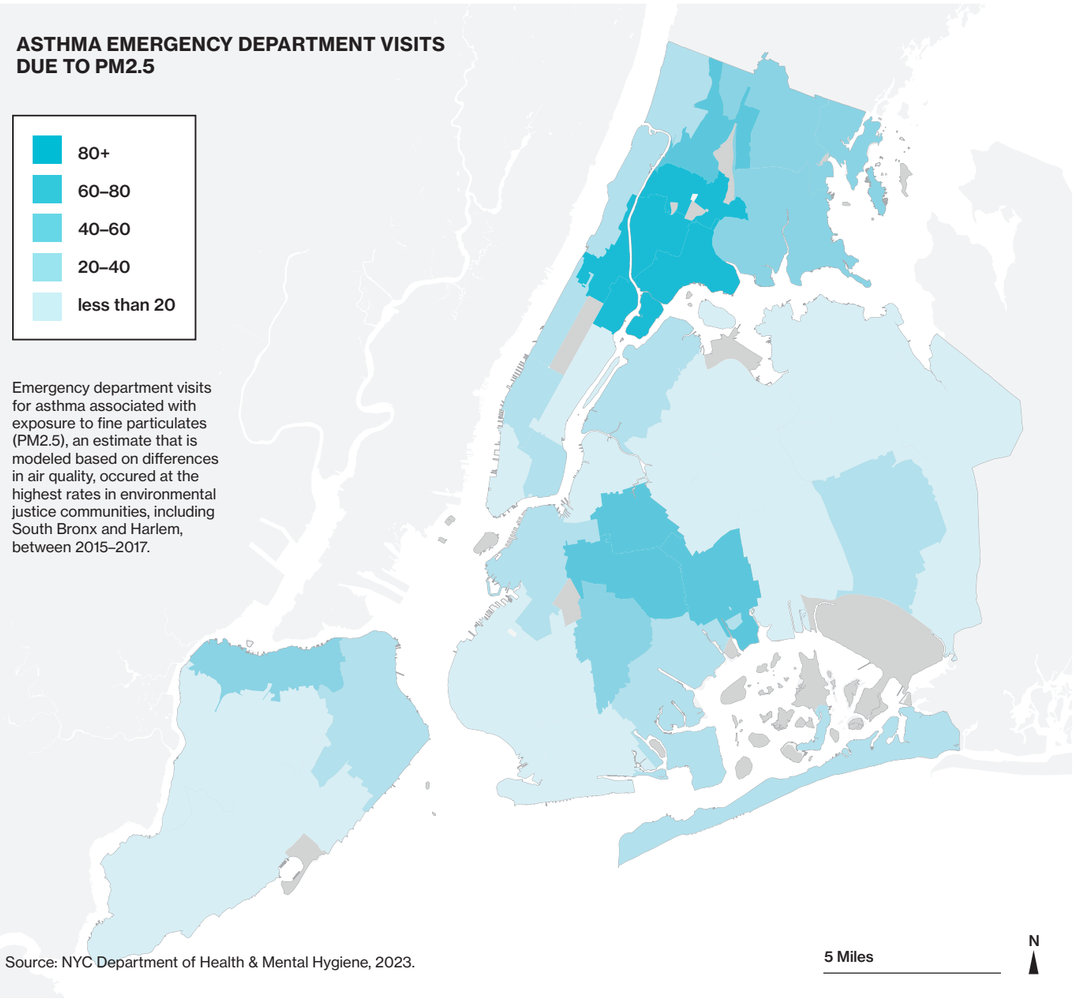
Although New York City's air is significantly cleaner than it was a decade ago, poor air quality-related health impacts in environmental justice communities remain a significant challenge.[33] Public health inequities remain for communities of color and low-income communities, which bear the burden of higher rates of asthma, respiratory disease, heart disease, and even death. For example, heart disease hospitalizations caused by outdoor air pollution are twice as high in low-income communities as they are in wealthier communities.[34] These same communities also experience disproportionately greater emissions from heavy-duty diesel vehicles, which are major sources of nitrogen oxides and PM2.5 in NYC.[35]

Indoor air pollution also affects New York City residents. It is closely tied to housing quality, with disrepair, mold, and pests all resulting in poor health outcomes for residents.[36] Climate efforts to electrify and retrofit buildings for efficiency provide opportunities to reduce GHG emissions and provide cleaner air and more efficient buildings. Recent research gives us a more complete picture of the impacts of gas stoves on air quality. Gas stoves, which are in three quarters of NYC households, contribute heavily to indoor air pollution by emitting PM2.5, nitrogen dioxide, and carbon monoxide, which are linked to respiratory system damage, premature death, and developmental delays in young children.[37]

The same communities that suffer from higher environmental burdens and poor public health outcomes on a daily basis also bear the brunt of the impacts during a public health crisis, from the COVID-19 pandemic to climate change. Heat is a public health issue that is highly exacerbated by climate change, and like other health issues, extreme heat is experienced unequally by New York City residents. An average of 370 New Yorkers die prematurely every summer due to complications from heat, and these deaths are entirely preventable.[38] Most New Yorkers who die from heat are exposed in overheated homes, making residential cooling the most effective way to prevent heat-related deaths.[39] Black New Yorkers are also twice as likely as white New Yorkers to die from heat and have less access to air conditioning at home.[40] Unreliable access to electricity, whether due to power outages on very hot days or unaffordable electric bills, also impacts health.[41] New York's lowest-income neighborhoods and communities of color face the highest risk of heat-related illness and death because of both social and environmental inequities.[42]

To maximize public health benefits, our actions to address climate change need to also address environmental exposures and provide social opportunities.

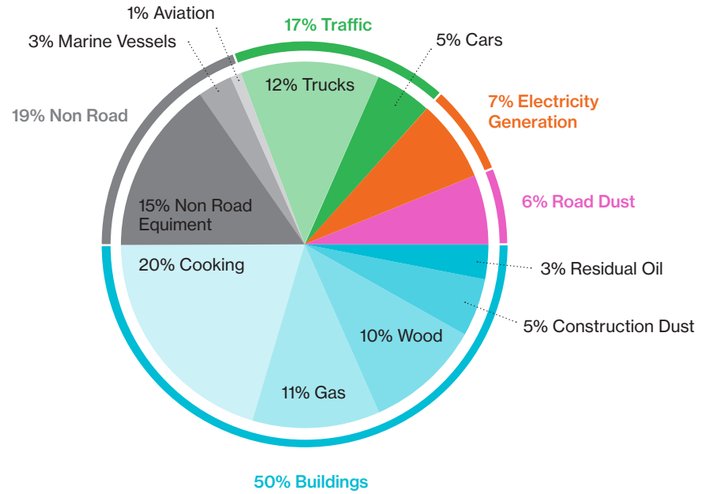
ASTHMA EMERGENCY DEPARTMENT VISITS DUE TO PM2.5



Emergency department visits for asthma associated with exposure to fine particulates (PM2.5), an estimate that is modeled based on differences in air quality, occured at the highest rates in environmental justice communities, including South Bronx and Harlem, between 2015–2017.

Source: NYC Department of Health & Mental Hygiene, 2023.

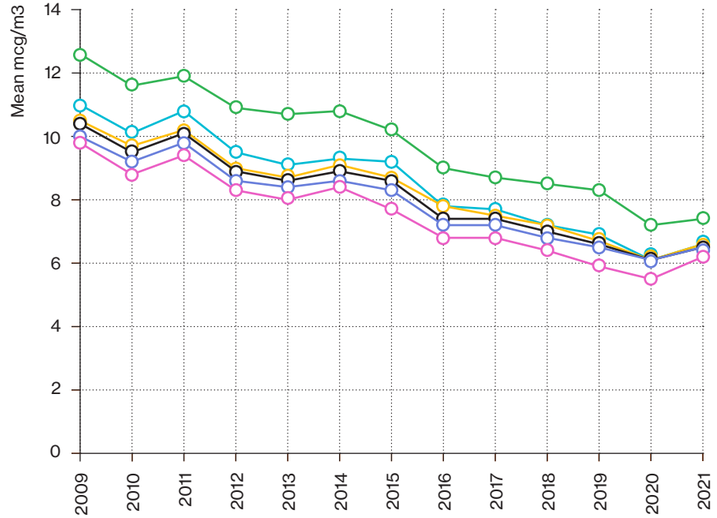
NYC PM2.5 EMISSIONS BY SOURCE



Half of the fine particulates (PM2.5) in NYC's air result from buildings, primarily due to commercial cooking and the emissions associated with charbroilers. Targeting major sources of PM2.5 is key to continued improvements to NYC's air quality.

Source: Department of Health & Mental Hygiene, 2021.

NYC PM2.5 EMISSIONS BY BOROUGH



The concentration of harmful pollutants such as fine particulates (PM2.5) in NYC's air has declined substantially over the past decade, a result of City, State, and Federal regulations.

Source: Department of Health & Mental Hygiene, 2023.

ENVIRONMENTAL JUSTICE

Environmental justice is the principle that all people, regardless of race, disability, age, or socioeconomic background, have a right to live, work, and play in communities that are safe, healthy, and free of harmful environmental conditions. The enivronmental justice movement, which advocates for equal protection and equal enforcement of environmental laws and regulations, including laws pertaining to public health, recognizes that institutional racism and class discrimination have resulted in communities of color, low-income neighborhoods, and Indigenous people being the most likely to be impacted by harmful exposures, economic injustices, and negative land uses.

Historically discriminatory housing policies are one of many causes of environmental injustice. Through the process of redlining, housing policy in the 1930s drew boundaries around neighborhoods based on race and deprived residents of resources and opportunities.[43] In the following decades, the City and State were building highways that ripped through communities of color and tore down their homes to clear the way for parks and other land uses. Construction of the Cross-Bronx Expressway, for example, destroyed the homes of approximately 40,000 residents.[44]

Today, with an average of 300 diesel trucks using the roadway every hour and tens of thousands of cars per day traveling in each direction, the 220,000 New Yorkers who live near the highway are regularly exposed to elevated levels of noise, air pollution, and excessive heat.[45] Further, redlined neighborhoods are more likely to face risks of flooding and exacerbated impacts from extreme heat. To address this inequity, a Federal and City partnership led to a $2 million U.S. Department of Transportation Rebuilding American Infrastructure with Sustainability and Equity grant to study and reimagine the Cross-Bronx Expressway.[46]

With an eye toward recognizing the disparate impacts of climate change and pollution and tackling climate change with equity front and center, the City will soon release the *Environmental Justice NYC (EJNYC) Report*, which will build on the work in *PlaNYC*.

CITY LEADING BY EXAMPLE

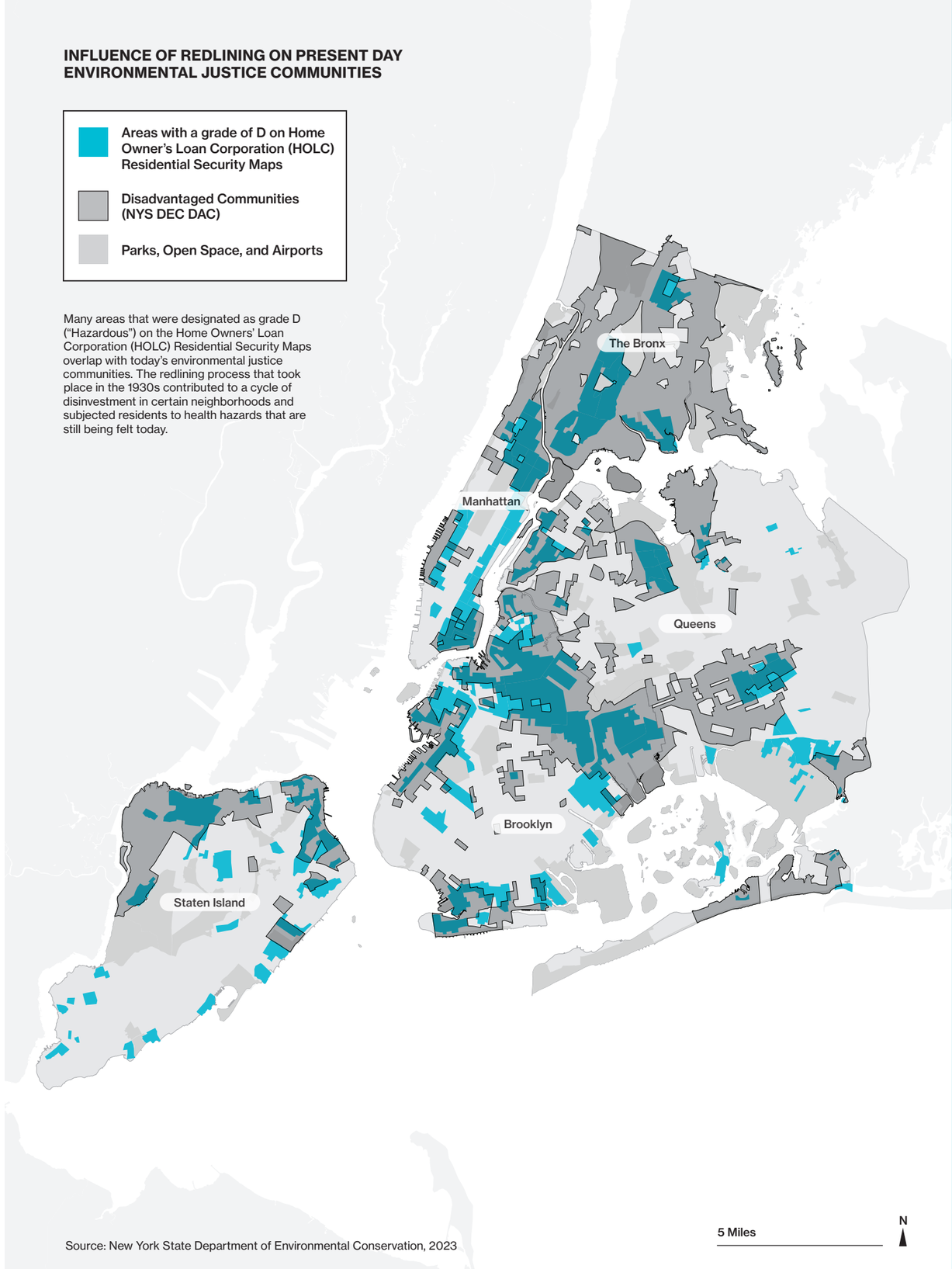
EJNYC Report

In 2017, the New York City Council adopted Local Laws 60 and 64 which require the City's Environmental Justice Interagency Working Group to prepare a citywide report on environmental justice and make its findings public. In summer 2023, MOCEJ will release that report and provide a comprehensive view of the present state of environmental justice in New York City. This report will be used to inform the *EJNYC Plan*, which will propose solutions to address environmental injustices in consultation with the impacted communities, and embed environmental justice considerations into City decision-making.

The findings of the *EJNYC Report* and subsequent *EJNYC Plan* have the potential to harness State and Federal resources for the benefit of environmental justice communities in New York City and set a model for other cities in the United States and around the world.

The Department of Transportation's Open Streets Program transforms the city's streets, including Vanderbilt Avenue in Brooklyn, into public space for all New Yorkers. Source: Department of Transportation

INFLUENCE OF REDLINING ON PRESENT DAY ENVIRONMENTAL JUSTICE COMMUNITIES



Many areas that were designated as grade D ("Hazardous") on the Home Owners' Loan Corporation (HOLC) Residential Security Maps overlap with today's environmental justice communities. The redlining process that took place in the 1930s contributed to a cycle of disinvestment in certain neighborhoods and subjected residents to health hazards that are still being felt today.

Source: New York State Department of Environmental Conservation, 2023

Protecting Us From Climate Threats

EXTREME HEAT

FLOODING

BUILDINGS

CLEAN & RELIABLE ENERGY

Climate change is not just a future threat, it is a present danger that our communities are already enduring. Warmer average days, more frequent and longer heat waves, severe rainstorms causing flooding, and coastal storm surges reaching further inland are just some of the ways New Yorkers are already experiencing the impacts of climate change. This extreme weather disproportionately harms communities of color and low-income residents who have faced generations of systemic racism, disinvestment, and inequality. Climate change increases our health risks and threatens our safety with varying negative effects – death and illness, home and business economic losses, neighborhood damage, and energy supply disruptions. New York City has always been resilient in the face of crisis and we will rise to the challenge of mitigating the impacts of climate change. Our unwavering commitment is to protect and strengthen our city and lead the way in reducing global greenhouse gas emissions. Our plan includes achieving sustainable, healthy, and resilient buildings, and decarbonizing our energy supply. We will aggressively mobilize support to achieve our net-zero emissions goal by 2050 and prepare our communities for the accelerating impacts of climate hazards that threaten our livability.

Hydrants can be opened legally if equipped with a City-approved spray cap, which releases only 20–25 gallons per minute, ensuring adequate water pressure. Spray caps can be obtained by an adult 18 or over, free of charge, at local firehouses.

Source: Department of Environmental Protection

EXTREME HEAT

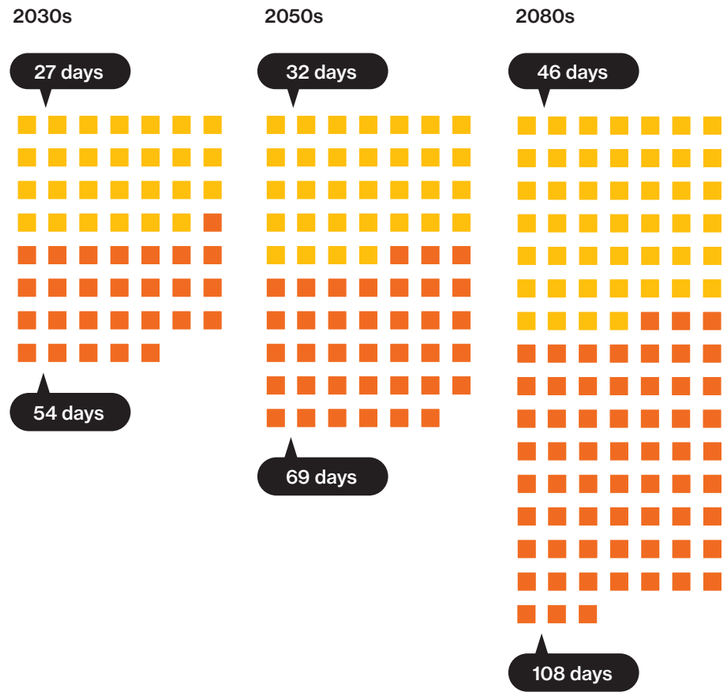
Extreme heat, heavy rain, and coastal flooding all pose threats to our health and safety. Heat is the most imminent, killing more New Yorkers every year than any other type of extreme weather event.[47] Elderly New Yorkers are highly vulnerable to heat-related illnesses, and Black New Yorkers are twice as likely to die from heat stress than white New Yorkers.[48]

Heat-related health risks are only increasing as the climate changes and heat waves become more frequent and intense, impacting residents more acutely in certain parts of our city. The average number of days per year above 90 degrees Fahrenheit (°F) could be as high as 69 days per year by the 2050s, approximately four times the average from 1981 to 2010.[49]

While heat will impact all New Yorkers, some feel the effects more acutely than others. According to the *2022 New York City Heat-Related Mortality Report*, 81% of in-home heat stroke related deaths occurred in households without air conditioning.[50] Though more than 90% of city households reported having air conditioning in 2017, access was as low as 76% in certain neighborhoods.[51] Outdoor heat risk is also exacerbated in certain areas of the city where black pavement, dark gray buildings, and streets without trees increase the urban heat island effect, making streets hotter and more dangerous during hot weather.

Residents in Central Brooklyn, Upper Manhattan, and the South Bronx are the most vulnerable to increasing temperatures, according to the Heat Vulnerability Index (HVI), which maps relative risk for New Yorkers from extreme heat events.[52] Driven by underlying health disparities, a lack of access to indoor cooling, and a relative lack of greenery, communities of color, as well as low-income and elderly residents, bear the brunt of both indoor and outdoor urban heat impacts.

NYC PROJECTED DAYS PER YEAR ABOVE 90 °F



Low estimate projected number of days above 90 °F

High estimate projected number of days above 90 °F

Baseline: 17 days

This graphic shows the projected increase in the annual number of days over 90 °F relative to a 1981–2010 baseline of 17 days. Projected increases are shown as low (10th percentile) and high (90th percentile) estimates.

Source: New York City Panel on Climate Change, 2023

Since 2007, NYC has made great strides toward keeping vulnerable New Yorkers safe and cool indoors and outdoors. To provide affordable home cooling to vulnerable New Yorkers, the City distributed more than 22,000 air conditioners through the Home Energy Assistance Program (HEAP), a Federally funded and State-administered program, between 2015 and 2022, and in 2020 we launched Get Cool NYC to distribute and install nearly 73,000 free home air conditioners during the COVID-19 pandemic when cooling center access was limited.[53] The City also launched NYC CoolRoofs, which has coated more than 11 million square feet of rooftops with reflective material.[54]

In 2017, the City doubled down on these efforts by targeting the most at-risk neighborhoods – those with a Heat Vulnerability Index score of 4 and 5 – and released its first heat resilience plan, *Cool Neighborhoods NYC*.[55] The plan outlined the City's commitment to heat resilience, including investments of nearly $100 million in tree planting, climate risk training for home health aides, and building improvements.[56] Since then, 70% of the installations of cool roofs have been in prioritized high-Heat Vulnerability Index areas.[57] In September 2022, Mayor Adams' administration allocated an additional $112 million for tree planting, which will provide 36,000 new trees in Heat Vulnerability Index neighborhoods.[58] During the COVID-19 pandemic, we committed to helping New Yorkers beat the heat through Cool It! NYC, a mapping platform with hundreds of cooling center locations and outdoor cooling features such as drinking fountains, tree cover, and water features in heat-burdened neighborhoods.[59]

Despite our progress, many New Yorkers still lack access to home cooling systems, which are critical to ensuring protection from extreme heat. Too often, even those who have air conditioning units do not use them due to high energy costs. A 2020 survey of New Yorkers who received free air conditioners through the Get Cool NYC program found that the cost of air conditioner units, the cost of installation, and electricity costs were the largest obstacles for acquiring an air conditioner in the past.[60] To maximize cooling benefits for the most vulnerable New Yorkers, increasing access to home cooling must be paired with utility bill subsidies.

Protection from extreme heat in our streets, buildings, and open spaces will also mean a greener city for all with improved air quality, more places to relax, increased social resilience, and other public health benefits. Parallel to these efforts, the City will continue to advocate for increased grid reliability and resilience in historically marginalized communities that are particularly susceptible to climate-related loss of power, and it will prioritize lower energy bills for New York City residents *(see Clean & Reliable Energy)*.

OUR PLAN

This plan will build upon the tremendous progress the City has already made. To ensure New Yorkers are protected from extreme heat, our plan will proactively mitigate heat impacts while preparing for rising temperatures and an increase in heat waves. Our approach to keeping New York cool will combat extreme indoor heat and decrease the urban heat island effect in our public realm. Strategies including mandatory cooling for new construction and a maximum summer indoor temperature policy will keep us safe at home, while expanding the tree canopy and implementing other outdoor cooling strategies will keep our public spaces cool for all who live, work, and play in NYC. The City is also establishing Resilience Hubs that build social, economic, and climate resilience *(see Buildings)*.

OUR EXTREME HEAT ADAPTATION GOAL

We will protect New Yorkers from the impacts of extreme heat.

Maximize access to indoor cooling:

- Develop a maximum summer indoor temperature policy to protect all New Yorkers from extreme indoor heat by 2030
- Include mandatory cooling requirements for new construction by 2025
- Reform the Home Energy Assistance Program to cover equipment and energy costs for cooling

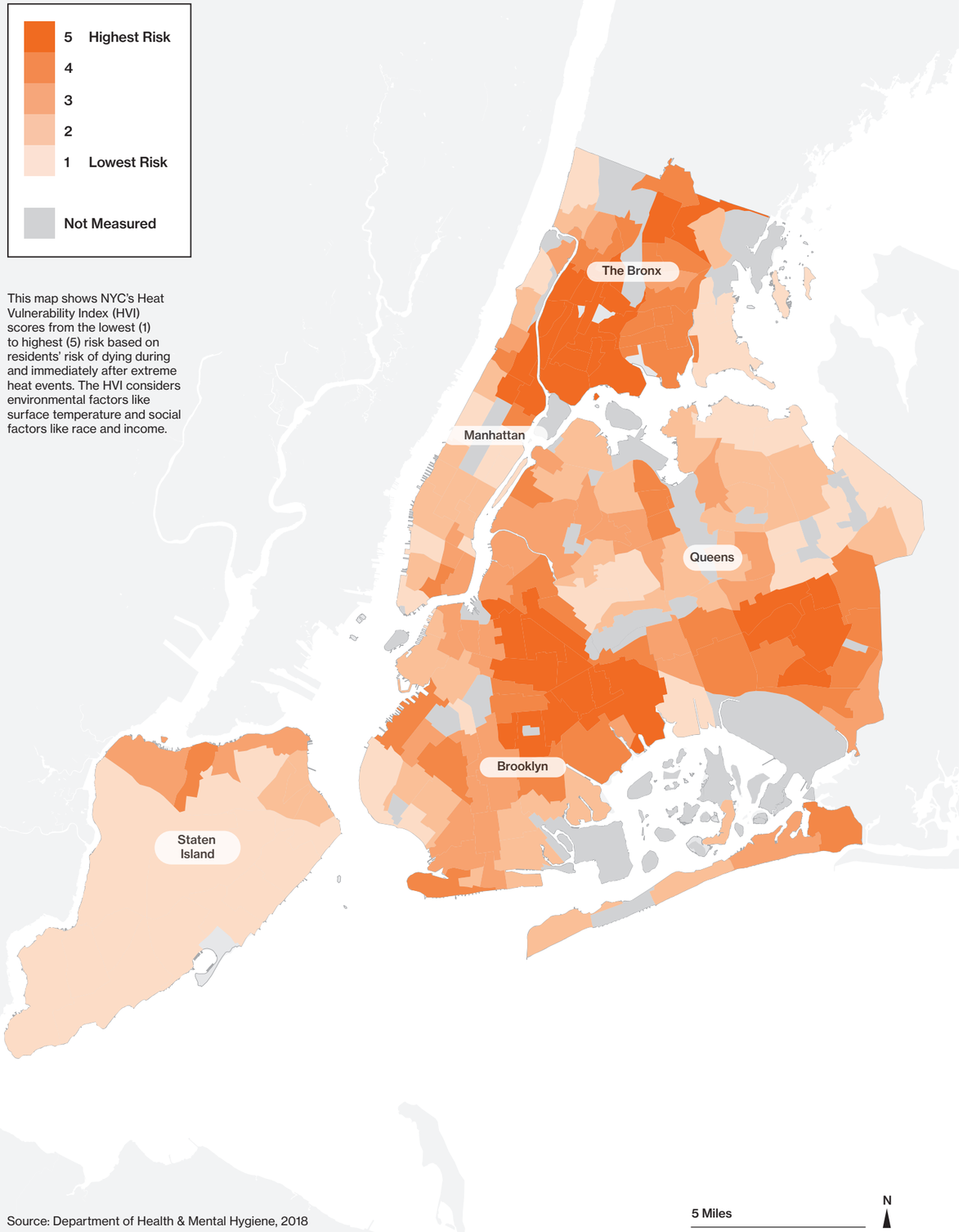
Cool our built environment:

- Install 1 million square feet of cool roofs annually
- Invest in pools and swim safety programs in environmental justice communities

Achieve a 30% tree canopy cover:

- Expand the Tree Risk Management Program, and in 2023, establish the Climber and Pruner Training Program pilot
- Ensure that all new buildings meet the City's street tree planting requirements through improved enforcement by 2035
- Incentivize New Yorkers to steward green spaces by 2035
- Maximize tree preservation and planting opportunities, including in areas with challenging site conditions, by 2035

HEAT VULNERABILITY INDEX, 2018



This map shows NYC's Heat Vulnerability Index (HVI) scores from the lowest (1) to highest (5) risk based on residents' risk of dying during and immediately after extreme heat events. The HVI considers environmental factors like surface temperature and social factors like race and income.

Source: Department of Health & Mental Hygiene, 2018

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Maximize access to indoor cooling

CLIMATE RESILIENCE · HEALTH EQUITY · ENVIRONMENTAL JUSTICE · VITALITY & COMMUNITY

Maximizing access to indoor cooling will help save lives by prioritizing investments in the most vulnerable populations while reducing GHG emissions. This can be achieved by increasing access to air conditioners as well as high-efficiency heat pumps and lowering energy costs.

- **Develop a maximum summer indoor temperature policy to protect all New Yorkers from extreme indoor heat by 2030**

The feasibility of a maximum indoor temperature standard has been considered as far back as 2015, when the City launched an urban heat island working group. The City's Housing Maintenance Code already requires that minimum temperatures be maintained from October through May to keep New Yorkers warm during colder months. We will use this requirement as a blueprint for developing a maximum indoor temperature standard for the summer months.[61]

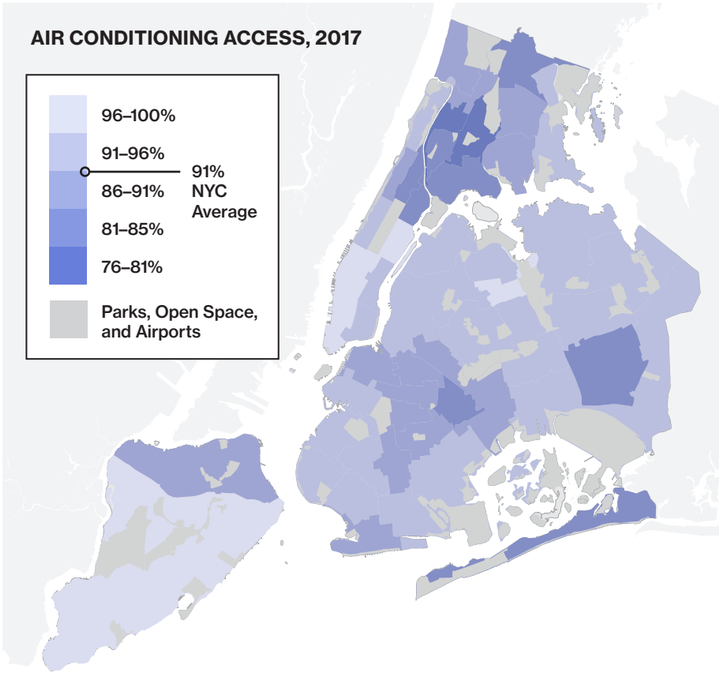
Other areas of the country, such as Dallas, Texas, and Montgomery County, Maryland, have set maximum indoor air temperature regulations, providing precedents, models, and lessons learned.[62, 63] The World Health Organization and the Occupational Safety and Health Administration have also issued maximum indoor air temperature recommendations that will inform our work.[64, 65] Development of an equitable pathway to a maximum indoor temperature policy will need to consider the percentage of household income spent on energy costs, also known as energy burden, as well as safeguards for the most vulnerable New Yorkers from heat-related illnesses and deaths.

An NYCHA resident next to the new air conditioner she received as part of the Get Cool Program in 2020. Source: NYC Housing Authority

- **Include mandatory cooling requirements for new construction by 2025**

The City's GHG emissions reduction targets encourage the adoption of more efficient building energy systems. As insulation, cooling, and heating systems improve, we will push to include mandatory cooling for new construction. Though cooling is not yet explicitly required in new construction, it has become a building industry standard. Codifying the standard will make access to indoor cooling part of our new baseline for quality living. We have already started to implement this in other City contexts; NYC Housing Preservation and Development's (HPD's) *Design Guidelines* were recently updated to include cooling *(see Buildings)*. Knowing that universal access to cooling will increase loads on our energy grid, we are also encouraging more energy-efficient cooling technologies such as heat pumps *(see Buildings)*.

AIR CONDITIONING ACCESS, 2017



Several neighborhoods with a higher Heat Vulnerability Index also have a lower share of households with air conditioning relative to the citywide average (91%). Access to affordable cooling is key to preventing heat-related deaths.

Source: Housing Preservation and Development, 2017

- **Reform the Home Energy Assistance Program to cover equipment and energy costs for cooling**

The Home Energy Assistance Program (HEAP) summer Cooling Assistance Component, helps vulnerable populations stay cool by providing funding for the purchase and installation of an air conditioner or fan priced up to $800 from a list of State-approved vendors.[66] However, the program criteria limits eligibility to residents with a documented medical condition that is exacerbated by extreme heat.[67] The program is also focused only on upfront costs for cooling. Although HEAP helps low-income households offset the costs of heating their homes in the winter, the program lacks utility bill assistance in the summer.[68] The cost of running an air conditioner can be prohibitively high for low-income households where comparatively higher energy burdens already exist.

HEAP is Federally funded and administered by New York State, which sets the benefit amounts and eligibility requirements. We will advocate for HEAP reform at the State and Federal levels to both simplify or eliminate medical documentation requirements, allow for the purchase of heat pumps to provide energy-efficient cooling, and to include new electric utility benefits that subsidize summer cooling costs from June to September. Further, we will advocate for an overall increase in funding at the State and Federal level for Cooling Assistance Component benefits for the purchase and installation of air conditioners. We will also explore whether existing rental support programs, such as Senior Citizen Rent Increase Exemption, can be expanded to cover utility support.[69]

CITY LEADING BY EXAMPLE

NYC Housing Authority (NYCHA) Clean Heat for All Challenge

In 2022, NYCHA, in partnership with the New York Power Authority and the New York State Energy Research and Development Authority (NYSERDA), announced the establishment of the Clean Heat for All Challenge.[70] The program will invest $70 million in 30,000 new heat pump units for New York City public housing and is a stellar example of partnering to achieve climate solutions and increase energy efficiency for overburdened communities.[71]

One in 16 New Yorkers lives in NYCHA housing.[72] Heat pumps provide efficient cooling and heating from a single unit that is four times more efficient than traditional equipment like boilers.[73] The heat pump units developed to meet this challenge will enable rapid, low-cost electrification of space heating and cooling by reducing or eliminating many of the cost drivers involved with heat pump installation in resident-occupied apartments, such as electrical system upgrades, lengthy refrigerant piping, and through-wall drilling and penetrations. The advanced heating and cooling solutions will reduce GHG emissions and improve the indoor comfort of NYCHA residents.

SPOTLIGHT

Christina Burgess *Recipient of Air Conditioner from "Get Cool" Program*

"Before I got the air conditioner, my apartment, which faces the rising sun, was like Dante's Inferno. No matter how many shades you pull down it didn't stop the heat. I'm asthmatic. I was in the senior center and the Resident Leader came in and asked if I needed an AC. I knew quite a few elderly people who didn't have air conditioners and they got them, too. I'm the baby of my bunch and I try to look out for the others. After the AC, I was able to sit comfortably for hours in a chair. I felt like there were people out there with hearts. The cooling centers are good but they're not your own home, and some of our residents have a hard time getting down the elevators to go to them. There is too much on the shoulders of the retired elderly. It's getting hotter out there and people need to look up."

Christina Burgess,
retired New York City schoolteacher,
resident of Dyckman Houses in Manhattan

Source: Mayor's Office of Climate & Environmental Justice

2

Cool our built environment

CLIMATE RESILIENCE · HEALTH EQUITY · ENVIRONMENTAL JUSTICE · VITALITY & COMMUNITY

A neighborhood's design contributes to how people experience heat. Dark surfaces, building materials, and a lack of green space make buildings, public spaces, and neighborhoods hotter. A hotter public realm can deter pedestrian activity and increase the likelihood of heat-related illness and injury for outdoor workers. Investing in outdoor cooling strategies helps us mitigate the urban heat island effect and create a more livable city for all New Yorkers. Our Heat Vulnerability Index (HVI) shows that neighborhoods with scores of 4 or 5 have the highest risk from extreme heat.[74] Because our plans and designs for buildings and spaces can greatly affect the temperature, we have developed a suite of outdoor cooling strategies that support these high-risk communities.

- **Install 1 million square feet of cool roofs annually**

We plan to invest in our built environment with cool roofs, corridors, and pavement that can lower outdoor temperatures by reflecting more sunlight and absorbing less heat. The CoolRoofs workforce training program aims to coat 1 million square feet of rooftops per year with materials that have high solar reflectance. Further, in areas where expanding green space is not feasible, the City will explore opportunities to develop cool pavement projects and will pilot a pipeline of Cool Corridors projects in four high-heat areas across the city. These programs will also provide opportunities to train hundreds of New Yorkers for jobs in the green economy.

Spray showers are found at many of the City's public playgrounds (top and middle). NYC CoolRoofs provides New Yorkers with paid training and work experience installing energy-saving reflective rooftops (bottom). Source: Department of Environmental Protection; Mayor's Office of Climate & Environmental Justice

Hamilton Fish Park, located in the Lower East Side neighborhood of Manhattan, features an Olympic-sized pool that draws New Yorkers every summer.
Source: Department of Parks and Recreation

LEVERAGING FEDERAL AND STATE FUNDING

Cool Corridors

In 2021, DOT was awarded a $320,500 FEMA Building Resilient Infrastructure and Communities (BRIC) grant, which is being matched with $110,000 to develop a Cool Corridors toolkit.[75] Cool Corridors are streets with features like shade structures, reflective materials, and enhanced green spaces that help mitigate the impacts of the urban heat island effect, making it safer and easier for New Yorkers to walk, run, or relax in public spaces during summer months. The BRIC program provides funding to states, local communities, tribes, and territories that are working on hazard mitigation projects that reduce the risk from flooding, extreme heat, and other extreme weather events.[76] This grant was one of only two heat mitigation FEMA BRIC grants awarded nationwide. The Cool Corridors toolkit will help the City develop projects for streets to lower outdoor temperatures during summer months. It will also help the City pursue future FEMA funding to implement Cool Corridor projects in our most heat vulnerable communities by creating a new way to measure the impacts of different cooling strategies.

Aside from BRIC, other Federal and State grants could support work to address extreme heat, such as the Federal Healthy Streets Program, which is designed to provide financial assistance for projects to decrease the urban heat island effect, especially in environmental justice neighborhoods.[77]

- **Invest in pools and swim safety programs in environmental justice communities**

Every summer, thousands of New Yorkers head to our public beaches and swimming pools to beat the heat. The City offers a variety of swimming programs to ensure pool users can cool off safely. As our summers become longer and hotter, we plan to invest in environmental justice communities by offering more drowning-prevention and swim education and emphasizing access to pools for the most vulnerable New Yorkers. We have been mapping "pool deserts" in our city and are working to build and repair public pools in areas that have the least access, to hire and retain lifeguards, and to provide year-round access to pools. Increased options for staying cool during hot weather will enable us to protect our communities while we continue to invest in our infrastructure and systems to create a more heat-resilient NYC.

3

Achieve a 30% tree canopy cover

CLIMATE RESILIENCE
GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY
PROSPERITY

Trees play a critical role in reducing outdoor temperatures by providing shade on hot days and purifying the air we breathe. Urban trees can cool city streets up to 2°F, shading buildings and reducing energy consumption.[78] Trees also beautify our streets and neighborhoods and enhance the overall look and feel of our public spaces.

The City planted 11,634 trees in the highest Heat Vulnerability Index zones between fiscal years 2018 and 2022, and in September 2022, Mayor Adams' administration invested an additional $112 million for tree planting, which will provide 36,000 new trees in heat vulnerable neighborhoods.[79]

According to an analysis by the Nature Conservancy, there are 42,656 acres of tree canopy citywide on both public and private land, representing 22% of our land area.[80] By preserving and maintaining our existing trees and planting new trees, we will work to achieve a 30% tree canopy cover – representing 15,388 additional acres of tree canopy. New trees will be targeted in city parks and public rights-of-way, including along bike lanes and major pedestrian routes to subway stations, cooling centers, and other key destinations. We will also leverage public-private partnerships to maximize tree replacement, planting, and preservation on private land to achieve our urban tree canopy expansion goals.

- **Expand the Tree Risk Management Program, and in 2023, establish the Climber and Pruner Training Program pilot**

NYC Parks is responsible for the direct management of more than 800,000 street and landscaped park trees.[81] Increased inspections of individual park and street trees and a well-trained workforce will help identify and correct defects early, preventing tree decay and saving healthy trees. In 2017, NYC Parks transitioned to a Tree Risk Management Program aligned with the latest industry standards.[82] Tree Risk Management incorporates public service requests and routine tree inspections to identify and rate existing risks while addressing conditions presenting the highest risk to public safety and property first. This program will allow us to inspect trees and identify concerns before they become major issues, establishing systematic, preventive tree care. For example, prompt pruning of single decaying branches helps trees grow strong and healthy so they can continue to keep us cool.

We will also establish and fund an NYC Parks Climber and Pruner Training Program pilot to provide tree care training, generate jobs, and offer public information.

- **Ensure that all new buildings meet the City's street tree planting requirements through improved enforcement by 2035**

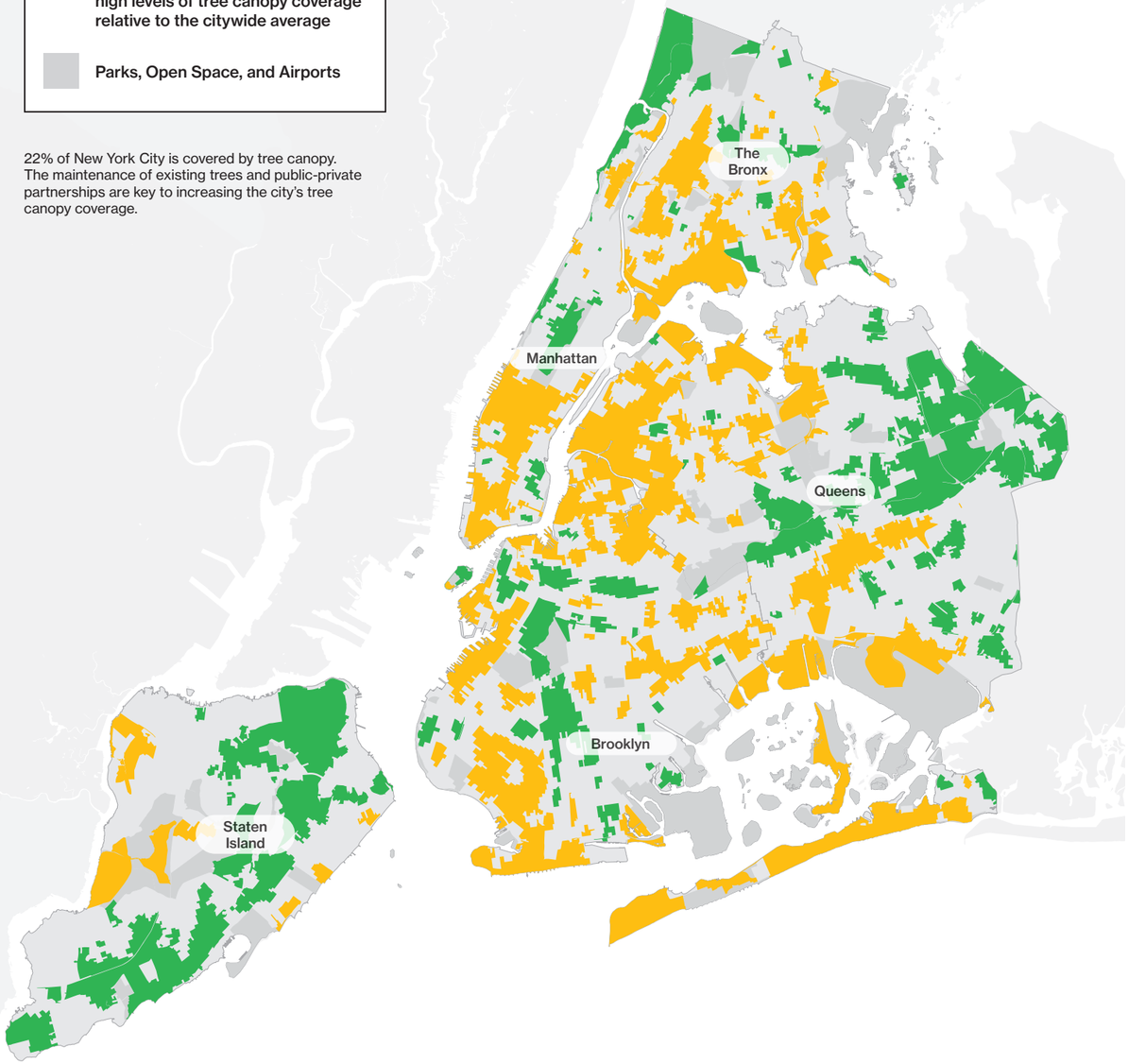
To preserve our growing tree canopy for current and future generations of New Yorkers, we will strengthen our regulations. As highlighted in the *Get Stuff Built* plan, the City will improve coordination on street tree requirements for new construction.[83]

New Yorkers celebrated Earth Day by planting trees, supporting NYC Parks' network of over 800,000 trees.
Source: Department of Environmental Protection

TREE CANOPY, 2017

- Concentrations of low tree canopy, or groups of blocks with similarly low levels of tree canopy coverage relative to the citywide average
- Concentrations of high tree canopy, or groups of blocks with similarly high levels of tree canopy coverage relative to the citywide average
- Parks, Open Space, and Airports

22% of New York City is covered by tree canopy. The maintenance of existing trees and public-private partnerships are key to increasing the city's tree canopy coverage.



Source: Office of Technology and Innovation, 2017

ENVISIONING A COOLER PUBLIC REALM

1. Tree canopy
2. Shading canopy
3. Heat pump
4. Electric bus
5. Dedicated bike lane

To protect New Yorkers from extreme heat, our plan will ensure that areas with limited tree canopy (bottom) see an increase in coverage to support a cooler public realm (top).

- **Incentivize New Yorkers to steward green spaces by 2035**

To engage residents, partners, and businesses, NYC Parks and partners will recognize the efforts of New Yorkers to maintain our green spaces and reward stewardship, particularly in historically underserved neighborhoods.

- **Maximize tree preservation and planting opportunities, including in areas with challenging site conditions, by 2035**

Construction projects can result in major tree canopy losses, and some removals are unavoidable. However, early engagement in project planning, with a focus on tree preservation and maximizing planting opportunities, can help mitigate negative impacts from construction. We will improve collaboration among City agencies to incorporate the latest design and preservation techniques into infrastructure projects. We will also explore ways to incorporate new tree growth into other project types. The City is exploring Leadership in Energy and Environmental Design (LEED) implementation for the Urban Heat Island (UHI) index and expanding the tree canopy through *Climate Resiliency Design Guidelines* pilot sites. The *Climate Resiliency Design Guidelines* provide forward-looking design criteria to incorporate climate change data into the design of City facilities. These guidelines will be mandatory for all City projects by 2027. City projects will also target tree plantings and maintenance in the most heat-vulnerable communities, design for larger tree growing spaces, and use proven engineering techniques in planting.

FLOODING

A “sunny-day” flood in Queens. Climate change is causing increased chronic tidal flooding in New York City’s low-lying coastal communities.
Source: Mayor’s Office of Climate & Environmental Justice

As the frequency of severe storms increases, NYC is experiencing a heightened need for flood protection. Just over a decade ago, Hurricane Sandy showed how vulnerable our city was to coastal storm surge. But storms do not need to be as extreme as Sandy to cause significant property damage, disruption to critical infrastructure, and displacement of residents. Recent winter storms, including in 2022, have revealed our vulnerability to even moderate storm events outside of hurricane season. As climate change causes sea levels to rise, flooding that occurs during high tides (also called sunny-day flooding) will also become an increasingly chronic issue for shoreline communities.

In 2021, Hurricanes Henri and Ida demonstrated that extreme rainfall can be equally dangerous, especially in low-lying inland areas that are prone to flooding.[84] While NYC has always received regular rainfall – in fact, it rains for roughly a third of the days each year – the torrential downpours of Henri and Ida quickly overwhelmed the drainage systems that were built to rainfall patterns of the past.[85] Such storms cause stormwater to accumulate on streets and enter basements, either flowing downward through windows and doors or upward through indoor fixtures as sewer backups. Flood risk for both inland and coastal areas is increasing, and extreme rainfall events are becoming more frequent and disruptive. Unlike coastal flooding, rain-driven flooding can occur suddenly and intensely with highly localized impacts.

Projections for increasing chronic tidal flooding, more frequent coastal storm events, and significant flooding from heavy rain events demonstrate the need to act throughout the five boroughs to improve infrastructure and increase resilience for all New Yorkers. Increased flooding comes at a significant cost: Hurricane Sandy alone cost NYC $19 billion, a nearly incomprehensible figure that included extensive damage to infrastructure and private property across multiple coastal neighborhoods.[86]

Homes purchased in New York State in 2021 that have experienced flooding in the past are expected to cost homeowners another $23 million each year moving forward in annual flood damages.[87] More importantly, flood preparedness is a matter of life safety, particularly in immigrant, low-income, and rental communities, as well as for populations with limited mobility and the elderly. Fourty-four New Yorkers lost their lives during Hurricane Sandy in 2012;[88] nearly a decade later, we lost another 13 lives during Hurricane Ida, with most of those lives lost tragically in basement apartments.[89] Some city residents are facing repeated flooding that causes financial damages and puts their lives at risk. It is crucial that we take decisive action to mitigate the risks of flooding and protect people, infrastructure, and property.

NYC has engaged in large-scale, complex projects to increase our resilience since Hurricane Sandy. The City has preserved 10,000 acres of wetlands at Jamaica Bay to mitigate coastal storms and invested more than $3 billion in resilience funding to protect NYC Housing Authority (NYCHA) residents.[90, 91] We have started massive coastal projects in Manhattan, Queens, Brooklyn, and Staten Island to protect against storm surge flooding. We have built or upgraded 226 miles of sewer infrastructure, especially focused on areas like Southeast Queens that have been historically underserved.[92] We have also proactively deployed green infrastructure solutions, including construction of nearly 13,000 rain gardens and similar assets,[93] installation of more than 17,000 linear feet of porous pavement for water capture,[94] and completion of 84 Bluebelt projects that use nature-based solutions to cost-effectively improve drainage.[95] We now understand our flood risk much better, including the impacts that floods can have on homes, businesses, and finances.

At the individual property level, we helped 12,500 families recover from Hurricane Sandy through the Build It Back program by providing resources to repair, rebuild, elevate, or relocate homes.[96] With extensive outreach and education in partnership with FEMA and FloodHelpNY, we have seen an increase of approximately 50% in National Flood Insurance Program enrollment since 2012.[97] We also launched Business PREP to help small businesses prepare for emergencies like those caused by extreme weather. This Small Business Services (SBS) program served 560 businesses impacted by Sandy. After Hurricane Ida, we expanded the program to serve an additional 450 businesses citywide with an additional investment of more than $5 million.[98] More recently, we released *Housing Our Neighbors: A Blueprint for Housing and Homelessness*, which prioritizes keeping New Yorkers safe in their homes during flood events and addresses the needs of our most vulnerable residents, including those living in basement apartments.[99]

With an eye toward scale and speed, we must expand our scope to advance toward a citywide approach to flood resilience. We will use data to identify locations that we may not be able to protect from increased climate risks and take action to help residents move voluntarily, opening up the use of these properties to help protect surrounding neighborhoods from flooding.

OUR PLAN

True flood resilience advances solutions at every scale from citywide standards to neighborhood projects to individual parcels and assets. First, we must continue to implement the many resilience projects that are already underway in all five boroughs. Second, we must develop a citywide approach for flood resilience that encapsulates both coastal inundation and stormwater.

This plan builds on past work to address flooding and will impact the entire lifecycle of an asset from conception to operation. Flood resilience must be considered well before a project is built. We must also contend with our current built environment. We will continue to pilot the City’s *Climate Resiliency Design Guidelines*. We will develop minimum flood resilience standards for shoreline assets and establish a citywide level of service for stormwater infrastructure. This will ensure that New York City’s coastal communities, as well as vulnerable inland communities, are invested in and protected.

To date, there has not been a single agency fully responsible for overseeing the entire city’s flood risk. We will task the Department of Environmental Protection (DEP) with this so that stormwater and coastal flooding are managed by one agency that can integrate planning and implementation. DEP will coordinate across the many City agencies and partners that will need to do their part in protecting New Yorkers from flood risk, whether it is because their core missions are deeply affected or because they own and operate waterfront property.

Finally, we will address the fact that we cannot protect every address in NYC from future flood risk with infrastructure. To that end, we will develop an entity that can support flood-prone property owners and renters with housing options. While the City should not become a buyer of last resort for residents who want to sell their homes, we can and should use Federal and State dollars to strategically purchase property where homeowners choose to leave flood-prone properties. These properties could be repurposed as resilient infrastructure that can protect the rest of a neighborhood.

OUR FLOODING GOAL

We will prepare and protect New Yorkers from the risks of current and future flooding.

Create a new leadership structure for coastal flood resilience in 2023, headed by the Department of Environmental Protection.

Implement a multilayered strategy for flood resilience:

- Develop minimum flood resilience standards for shoreline assets by 2026
- Continue to design and construct world-class neighborhood scale coastal protection projects and partner with the United States Army Corps of Engineers’ (USACE) New York & New Jersey Harbor & Tributaries Feasibility Study (NYNJHATS) process
- Develop a stormwater flooding adaptation plan by 2024 to establish a citywide flood protection target for stormwater infrastructure
- Create nature-based stormwater management solutions that provide multiple functions, including shade, water and air quality improvement, and wildlife habitats

Launch a voluntary housing mobility and land acquisition program to provide housing counseling and facilitate future land acquisition with Federal and State funds:

- Enable the City to engage with interested residents and acquire difficult to protect flood-vulnerable properties that can support flood control, natural areas, or parklands

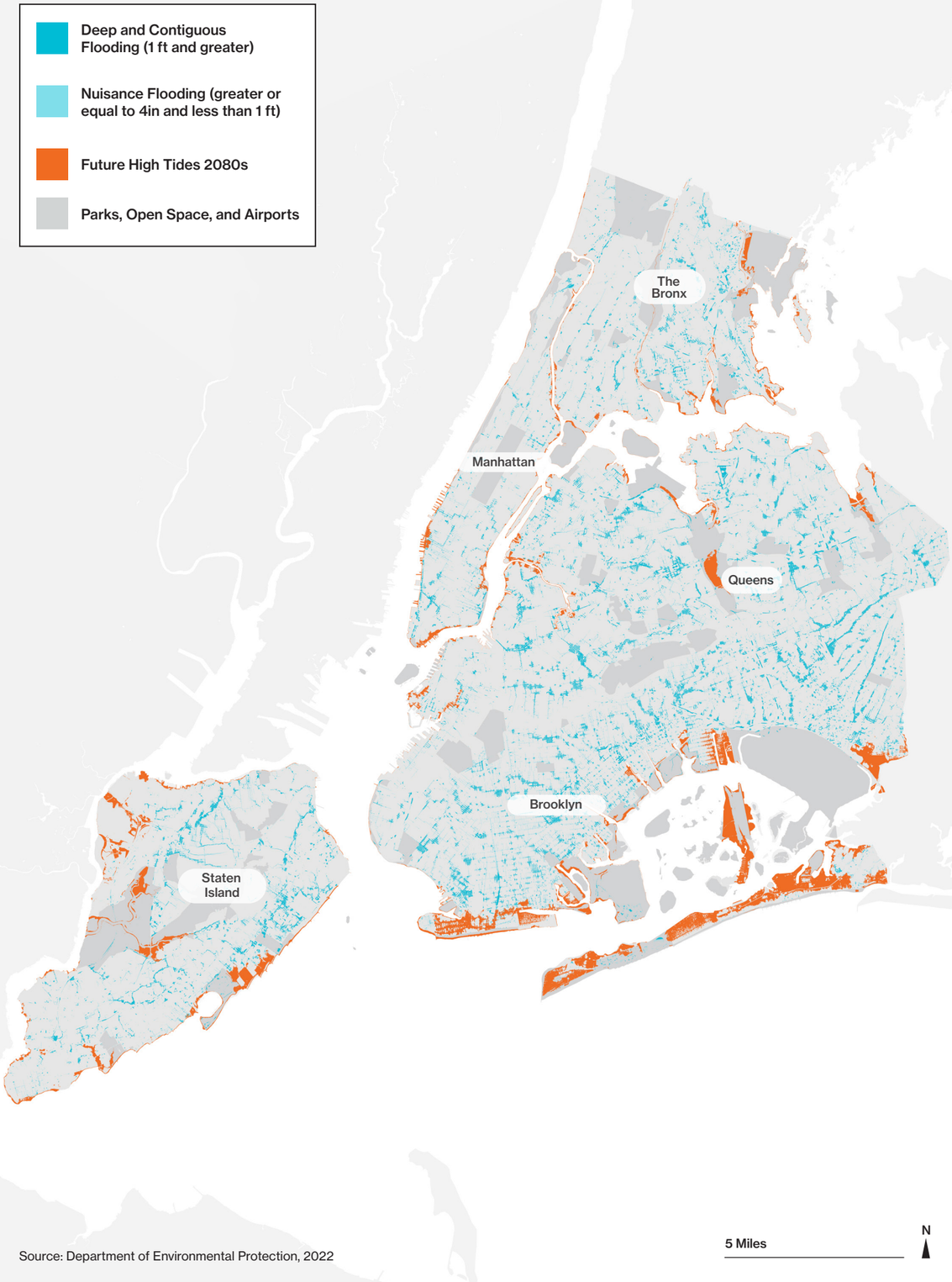
PROJECTED MODERATE STORMWATER FLOODING WITH 2050s SEA LEVEL RISE

A moderate stormwater flood event is a 10% annual chance event in which approximately 2 inches of rain falls in one hour (left). An extreme stormwater flood event is a 1% annual chance event in which approximately 3.5 inches of rain falls in one hour (right). Both moderate and extreme stormwater flooding events are projected to increase in frequency and intensity over time. Additionally, sea level rise can exacerbate this flooding by blocking outfalls which can make it harder for the sewer system to drain. The 2050s sea level rise (left) and 2080s sea level rise (right) are shown here.

* Online maps will be updated with 2023 NPCC *Special Climate Report* data once published

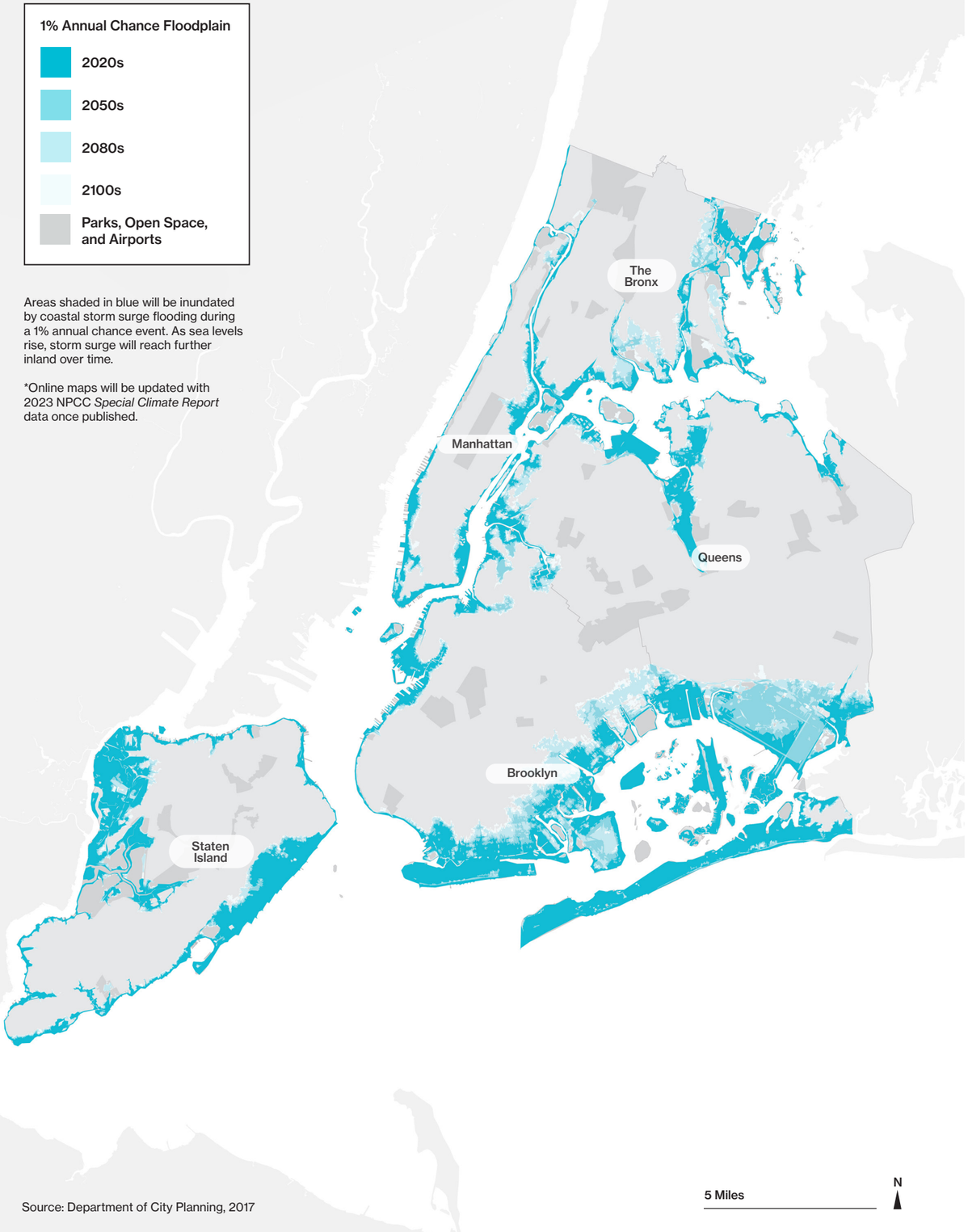
Source: Department of Environmental Protection, 2022

PROJECTED EXTREME STORMWATER FLOODING WITH 2080s SEA LEVEL RISE



Source: Department of Environmental Protection, 2022

PROJECTED STORM SURGE INUNDATION



Areas shaded in blue will be inundated by coastal storm surge flooding during a 1% annual chance event. As sea levels rise, storm surge will reach further inland over time.

*Online maps will be updated with 2023 NPCC *Special Climate Report* data once published.

Source: Department of City Planning, 2017

LEVERAGING FEDERAL AND STATE FUNDING

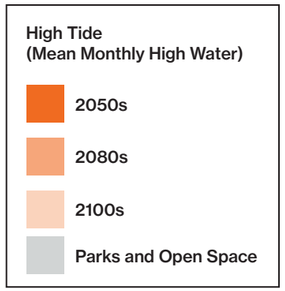
Seaport Coastal Resilience

The Seaport Coastal Resilience project, first identified during the *Financial District and Seaport Climate Resilience Master Plan* process, was recently selected by FEMA for a BRIC grant maximum award of $50 million.[100, 101] Without intervention, Lower Manhattan faces risk from sea level rise and is expected to see monthly flooding by the 2050s, and daily flooding by the 2080s.[102] Large coastal storms and extreme precipitation also present a significant risk to the neighborhood. The area is subject to a "bathtub" effect because the waterfront is at higher elevation than adjacent inland areas. This means that flood waters are easily trapped on streets and around buildings without the ability to naturally drain back out into the East River.[103]

This project proposes raising the shoreline from the Brooklyn Bridge to Imagination Playground. The Federal funds will help provide potential esplanade improvements, ecological enhancements, and green infrastructure to manage stormwater. Neighborhood-scale coastal protection projects like this showcase the benefit of Federal funding to advance other large resilience projects across the five boroughs.

In 2021, New York City Economic Development Corporation and the Mayor's Office of Climate & Environmental Justice released the *Financial District and Seaport Climate Resilience Master Plan,* including an illustrative rendering (top) to be explored further during design. The South Street Seaport is at heightened risk from chronic tidal flooding (bottom). Source: New York City Economic Development Corporation; Wikimedia Commons

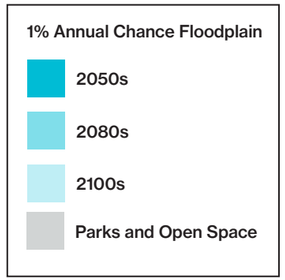
PROJECTED CHRONIC TIDAL FLOODING – CANARSIE, BROOKLYN



As sea levels rise, tidal flooding will increase across low-lying areas of the city. Flood inundation shown here is based on Mean Monthly High Water levels, which are the average of the highest monthly tide levels. Areas shaded in red will be impacted by tidal flooding (also called sunny-day flooding), which occurs when water from regular tides flows over land, even without storms.

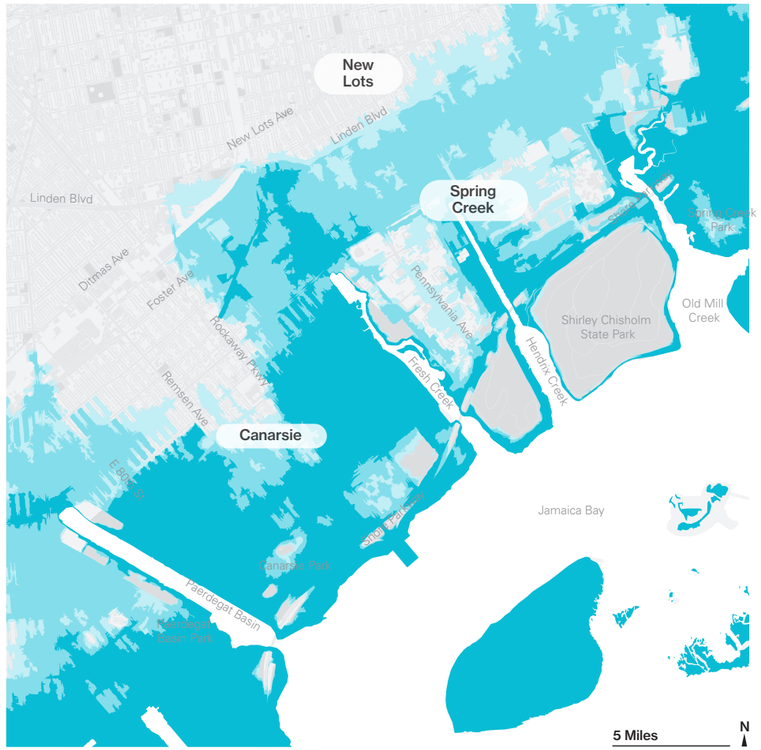
Source: Department of City Planning, 2017

PROJECTED COASTAL STORM SURGE FLOODING – CANARSIE, BROOKLYN



Areas shaded in blue will be inundated by coastal storm surge flooding during a 1% annual chance event. Storm surge flooding will reach further inland as sea levels rise over time.

Source: Department of City Planning, 2017



LEVERAGING FEDERAL AND STATE FUNDING

FEMA Flood Mitigation Assistance: Backwater Valve Study

The City has been awarded funds through FEMA's Flood Mitigation Assistance grant to undertake a citywide study to determine where backwater valves will be most effective in reducing flood risk and stopping sewage backups. A backwater valve can prevent sewer water from backing up into your home through basement plumbing fixtures such as toilets, sinks, and drains. During heavy rain and flooding, if water from the City sewer rises to the level of basement plumbing, the valve will close and block sewer water from entering your home. Plumbing backups are unsanitary, can cause serious health hazards, and are costly to clean up. Backwater valves are important tools to help minimize flood-related damage and reduce the negative health impacts of flooding.

Through this FEMA funded study, the Department of Environmental Protection, NYC Emergency Management and the Mayor's Office of Climate & Environmental Justice will assess characteristics and conditions such as building type, neighborhood sewer network, and flood risk to determine the scale of a possible installation program and priority areas. The study will also identify areas for direct community outreach by identifying which buildings and locations are most suitable for backwater valves, as well as locations where backwater valves may not address concerns. Finally, it will indicate where installations should be prioritized based on physical vulnerability factors. The study is funded through September 2024.

In addition to continuing pursuit of FEMA pre-disaster Flood Mitigation Assistance and BRIC funds, the City will pursue funds from the Bipartisan Infrastructure Law (e.g., the Climate Ready Coasts suite of programs) and the New York State Environmental Bond Act (e.g., the Restoration and Flood Risk Reduction program).[104, 105] The City is also leveraging more than $300 million in post-Hurricane Ida funding to support increasing the resilience of households, buildings, and neighborhoods impacted by stormwater flooding.[106]

4

Create a new leadership structure for coastal flood resilience in 2023, headed by the Department of Environmental Protection

CLIMATE RESILIENCE | HEALTH EQUITY | ENVIRONMENTAL JUSTICE

Flood resilience – whether from rain, coastal storms, or sea level rise – has no single owner in NYC. There is a lack of consistent oversight that has historically made keeping a baseline state of good repair a challenge. Though significant progress has been made at the shoreline through efforts including the New York City Economic Development Corporation's (NYCEDC) Waterfront Facilities Maintenance Management System, DEP's outfall inspection program, and NYC Parks' *Design and Planning for Flood Resilience: Guidelines for NYC Parks*, significant challenges remain – especially by the rapid increase in extreme rain events. These challenges will only be exacerbated with climate change and the addition of the types of coastal flood protection infrastructure that need to be operated and maintained.

Flooding needs to be considered holistically due to compounding risks; for example, the interaction of coastal resilience and drainage infrastructure is of critical importance to ensure that when we are preventing storm surge from coming onto land, we are not exacerbating flooding from rainwater behind the elevated coastal edge. The City's waterfront efforts will be adapted to meet the challenges of addressing complex and compounding risks today and in the future. DEP will expand their mission to lead the City's flood resilience work, including management of coastal flooding and stormwater.

DEP will immediately create a new Bureau of Coastal Resilience and build the right team to support this transition. Under this new structure, DEP will work in partnership with a wide variety of agencies that have oversight or jurisdiction of waterfront sites (such as NYC Parks, NYCEDC, Small Business Services, Department of Buildings, Department of Design and Construction, Department of Transportation, and Department of City Planning). Many of these agencies are currently completing critical flood resilience projects or have already been working for many years to adapt their capital plans to future climate conditions.

DEP is uniquely situated to take on this leadership responsibility given its mission alignment with flood resilience planning and operations, experience operating emergency and just-in-time systems, and ability to deliver complex construction projects. Assigning leadership responsibility to one agency will unify long-term planning and funding, increase coordination and efficiency, and improve maintenance of flood resilience projects. This new structure will also provide a central point of contact and information for New Yorkers on coastal and rainwater flooding events across the city.

5

Implement a multilayered strategy for flood resilience

CLIMATE RESILIENCE | HEALTH EQUITY | ENVIRONMENTAL JUSTICE | VITALITY & COMMUNITY

We will advance a multilayered strategy to adapt our city to a future with rising seas and more frequent storms, ranging from neighborhood-scale coastal protection to property-scale flood resilience standards. We will plan holistically for coastal and stormwater flooding and consider the compound risk of multiple hazards.

- **Develop minimum flood resilience standards for shoreline assets by 2026**

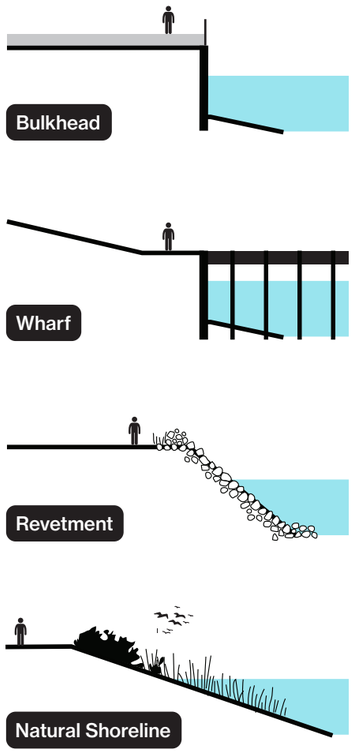
The City has made significant progress incorporating flood resilience into the built environment, from updating the building and zoning codes for coastal properties in the floodplain to creating *Climate Resiliency Design Guidelines* that set a new standard for City projects. The City has also leveraged Federal funding to undertake large-scale coastal projects that protect entire neighborhoods.[107]

The next phase of our strategy will incorporate coastal and stormwater flood risk into all City decision-making. As outlined in the *Comprehensive Waterfront Plan* and the *Housing Our Neighbors: A Blueprint for Housing and Homelessness*, NYC will advance a resilient land use strategy to guide growth and investments, considering current and future climate risk in planning and siting decisions.[108, 109] Building off the post-Sandy precedents of Zoning for Coastal Flood Resiliency and updates to Appendix G of the City's building code, we will develop new resilience standards for buildings and neighborhoods to address the impacts of current and future stormwater and coastal flood risk.[110, 111] Through the climate budgeting process, City investments will consider climate resilience at the earliest phases of project planning and development.

While coastal assets like bulkheads, revetments, and salt marshes are being rebuilt and enhanced along the City's 520 miles of shoreline, there is currently no resilience standard that applies to all types of waterfront assets. A new minimum flood resilience standard will seek to adapt our city's shoreline gradually so that when we build at the water's edge, we build to a future climate standard that considers higher tides and more frequent coastal storms. We also recognize that our coastline is not uniform, so this standard must consider varying conditions from soft natural shorelines to hardened bulkheads to working waterfronts and pile-supported structures. Resilience means something different for each of these asset types, yet without action, almost all of our waterfront will be subject to flooding in the future, requiring a large-scale response across all properties.

WATERFRONT ASSETS

NYC's 520 miles of coastline is comprised of a wide variety of asset types. As these assets are rebuilt over time, the City will work towards a consistent flood resilience standard based on shoreline type.



- **Continue to design and construct world-class neighborhood scale coastal protection projects and partner with the United States Army Corps of Engineers' (USACE) New York & New Jersey Harbor & Tributaries Feasibility Study (NYNJHATS) process**

We will continue designing and constructing neighborhood-scale coastal protection projects across the city in partnership with agencies and the USACE and build upon the successes and lessons learned from projects in active construction, like East Side Coastal Resiliency,[112] Brooklyn Bridge-Montgomery Coastal Resiliency,[113] and Living Breakwaters.[114] We will move toward construction of Bayswater Park, Thursby Basin Park, Red Hook Coastal Resiliency, Seaport Coastal Resilience, The Battery Coastal Resilience, and the Raised Shorelines portfolio. We will continue to advance design, advocate for funding, and explore alternate financing options for the critical Financial District and Seaport Climate Resilience project.[115] Finally, we will continue to work with external partners, including with USACE on Rockaways Atlantic Shorefront, Rockaways Bayside, and South Shore of Staten Island, and with the Battery Park City Authority on the South and North/West Battery Park City Resilience projects.

While executing these large-scale projects, we will continue working with USACE through NYNJHATS, the Federal government's regional evaluation of large coastal storm risk that identifies solutions to protect multiple neighborhoods.[116] NYNJHATS will define the next generation of coastal projects and the City is working to ensure that projects are responsive to local needs and conditions, in part by advocating that these once-in-a-generation projects meet the following conditions:

- Serve multiple purposes, address multiple risks, and integrate into the local urban context
- Deliver results as quickly and efficiently as possible
- Use a cost-benefit analysis that meaningfully incorporates social and environmental benefits and prioritizes socially vulnerable populations

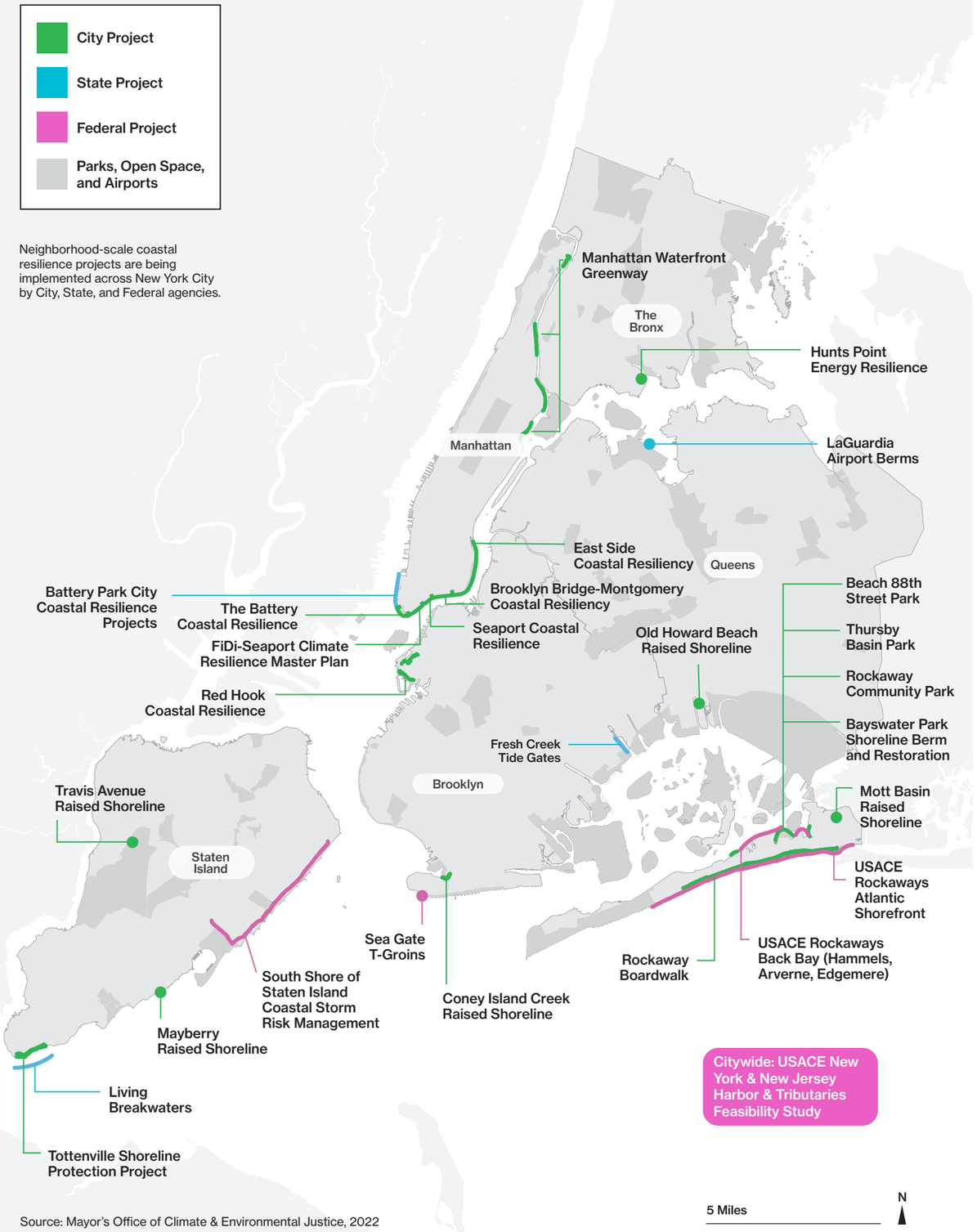
In October of 2022, Mayor Adams broke ground on the Brooklyn Bridge-Montgomery Coastal Resiliency project, which will protect the Two Bridges neighborhood of Manhattan from coastal storm surge through a combination of flood walls and deployable flip-up barriers (top). The U.S. Army Corps of Engineers (USACE) commenced construction on the Atlantic Shorefront Resiliency Project in the Rockaways, Queens (bottom). Source: Mayor's Office

LEVERAGING FEDERAL AND STATE FUNDING

Climate Strong Communities

We will make our city more resilient and sustainable through the Climate Strong Communities program, which will invest in communities unaddressed by Hurricane Sandy recovery funding, focusing on environmental justice neighborhoods. This program will create multihazard resilience and sustainability projects that will position us to compete for Federal and State funding. These projects will be constructed in the near term and center neighborhood needs. Early focus will be on Soundview (the Bronx), Corona (Queens), Brownsville (Brooklyn), and Port Richmond (Staten Island). Climate Strong Communities will also fast track prior efforts in East Harlem (Manhattan) and Canarsie (Brooklyn) to ensure that adaptation projects are built in these neighborhoods.

SELECT LONG-TERM CITYWIDE COASTAL RESILIENCE PROJECTS



Neighborhood-scale coastal resilience projects are being implemented across New York City by City, State, and Federal agencies.

Source: Mayor's Office of Climate & Environmental Justice, 2022

- Incorporate future tidal flooding using the New York City Panel on Climate Change sea level rise projections
- Engage with the community throughout

- **Develop a stormwater flooding adaptation plan by 2024 to establish a citywide flood protection target for stormwater infrastructure**

We will invest in stormwater management projects to reduce flooding in the most vulnerable areas and we will design and site projects to strategically manage flooding during larger storm events. In many cases, these projects will have additional benefits, including improving water quality. DEP will release its stormwater flooding adaptation plan in 2024, which will articulate this stormwater strategy in more detail and build on the *New York City Stormwater Resiliency Plan* (2021)[117] and *Increasing Stormwater Resilience in the Face of Climate Change: Our Long Term Vision* (2022).[118] In developing the adaptation plan, DEP will conduct a robust alternative analysis that considers various levels of service, along with the cost and timeline required to achieve them.

The plan will guide the future citywide stormwater capital strategy to manage sewer system capacity and prevent combined sewer overflows *(see Waterways)*. Sewers will remain the foundation of the drainage plan. In response to Hurricane Ida, more than $1 billion was allocated to DEP's capital plan for sewer replacements and high-level storm sewer construction.[119] We will also invest in other innovative solutions for stormwater capture. This includes expanding the City's proven green infrastructure program citywide, adding to the portfolio of nearly 13,000 rain gardens and other green features that absorb stormwater.[120] We will expand the Bluebelt system where feasible across the five boroughs, building off successful projects on Staten Island. Bluebelts combine natural and engineered infrastructure to enhance the ability of drainage corridors like streams, ponds, and wetlands to convey, store, and filter stormwater runoff. Finally, we will explore new approaches to stormwater management, like the Cloudburst program, which uses specially engineered open spaces or community amenities to hold stormwater during brief, heavy downpours.[121] The City's toolbox will allow us to plan for stormwater management needs and integrate local context.

- **Create nature-based stormwater management solutions that provide multiple functions, including shade, water and air quality improvement, and wildlife habitats**

We will advance nature-based solutions, such as rain gardens, bluebelts, and green streets, as a stormwater management strategy that provides climate benefits along with co-benefits for New Yorkers and natural ecosystems. Rain gardens absorb stormwater while also adding planted areas in the sidewalk, reducing the urban heat island effect.[122] Greenstreets convert paved, vacant traffic islands and medians into green spaces filled with trees, shrubs, and groundcover that beautify neighborhoods, improve air quality, reduce air temperatures, and calm traffic. Since the program started, the City has built more than 2,500 Greenstreets, several of which were designed for stormwater capture.[123, 124] Wetlands, like those in the Alley Creek Watershed in Queens, provide immense water quality improvement, flood resilience, and habitat benefits for birds and pollinators (*see Waterways*).[125]

CITY LEADING BY EXAMPLE

Cloudburst Program

A "cloudburst," as seen during Hurricane Ida, is a sudden, heavy downpour that occurs in a short amount of time and may lead to flooding, property damage, disruptions to critical infrastructure, and pollution of NYC's waterways. Cloudburst management implements a combination of methods that absorb, store, and transfer stormwater to reduce flooding. Using gray infrastructure (e.g., drainage pipes and underground storage tanks) and green infrastructure (e.g., rain gardens and porous pavement), cloudburst management can minimize damage by reducing the strain on the municipal sewer system. DEP and NYCHA are designing cloudburst pilot projects to protect residents from these types of intense rainfall events at South Jamaica Houses in Queens and Clinton Houses in Manhattan. The South Jamaica Houses project is expected to break ground this year.[126] NYCHA has continued to advance cloudburst strategies across their portfolio, completing design at Jefferson Houses in Manhattan and evaluating proposals for cloudburst infrastructure design services at five additional developments that have a high vulnerability to flooding.[127] The City is supporting design and construction with $84 million in capital funds to combat high-intensity rain events at NYCHA developments.[128]

In January 2023, the Adams administration announced an expansion of the cloudburst program to four new neighborhoods.[129] Supported with nearly $400 million in City capital funds — and in partnership with DEP, DOT, NYC Parks, and NYCHA — these specially designed, built, and engineered infrastructure projects will protect residents and property from future extreme rainfall in Corona and Kissena Park, Queens; Parkchester, Bronx; and East New York, Brooklyn. More than two dozen additional locations are also being evaluated for inclusion. This investment, and continued advocacy for Federal and State funds, cements NYC's status as a global leader in stormwater resilience.

6

Launch a voluntary housing mobility and land acquisition program to provide housing counseling and facilitate future land acquisition with Federal and State funds

CLIMATE RESILIENCE | HEALTH EQUITY | ENVIRONMENTAL JUSTICE | VITALITY & COMMUNITY

Through programs like Build It Back, we provided resources for New Yorkers to repair, rebuild, and elevate their homes.[130] While we worked tirelessly to provide as many options as possible, the increasing intensity and frequency of flood events and impacts means that many City residents face repeated flooding that causes financial damage and puts lives at risk. A limited voluntary housing mobility and land acquisition program could support these residents in identifying next steps and options for homeowners and renters who wish to move out of areas vulnerable to severe flooding, and builds upon existing flood resilience options and resources. The City defines housing mobility in the *Comprehensive Waterfront Plan* as "the ability of residents to find and secure a home that improves their housing or neighborhood conditions."[131] A voluntary housing mobility and land acquisition program will actively pursue and leverage existing State and Federal funding resources to acquire properties in areas with the highest coastal and stormwater flood risk and where other options to reduce flood vulnerabilities are limited.

- **Enable the City to engage with interested residents and acquire difficult to protect flood-vulnerable properties that can support flood control, natural areas, or parklands**

The City will actively pursue and leverage existing State and Federal funding grants, including but not limited to the NYS Environmental Bond Act, the Federal Water Resources Development Act, and FEMA's annual Hazard Mitigation Assistance Grants to acquire properties in flood-vulnerable areas and provide assistance to homeowners.

Homeowners at risk of flooding may need additional information and resources to prepare for a future move. Through a formalized program, counselors will guide homeowners through their options, from investing in flood insurance to financing building-level flood resilience retrofits (as highlighted on the next page). However, there will be a limited number of locations where flood resilient infrastructure will not entirely mitigate the risks. Programs like Climate Strong Communities are working to invest in communities that still face disproportionate risks from coastal flooding and rainfall, and a housing mobility and land acquisition program could further enhance and support these communities.[132]

For New Yorkers in these vulnerable areas, we propose a housing mobility program that will provide options, including voluntary residential buyouts.

Current and future efforts like USACE's NYNJHATS and DEP's stormwater adaption plan will help identify at-risk areas and resilient solutions.[133] The program will seek to minimize long-term displacement caused by flooding and equip homeowners and renters in flood-prone areas with information and planning resources to support a move. Housing counseling, down payment assistance, rental assistance, real estate brokerage services, estate planning, moving assistance, and flood insurance counseling and guidance can help build household-level financial resilience for homeowners and renters before the next flood.

The New Creek Bluebelt was constructed to protect residents of Midland Beach, Staten Island from flooding.
Source: Mayor's Office of Climate & Environmental Justice

Flood Resilience Options for Homeowners

FloodHelpNY
The City, in partnership with the Center for NYC Neighborhoods,[134] supports FloodHelpNY, an online resource and outreach tool designed to communicate flood risk, insurance, and resilience information to NYC residents in plain language.[135] Given the importance of flood insurance as the best financial tool to help residents after a flood, the Adams administration's *Housing Our Neighbors: A Blueprint for Housing and Homelessness* plan has committed to expanding FloodHelpNY and continuing to advocate for reforms to the National Flood Insurance Program to ensure that flood insurance remains affordable for all New Yorkers.[136]

HomeFix
Of the buildings in the City's coastal floodplain, approximately 75% are one- to four-family homes, highlighting the urgent need to address increased flood risks for homeowners.[137] HPD's HomeFix program helps low- and moderate-income homeowners in small, one- to four-unit properties fund home repairs.[138] Under an expanded program, the City will provide homeowners with support for sustainability and resilience retrofits, which includes multiple strategies from installing a backwater valve or flood resistant materials to elevating mechanical systems and buildings.

SPOTLIGHT

Frank Avila-Goldman *Gouverneur Gardens Co-op*

Frank participated in community planning meetings for Brooklyn Bridge-Montgomery Coastal Resiliency. The project's groundbreaking ceremony took place with Mayor Adams in October 2022.[139]

"Two Bridges, where I live, has the largest concentration of subsidized housing on the waterfront anywhere in Manhattan below 96th Street. They're mostly transportation deserts with immigrant communities, low-income people, and seniors. We were put here to offset density. These developments were put at the margins when the City was trying to counteract blight.

The upswing is that they put us on the waterfront. Asian and Latino people go to the waterfront for fishing because that's how they grew up. Water means a lot to different cultures and its meaning is passed down generationally.

The waterfront is a gift but it comes with a reminder of our vulnerabilities.

For engagement to be effective, you have to invest in the community and its character and learn holistically what needs to happen for communication. I'm a big advocate of working with preexisting community-based organizations that are already in affected populations and have a proven track record. They're the ones who know how to communicate these risks."

Frank Avila-Goldman, Board President of Gouverneur Gardens in Two Bridges, Manhattan and Chair of Lower East Side East River Residents Committee

Source: Mayor's Office of Climate & Environmental Justice

BUILDINGS

Fordham Bedford Housing Corporation, located in the Jerome Park neighborhood in the Bronx, takes advantage of the Green Housing Preservation Program to make cost-saving green upgrades including a solar infrastructure installation. Source: Housing Preservation and Development

In the United States, we spend 90% of our time indoors—living, working, and playing inside buildings.[140] We rely on them for shelter and safety, and the quality of indoor space impacts our health and wellbeing. NYC has more than 1 million buildings, and more than 90% of them will still exist in 2050.[141] Buildings are also responsible for almost 70% of total citywide GHG emissions, which is why we must improve our existing buildings while driving toward new low-carbon construction.[142] Resilient and efficient buildings enhance New Yorkers' health and comfort and are more resilient in the face of climate hazards, especially extreme heat.

In 2019, as part of the Climate Mobilization Act, we passed Local Law 97, which requires a reduction in emissions from the city's largest buildings (those over 25,000 square feet in size) by 2030 and carbon neutrality by 2050.[143] Local Law 97 emissions reduction targets for municipal operations are stricter than those for private buildings: 40% by 2025 and 50% by 2030.[144] Since buildings are the largest source of emissions in NYC, fulfilling the objectives of Local Law 97 is crucial to achieving our climate goals. Yet some owners face financial challenges to retrofitting or are resistant to change. Capital improvement costs to low-income households and other buildings, including rent regulated and affordable housing, can be financially burdensome. The free, one-on-one, City-run NYC Accelerator program serves a valuable advisory role by helping building owners and developers identify actionable upgrades that will help them comply with Local Law 97 and access applicable financial incentives and programs; yet more is needed to achieve full compliance with the law.

For new buildings, City and State policies have ensured that, beginning next year, new construction in NYC will be on the path to carbon neutral operations by 2040. There are three drivers behind this success. In December 2021, the City enacted Local Law 154, mandating new buildings be built to operate without fossil fuel systems beginning in 2024.[145] Second, the City adopted progressively more efficient Energy Conservation Codes, resulting in extremely efficient new construction. Finally, the State's Climate Leadership Community Protection Act committed the State to a 70% renewable grid by 2030 and a zero-emission grid by 2040.[146]

Beyond addressing operational emissions of buildings, the City is also examining emissions from its own construction projects. In September 2022, Mayor Adams signed Executive Order 23 to cut GHG emissions from City construction projects and ensure any Federally funded new construction will use sustainable materials, equipment, and practices.[147]

In addition, in the decade since Hurricane Sandy, we are continuing to make the city's buildings more resilient, including adopting Zoning for Coastal Flood Resiliency in 2021 and updating the NYC Building Code, which is now one of the most stringent flood resilience standards in the country.[148] NYC is sparking a movement, inspiring cities, states, and the Federal government to adopt similar building standards and practices.

Still, our challenges are manifold: we must decouple the growth in buildings from growth in emissions while equitably decarbonizing and retrofitting existing building stock. By facing and meeting these challenges, all New Yorkers, including the most vulnerable communities, will have access to the opportunities and benefits of living in a low-carbon and resilient society, including cleaner air and safer homes.

OUR PLAN

Local Law 97 will drive a once-in-a-generation investment in NYC's clean energy economy. We will provide tools and resources to help building stakeholders and industry partners meet Local Law 97 targets. To achieve full implementation of Local Law 97, the City will finalize its rulemaking and enforcement mechanisms, and ensure alignment with existing City and State laws and regulations. The City will also communicate clearly to the public and offer robust, direct outreach to property owners and stakeholders.

We are also looking closely at affordable housing. NYC Housing Preservation and Development (HPD) will retrofit existing affordable housing to be all-electric. Programs such as HPD's Retrofit Electrification Pilot and their recently released *Design Guidelines for Preservation* contain innovative design principles for climate adaptation, resilience, and improved health of residents.[149]

Our plan will also reinforce NYC's leading efforts in phasing out fossil fuels, reducing air pollution, and implementing clean construction. We will reduce reliance on fossil fuels in City-owned and operated buildings by beginning to phase out spending on fossil fuel equipment and infrastructure. In addition, to support efforts to reduce air pollution, we will develop a new air quality monitoring program to better understand localized air quality impacts. Lastly, we will require the City's capital project agencies to commit to actions that lower embodied carbon, which encompasses GHG emissions arising from the manufacture, transportation, installation, maintenance, and disposal of building materials. The City will use the data we collect from minimizing carbon in City construction projects to inform a future citywide mitigation policy. We will also work with industry partners to gain experience with low-carbon construction materials and methods.

OUR BUILDINGS GOAL

We will improve building-level GHG emissions, air quality, and resilience.

Support building owners in complying with Local Law 97 emissions reduction goals by 2030:

- Develop financing tools and innovative mechanisms to accelerate Local Law 97 compliance by 2030
- Develop trainings and certifications to support Local Law 97 compliance and implement resilience retrofits by 2024
- Expand NYC Accelerator by 2024

Decarbonize affordable housing:

- Install window heat pumps in 10,000 NYCHA units and unlock Federal funding for further upgrades and efficiency investments by 2030
- Implement HPD design guidelines to address energy efficiency, sustainability, and resilience retrofits by 2026

Pursue fossil fuel free City operations:

- Phase out City capital spending on fossil fuel equipment and infrastructure

Reduce localized air pollution in NYC:

- Develop a new air quality monitoring program by 2024

Reduce the carbon footprint of the construction industry by 2033:

- Implement performance-based standards for low-carbon materials and equipment by 2025
- Expand ConstructNYC in 2023

LEVERAGING FEDERAL AND STATE FUNDING

Resilience Hubs

Resilience hubs are existing community spaces that are protected from climate hazards such as flooding and extreme heat.

Resilience Hubs are existing community spaces protected from climate-induced hazards such as flooding, extreme heat, and power outages. They are outfitted with resources such as backup power, reliable heating and cooling, charging stations, and medical refrigeration to serve communities before, during, and after emergencies. Resilience Hubs can also serve as accessible spaces for socializing, hosting community programming, and building social equity in historically marginalized neighborhoods. Resilience Hubs also support community social infrastructure and networks, and communities with strong social networks have fewer fatalities when natural disasters strike.

The Department of Housing Preservation and Development (HPD) has received $9 million to incorporate two community Resilience Hubs in areas that are at risk of flood- and storm-related disasters.[153] In addition, in 2022, the New York City Housing Authority (NYCHA) was awarded a Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) grant for $256,000 to plan a network of Resilience Hubs across its campuses.[154] The BRIC program provides funding to states, local communities, tribes, and territories that are working on hazard mitigation projects that reduce the risk from extreme weather events. Along with the Department of Transportation (DOT) Cool Corridors award, this was one of the first Federal grant awards specifically intended to address extreme heat.[155] The grant will support a three-year process to engage experts and residents in developing a package of features, site selection criteria, partnership plans, and financing tools to leverage additional Federal funding to achieve the City's goal of building 10 Resilience Hubs by 2030.

7

Support building owners in complying with Local Law 97 emissions reduction goals by 2030

GHG EMISSIONS REDUCTION
HEALTH EQUITY | ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY | PROSPERITY

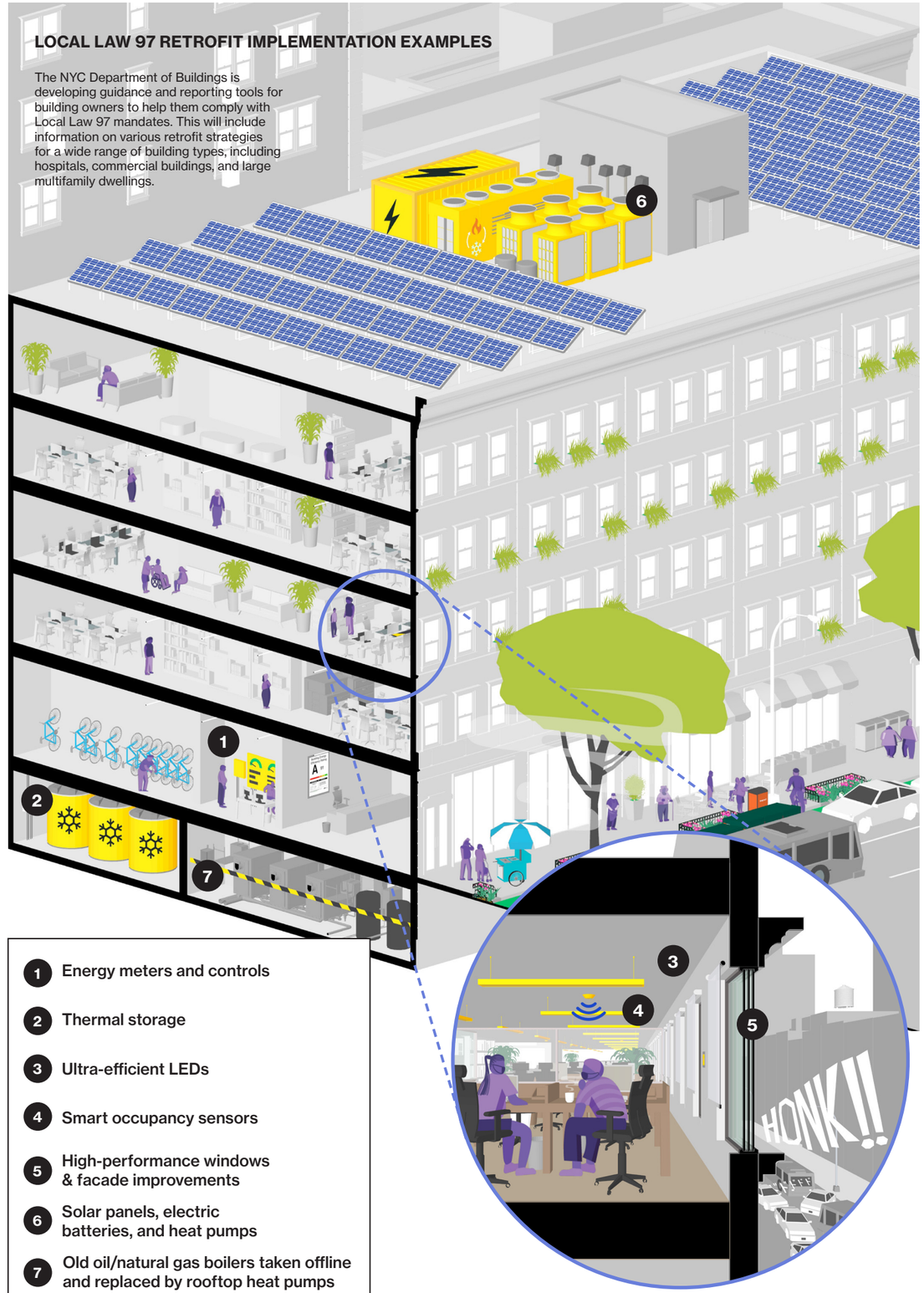
Local Law 97 is one of the most ambitious climate laws passed in the nation. Under this groundbreaking law, most large private sector buildings will be required to achieve carbon emissions reductions over several compliance periods beginning in 2024.[150] For the long-term success of Local Law 97, building stakeholders must have access to clear guidance on local law requirements and confidence in the available pathways to meet them. The Department of Buildings is developing guidance and reporting tools for building owners to help them comply with Local Law 97 mandates. This will include information on various retrofit strategies for a wide range of building types, including hospitals, commercial buildings, and large multifamily dwellings. Additional rulemaking, programs, and funding will be needed to ensure this law's success.

- **Develop financing tools and innovative mechanisms to accelerate Local Law 97 compliance by 2030**

All building owners and tenants should have access to affordable financing options to help reduce their carbon emissions, increase resilience, and improve indoor health. We will highlight existing programs, such as the Property Assessed Clean Energy program for retrofits, and increase the supply of green financing available to support decarbonization and climate retrofits.[151] The City is exploring new financing tools for climate retrofit projects to assist owners in meeting Local Law 97 requirements, including working with

LOCAL LAW 97 RETROFIT IMPLEMENTATION EXAMPLES

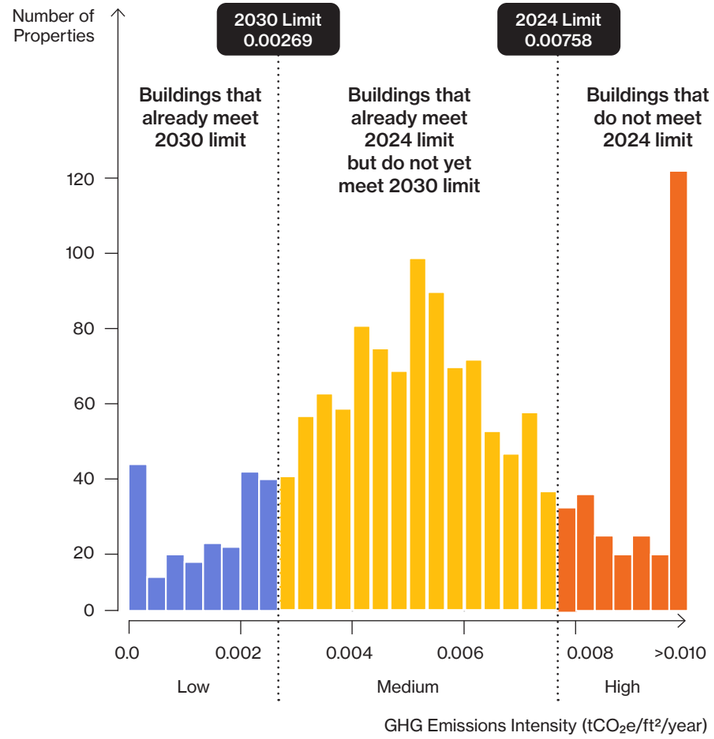
The NYC Department of Buildings is developing guidance and reporting tools for building owners to help them comply with Local Law 97 mandates. This will include information on various retrofit strategies for a wide range of building types, including hospitals, commercial buildings, and large multifamily dwellings.



1. Energy meters and controls
2. Thermal storage
3. Ultra-efficient LEDs
4. Smart occupancy sensors
5. High-performance windows & facade improvements
6. Solar panels, electric batteries, and heat pumps
7. Old oil/natural gas boilers taken offline and replaced by rooftop heat pumps

LOCAL LAW 97 BUILDING COMPLIANCE: COMMERCIAL BUILDINGS

The chart shows GHG emissions intensity (tCO_2e/ft^2/year) for single use commercial office properties over 25,000 ft² as of 2019.



As of 2019

81%

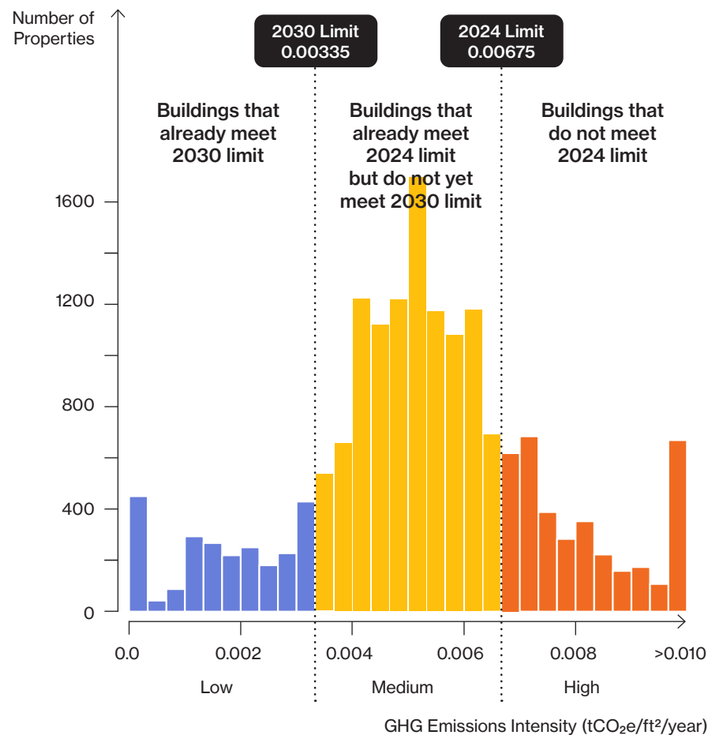
of commercial office buildings meet LL97 Limits for 2024

14%

of commercial office buildings meet LL97 Limits for 2030

LOCAL LAW 97 BUILDING COMPLIANCE: MULTIFAMILY BUILDINGS

The chart above shows GHG emissions intensity (tCO_2e/ft^2/year) for single use multifamily properties as of 2019



As of 2019

79%

of multifamily residential buildings meet LL97 Limits for 2024

15%

of multifamily residential buildings meet LL97 Limits for 2030

Source: NYC Mayor's Office of Climate & Environmental Justice, 2020

the State to identify innovative State incentives. The City will continue to help agencies and the private sector leverage Federal and State grants, rebates, and other funding including the Infrastructure Investment and Jobs Act, the Inflation Reduction Act, and funding through Con Edison and NYSERDA.

- **Develop trainings and certifications to support Local Law 97 compliance and implement resilience retrofits by 2024**

Increasing the pace and number of building retrofits will generate new jobs in NYC, creating opportunities for green workforce development and elevating the next generation of building professionals through climate training and accreditation. The City will work closely with unions and professional associations (e.g., designers, architects, and engineers) to shape relevant and effective training programs and certifications. These efforts will build on workforce efforts developed by City agencies and will be informed by NYCEDC's green economy industry and workforce action plan.

CITY LEADING BY EXAMPLE

Precision Employment Initiative

In partnership with Brooklyn-based climate technology company BlocPower, the City launched the Precision Employment Initiative (PEI) in July 2021 to connect individuals at risk of high involvement in gun and gang violence with green jobs.[156] The program was launched by the Mayor's Office of Criminal Justice as a first-of-its-kind innovative and unprecedented public/private partnership. Participants are recruited from neighborhoods most impacted by gun and gang violence and climate change, including Brownsville, Mott Haven, and South Jamaica (Queens) through referrals from the City's District Attorneys, Crisis Management System vendors, the Department of Correction, and local elected officials.[157]

Through place-based, individual-level targeted engagement, the initiative trains participants in high-demand clean energy trades, including building efficiency, electrical, EV charging and HVAC, as well as in media, cultural arts, financial literacy, and entrepreneurship. In partnership with grassroots, community-based nonprofits across the City, life coaches work with each participant to help develop their critical reasoning and conflict resolution skills and get them any psychosocial supports they need to be successful in the workplace. After completing foundational training and certification, participants are connected to clean energy contractors for apprenticeships and full-time job opportunities. The program empowers our communities to lead a greener, safer future.

Solar panels installed on the roof of the City's Wastewater Resource Recovery Facility in the Port Richmond neighborhood of Staten Island.
Source: Department of Environmental Protection

SPOTLIGHT

Eric Einstein
NYC Accelerator

Eric's building connected with the free NYC Accelerator program and made sustainable upgrades for comfort and compliance with Local Law 97. His building received NYSERDA grants to help pay for the work.

"I'm a nerd when it comes to anything technical. I will go down a rabbit hole and read. New York is more green than other cities because of its density but it's crazy to waste all that heat, especially in old tenement buildings with these boiler and steam radiator systems. Tenants are keeping their windows open and the landlord is throwing away money. There needs to be a way that we cannot do that.

When we made our building changes, it was due to aging infrastructure and comfort issues. We had a two-pipe hydronic system with seasonal switchover. This meant that in "shoulder season," in-between weather, some people were cold and some were hot depending on their side of the building. Our system was old and reaching the end of its life. I wanted to get out ahead of it and understand how we could do better.

We are replacing all the in-apartment heating units with fan coil heat pumps, as well as the central plants. The new system will use the same two pipes, but if you want it to be colder, you'll turn on your individual heat pump. It acts like a refrigerator unit and dumps the excess heat into that water loop. If someone on the other side of the building wants heat, they're getting yours.

Our building will be compliant to 2030 standards by summer 2023."

Eric Einstein, nightlife entrepreneur and board president of 111 Fourth Avenue, a large multifamily co-op in the East Village, Manhattan

Source: Mayor's Office of Climate & Environmental Justice

- **Expand NYC Accelerator by 2024**

NYC Accelerator provides free, personalized guidance to make cost-saving, energy-efficiency upgrades and reduce carbon emissions in New York City.[152] The expanded NYC Accelerator will build on the success of the current program by expanding resources beyond buildings that fall under Local Law 97, such as smaller buildings and industrial facilities, and incorporating a wider suite of climate sustainability and resilience information. NYC Accelerator will empower stakeholders to better understand retrofit and financing options, navigate program requirements, and access technical guidelines.

8
Decarbonize affordable housing

GHG EMISSIONS REDUCTION
HEALTH EQUITY | ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY

Residential and multifamily buildings make up the largest sector of buildings subject to Local Law 97, and their compliance is essential to achieving NYC's climate goals. Many buildings with affordable units will be subject to compliance with GHG emissions limits in the coming years. Achieving a just transition means addressing the challenges faced by underserved communities as we shift toward a low-carbon society while sharing the benefits and opportunities fairly. To that end, the City is prioritizing climate investments and retrofits for public and affordable housing through NYCHA and HPD.

- **Install window heat pumps in 10,000 NYCHA units and unlock Federal funding for further upgrades and efficiency investments by 2030**

Heat pumps are high-efficiency electric appliances that provide heating and cooling. Because they are placed on rooftops, or through walls or windows, rather than in basements, they are less likely to be damaged during flood events. Air source heat pumps can be powered with 100% renewable energy sources, meaning less pollution and fewer GHG emissions. By 2027, the City, NYCHA, NYSERDA, and the New York Power Authority (NYPA) will fund and install 30,000 packaged heat pumps for 10,000 NYCHA apartments through the recognized Clean Heat for All design challenge, resulting in improved control and comfort for residents and greater resilience to extreme heat. Reaching 100% residential cooling will help save lives. In August 2022, NYCHA, in coordination with NYPA and NYSERDA, announced the manufacturers selected for the Clean Heat for All design challenge, a competition to design an air-source heat pump that can be easily and affordably installed in a window frame.[158] The design will pave the way for the electrification of multifamily buildings citywide.

Where feasible, investments in heat pumps will be coupled with deep building envelope retrofits that maximize energy efficiency and resilience, including window replacements to cover weatherization benefits to buildings and residents. These investments in heat pumps will reduce NYCHA's energy demand, improve local air quality, and replace our aging heating infrastructure to ensure that residents do not face interruptions in heating in the winter. The City will also continue to pursue State and Federal funding for climate retrofits in affordable housing to facilitate the implementation of additional energy savings, decarbonization, and resilience projects such as domestic hot water retrofits, window replacement, and remediation in response to health hazards.

- **Implement HPD design guidelines to address energy efficiency, sustainability, and resilience retrofits by 2026**

HPD will be investing in energy retrofits through its recently published *Design Guidelines for Preservation*. HPD has committed to strategically electrifying up to 12,000 units of existing affordable housing through 2026 and to requiring building electrification and flood resilient construction for all new construction projects.[159] The HPD design guidelines will require screening for current and future flood and heat risk and establish mandatory standards for efficiency, health, and resilience. Leveraging Inflation Reduction Act rebates and other incentives, the City will continue to implement HPD's *Design Guidelines for Preservation*.

Solar panels installed on residential buildings throughout New York City following the implementation of Local Laws 92 and 94 of 2019.
Source: Department of Buildings

9
Pursue fossil free City operations

GHG EMISSIONS REDUCTION
HEALTH EQUITY | ENVIRONMENTAL JUSTICE
PROSPERITY

Electrifying our building systems and powering them with renewable energy can significantly reduce GHG emissions, improve air quality, and reduce negative health outcomes. We want to empower all New Yorkers to act and prepare our city for a clean and reliable energy future. To achieve this ambitious goal, we must succeed in both practice and policy and foster a collaborative effort across City agencies, community leaders, and local businesses. The City will take the first steps electrifying City-owned and -operated buildings while simultaneously enabling residential, commercial, and industrial electrification. We must improve efficiency to make electrification affordable and accessible. We plan to advance electrification with policy reforms, funding, and implementation support.

Phase out City capital spending on fossil fuel equipment and infrastructure

Eliminating emissions associated with fossil fuels is critical to meeting the City's public health goals and GHG reduction targets. When paired with renewable energy, converting to all-electric equipment significantly reduces emissions and decreases energy costs. Furthermore, equipment electrification improves both indoor and outdoor air quality. To reduce reliance on fossil fuels in City-owned and operated buildings, we will phase out capital spending on new fossil fuel equipment and obsolete infrastructure and consider appropriate uses for biogenic fuels, or fuels derived from organic matter.[160] The City will begin with feasible replacements in 2025. Phasing out capital spending on fossil fuel heating and cooling systems and equipment will send a strong signal to NYC's design and construction markets that they must prepare for a rapid transition to all-electric appliances and equipment.

CITY LEADING BY EXAMPLE

"Leading the Charge"

In October 2022, New York City launched the nation's largest school electrification effort, "Leading the Charge," the City's most impactful energy-saving initiative under Local Law 97, which sets limits on GHG emissions that buildings must adhere to starting in 2024.[161] The construction of new City schools will be all-electric, and the City will complete or initiate the conversion of 100 existing schools to all-electric heating by 2030.[162]

The City will eliminate the use of highly polluting No. 4 heating oil by 2025 by converting more than 200 schools to ultra-low sulfur biofuel—an interim step towards electrification.[163] This will immediately improve neighborhood air quality by reducing disease-causing particulates from onsite combustion by 99%.[164] The City will also install more efficient LED lights in 800 schools by 2026 and support training and development for the students who will become the next generation of the green workforce.[165] The program is expected to reduce GHG emissions by 120,000 tons annually and remove more than 20,000 pounds of harmful, disease-causing fine particulates from the air—the equivalent of removing 26,000 cars from city streets and avoiding nearly 100 respiratory incidents, saving lives and reducing hospitalizations.[166] Schools located in environmental justice communities will be prioritized for retrofits, ensuring that we are tackling climate change with a strong focus on equity and community health.

Mayor Eric Adams launches the "Leading the Charge" plan at PS 5 in the Bedford-Stuyvesant neighborhood of Brooklyn. The plan will phase out fossil fuel boilers at 100 schools. Source: Mayor's Office of Climate & Environmental Justice

10

Reduce localized air pollution in NYC

GHG EMISSIONS REDUCTION
HEALTH EQUITY ENVIRONMENTAL JUSTICE

The air we breathe can have a major effect on our health; air pollution can make asthma worse and cause heart disease, lung disease, and strokes.[167] Reducing emissions from specific sources around the city is an important function of the NYC Air Code and related regulations enforced through DEP. Air quality in NYC has been improving over the past few decades but, in addition to traffic and trucks, buildings burning fossil fuels for heating and charbroiling in restaurants are major sources of emissions that make some neighborhoods more polluted than others.[168] We know this from the data collected by the New York City Community Air Survey, a previous *PlaNYC* initiative and the largest ongoing urban air monitoring program of any U.S. city.[169] Since 2008, New York City Community Air Survey monitors have been permanently located throughout the city to track changes in neighborhood pollution levels over time.

To understand sub-neighborhood scale impacts and inform enforcement of the existing Air Code, DEP is developing a localized point source monitoring program. The program will provide unique insights into air quality from local sources in sensitive communities, which will inform regulatory strategy and enable residents to understand their air quality and how they can help solve local air pollution problems.

Develop a new air quality monitoring program by 2024

Residents are often concerned about sources of air pollution in their neighborhoods. The New York City Community Air Survey tracks changes over time in NYC neighborhoods, but was not designed to detect impacts from a specific factory, construction site, or building. DEP is developing a responsive, adjustable air monitoring program to assess localized impacts and improve regulations and rules. The goal of the program is to address community concerns by identifying emissions sources regulated by the Air Code and by informing enforcement actions.

This monitoring program will provide insight into effective mitigation efforts to address hyper-local sources and protect vulnerable populations in disadvantaged communities. By identifying pollution hotspots and directing solutions that solve local air pollution problems, the program will help drive additional controls and mitigation efforts for construction dust, commercial cooking, cement factories and other industrial sources, including delivery and shipping industries.

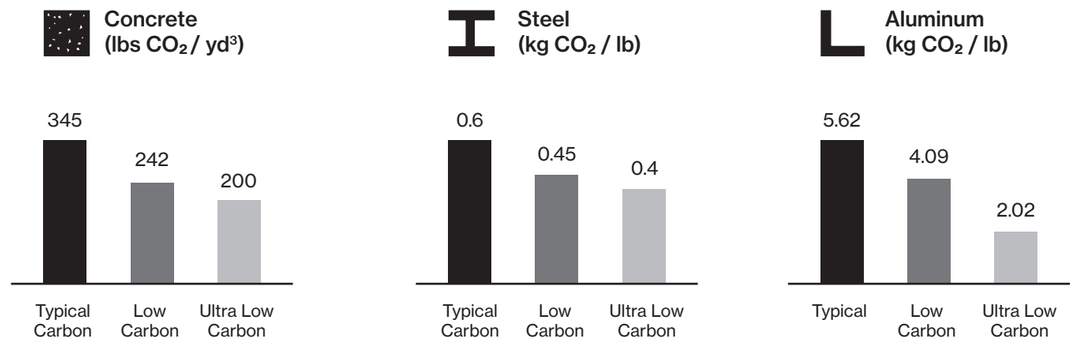
11

Reduce the carbon footprint of the construction industry by 2033

GHG EMISSIONS REDUCTION
HEALTH EQUITY ENVIRONMENTAL JUSTICE
PROSPERITY

According to C40 Cities, 23% of global GHG emissions come from the construction of buildings and infrastructure.[170] The fossil fuel-fired construction equipment we use not only emits GHGs, but also creates air and noise pollution. NYC can address these problems with proven solutions, and show leadership by developing and bolstering the green economy. When Mayor Adams signed Executive Order 23, he positioned NYC as a leader in clean construction by requiring the City's capital project agencies to commit to actions to lower embodied carbon from municipal construction projects.[171]

EMBODIED CARBON RANGES FOR SELECTED CONSTRUCTION MATERIALS



The embodied carbon in building products can vary significantly based on the raw material extraction, production process, distribution network, and manufacturing energy profile of the product. These differences result in varying levels of CO_2 emissions on a per unit basis for construction materials, as shown in the above infographic. Using materials with lower embodied carbon is key to reducing the carbon footprint of the construction industry.

Source: Building Transparency

Commercial renovations in old buildings like the Waldorf Astoria Hotel in Manhattan allow for outdated, carbon-intensive infrastructure and appliances to be replaced with more sustainable systems. Source: Department of Buildings

The City is committed to reducing embodied carbon emissions for new buildings, infrastructure, and major retrofits by 50%. This ambitious target will be realized through the use of a reporting framework, low-embodied carbon materials, green building practices, and incorporation of innovative material and technological solutions as they become readily available.

There is considerable momentum toward environmentally sustainable practices in the construction industry that will reduce waste and carbon. At the same time, the Infrastructure Investment and Jobs Act and the Inflation Reduction Act will drive new development in the city while making resources available to promote low-carbon solutions. The City will seize this moment to ensure that major construction activities drive the adoption of new sustainable methods to reduce GHG emissions and air pollution.[172, 173]

- **Implement performance-based standards for low-carbon materials and equipment by 2025**

The City will develop a policy pathway to regulate the embodied carbon content of building materials through the NYC Building Code. This policy will establish low-embodied carbon specifications for common building materials such as concrete, which alone contributes 8% of total global GHG emissions.[174] Architects and engineers are exploring new materials and methods of clean, sustainable construction. The City will support this innovation by connecting industry with existing grants to explore low-carbon construction materials and methods. For example, the City will incentivize the use of mass timber in construction through grants provided by the U.S. Forest Service's Wood Innovations Program, Softwood Lumber Board, and matched funds from NYCEDC.

Although leading construction equipment manufacturers recognize the need for all-electric construction equipment, the market is still nascent. In partnership with Federal and State agencies, the City can play a role in driving the uptake of electric construction machinery by signaling demand. The City will also engage with stakeholders and drive research on the use of low-carbon materials and methods. For example, ground glass pozzolan, which is made from recycled post-consumer glass, can replace up to 50% of cement in concrete, dramatically reducing embodied carbon emissions.[175] Partnering with NYCEDC and the Battery Park Coastal Resilience projects, the City will study ground glass pozzolan in marine applications to enable industry professionals to gain experience with these materials and potentially incorporate them into large coastal infrastructure projects.

- **Expand ConstructNYC in 2023**

The ConstructNYC program connects small-to-mid-sized Minority, Women, and otherwise Disadvantaged Business Enterprises with exclusive opportunities to work on NYCEDC projects through contracts of up to $3 million.[176] In 2023, the City will re-launch an expanded ConstructNYC program to add new green skills trainings and prepare businesses to meet the moment, including instruction in building retrofits and practices that reduce embodied carbon, like deconstruction (as opposed to demolition), materials selection, and sourcing.

CITY LEADING BY EXAMPLE

Require Low-Embodied Carbon Materials for City Construction

In September 2022, Mayor Adams signed a landmark Executive Order for City capital project agencies and positioned New York City as a leader in clean construction. Clean Construction Executive Order 23 requires the City's capital project agencies to commit to actions that will lower embodied carbon from municipal construction projects.[177] Executive Order 23 directs agencies to do the following:

- Set specifications for low-embodied carbon concrete for use in capital projects to directly reduce the environmental impact of construction
- Submit environmental product declarations for structural steel and concrete to quantify the environmental impact of these materials in City projects
- Include specifications in capital project construction contracts for low-emission vehicles and equipment, with a preference for all-electric equipment to reduce air and noise pollution
- Complete a Life Cycle Assessment for applicable projects to quantify the environmental impact of the whole project and reduce the impact where possible

In addition to achieving GHG emissions reductions, Executive Order 23 will reduce air and noise pollution and drive the industry-wide use of new construction technologies and materials. The City also plans to build upon Executive Order 23 to incorporate low-embodied carbon specification requirements for other building materials beyond concrete and steel, such as insulation and glass.

CLEAN & RELIABLE ENERGY

A wind turbine at the South Brooklyn Marine Terminal will help power a recycling plant. Source: NYC Economic Development Corporation

Energy powers all aspects of life in NYC: the fans and heaters in our homes, the lights in our schools, cell phones, computers, and our cars, buses, and trains. New Yorkers use electricity, steam, and gas brought to buildings through on-site infrastructure as well as fuel oils delivered from regional sources. In addition to electricity generated upstate and delivered to the City via the statewide transmission system, NYC is home to 24 in-city fossil fuel power plants and small-scale distributed energy resources.[178] But all forms of energy are not equal, and the ways we generate and procure electricity matter. Our energy system can be extractive, an accelerator of climate change, the cause of disproportionate and harmful environmental and community impacts, and a financial and physical burden. Alternatively, it can be clean, reliable, and equitable for all.

The City is committed to achieving a clean energy future. *PlaNYC* (2007) set our goal for cleaner, more reliable power for every New Yorker and the *Roadmap to 80 x 50* (2016) articulated the vision for this transformation.[179] Since 2007, we have made significant progress across the city and state. In NYC, there are 388 megawatts of solar installed as of 2023, with 43 megawatts of community solar installed and 83 megawatts in development.[180] We have also made significant strides in bringing large-scale renewable energy to the city. In November 2022, construction began on the Champlain Hudson Power Express (CHPE) transmission line to source clean hydropower from Canada. We have been fostering the growth of the offshore wind sector to help the State meet its goal of 9,000 megawatts of offshore wind energy by 2035.[181]

Yet, we have more to accomplish to reach our clean energy goals. Our current energy supply relies on fossil fuels and aging infrastructure and results in some of the highest energy costs in the nation. More than 80% of our electricity today comes from burning oil and gas, releasing GHG emissions and air pollution that contributes to climate change, as well as chronic health conditions such as asthma and heart disease.[182] New Yorkers rely on some of the oldest energy transmission and generation infrastructure in the country. Our peak energy demand is met by local fossil fuel power plants, many of which are reaching the end of their operational life. This leaves residents vulnerable to increased risk of power outages as equipment is damaged or needs to be taken offline for repairs. NYC has some of the most expensive energy rates in the country. High energy costs have significant economic and health consequences for low-income families, including stress, mental health impacts, and worsening respiratory conditions. In 2016, New York State set a target that low-income residents should pay no more than 6% of their income toward energy bills; however, despite this policy goal, more than 460,000 low-income families in NYC are still spending more than 6% of their pre-tax income on energy bills.[183]

As the effects of climate change grow increasingly dangerous with record-breaking heat waves and more intense storms like Hurricane Ida, our call to action is clear: we must reduce reliance on fossil fuels and transition to clean, renewable energy. Our plan will leverage City-owned properties, support home decarbonization efforts, especially for low-to-moderate income homeowners, and strengthen our partnership with the State in achieving the goals of the landmark Climate Leadership and Community Protection Act. Through the Climate Leadership and Community Protection Act, the State commits to delivering 70% renewable electricity by 2030 and a zero-emissions electric grid by 2040.[184] The City will do its part to ensure a clean, reliable, and equitable energy future for all New Yorkers.

OUR PLAN

To achieve a clean energy future in a way that prioritizes our most vulnerable communities, we must take a multi-pronged approach. In May 2023, the City will be sharing the results of *PowerUp*, a year-long collaborative study with community leaders, energy experts, and residents, to identify specific near-term actions that the City will take to meet long-term energy and equity goals. *PowerUp* will lay out the obstacles, opportunities, and implementation steps for several key initiatives that address the increased energy burdens from building electrification, accelerating the retirement of fossil fuel power plants, increasing solar and battery storage on City land, and eliminating energy insecurity. As a complement to *PowerUp*, this plan focuses on three key initiatives. The first is to install solar, battery storage, or green roofs on all City-owned property, leveraging our own resources and demonstrating City leadership. The second is to support the State's clean energy transition in facilitating transmission infrastructure and offshore wind development. The third is to provide end-to-end support for low-to-moderate income homeowners and environmental justice communities to install solar energy and decarbonize homes.

OUR CLEAN & RELIABLE ENERGY GOAL

We will achieve a clean, reliable, and equitable energy future.

Maximize climate infrastructure on City-owned property:

- Evaluate all City roofs undergoing repair work for climate infrastructure installation by 2025
- Install solar energy, electric building infrastructure, green roofs, or other renewable energy on all viable City-owned property by 2035

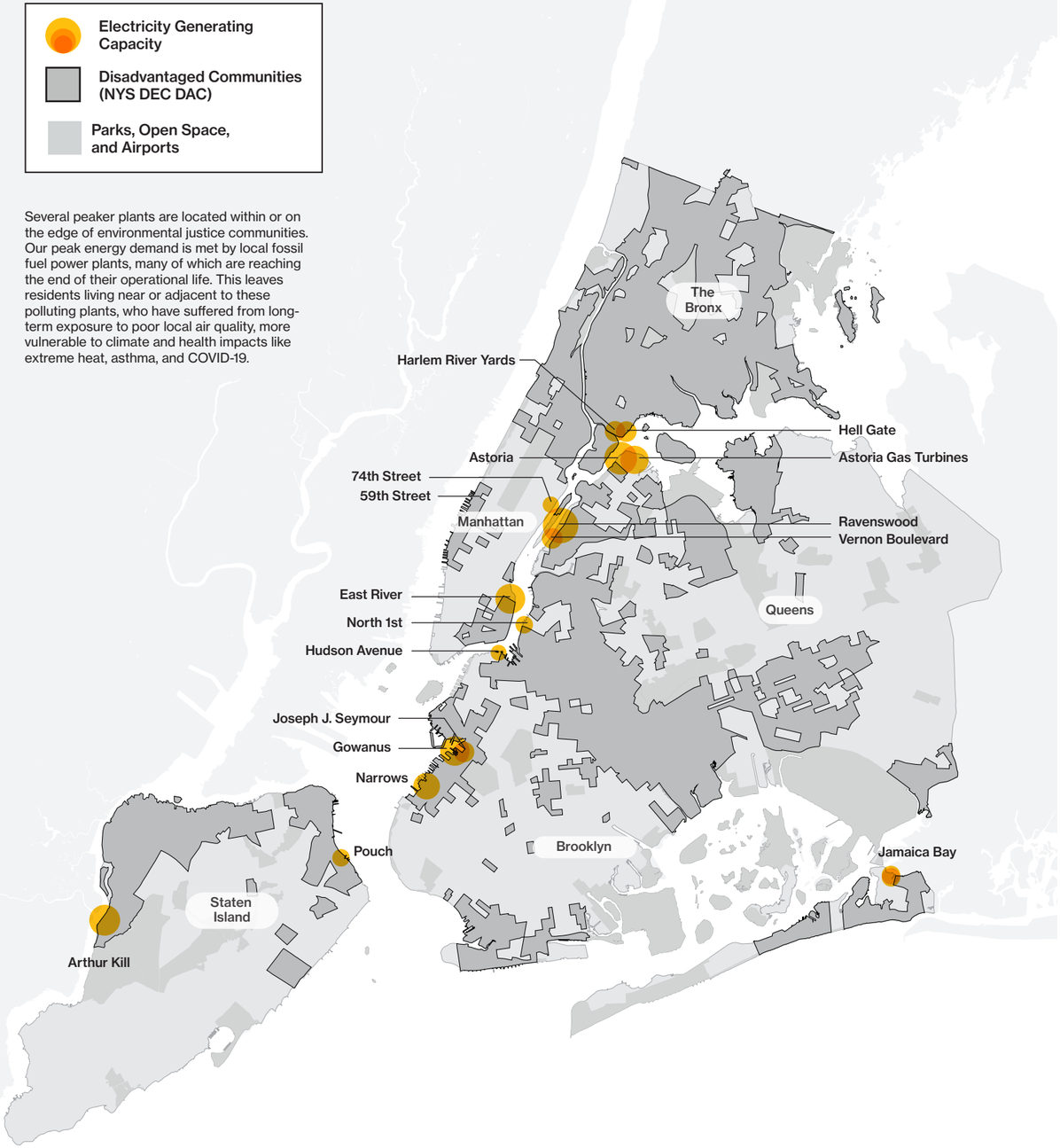
Connect NYC to clean electricity resources:

- Actively support the development, access, and interconnection of large-scale renewable energy projects like offshore wind and hydropower

Assist building and homeowners with clean energy projects and solar installation:

- Launch Public Solar program for one- to four-family low-income homeowners in environmental justice communities by 2025
- Advocate to the State to continue and expand the solar tax abatement program for NYC residents
- Advocate for enactment of the City of Yes for Carbon Neutrality Citywide Text Amendment in 2023 to expand renewable energy generation in the city

PEAKER PLANT LOCATIONS IN NEW YORK CITY



Several peaker plants are located within or on the edge of environmental justice communities. Our peak energy demand is met by local fossil fuel power plants, many of which are reaching the end of their operational life. This leaves residents living near or adjacent to these polluting plants, who have suffered from long-term exposure to poor local air quality, more vulnerable to climate and health impacts like extreme heat, asthma, and COVID-19.

Source: Mayor's Office of Climate & Environmental Justice, 2023; New York State Department of Environmental Conservation, 2023; Energy Information Administration, Form 860, 2021

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Maximize climate infrastructure on City-owned property

HEALTH EQUITY | ENVIRONMENTAL JUSTICE | PROSPERITY | GHG EMISSIONS REDUCTION | CLIMATE RESILIENCE

We can make our electric grid cleaner and enhance power reliability by investing in the development of new renewable energy generation and storage throughout the City. Installing and expanding renewable energy within the city will spur economic development and create local training and employment opportunities. As we green our grid, air quality will improve, energy prices may drop, and we will be better prepared for future climate impacts.

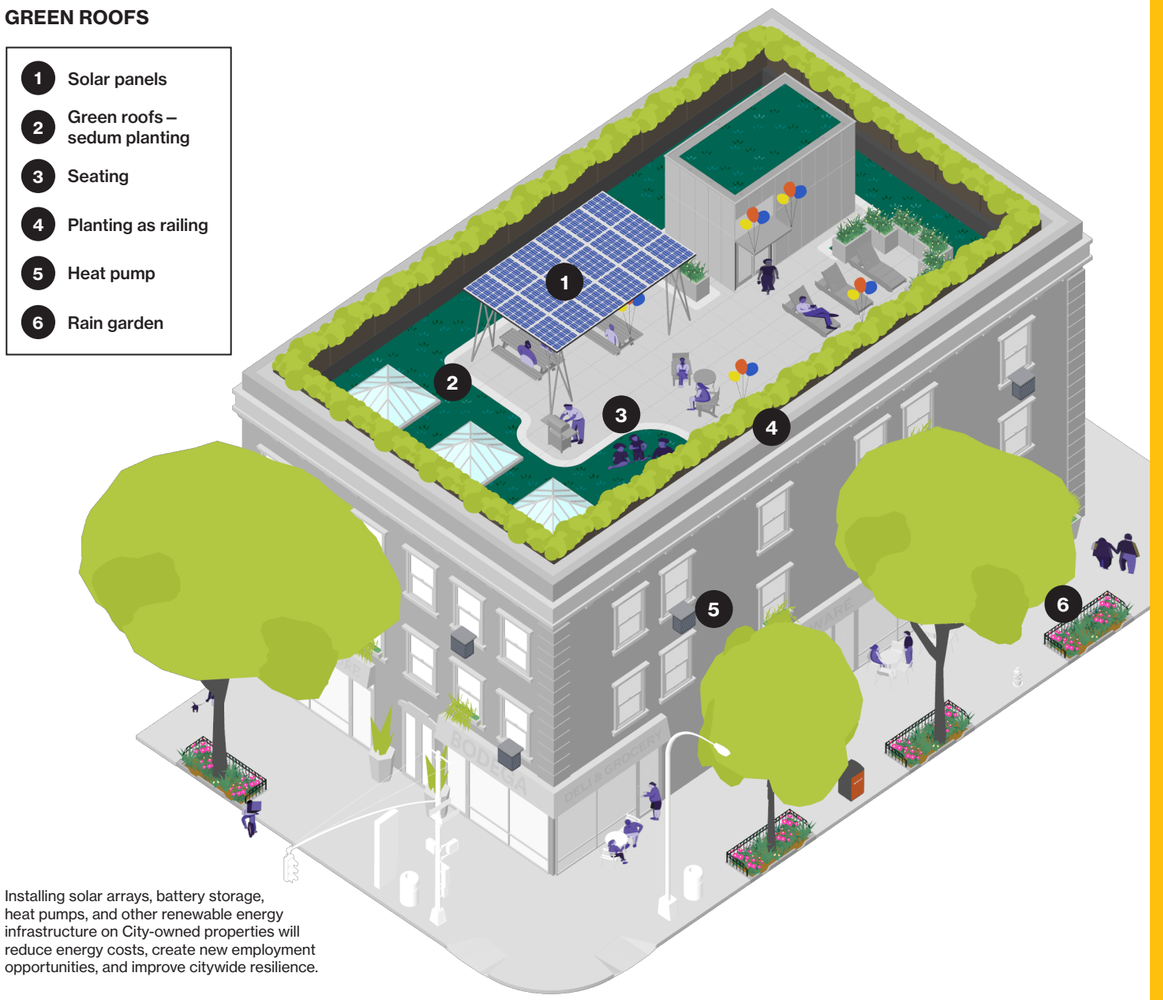
- **Evaluate all City roofs undergoing repair work for climate infrastructure installation by 2025**

The City is leading by example in the transition to clean energy by taking advantage of its physical assets and retrofitting its buildings. Installing solar arrays, battery storage, systems for building electrification, and other renewable energy infrastructure on City-owned properties will reduce energy costs, create new employment opportunities, and improve citywide resilience. The City will expand its work and assess the feasibility of installing renewable energy infrastructure and climate infrastructure on City-owned properties, including evaluating all City roofs undergoing repair work. We will prioritize installations in environmental justice communities.

- **Install solar energy, electric building infrastructure, green roofs, or other renewable energy on all viable City-owned property by 2035**

The City still has many underutilized rooftops and properties where climate infrastructure can be installed. In addition to installing climate infrastructure on City-owned roofs undergoing repair work, the City will proactively install climate infrastructure on City-owned property everywhere it is feasible.

GREEN ROOFS



Installing solar arrays, battery storage, heat pumps, and other renewable energy infrastructure on City-owned properties will reduce energy costs, create new employment opportunities, and improve citywide resilience.

Space is a major constraint in NYC; therefore, the City will find efficiencies in co-locating climate infrastructure, such as installing solar canopies above green roofs, electrification equipment, or battery storage on a rooftop.

Specifically, the City will investigate opportunities to site energy storage on our properties. Additional investment in energy storage capacity is necessary to support and store renewable energy such as solar and wind. By enhancing existing and new solar arrays with energy storage, the City can increase grid reliability and resilience in environmental justice communities, which are particularly susceptible to climate-related power-loss events.

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Connect NYC to clean electricity resources

HEALTH EQUITY
ENVIRONMENTAL JUSTICE
PROSPERITY
GHG EMISSIONS REDUCTION

Upstate New York receives approximately 90% of its electricity from zero-emissions sources.[185] By comparison, NYC only receives approximately 7% renewable energy based on the latest analysis.[186] A higher reliance on fossil fuels implies higher GHG emissions associated with our electrical grid. However, multiple projects are underway that will make renewable electricity more readily available to New Yorkers. Two large-scale transmission projects approved in 2021, Clean Path NY and Champlain Hudson Power Express (CHPE) will bring renewable solar and hydroelectric power from Canada and upstate New York to NYC. The City has committed to purchasing power from CHPE.

CITY LEADING BY EXAMPLE

Resilient Solar Roofing Installations at New York City Firehouses

In early 2023, the City installed resilient solar roofing panels with critical battery backups at Fire Department of the City of New York firehouses in Queens and Brooklyn.[190] Though the total number of firehouses is small, the installations advance the City's goal of reducing emissions from city government operations and reflect our commitment to resilience by ensuring that critical infrastructure remains operable during emergencies.

The newly installed solar PV systems generate emissions-free energy and use battery storage to ensure that the firehouses remain operational during blackouts, brownouts, or storms if electric service is interrupted. The batteries are wired to power critical functions in the firehouse whenever power is lost. Among these functions are the ability to operate the rollup doors, communication devices, fuel pumps, some lights, and electrical outlets. Unlike generators, the solar PV panels with batteries can provide quiet and continuous energy regardless of a fuel shortage. The solar PV systems will also conserve energy and save the City money by offsetting electrical usage. The installation of the solar PV systems totaled $2.4 million and was funded by the Department of Citywide Administrative Services (DCAS) and managed by DCAS and the New York Power Authority.[191]

CITY LEADING BY EXAMPLE

City's Purchase of Clean Power

In November 2022, construction began on the 339-mile CHPE transmission line, developed by Transmission Developers Inc., to deliver reliable clean energy from Hydro-Québec in Canada directly to New York City.[192] The construction of this green infrastructure project is expected to bring $3.5 billion in economic benefits to New Yorkers while creating nearly 1,400 family-sustaining union jobs during construction; it is a good example of City, State, and private collaboration.[193] CHPE is the first of two historic projects to start construction under the State's renewable energy and transmission program that is administered by NYSERDA, and the first of its kind. The program aims to responsibly deliver a significant increase of renewable energy to New York City.

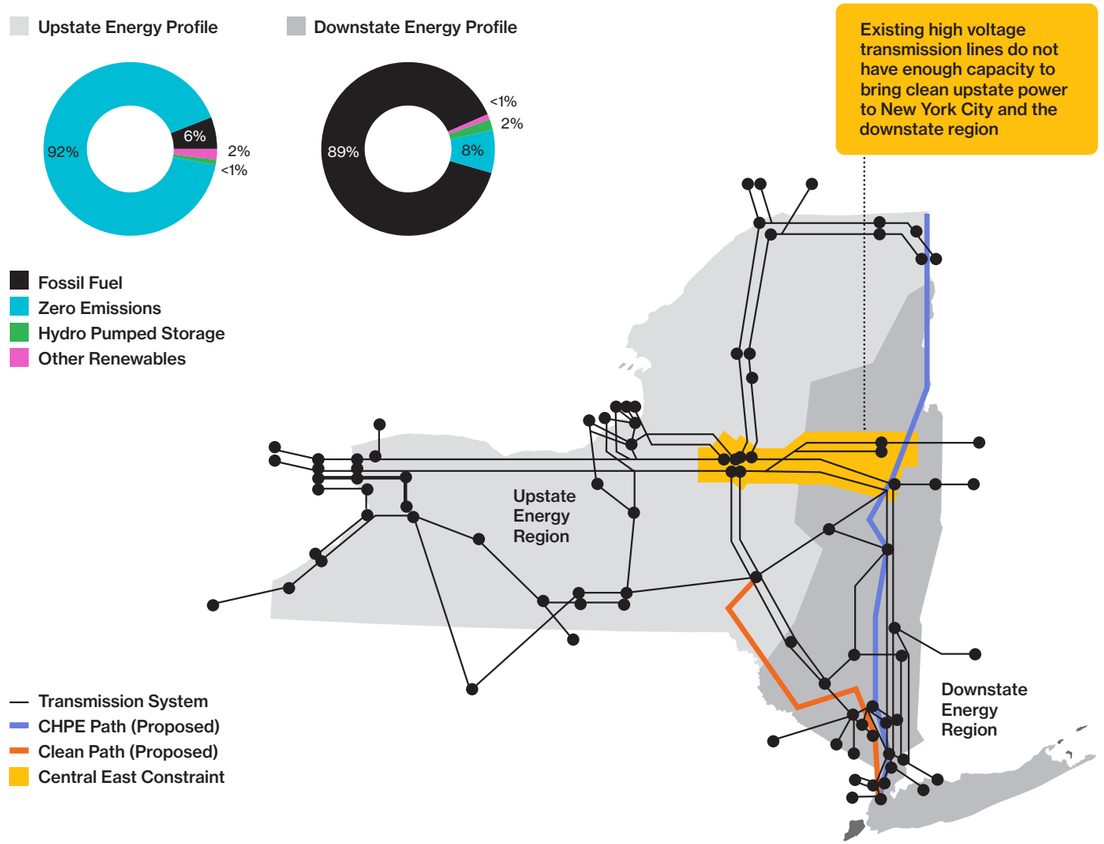
The two projects are capable of delivering an expected 18 million megawatt-hours of clean energy per year, or more than a third of NYC's annual electric consumption, and up to $5.8 billion in net societal benefits statewide, including GHG reductions and air quality improvements.[194] The transmission line is expected to be fully operational in the spring of 2026.

- **Actively support the development, access, and interconnection of large-scale renewable energy projects like offshore wind and hydropower**

New York State has five offshore wind projects in active development.[187] Combined with large-scale transmission, hydropower, and other renewable energy projects currently underway, they are projected to reduce NYC's fossil fuel use for electricity by more than 80% in 2030.[188] The City will support direct interconnection of electricity generated by offshore wind turbines into substations by prioritizing thorough and safe permitting for the interconnection sites.[189]

Growing New York City's electric grid is key to supporting the transition from fossil fuels to clean energy. Source: Mayor's Office of Climate & Environmental Justice

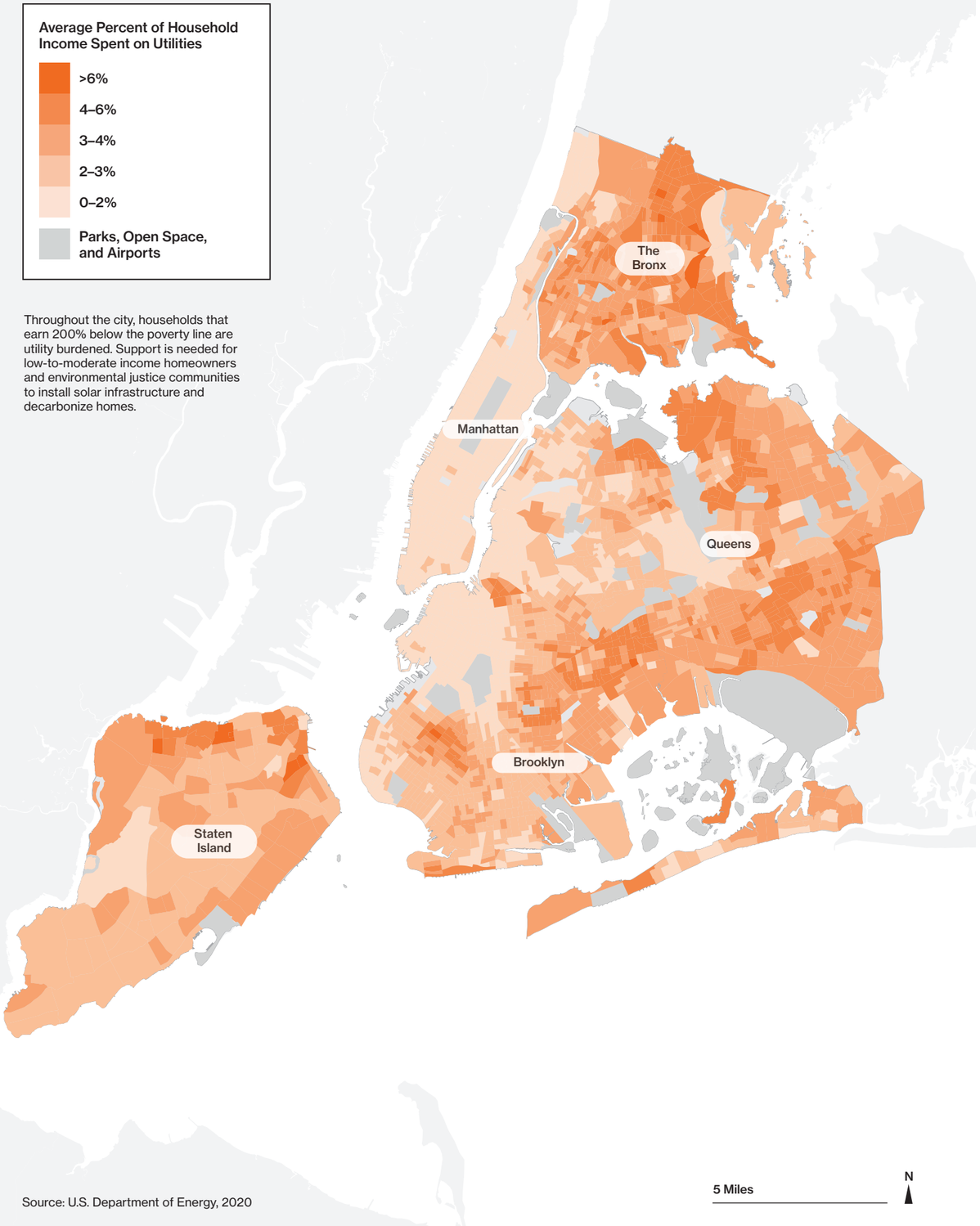
UPSTATE AND DOWNSTATE NEW YORK ENERGY PROFILES



The Clean Path NY and Champlain Hudson Power Express projects will bring more renewable solar and hydroelectric power downstate. Upstate New York receives approximately 90% of its electricity from zero-emissions sources. By comparison, New York City receives just over 7% renewable electricity.

Source: New York Independent System Operator, Inc., 2022

MEDIAN ANNUAL UTILITY EXPENSES FOR FAMILIES EARNING 200% BELOW FEDERAL POVERTY LEVEL



Throughout the city, households that earn 200% below the poverty line are utility burdened. Support is needed for low-to-moderate income homeowners and environmental justice communities to install solar infrastructure and decarbonize homes.

Source: U.S. Department of Energy, 2020

Oral, the landlord of an apartment building in the Flatbush neighborhood of Brooklyn that he inherited from his dad, takes advantage of the Green Housing Preservation Program to make cost-saving green upgrades including a solar infrastructure installation. Source: Housing Preservation & Development

14

Assist building and homeowners with clean energy projects and solar installation

HEALTH EQUITY · ENVIRONMENTAL JUSTICE · PROSPERITY · GHG EMISSIONS REDUCTION

- **Launch Public Solar program for one- to four-family low-income homeowners in environmental justice communities by 2025**

In collaboration with the NYC Comptroller's office, we will launch and develop a Public Solar program, the first of its kind. Building on a City seed investment, the program will apply for solar and clean energy funding from the U.S. Environmental Protection Agency Greenhouse Gas Reduction Fund. This Federal funding is anticipated to open summer 2023. Public Solar is focused on supporting access to solar and full-building decarbonization for one- to four-family buildings and low-income residents in disadvantaged communities, and exploring other underutilized rooftops for shared ownership and savings models. Historically, low-income residents and environmental justice communities have been excluded from the clean energy economy and cannot afford the upfront costs of installing rooftop solar, heat pumps, or other energy efficiency retrofits. The Public Solar initiative aims to help overcome these cost barriers.

Public Solar will provide 3,000 homes over the next five years with proactive door-to-door outreach and financial assistance for rooftop solar. To support this program, the City will work with New York City Energy Efficiency Corporation and partners to help disperse the Greenhouse Gas Reduction Funds, which will provide diverse financing tools for varying project needs. Potential funding mechanisms include providing income eligible buildings with grants, bridge loans, and other financing support to install rooftop solar, and an innovative public option in which a City-affiliated entity would directly install and own the solar, sharing the benefits with residents.

Recognizing the pressures of gentrification, displacement, and inflation, Public Solar goes beyond clean energy investments and is a major strategy to help keep low-income residents in their homes. Low-income homes in historically marginalized communities and environmental justice communities will be prioritized for home upgrades and financial assistance.

- **Advocate to the State to continue and expand the solar tax abatement program for NYC residents**

When we reduce barriers to installing rooftop solar or energy storage systems, we enable increased local renewable energy generation on private properties and achieve the City's emissions reduction and clean electricity targets. One barrier

to rooftop solar and storage on residential buildings is access to adequate project financing. The Solar Electric Generating Systems Tax Abatement program incentivizes property owners to install grid-connected solar infrastructure and receive a four-year property tax abatement.[195] The program allows property owners to deduct 5% of the cost of a solar installation each year from property tax bills, for four consecutive years, up to $62,500 per year.[196] The incentive helps offset 20% of the cost of solar systems. However, it is only available on new systems placed in service by January 1, 2024. The City will advocate to the State to continue the tax abatement program and to expand the incentive, enabling more property owners to take advantage of the program.

- **Advocate for enactment of the City of Yes for Carbon Neutrality Citywide Text Amendment in 2023 to expand renewable energy generation in the city**

Through the City of Yes for Carbon Neutrality zoning text amendment, the City will modernize the Zoning Resolution to allow for retrofitting of buildings, transforming our electric grid, improving the City's waste streams, and supporting the growth of zero-emission vehicles and micromobility options. The zoning change will help us meet our ambitious carbon reduction goals and eliminate barriers to renewable energy generation in the city. This proposal will start the formal public review process this spring and will be voted upon by the City Council in Fall 2023.

These zoning changes are critical to expanding energy retrofit opportunities for more than 50,000 older buildings built before current zoning rules were put in place.[197] Our city's rooftops could be generating enough solar energy to power up to 250,000 homes.[198] The proposal roughly quadruples the zoning allowances for rooftop solar and will allow it in every zoning district in the city. The proposal will also more than double the space available for charging stations in commercial areas of the city and will unlock solar opportunities in over 8,500 acres of parking lots across the city.

The Carbon Neutrality proposal is the first of three City of Yes zoning proposals that the Department of City Planning will advance through public review and the City Council's approval process in the next year. The City of Yes for Economic Opportunity will update outdated regulatory codes that have prevented small businesses from locating, expanding, and innovating in certain districts, providing zoning flexibility for businesses to thrive. The City of Yes for Housing Opportunity is part of an inclusive, citywide approach to expanding and diversifying our housing supply, including reducing or eliminating parking requirements in new developments.

Solar panel installations on multifamily properties are supported through programs like the Solar Electric Generating Systems Tax Abatement program, which incentivizes property owners to install grid-connected solar infrastructure and receive a four-year property tax abatement.
Source: Housing Preservation and Development

LEVERAGING FEDERAL AND STATE FUNDING

Inflation Reduction Act and the Greenhouse Gas Reduction Fund

NYC's ambitious clean energy and carbon neutrality goals require a holistic and ambitious funding plan. The Inflation Reduction Act provides more than $360 billion in clean energy and climate funding, offering NYC an unparalleled opportunity to advance its climate goals.[199] NYC is committed to pursuing the Greenhouse Gas Reduction Fund, a new program out of the Inflation Reduction Act which offers $7 billion to municipalities for solar and energy storage projects with a focus on low-income and disadvantaged communities to ensure clean energy is accessible.[200]

In addition to this major new funding source, the City plans to leverage a new mechanism from the Inflation Reduction Act. Similar to tax credits on energy investment and production projects, the City is now eligible for direct payments from the Federal government, which means more clean energy projects for government buildings like libraries and schools.

The City will also work with New Yorkers to access several new rebates and programs from the Inflation Reduction Act, providing them with up-to-date information on incentives and tax credits for climate and clean energy projects and ensuring everyone has access to these Federal funding resources.

SPOTLIGHT

Flore Batiste *ElectrifyNYC*

Flore participated in ElectrifyNYC, a free program that helps city homeowners with green and efficient home upgrades to save them money, make them more comfortable in their homes, and reduce GHG emissions from one- to four-family homes.[201]

"I went to a 'City Hall in Your Borough' for Staten Island and there was an ElectrifyNYC table. I was trying to make my home more sustainable and lower my bills, and I wanted to get solar on my roof. I live on this planet, I'm an advocate for domestic violence survivors, and I am a single mother of three kids. It made sense.

Climate change is happening. I came to New York from Haiti and Florida, and I was used to hurricanes. When I first came to New York they didn't happen that often. Now we've had Hurricane Sandy and Hurricane Ida. My home was very cold on the lower level. The first improvement was insulation. It got warmer faster and stayed warmer longer. I also had a big leak and a hole in my ceiling and the contractors fixed it.

The second improvement was solar, but before I got the panels, I had to get a new roof. I spent about 12% of my income on energy last summer and now it's about 3%. The benefits just keep coming.

They are a win-win for homeowners, for the environment, and for the economy"

Flore Batiste,
Arden Heights,
Staten Island resident

Source: Mayor's Office of Climate & Environmental Justice

Improving Our Quality of Life

GREEN SPACE

WATERWAYS

TRANSPORTATION

FOOD

A city worth living in is one that is sustainable and vibrant. A thriving urban experience that includes lush and accessible parks and open spaces, clean waterways, reliable transportation options, and access to fresh and healthy food not only enhances our quality of life but also mitigates pollution and increases our resilience. With climate change threatening our entire planet, it is more important than ever to lower our emissions, increase public transportation, and enhance our green spaces to help combat heat and capture stormwater. And we are committed to ensuring everyone has equal access to a healthy and joyful urban lifestyle. New York City will remain one of the world's greatest cities to live, work, and play in, and we will continue to lead the charge in mitigating climate change by reducing emissions and improving our overall quality of life.

New York City's greenway network promotes bike use both for recreation and transportation. Source: Department of Parks & Recreation

GREEN SPACE

The Queens East River Greenway along Vernon Boulevard offers safe pedestrian walkways and bike lanes along the waterfront.
Source: Department of Transportation

Our parks and green spaces are a critical part of our response to climate change, providing refuge from increasing heat waves, improving the air we breathe, and capturing and filtering rainwater. We have more green space citywide than ever before. More than 30,000 acres (14%) of NYC's land is made up of municipal parks and green space, representing one of the largest urban park systems in the country.[202] This includes large destination parks and beloved community parks; 12,000 acres of natural areas; forested areas with more than 2.5 million trees; 14 miles of beaches; thousands of playgrounds, pools, and recreational facilities; and more than 550 community gardens.[203]

112,000

more New Yorkers live within walking distance of a park in 2022 than did in 2015

Source: Department of Parks and Recreation, 2023

A new basketball court that opened at Val Ast Playground in Astoria, Queens in June 2017 attracts New Yorkers of all ages. Source: Department of Parks and Recreation

However, these spaces have been historically underfunded and parks in environmental justice communities are in need of additional care and activation. We can improve access to these hidden gems and encourage stewardship to help with upkeep. Since the release of NYC's first comprehensive sustainability plan, *PlaNYC* (2007), the City has added more than 1,000 acres of new parkland, created 12 miles of open space along the waterfront, restored more than 550 acres of natural areas, planted more than 850,000 native plants, and formalized more than 200 miles of nature trails traversing diverse landscapes.[204] We also know more about the conditions of our natural areas and trail systems, which is important data for improving access. Through actions like the Community Parks Initiative, we have reconnected New Yorkers with existing green spaces by improving smaller neighborhood parks in communities with the greatest need.

Our plan will continue to improve access to parks and open spaces in under-resourced neighborhoods and invest in our natural areas so they can thrive and provide maximum climate benefits to our city.

OUR PLAN

Our focus now is to ensure that all New Yorkers can benefit from our open space network and that it can be used to respond to the increasing climate hazards our city is facing. Through our greenway commitments, including those outlined in the City's *Destination Greenways* plan, we will create more than 10 acres of new open space and safe connections between parks.[205] We will formalize and improve 300 miles of trails, many of which are in our outer borough parks like Van Cortlandt in the Bronx or Forest Park in Queens. By planting 30,000 native trees and shrubs across 10 sites, we will restore the health of forested areas, which contributes to reduced flooding and higher quality soil, water, and air. This effort, combined with maintenance of existing trees and the formation of public-private partnerships to encourage tree planting on private land, will also support our goal to achieve a 30% tree canopy cover and cool our public realm (*see Extreme Heat*). The City will also continue to look for ways to increase the number of New Yorkers that live within a 10-minute walk of a park by creating new green spaces where possible. Together, these actions will improve the quality of life for all New Yorkers while responding and adapting to climate change.

OUR GREEN SPACE GOAL

We will increase access to quality green spaces for all New Yorkers and restore forested areas citywide.

Create an accessible and connected network of open spaces:

- Connect over 300 miles of trails and make 12,000 acres of natural areas accessible to all New Yorkers
- Create over 10 acres of new open space and safe connections between parks as part of the greenway network expansion

Improve the health of our forested areas:

Restore and steward 1,000 acres of forests across 10 sites, planting more than 30,000 native trees and shrubs

SPOTLIGHT

Frederick Ochavo *NYC Parks Super Stewards*

Super Stewards are a group of New Yorkers who care for their neighborhood parks and spread the word about the benefits of nature in the city.[210] Super Stewards can work on their own, lead other volunteers, host projects, apply for mini-grants, network with other volunteers, and get a sneak peek at the inner workings of NYC Parks.

"I came from Manila in 2019 for work. When I looked out from the airplane at New York City I thought, how can a city this big manage to plant and care for one million trees? For more than two years, I focused on work and things other than the tree question. Then during COVID, in October 2021, I planted my first NYC tree with the Bronx River Alliance and Parks as a Super Steward, in Shoelace Park by the Bronx River. Hurricane Ida had knocked down trees, and non-native vines were invading.

That day, I started to get the answers to my question. It was the small actions of these dedicated individuals that contributed to the accomplishment of ambitious goals.

As a Super Steward I now have access to NYC Parks' events and programs, including tree planting. Over time, I have checked on my trees. They're like my babies. Trees that are four feet and below can survive, but their chances of maturity are better if we help them. The first one I planted is a foot taller."

Frederick Ochavo, occupational therapist, NYC Parks Super Steward

Source: Mayor's Office of Climate & Environmental Justice

CITY LEADING BY EXAMPLE

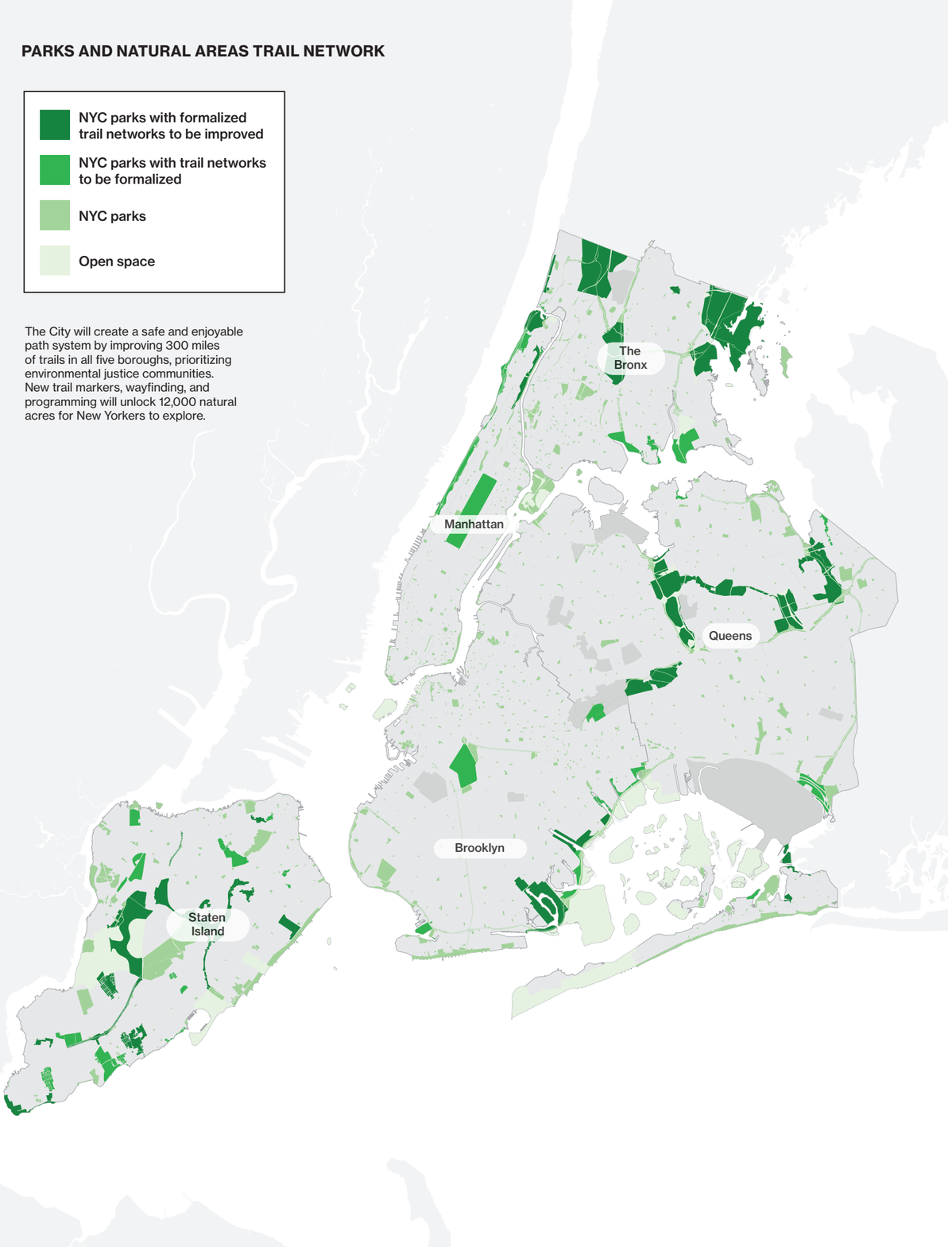
Office of Environmental Remediation's Voluntary Cleanup Program

Since *PlaNYC* (2007), the City has designed and operated an efficient land cleanup program that partners with property owners and developers. The Voluntary Cleanup Program (VCP) offers a streamlined process by which owners and developers can investigate and remediate a site before constructing new buildings.[206] Since the Mayor's Office of Environmental Remediation (OER) began approving cleanups in 2009, more than 850 private development projects have gone through its programs, resulting in more than 465 acres of new developable land across the city.[207]

Projects in the VCP, including City-supported affordable housing, can receive City grants and funds for environmental investigation and cleanup. More than 21,000 units of affordable housing have been built on sites that have been cleaned up.[208] OER has also made 165 community brownfield planning grants to nonprofit community partners to support land redevelopment and reuse consistent with their community vision, including community gardens, green spaces, and parks to advance the City's goals to create more open space and affordable housing.[209] When a developer completes a cleanup in the VCP, it receives an NYC Green Property Certification plaque to show that the property is one of the environmentally safest places to live or work in New York City.

As part of the Department of Parks and Recreation's Anchor Parks initiative, Betsy Head Memorial playground receives renovations (top), and Brooklyn's Brownsville neighborhood receives improved green space and recreation opportunities (bottom). Source: Department of Parks and Recreation

PARKS AND NATURAL AREAS TRAIL NETWORK



The City will create a safe and enjoyable path system by improving 300 miles of trails in all five boroughs, prioritizing environmental justice communities. New trail markers, wayfinding, and programming will unlock 12,000 natural acres for New Yorkers to explore.

Source: Department of Parks and Recreation, 2023

15

Create an accessible and connected network of open spaces

GHG EMISSIONS REDUCTION
VITALITY & COMMUNITY
ENVIRONMENTAL JUSTICE
HEALTH EQUITY

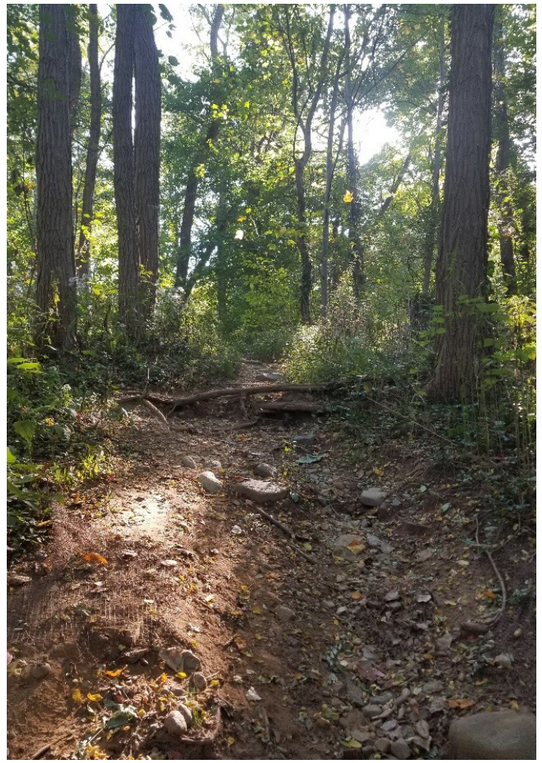
Thousands of acres of green space exist in every borough and offer places to rest, play, connect, cook, and enjoy. The City will invest in improving access to our parks, natural areas, community gardens, and urban farms, creating healthier communities that are better connected with one another and the natural world.

- **Connect over 300 miles of trails and make 12,000 acres of natural areas accessible to all New Yorkers**

NYC's trail system connects us to grand old-growth forests, sweeping shoreline views, picturesque marshes, tidal inlets, and beaches. The City will create a safe and enjoyable path system by improving 300 miles of trails in all five boroughs, prioritizing environmental justice communities. New trail markers, wayfinding, and programming will unlock 12,000 natural acres for New Yorkers to explore through a better user experience, reaping all the physical and mental health benefits that come with being outside in nature. New Yorkers will also be able to interact with plants and animals, and become stewards of environmental resources. Improvements to trails have the added benefit of protecting natural areas from heavy foot traffic that can damage habitat, and from erosion during heavy rain events.

- **Create over 10 acres of new open space and safe connections between parks as part of the greenway network expansion**

Greenways are continuous, multi-use corridors for walking, biking, electric mobility, and recreation. Greenways not only incorporate new trees but also stormwater infrastructure, cool streets, and urban habitat corridors for pollinators and birds that increase local biodiversity. Expanding our robust and connected greenway system will further encourage New Yorkers to use low- and zero-carbon transportation modes and public transportation. We have employed greenways to fill gaps in underserved communities that have limited public transportation options.



The Department of Parks and Recreation continuously invests in citywide trail improvements, including paths that were not easily traversable (left). Parts of the Riverdale Park Trail, which runs from Battery Park in lower Manhattan to Riverdale in the Bronx, have since been upgraded with nature-based steps (right). Source: Department of Parks and Recreation

1. Walkway with seating along edge
2. Bike and pedestrian path
3. Public bathroom
4. Bike lock station
5. Vegetated and permeable space

NYC's expanded Greenway network will improve access to parks and waterfronts, create new biking and walking connections, and help New Yorkers enjoy our city's green spaces. This is an illustrative graphic to highlight how this initiative might look and feel.

By investing in the expansion of the greenway network, we will make open spaces more accessible and integrated within our mobility system.

Building on our commitment to complete the Manhattan Waterfront Greenway, Mayor Adams released *Destination Greenways* last year, a conceptual study to improve connections between greenways within parks in Brooklyn and Queens.[211] The Mayor also committed $47.6 million in capital funding to improve connections between greenways and parks in Brooklyn and Queens. Across all five boroughs there are greenway projects in design and construction, creating safe connections between parks and paths for commuting and recreation. To expand and improve greenways, the City will leverage a Federal Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant. This grant will advance a multi-agency, Federally funded study for the next generation of our citywide greenway network, a first of its kind.

LEVERAGING FEDERAL AND STATE FUNDING

NYC Greenways Planning

In 2022, the New York City Department of Transportation (DOT), New York City Economic Development Corporation (NYCEDC), and New York City Department of Parks and Recreation (NYC Parks) were awarded $7.25 million in U.S. Department of Transportation (USDOT) RAISE Federal grant funding for *Filling the Gaps: NYC's Greenway Expansion Plan*.

This multi-part proposal will analyze current gaps in the greenway network, engage community partners, improve our understanding of greenway users' travel patterns, and develop corridor plans for historically underserved areas of the city.[212]

The grant will lead to a comprehensive citywide plan to expand the greenway network which will include up to five early action corridor plans and the selection of future action corridor candidates for further development. The early action plans will be for street improvement projects or capital projects on greenway geographies that have already been identified. Future action corridor plans will cover areas of New York City that have been largely overlooked by prior planning efforts; were previously considered 'too difficult' to tackle; or are newly relevant because of changing demographics, land uses, and other community factors.

Drawing on robust data collection and user surveys, the micromobility model will aid in forecasting the impact of greenways and prioritizing construction projects. For example, if the City has a choice to pursue one of two options, the model will be able to inform that decision by predicting which option will lead to a higher uptick in bike ridership.

16

Improve the health of our forested areas

CLIMATE RESILIENCE
GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
PROSPERITY
VITALITY & COMMUNITY

Our city's large forested areas provide unique benefits in terms of biodiversity, size, composition, and management. They are complex, interconnected ecosystems that have multiple environmental benefits and enrich our lives. Forested natural areas capture and absorb rain water, acting as natural stormwater retention systems.[213] They also store more carbon and provide greater cooling potential than other types of urban vegetation. Trees remove dust and pollutants from the air which improves public health and supports active living. Forests lower summer outdoor temperatures by shading buildings, cooling streets, and reducing our reliance on fossil fuels to cool and heat homes and businesses. In addition to improving the health of our forested areas, we are taking a number of actions to increase the city's tree canopy *(see Extreme Heat)*.

- **Restore and steward 1,000 acres of forests across 10 sites, planting more than 30,000 native trees and shrubs**

Forested areas in NYC comprise approximately 28% of the total tree canopy.[214] Restoring and preserving our forested areas is critical to expanding our tree canopy. Planting 30,000 trees and shrubs in our forests will result in capturing more carbon dioxide from the atmosphere and releasing oxygen in exchange.
An example of how forest restoration can truly transform local communities is Seton Falls Park in the Bronx. Beginning in winter 2024, NYC Parks will remove invasive species across over 20 acres of degraded forested natural area in the eastern half of the park and plant more than 5,000 native plants. Over the last five years, the park has already undergone significant transformation. Since April 2018, NYC Parks' Stewardship team has led more than 400 community volunteers in over 1,200 hours of service via the Green Neighborhoods program to remove debris and non-native species in preparation for native planting. Since then, community groups, like the Seton Falls Preservation Coalition, have planted more than 350 native trees and shrubs. And beginning last year, the Natural Areas Conservancy began providing training support, vegetation management, and trail improvement projects across Seton Falls Park, with funding from the Long Island Sound Futures Fund to train and deploy community stewards in caring for natural resources in their park.

Rare Plant Protection and Monitoring on Staten Island

The overabundant deer population in Staten Island poses a significant threat to the long-term persistence of State-listed and locally sensitive plants that deer like to eat. In an effort to protect forest biodiversity, NYC Parks began installing deer enclosure fencing and monitoring rare plants in these enclosures in 2016.[215] Fencing has been effective in protecting populations of *Euonymus americanus* (American strawberry bush) and *Lilium superbum* (Turk's cap lily) in Staten Island.[216] Both of these plant species are at risk of becoming locally extinct in New York City.[217]

After five years of monitoring, protected populations of the American strawberry bush grew more vigorously compared to unprotected populations.[218] Similarly protected populations of the Turk's cap lily flourished while unprotected populations were stunted or not visible.[219] The fenced Turk's cap lily finally bloomed for the first time after five years of fencing protection—a literal and figurative bright spot for a plant that has been failing to reproduce in Staten Island for several years because of overgrazing.[220] Results from monitoring suggest that expanding fencing to protect other populations is a viable strategy to support the recovery of these rare plant populations.

Central Park, the most visited urban park in the United States, offers a wide range of recreation opportunities for native New Yorkers and visitors, birdwatching among them. Source: Central Park Conservancy

In October of 2022, Department of Parks and Recreation Commissioner Sue Donoghue and others break ground at the Callahan-Kelly Playground in the Brownsville neighborhood of Brooklyn, which will be renovated to include new basketball courts, game tables, adult fitness equipment, and a skatepark. Source: Department of Parks and Recreation

WATERWAYS

Staten Island's South Beach attracts New Yorkers for sunbathing and swimming every summer. Source: NYC & Company

New York Harbor is a tremendous asset to all New Yorkers. Since the 1980s, the City has invested more than $45 billion in wastewater systems that have made our waterways cleaner than they have been in more than a century – which is why whales, dolphins, and other marine life are back in our harbor.[221] These investments have also facilitated the expansion of waterfront open spaces, commercial and residential development, greenways, citywide ferry service, and increased goods movement by water. A healthier harbor has made the waterfront one of NYC's most attractive features.

Significant improvements in our wastewater treatment processes, especially the reduction of combined sewer overflows (CSOs), are core to the water quality improvements we have seen in recent decades. NYC's combined sewer system can be overwhelmed during heavy rainfall, when a mix of stormwater and untreated sewage may be discharged directly into the city's waterways (known as a CSO). Prior to 1990, more than 100 billion gallons of CSOs were released annually;[222] by 2022, annual CSO discharges had been reduced by approximately 85%.[223] This is the result of improvements to our Wastewater Resource Recovery Facilities, as well as efforts to prevent stormwater from ever reaching the sewers. These efforts include increased stormwater storage capacity and a bold, broad effort to construct nearly 13,000 rain gardens and other types of green infrastructure to capture rainwater at the source.[224] We have also successfully launched several wetland restoration and creation programs and installed ribbed mussels in Bergen and Thurston Basin in Jamaica Bay as an ecological filtering mechanism to improve water quality.[225]

While we have made vast progress, our plan will further reduce annual CSOs by more than 4 billion gallons. The City has agreed upon a set of Long-Term Control Plans (LTCPs) with the State of New York that chart out our legally mandated efforts to continue to reduce CSOs. Due to their scope and size, the LTCPs will cost more than $6 billion and take until around 2045 to complete. In parallel, we will achieve further CSO reduction by expanding the proven Green Infrastructure Program. But there is more that we can and should do – it is time to plan for a city without combined sewer overflows in all but the most extreme storms.

CITY LEADING BY EXAMPLE

Jamaica Bay Long-Term Control Plan

The LTCP for Jamaica Bay and its tributaries presents an innovative approach to water quality improvements that emphasizes the use of nature-based solutions to preserve the ecosystem's biodiversity.[226] While the Jamaica Bay watershed is highly urbanized, it also supports a range of diverse habitats, including estuarine open water, intertidal zones, salt marsh islands, fringing salt marshes, tidal mud and sand flats, and freshwater wetlands, ponds, and tributaries. It is home to more than 325 bird species, 100 species of fish, and 50 species of moths and butterflies.[227]

Recognizing the value of this critical ecological resource, the Jamaica Bay LTCP incorporates a range of strategies that work together to improve water quality and enhance ecosystem health in Jamaica Bay. This large-scale green infrastructure implementation at the watershed level includes strategies such as vegetated swales, rain gardens, and infiltration basins to capture and treat stormwater runoff before it enters the bay. The plan also includes the restoration of at least 50 acres of wetlands, seven acres of ribbed mussel colonies, and environmental dredging.[228] This world-class, innovative approach to water quality improvements is expected to provide co-benefits such as carbon sequestration, air quality improvements, and a reduction in the urban heat island effect.

OUR PLAN

Despite the progress we have made, more work is needed to improve the health of our waterways and all the incredible ecological functions they serve. First, we have committed to our next generation of harbor water quality improvements and CSO reductions through projects laid out in the LTCPs. Over the next few years, we will craft an integrated strategy that further drives down CSOs and achieves applicable water quality standards in the harbor by 2060. We will also continue to restore and preserve our city's wetlands, which not only provide immense long-term water quality and ecosystem benefits that allow our harbors to thrive but also protect our coastline by reducing storm surge and mitigating coastal erosion.

OUR WATERWAYS GOAL

We will improve the health and ecological function of NYC's waterways.

Reduce combined sewer overflows by more than 4 billion gallons per year by 2045 to improve water quality:

- Deliver the Long-Term Control Plans by 2045
- Expand the implementation of the NYC Green Infrastructure Program, the largest of its kind in the nation
- Capture stormwater at the source through the Unified Stormwater Rule

Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060.

Improve the health and ecological function of wetlands:

- Restore wetlands for flood risk reduction, conservation, and open space benefits

NYS Department of Environmental Conservation Saline Surface Water Quality Standards

SA Shelfish
The best usages of Class SA waters are shellfishing for market purposes, primary and secondary contact recreation, and fishing

SB Bathing/Fishing
The best usages of Class SB waters are primary and secondary contact recreation and fishing

SC Coastal
The best usages of Class SC waters is fishing

I Boating/Fishing
The best usages of Class I waters are secondary contact recreation, and fishing

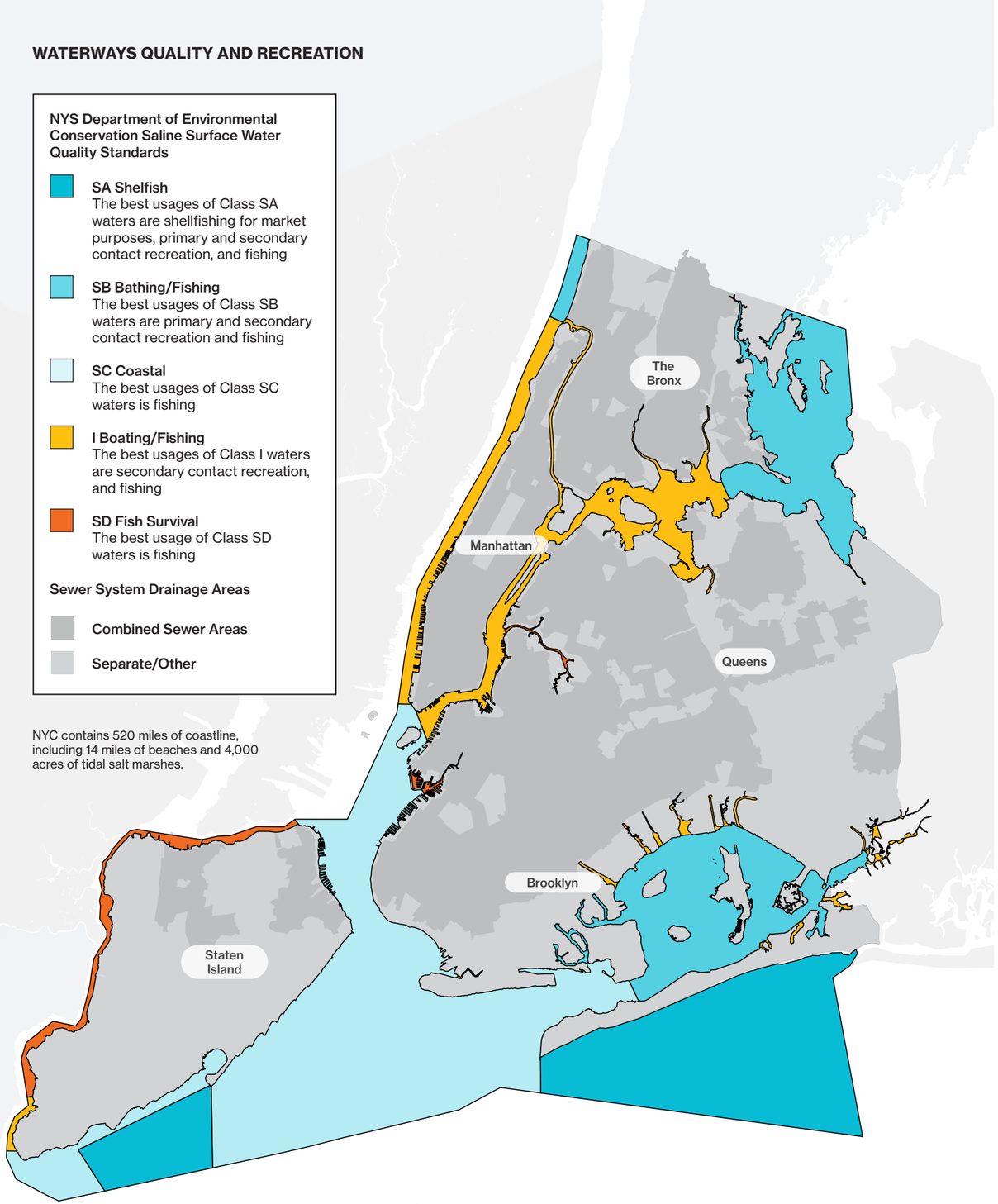
SD Fish Survival
The best usage of Class SD waters is fishing

Sewer System Drainage Areas

Combined Sewer Areas

Separate/Other

NYC contains 520 miles of coastline, including 14 miles of beaches and 4,000 acres of tidal salt marshes.



Source: NYS Department of Environmental Conservation, 2022; NYC Department of Environmental Protection, 2023

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Reduce combined sewer overflows by more than 4 billion gallons per year by 2045 to improve water quality

HEALTH EQUITY
ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY

- **Deliver the Long-Term Control Plan (LTCP) by 2045**

Over the past decade, DEP has worked with Federal and State regulators to develop 11 LTCPs – ten waterbody-specific and one citywide – to reduce CSO events by 2.5 billion gallons a year and achieve waterbody-specific water quality standards.[229] These plans are comprehensive, watershed-based approaches that address the impacts of CSOs on water quality in the New York Harbor and its tributaries.

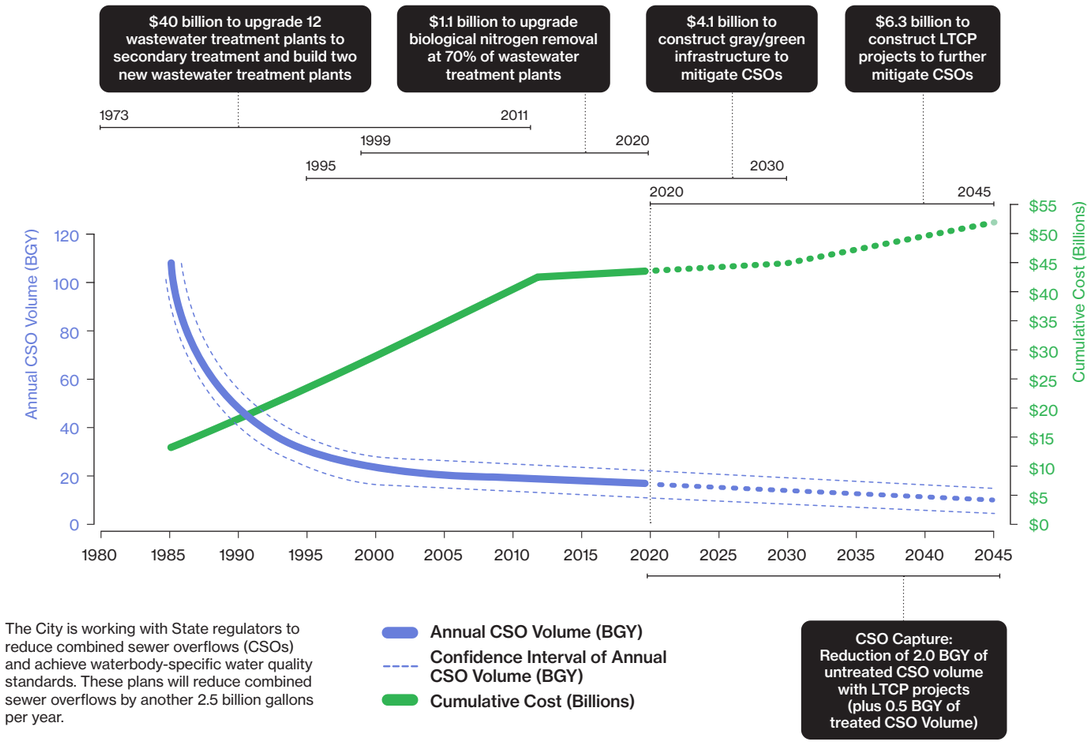
Together, these 11 plans call for an investment of more than $6 billion to construct both traditional gray infrastructure and nature-based solutions. Specific projects include the following:

- Daylighting Tibbetts Brook, a $133 million project that will begin construction in 2025 and reduce CSOs by 220 million gallons per year[230, 231]
- Constructing two CSO tunnels for Flushing Bay and Newtown Creek, which are expected to cost about $3.9 billion and reduce CSOs by around 1.4 billion gallons per year[232]
- Constructing and restoring at least 50 acres of marsh islands and shorelines at Jamaica Bay, with the potential to restore up to 186 acres, sharing the cost with with USACE[233]
- Harvesting and installing ribbed mussel beds – four acres within Bergen Basin and three acres in Thurston Basin[234]

- **Expand the implementation of the NYC Green Infrastructure Program, the largest of its kind in the nation**

DEP will continue to implement the largest green infrastructure program in the nation with a goal of reducing 1.67 billion gallons in CSOs per year. In addition to the nearly 13,000 green infrastructure assets built, we will continue to expand our program to the Bronx and Brooklyn with 300,000 feet of porous

COMBINED SEWER OVERFLOW LEVELS OVER TIME



The City is working with State regulators to reduce combined sewer overflows (CSOs) and achieve waterbody-specific water quality standards. These plans will reduce combined sewer overflows by another 2.5 billion gallons per year.

Source: Department of Environmental Protection, 2023

parking lanes, a new technology that captures stormwater.[235] Furthermore, DEP will partner with other City agencies, including DOT, NYC Parks, School Construction Authority (SCA), and NYC Housing Authority (NYCHA) to retrofit impervious surfaces on public properties to capture stormwater at the source.

- **Capture stormwater at the source through the Unified Stormwater Rule**

We have also expanded the Green Infrastructure Program into private property. DEP's new stormwater rule requires a retention-first approach to on-site stormwater management for all new construction and redevelopment sites. The Unified Stormwater Rule also sets new thresholds for compliance with post-construction stormwater management practices.[236] Alongside the new rule, we released a new stormwater manual to provide technical guidance for permit applicants. The implementation of this rule will help us further improve water quality by capturing stormwater at the source.

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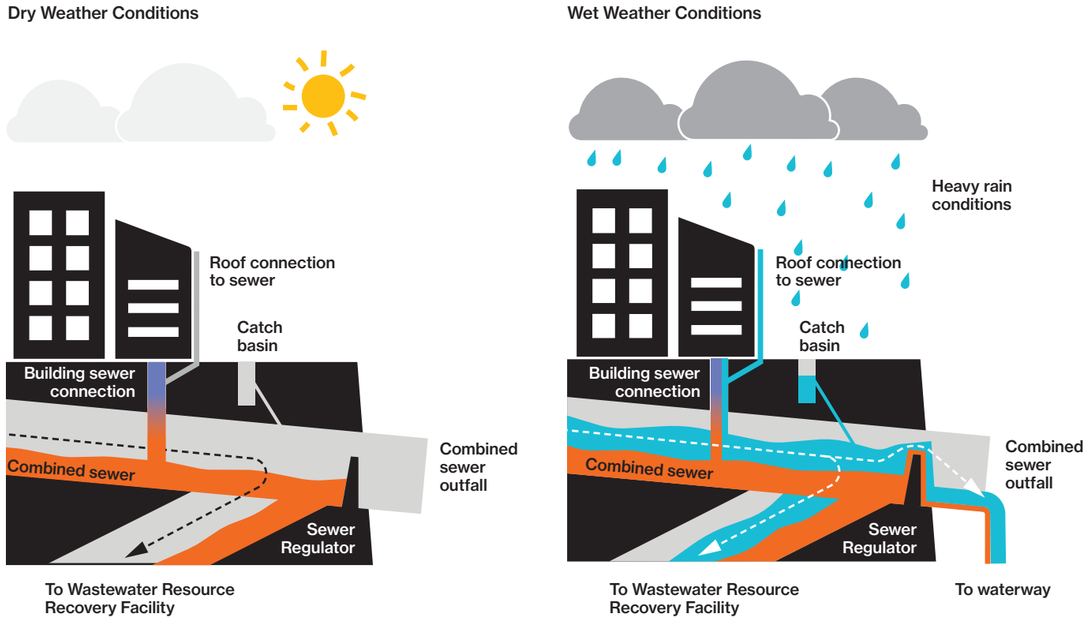
Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060

HEALTH EQUITY
ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY

Even after we complete all of the projects outlined in the LTCPs, we know that there will still be CSOs with significant rainfall. We will develop a strategy that layers onto existing LTCP requirements, integrates the municipal separated storm sewer system (MS4) program, and extends to 2060, with the goal of eliminating routine CSOs to achieve applicable water quality standards in the harbor. To do this, we will identify new strategies to reduce the release of untreated CSOs and polluted stormwater before it enters our waterways, improving water quality and the health of marine ecosystems. However, the city's physical space constraints, topography, geology, and feasible funding mean that very extreme storms could continue to overwhelm even the largest investments in the stormwater system. To prepare for these emergency conditions, we will build infrastructure to minimize these discharges and the waterbody impacts they cause while continuing to improve emergency response to enable a quick recovery.

COMBINED SEWER SYSTEM IN DRY AND WET WEATHER CONDITIONS



A typical combined sewer system collects stormwater runoff, domestic sewage, and wastewater. The system then transports collected flows into a wastewater resource recovery facility. During heavy rainstorms, combined sewers receive higher than normal flows. Recovery facilities are unable to handle flows that are more than twice the design capacity. This may result in a combined sewer overflow (CSO), or a mix of stormwater and untreated sewage that discharges directly into the city's waterways.

Source: Department of Environmental Protection, 2023

The City is expanding its green infrastructure program, adding to the portfolio of nearly 13,000 rain gardens and other green features that absorb stormwater.

The Saw Mill Creek Marsh along the Arthur Kill River in Staten Island, one of New York City's native wetlands, offers ecological benefits and support recreation opportunities such as kayaking (top and middle). The Jamaica Bay Wildlife Refuge at West Pond, another part of the city's network of wetlands, receives recent improvements through the Living Shoreline Restoration Project (bottom).
Sources: Department of Parks and Recreation; Jamaica Bay Parks Conservancy

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Improve the health and ecological function of wetlands

CLIMATE RESILIENCE
GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY
PROSPERITY

Wetlands absorb floodwaters during storm events, capture carbon, and enhance biodiversity. But the city's tidal marshes – nature's buffer that protects coastal communities from storm-induced flood loss – are at risk. Centuries ago there were over 30,000 acres of salt marshes in NYC.[237] Today there are just 4,000 acres, less than 15% of their historical extent.[238] Sea level rise and increasingly extreme and frequent storms are contributing to marsh loss. Marshes are unable to effectively adapt to sea level rise and migrate because most land within New York City is filled, hardened, and highly urbanized.

- **Restore wetlands for flood risk reduction, conservation, and open space benefits**

Marshes are our most abundant and visible wetlands and a first line of defense again coastal storms. However, some of the city's salt marshes have been in decline due to sea level rise inundation and other interactions with the urban ecosystem. We will increase our understanding of coastal wetlands by analyzing salt marsh loss, and we will expand protection and restoration of these marshes by advancing techniques such as the addition of thin layers of sediment. Building up marsh elevations by adding sediment increases resilience to sea level rise and reduces the risk of marsh drowning. We will also work with partners to advance the use of natural and nature-based solutions in coastal resilience projects. To ensure no net loss of wetlands and to facilitate permitting of critical infrastructure projects along our waterfronts, we will engage environmental regulators and expand our strategies for wetland mitigation.

SPOTLIGHT

Sommer Passalacqua: *Jamaica Bay Wetlands Fellow*

The Jamaica Bay Wetlands Fellowship is a six-month workforce development and job training program for young adults focused on skills related to wetlands maintenance, monitoring, and restoration.[239]

"Growing up on Jamaica Bay, my dad taught me how to fish and crab at a young age. Flooding is a big topic in my community. We were hit by Irene, Sandy, and Winter Storm Elliott. We lost cars.

I want to make a difference in the environment. This program is trying to create long-term positions in wetlands. Today we did a beach cleanup and have been learning about animals and plants that are in the area. We have very old creatures that are called horseshoe crabs. There are more than a hundred kinds of fish in Jamaica Bay.

Climate change is damaging the natural environment. Everything used to be healthy and there was a lot of marshland and wetland, but they are deteriorating. We're working to build up Jamaica Bay and restore plant life.

This program is about climate action. Without people helping the environment it's going to keep deteriorating. Maintained marshlands are beneficial to shoreline communities because they break down the harshness of the storms—the winds, impact, and waves.

I can't imagine my life without water. We ate the fish we caught. I learned jet skiing, boating, and swimming. Water taught me how to survive."

Sommer Passalacqua, Hamilton Beach, Queens resident and Jamaica Bay Wetlands Fellow

Source: Mayor's Office of Climate & Environmental Justice

LEVERAGING FEDERAL AND STATE FUNDING

Harding Park, Bronx River

NYC Parks received $1.1 million in funding from the New York State Department of State (NYS DOS) Local Waterfront Revitalization Program for restoring wetland habitat and providing public access to a 3.5-acre tidal cove in Harding Park at the mouth of the Bronx River. NYC Parks will replace historic fill and concrete with native salt marsh and coastal upland plant species. The project also includes an ADA-compliant public pathway from Underhill Avenue to a picnic and fishing area overlooking the Long Island Sound, opening an abandoned public space to the adjacent underserved communities. The restored wetlands will also reduce localized street flooding and improve local water quality by filtrating runoff.

We will continue to pursue unprecedented Federal and State funding to support our waterways work such as the Federal Climate Ready Coasts suite of programs and the NYS Restoration and Flood Risk Reduction program.

TRANSPORTATION

The Department of Transportation's Open Streets program transforms the city's streets, including East 4th Street in Brooklyn, into public space for all New Yorkers. Source: Department of Transportation

NYC has the highest sustainable mode share of any major city in the United States – as of fall 2022, 65% of trips were made by walking, transit, and biking.

Source: Department of Transportation, 2022

Transportation is key to our quality of life and unlocks economic opportunities – jobs, education, healthcare, and civic life. NYC has the highest sustainable mode share of any major U.S. city – as of fall 2022, 65% of trips were made by walking, transit, and biking.[240] Through the NYC Streets Plan,[241] we have promoted increased walking, biking, and transit, and through our Vision Zero Action Plans we have endeavored to make mobility safe for all.[242] Our sustainable transportation future will be determined by land use and density. We are reinvigorating our mass transit and walking-dependent business districts via the *Making New York Work for Everyone*, along with our commitment to 500,000 new housing units that will further support equitable and sustainable housing development.[243] These investments to further support the growth of our population, businesses, and jobs are at the core of our sustainability agenda and will lead to increased mobility across the city.

Our transportation investments will continue to build on the progress of the last 16 years to make our streets safer and more bike friendly, increase bus ridership, and reduce truck-related pollution. To date, we have redesigned more than 1,000 lane miles of streets and 16,000 intersections, decreasing pedestrian fatalities by more than 50% since the mid-1990s.[244] Our bike lane network has grown from approximately 600 lane miles in 2007 to 1,500 in 2022.[245] During this same timeframe, NYC has built the largest bike share system in North America.[246]

With our MTA partners, we have also dramatically expanded priority lanes for buses, installing 105 miles of bus lanes. Our Clean Trucks Program,[247] the Commercial Cargo Bicycle Program,[248] and the Off-Hour Deliveries Program are all improving the sustainability of our freight network, while improving the air we breathe.[249] In partnership with our State and Federal partners, we are working to reduce the negative impacts of Robert Moses-era highways, like the Cross Bronx Expressway and the Brooklyn Queens Expressway, which have divided communities for far too long.

Although we have made significant progress, the City will need to make further strides to meet our ambitious goal of net-zero transportation GHG emissions by 2050. To achieve this, we must advance two transitions simultaneously. First, we will find new ways to encourage more New Yorkers to choose walking, biking, and transit instead of driving so we can achieve a sustainable mode share of 80% by 2050. Second, we will aim to transition the remaining automobile trips to electric vehicles (EVs). This includes transforming our goods distribution system from primary reliance on heavy-duty diesel trucks to electric trucks, cargo e-bikes, rail, and waterborne transport.

The Central Business District Tolling Program, the first congestion pricing program in the United States, started as an initiative in the first *PlaNYC* (2007) and remains the most important step toward shifting trips to sustainable modes.[250] The City will continue to partner with the MTA in making buses better via the bus network redesigns, bus priority projects, and ensuring public safety in the subway system. The City will improve the pedestrian experience by reinventing our public space under the leadership of our first-ever Chief Public Realm Officer.

Lastly, we will encourage those who need to drive to choose electric vehicles (EVs). As we shift passengers to sustainable modes and EVs, we must do the same for freight with equal urgency. Heavy-duty diesel trucks are responsible for nearly half of all on-road tailpipe pollution in NYC and are key contributors to poor air quality.[251] The exhaust from diesel engines contains fine particulate matter (PM2.5), which is linked to acute and chronic health conditions. PM2.5 is responsible for 63% of deaths caused by the environment in the United States and has been linked to increased hospital admissions for heart and lung diseases, bronchitis, and worsening of asthma and chronic obstructive pulmonary disease.[252] As freight traffic increases, we must take steps to protect our air quality and improve health outcomes for our most vulnerable communities.

By reducing the number of polluting vehicles on the road as much as possible and investing in cleaner transportation alternatives like transit, walking, biking, and EVs, we will make our city more sustainable and healthier. We envision a city where all New Yorkers have access to reliable, affordable, and environmentally friendly transportation options.

OUR PLAN

Our plan will take polluting trucks off our streets; prioritize walking, biking, and public transit; ensure every New Yorker can access a bike or scooter; and help New Yorkers who must drive to drive electric. As we implement these actions, we need to ensure that the communities that suffer disproportionately from the health, economic, and social impacts of car and truck traffic benefit the most from the transition to a sustainable transportation future. We will seek out the most beneficial and safe enhancements to our streets, making NYC a safer, fairer, more welcoming, and more environmentally friendly place.

OUR TRANSPORTATION GOAL

We will cut transportation emissions in half by 2030 and ensure New York City's streets provide a safe, clean, and livable environment.

Get polluting trucks off NYC streets:

- Pilot the East Coast's first low-emission zone centered on environmental justice through incentives and other methods
- End unlawful truck idling
- Create shared charging depots by 2030 to support the transition to electric trucks
- Accelerate adoption of cargo bikes for deliveries by 2026
- Reactivate the marine highway by 2025 to move freight off trucks and onto waterways

Prioritize public transit, walking, and biking:

- Bring New Yorkers back to the transit system to achieve a sustainable mode share of 80% by 2050
- Implement congestion pricing and use it to promote environmental justice
- Transform our streets and public spaces under the leadership of the Chief Public Realm Officer
- Implement our ambitious bike, pedestrian, and Vision Zero infrastructure agenda
- Increase sidewalk cleanliness by expanding waste containerization

Ensure every New Yorker can access a bike or scooter:

- Create the next generation of bike lanes and facilities so every New Yorker can travel safely and efficiently
- Create thousands of secure public bike parking spots, starting in 2025
- Expand dockless e-scooter and e-bike share systems

Help New Yorkers who must drive to drive electric:

- Ensure every New Yorker is no more than 2.5 miles from an electric vehicle fast-charging hub by 2035
- Mandate private parking garages and lots to make electric vehicle charging available by 2030
- Transition taxis and for-hire vehicles to electric vehicles
- Electrify school buses by 2035

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Get polluting trucks off NYC streets

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE

Currently, 90% of goods destined for the five boroughs are transported by truck, and almost all of the trucks are diesel-powered.[253] The resulting air pollution impacts local health and exacerbates the global climate crisis. Our reliance on diesel trucks disproportionately burdens low-income communities of color adjacent to the city's industrial areas, which are now home to a growing concentration of last-mile delivery facilities.

- **Pilot the East Coast's first low-emission zone centered on environmental justice through incentives and other methods**

Other global cities, such as London, have used low-emission zones to catalyze shifts to sustainable modes and EVs. The City will explore ways to incentivize the use of low- and low/zero-emission trucks through the piloting of low-emission freight zones in areas with the highest concentration of truck traffic and the worst public health outcomes. The City will study a range of pricing, regulatory, and incentive options, and pilot a program to benefit one or more environmental justice communities by 2027.

- **End unlawful truck idling**

Truck idling leads to heavy air pollution that is often concentrated in environmental justice communities. NYC has the largest resident idling complaint program in the United States, and the only program that offers monetary incentivizes for reporting idling.[254] While the program has grown significantly, many large fleets continue to idle repeatedly. By 2024, we will implement a series of reforms to continue to increase participation and improve the program's effectiveness through increased fines, streamlined processes, and simplified participation. We will also seek out partnerships with fleets that commit to enforceable EV conversion timetables, because switching to EVs is the best way to reduce pollution from idling.

- **Create shared charging depots by 2030 to support the transition to electric trucks**

Large and small freight operators alike need access to charging depots in order to transition to EVs. The City will seek funding to develop shared electric charging depots for trucks and other medium-duty vehicles, accessible to any company. These charging depots will be developed through public-private partnerships. They will be strategically located next to truck routes and in areas such as Industrial Business Zones and existing freight hubs, with a goal of the first hubs being operational by 2030.

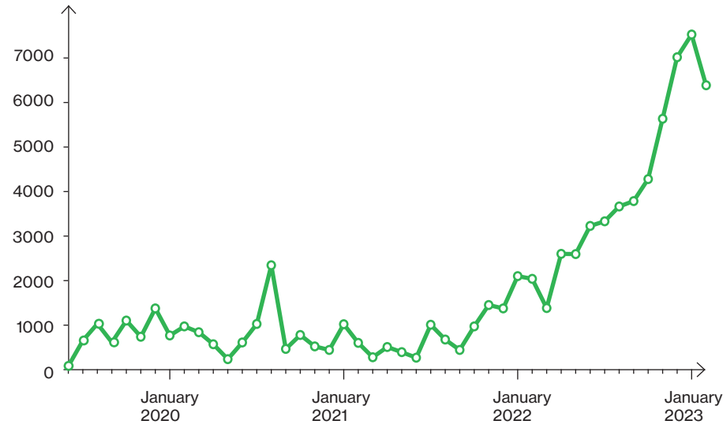
- **Accelerate adoption of cargo bikes for deliveries by 2026**

To transition local truck deliveries to the cleanest and most efficient technologies, the City will promote commercial cargo bikes for last-mile deliveries. Cargo bikes are an effective mode for last-mile goods delivery in NYC, and the number of cargo bike deliveries has increased dramatically since the launch of the Cargo Bike Pilot Program in 2019. In January 2021 alone, there were more than 45,000 cargo bike deliveries.[255] Building on the success of the existing program, we will seek Federal funding to create an incentive program for businesses to purchase cargo e-bikes and work with our City and State legislative partners to remove unnecessary barriers to deployment of commercial cargo e-bikes in NYC. These initiatives will help us meet a goal of growing participation in the NYC Department of Transportation (DOT) Commercial Cargo Bike program from 350 bikes in 2020 to 2,500 bikes by 2026.

- **Reactivate the marine highway by 2025 to move freight off trucks and onto water**

Many docks in NYC lack the docking infrastructure to enable freight movement by marine vessels. To address this challenge, by 2025, NYCEDC will activate six waterfront sites in Brooklyn, Manhattan, and the Bronx to create opportunities for a marine freight distribution network. This will catalyze the movement of freight away from trucks on crowded highways and streets to waterways, and facilitate the use of sustainable last-mile vehicles to get goods from dock to door.

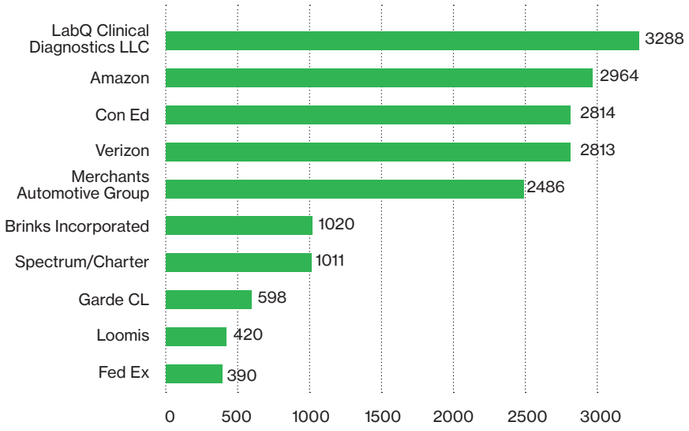
TRUCK IDLING TICKETS ISSUED



Truck idling leads to heavy air pollution, often concentrated in environmental justice communities. Tickets and complaints have risen in tandem with NYC's resident idling complaint program that provides payments for reporting idling.

Source: NYC Department of Environmental Protection, 2023

TRUCK IDLING – LARGEST OFFENDERS



Several of the largest truck idling tickets have been issued to freight and delivery services. The City will roll out a series of reforms to increase compliance with anti-idling rules and seek out partnerships with fleets that commit to EV conversion timetables.

Source: NYC Department of Environmental Protection, 2023

Truck idling leads to heavy air pollution, often concentrated in environmental justice communities (top). Cargo bikes have proven an effective, zero-carbon transportation mode for last-mile goods delivery in New York City (middle). The electrification of trucks, a major source of greenhouse gas emissions, is also key to reducing the carbon footprint of the freight industry (bottom).
Source: Department of Transportation

Mayor Eric Adams and NYC residents enjoying our Citi Bike network on a ride across the Harlem River Greenway. The City will continue to prioritize investments that support transit, walking, cycling, and vibrant public spaces. Source: Mayor's Office.

21

Prioritize public transit, walking, and biking

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
VITALITY & COMMUNITY
PROSPERITY

More than anywhere in the United States, New York City is a city of pedestrians, transit riders, and increasingly, cyclists. Our community gathers, moves, and plays on our streets and in our parks, public plazas, and other shared spaces. The City will continue to prioritize investments that support transit, walking, cycling, and vibrant public spaces, as these are central to our quality of life, economic vitality, and sustainable future.

- **Bring New Yorkers back to the transit system to achieve a sustainable mode share of 80% by 2050**

New York's subways, buses, and railroads will play a critical role in achieving a sustainable mode share of 80% by 2050. The disruptions of the COVID-19 pandemic suppressed ridership; subway and bus ridership have rebounded to roughly two-thirds of pre-pandemic levels.[256] To encourage riders to return to the transit system, we must do a better job to meet the needs of existing riders, including those with new commuting patterns, with faster, safer, and more affordable service. The City will continue to partner with MTA to deliver camera-enforced bus lanes, transit signal priority, and bus network redesigns to make buses a fast and reliable travel option. We will also continue to prioritize progress on subway safety, support affordable travel through programs like a $5 peak-period City Ticket, and through promoting enrollment in the City-funded Fair Fares discount program. We will also work with MTA to expand the OMNY fare payment system to NYC Ferry riders and Fair Fares participants.

- **Implement congestion pricing and use it to promote environmental justice**

The Central Business District Tolling Program, the official name for congestion pricing in NYC, will charge drivers a toll to enter Manhattan south of 60th Street. The program will create a powerful incentive for drivers to switch to transit, walking, or biking, while also providing essential revenue to fund the modernization of the regional transit system. The program also presents a once-in-a-generation opportunity to accelerate cleaning our air through the adoption of low- or zero-emission trucks. The City will advocate for congestion pricing implementation to incentivize zero-emission trucks, improved air quality in environmental justice communities, affordable access for low-income New Yorkers without transit options, and fair treatment for NYC taxis.

- **Transform our streets and public spaces under the leadership of the Chief Public Realm Officer**

In 2023, Mayor Adams appointed the City's first-ever Chief Public Realm Officer, who will work with City agencies, community organizations, and the private sector to create extraordinary public spaces across the entire city. This office will support DOT's efforts to invest $788 million to create and expand high-quality public spaces in all five boroughs, including the *Broadway Vision* plan, a full reconstruction of Jamaica Avenue from Sutphin Boulevard to Merrick Boulevard, and permanent upgrades to Open Streets in the Bronx and on Staten Island. This office will also lead the administration's work to deliver a permanent outdoor dining program, make it easier for community groups and the private sector to partner with the City to become stewards of public spaces, and break down barriers for City agencies to pilot innovative public space designs, including through advancing the Fifth Avenue visioning process and reactivating spaces under the Brooklyn Bridge for public use. The Chief Public Realm Officer will also address the longstanding issue of unsightly sidewalk construction sheds.

- **Implement our ambitious bike, pedestrian, and Vision Zero infrastructure agenda**

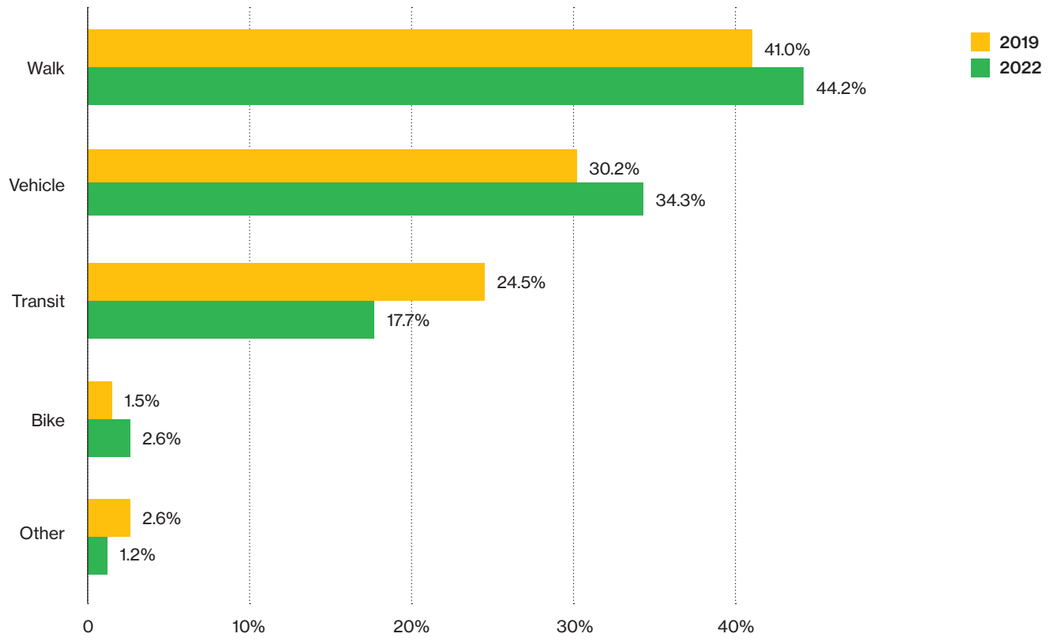
Every day, DOT's planners, designers, project managers, and construction teams are leading a transformation of New York City streets to create more space for safe walking and biking. Guided by the *NYC Streets Plan*, DOT will continue to transform our streets to make walking and biking safer, more pleasant, and more convenient through increased pedestrian safety redesigns, bike lanes, and other infrastructure upgrades. Equity and accessibility are guiding principles for this work, with investments focused on historically underserved neighborhoods and populations. A key component of all projects is public engagement, which provides the benefits of local knowledge and input.

- **Increase sidewalk cleanliness by expanding waste containerization**

In the wake of the COVID-19 pandemic, there is a growing need to create cityscapes that bring back businesses and residents. Both visible waste reduction on streets and reduced sanitation truck traffic have the potential to reshape our shared city spaces. By enhancing cleanliness, sidewalk space, air quality, and pedestrian-focused navigability, we can attract businesses and residents alike. While cities in Europe, Asia, and South America have introduced innovations in waste collection over the past two decades, New York City remains stuck in the past. Bags of trash sit on the curb awaiting collection, obstructing sidewalks, creating eyesores, and attracting rodents. Newly implemented operational changes to collect more waste earlier in the day have made meaningful improvements, but we can go a step further.

Last fall, the NYC Department of Sanitation (DSNY) launched a study of containerization practices and feasibility in New York City. This study will be released in spring 2023 and will highlight the challenges and opportunities for moving our waste to individual bins and shared on-street containers. DSNY will also build upon recent pilots of Clean Curbs containers in all five boroughs, testing new models of containerization at larger scales and in more neighborhoods, while building out a plan for expanded waste containerization initiatives.

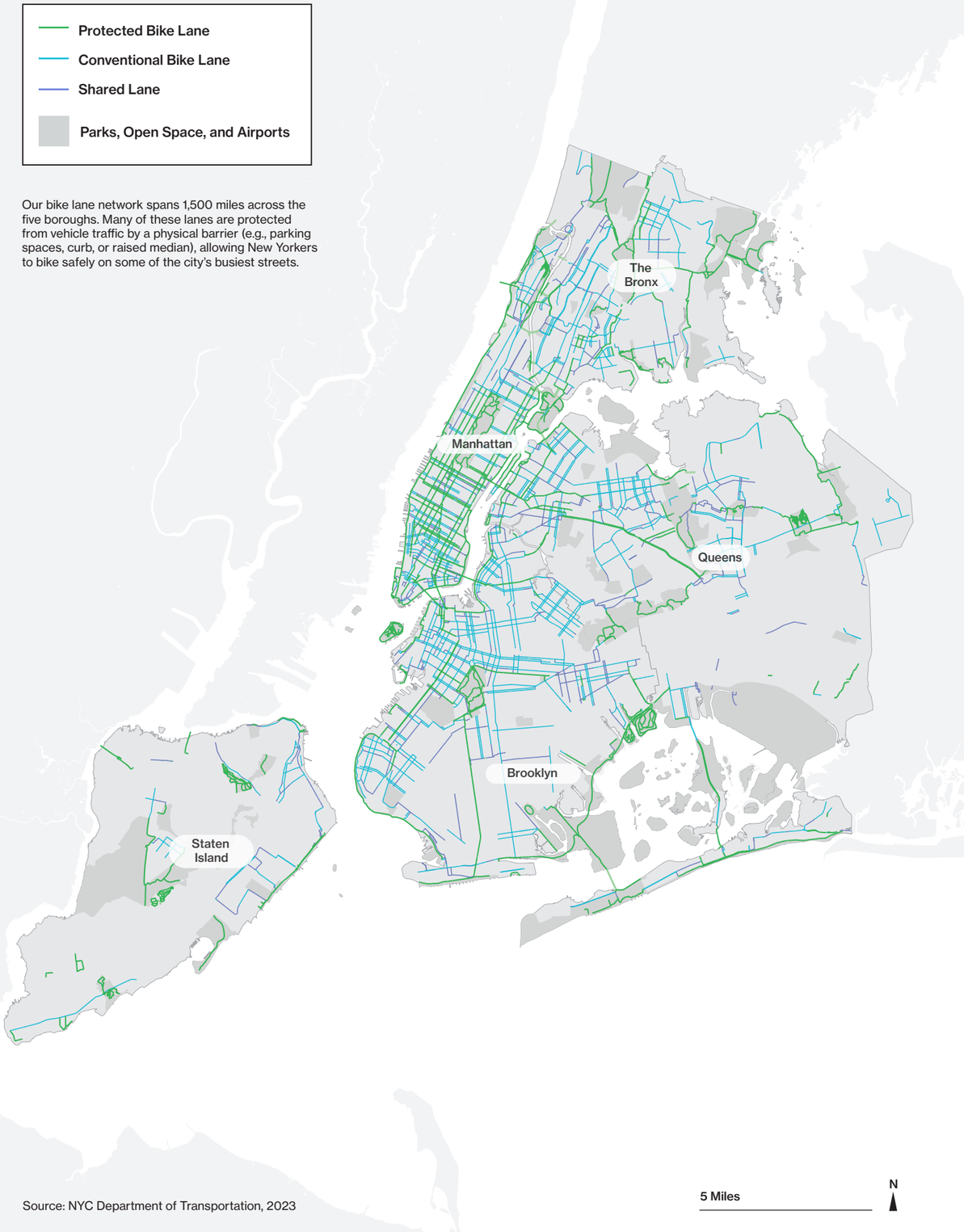
TRANSPORTATION MODE SHARE



NYC has the highest sustainable mode share of any major city in the United States. As of fall 2022, 65% of trips in the city were made by walking, transit, or biking. However, the share of vehicle usage increased from 30% to 34% between 2019 and 2022.

Source: NYC Department of Transportation, 2022

NYC'S BICYCLE NETWORK



Our bike lane network spans 1,500 miles across the five boroughs. Many of these lanes are protected from vehicle traffic by a physical barrier (e.g., parking spaces, curb, or raised median), allowing New Yorkers to bike safely on some of the city's busiest streets.

Source: NYC Department of Transportation, 2023

22

Ensure every New Yorker can access a bike or scooter

GHG EMISSIONS REDUCTION
HEALTH EQUITY | VITALITY & COMMUNITY

We are committed to increasing mobility for all New Yorkers, especially those underserved by transit. Many trips in NYC could be accomplished by bike or scooter, but many New Yorkers do not have secure storage space for them. Others may be unable to afford a new bike or scooter or may feel unsafe riding. Shared scooter and bike systems, increased secure bike parking, and improved cycling infrastructure can help more New Yorkers adopt cycling. We will expand opportunities for New Yorkers to access bikes and scooters safely and conveniently.

- **Create next generation bike lanes and facilities so every New Yorker can travel safely and efficiently**

New Yorkers continue to adopt micromobility, including e-bikes, cargo bikes, and standing e-scooters in increasing numbers. These devices offer a safe and convenient way to travel through the city. However, along with this growth comes a greater demand for space on the street, especially since these vehicles – and conventional bicycles – have varying sizes, weights, and speeds. To accommodate different users safely and comfortably, the City will develop and pilot different bike treatments on busy bike routes. These design updates may include wider or multiple bike lanes, bike lane passing zones, bike speed signal timing progressions, bike boulevards, improved curbside policies to reduce double parking, and added bike parking for different uses. Pilots will begin in 2023, and updated design guidelines will be released by 2027.

The East Bronx Shared E-Scooter Pilot provides Bronx residents with a low-emissions transportation alternative (top); Weather protected bike parking pods, like those used in London, promote year-round cycling for people who do not have indoor storage options (bottom). Source: Department of Transportation

- **Create thousands of secure public bike parking spots, starting in 2025**

The City will solicit proposals for vendors to pilot secure bike parking facilities to support and encourage cycling, including the use of e-bikes and cargo bikes. Providing curbside access to secure bike storage for residents who lack access to bike storage, including for oversized models and e-bikes, will promote more frequent use of bicycles for all trips. The program will also facilitate the use of cargo bikes for greener last-mile deliveries, improve first-mile connections to transit, and provide safe overnight storage for delivery workers.

- **Expand dockless e-scooter and e-bike share systems**

Dockless shared e-bikes and e-scooters can complement the Citi Bike system, the nation's largest bike share program. In 2021, NYC piloted dockless shared e-scooters in the East Bronx. Building on this successful pilot, the City will make this program permanent. In November 2022, DOT released a Request for Proposals (RFP) to continue e-scooter share service in the East Bronx when the current pilot ends in August 2023.[257] The RFP also allows for the expansion of micromobility services, including e-scooter and e-bike share, in other parts of NYC. The continued East Bronx program will launch this year, with the potential expansion launching in 2024.

SPOTLIGHT

Edmundo Martinez
Bike the Block

Launched during Bike Month in 2022, Bike the Block is a series of citywide Open Streets events focused on bicycle programming and education in transportation priority investment areas.

"I picked up biking seriously in 2011. My commute changed drastically. When I drove to work in Queens, it took up to an hour and a half each way. But when I switched to biking, it was 45 minutes.

Biking connected me to my borough more. I was riding around and recognizing what the Bronx wasn't getting in comparison to other places. I learned about advocacy and community boards. Cycling infrastructure has improved, but the Bronx is still lagging behind the other boroughs.

The City's Bike the Block event was held on the street that I grew up on. It was the first time River Avenue had been shut down to traffic. People of all ages were there to learn how to cycle and enjoy food and live music with their neighbors.

Many people ride out of necessity because they live in areas where transportation isn't readily available. Ten years ago, I was the only person in my circle who rode a bike. Now I know more cyclists than non-cyclists. Folks come from different places and have different lives. But if you're on a group ride, you're together, whether you're riding a beater or a two thousand dollar bike. My mom and son both ride. My mom always wanted a tricycle so she bought a red Schwinn tricycle with twenty-six-inch wheels."

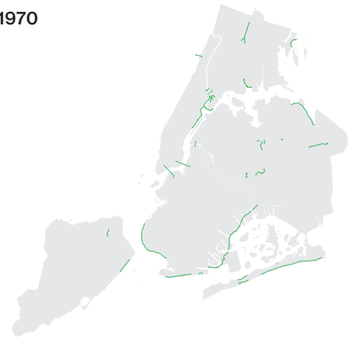
Edmundo Martinez,
resident of Soundview, Bronx

Source: Mayor's Office of Climate & Environmental Justice

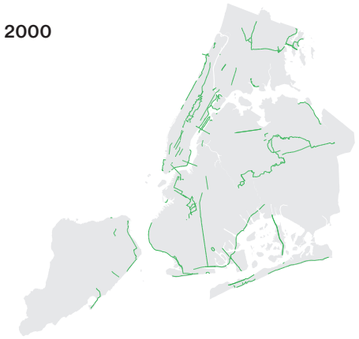
BIKE LANE EXPANSION OVER TIME

Our bike lane network has grown from approximately 600 lane miles in 2007 to 1,500 in 2022. In this period, NYC built the largest bike share system in North America.

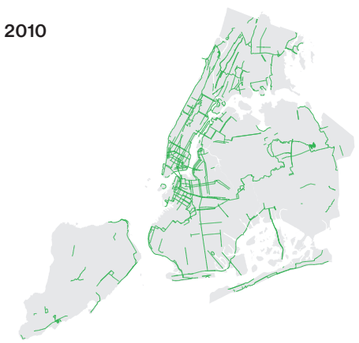
1970



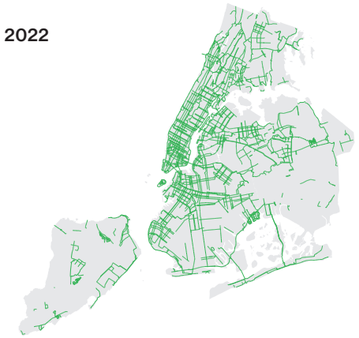
2000



2010



2022



Source: NYC Department of Transportation, 2022.

1. Delivery cargo bikes
2. Neighborhood loading zones
3. Secure bike parking
4. Citi Bike docks
5. Curbside EV charging
6. Electric bus
7. Bike lane

By getting as many polluting vehicles as possible off the road and investing in cleaner transportation alternatives like transit, walking, biking, and electric vehicles, we will be able to transform our city into an even more sustainable, healthy place. This is an illustrative graphic to highlight how this initiative might look and feel.

23

Help New Yorkers who must drive to drive electric

GHG EMISSIONS REDUCTION

HEALTH EQUITY

We will support New Yorkers in making the transition to cleaner alternative vehicles for when they do need to drive. We have already seen an upward trend of New York vehicle owners transitioning to EVs, especially as models at affordable price points become increasingly available. We are leading the way by electrifying City-owned fleets, and will advance New Yorkers' adoption of EVs by supporting development of citywide strategic charging infrastructure.

- **Ensure every New Yorker is no more than 2.5 miles from an electric vehicle fast charging hub by 2035**

For New Yorkers with private garages, high-speed Level 2 charging will be the most affordable and convenient EV charging option. However, about half of New Yorkers park curbside.[258] For this group to adopt EVs, they need to know they can access fast EV charging when needed.

A low-emissions future means it must be as easy to charge at the nearest EV charging hub as it is to fill up at a gas station. To promote this access, the City will collaborate with partners in the private sector, Con Edison, and other stakeholders to create a comprehensive network of publicly-accessible fast charging stations across the city. Large clusters of chargers will be located along major transportation corridors, in public parking facilities, and near key destinations. This network will reduce range anxiety, making it convenient for New Yorkers to quickly charge their EVs. The growth in charging infrastructure will also help to support the transition of for-hire vehicle fleets to EVs since taxi and for-hire vehicle drivers will be able to travel around the city knowing that they are never far from a fast, reliable, and available charger.

- **Mandate private parking garages and lots to make electric vehicle charging available by 2030**

Many New Yorkers would like to adopt EVs, but their regular parking spots are in garages that they do not control; charging investments are often controlled by building management companies or parking garage operators. A very small share of these spaces provide EV charging. The City will work with legislative partners to strengthen the requirements for private parking garages and lots to provide Level 2 EV charging and eliminate this barrier to EV adoption for many New Yorkers.

The Department of Transportation's Delancey and Essex Municipal Parking Garage in the Lower East Side neighborhood of Manhattan offers shared electric charging depots, promoting EV use. Source: Department of Transportation

- **Transition taxis and for-hire vehicles to electric vehicles**

NYC's approximate 13,500 taxis and 96,000 for-hire vehicles are a key component of our transportation system, enabling many New Yorkers to achieve high levels of mobility without owning a car.[259, 260] Vehicles licensed through the Taxi & Limousine Commission (TLC) make 250 million trips and produce approximately 600,000 metric tons of carbon dioxide a year – roughly 4% of citywide transportation emissions.[261] EV adoption by TLC-licensed industries would have a profound impact on reducing NYC's GHG emissions and improving air quality.

The City will support electric vehicle adoption of taxis and for-hire vehicles in several ways. TLC's High-Volume For-Hire Vehicle Green Rides Initiative will result in companies like Uber and Lyft making all trips in EVs by 2030, with an exception for trips in wheelchair-accessible vehicles. And TLC will work closely with drivers, for-hire vehicle companies, and other partner agencies to help drivers access EVs, adequate charging, and incentive programs. The City will help TLC licensees purchase EVs by seeking a funding source to create a targeted, limited-term vehicle purchase program to help close the purchase price gap between an EV and a traditional car. Lastly, as the City works with Federal, State, and private sector partners to increase fast and Level 2 charging for the public, we will focus on improving charging access for taxi and for-hire vehicle drivers near their homes, high-volume trip corridors, and popular destinations.

- **Electrify school buses by 2035**

More than 11,000 NYC school buses transport 150,000 students to school each day.[262, 263] These buses run on diesel fuel, generating GHG emissions that contribute to climate change and localized air pollution that can cause health impacts. To reduce these impacts, New York State set ambitious electrification goals for our school bus fleet to achieve including new buses to be electric starting in 2027 and a fully electric school bus fleet by 2035. The City will leverage State and Federal funding for electric buses, launch a training program for electric school bus operators, and incorporate electrification milestones into the 2025 contract renegotiations with school bus vendors.

LEVERAGING FEDERAL AND STATE FUNDING

Electric School Bus Grants

In 2022, the Environmental Protection Agency awarded NYC school bus operators $18.5 million in rebate funds from the Clean School Bus Rebate Program to purchase 51 electric school buses.[264] This initiative, alongside NYC School Bus Umbrella Services' (NYCSBUS) Vehicle-to-Grid EV School Bus Case Study, funded through an $8 million grant from New York State Energy Research and Development Authority, will kick off the electrification of the City's entire school bus fleet by 2035.[265]

To accelerate this electrification through a lens of environmental justice, NYCSBUS's case study will take place at the Zerega Avenue Depot in the Bronx, where the surrounding community ranks in the 98th percentile nationally for air pollution caused by diesel engines.[266] Electric school buses have zero tailpipe emissions, meaning they offer clean and healthy rides as well as quieter streets. The Zerega Avenue Case Study will also support training for electric school bus operators and mechanics to help build NYC's EV workforce. With this investment, NYC will help advance a burgeoning industry for medium- and heavy-duty EVs.

CITY LEADING BY EXAMPLE

Electrifying the City's Fleet

The City has made unprecedented progress transitioning its fleet to EVs. In September 2022, the New York City Department of Citywide Administrative Services (DCAS) reached its 2025 goal of replacing 4,000 fossil-fuel powered vehicles with EVs — three years ahead of schedule.[267] The transition to EVs improves air quality, reduces GHG emissions, and contributes to cost savings on maintenance and fuel for both the City and taxpayers. In January 2023, the administration announced more than $10 million in Federal grants to replace an additional 925 fleet vehicles with EVs and install 315 new EV chargers across the city.[268] DCAS will receive $6.2 million, and the remainder will be used by the New York City Department of Sanitation.[269] DCAS has ordered seven electric garbage trucks, seven all-electric sweepers, and 30 plug-in hybrid electric sweepers. DCAS also operates the largest EV charging network in New York State, with more than 1,500 charging ports available to fleet units.[270]

FOOD

The Brooklyn Grange, a rooftop farming and intensive green roofing business, operates three rooftop farms in Brooklyn and Queens, producing over 100,000 pounds of organically grown vegetables per year. Their newest and largest rooftop farm, which also serves as an event space, is located in Sunset Park, Brooklyn. Source: NYC Department of Environmental Protection

Food is the leading source of household consumption-based emissions in NYC, responsible for 27% of total emissions.[271] Reducing red meat in favor of plant-based foods like lentils, beans, fruits, vegetables, and whole grains will improve the health of New Yorkers, strengthen the health of our planet, and transform a system that incentivizes poor nutrition and negatively impacts natural resources. The way we grow and cook our food also makes a difference in our environment. Runoff from farms is a key source of water pollution across the United States, and within NYC, charbroilers and grills in restaurants are the largest single source of fine particulate air pollution.[272]

We have been a leader in transforming the food system for years. In 2008, the City recognized that diseases such as diabetes and cardiovascular disease were on the rise and that poor nutrition was a major contributor.[273] The City took the first step in promoting access to nutritious food for all New Yorkers and linking food to public health outcomes by establishing standards for meals purchased and served at public facilities. New York City was among the first cities to make school meals free to all public school students. And through our Good Food Purchasing Program, we provide public details about the food the City buys, including where food comes from at all stages of the supply chain, the carbon footprint of food purchases, and compliance with City food standards.[274] In 2021, we became the first U.S. city to join the Coolfood Pledge to measure and reduce our emissions associated with procured food by 25% by 2030.[275] In addition, the Mayor's Office of Food Policy established the City's first 10-year food policy plan, *Food Forward NYC*, to reach a more equitable, sustainable, and healthy food system by 2031.[276] In 2022, we took a bold new step by limiting the amount of red meat that could be served by City agencies and introducing minimum servings for plant-based proteins.[277] Going forward, we will incorporate food consumption and production patterns into our overall climate action agenda, with a special focus on the food that is grown in NYC's watershed.

CITY LEADING BY EXAMPLE

Farms at NYCHA

Farms at NYCHA is an urban agriculture initiative grounded in resident leadership and community collaboration; the farms not only expand healthy food access but also provide youth workforce and leadership development.

In 2013, the NYCHA Red Hook Houses campus launched the first farm, to build an outdoor community gathering place, produce something tangible and usable, and activate open space.[278] In addition to Red Hook Houses, there are now farms at Wagner Houses, Howard Houses, Bay View Houses, Forest Houses, Mariners Harbor Houses, and Pink Houses.[279] In 2021, NYCHA's seven farms produced 22,000 pounds of organic fresh vegetables, greens, and herbs.[280]

Green City Force (GCF), the largest partner of Farms at NYCHA, manages five farm sites as eco-hubs, which are closed-loop systems that support sustainability and health.[281] The farms are constructed and operated by 18- to 24-year-old NYCHA residents who are GCF AmeriCorps members.[282] These young residents serve other residents, create community ties, and learn gardening and hard skills in urban agriculture and green infrastructure maintenance, which gives them a deep understanding of sustainable communities rooted in social, economic, and environmental justice.

LEVERAGING FEDERAL AND STATE FUNDING

NYC Community Garden Water Management

In recent years, measures have been implemented to mitigate the impacts of citywide droughts; however, the vast majority of community gardens in NYC still access water from nearby fire hydrants to irrigate plants and vegetables.[283] The Bipartisan Infrastructure Law provided funding for watershed programs.[284] In 2022, the United States Department of Agriculture Natural Resources Conservation Service's Watershed and Flood Prevention Operations Program awarded more than $46 million in funding for water management to NYC community gardens.[285] The investment will subsidize critical on-site infrastructure improvements to ease water access to more than 200 food-producing GreenThumb community gardens under the jurisdiction of NYC Parks across the city. This investment in NYC's social infrastructure will allow thousands of volunteer land stewards citywide to grow more healthy and fresh food while providing vibrant green spaces for all New Yorkers.

OUR PLAN

Our plan will aim to reduce emissions from food grown by, purchased by, and served to New Yorkers. To address the emissions from agriculture, we will ensure City agencies comply with updated food standards; promote lower-carbon food purchases and healthier meals; work with the private sector to expand sustainable, carbon-capture farming practices; and provide resources for restaurants to upgrade their commercial cooking equipment. In doing so, we recognize that the norms of the food system have changed and that consuming delicious, healthy food is desirable for New Yorkers and the environment.

OUR FOOD GOAL

We will reduce carbon emissions from NYC's food system.

Reduce emissions of City agency food purchases 33% by 2030.

Promote reduction in institutional food-related emissions 25% by 2030.

Reduce emissions from commercial cooking:

- Require retrofitting of charbroilers by 2027
- Develop an NYC Restaurant Accelerator Program to assist businesses with compliance

Support NYC's watershed farmers in expanding sustainability practices and food production:

- Advance agricultural best management practices to improve GHG reduction and carbon sequestration
- Create an incentive program to support farmers in the NYC watershed who expand agricultural production of fruits and vegetables

CITY LEADING BY EXAMPLE

NYC's Updated Food Standards

NYC serves more than 238 million meals and snacks to some of its most vulnerable populations.[287] In 2022, Mayor Adams signed Executive Order 8, updating the City's Food Standards to align for the first-time with climate goals, nutritious food, and public health outcomes.[288] The City introduced Plant-Powered Fridays in schools,[289] and the plant-based option is the default in 11 public hospitals.[290]

The City is leading the way to reduce consumption-based emissions by changing how we procure, prepare, and serve food at public facilities while encouraging private sector partners to follow suit. This includes limiting servings of red meat and encouraging more plant-based meals under the following standards:[291]

- Require at least one serving of plant-based entrees featuring a whole or minimally processed plant-based protein (e.g., beans, lentils, peas, nuts, edamame, tofu) per week per meal type (except breakfast).
- Recommend two servings of plant-based entrees featuring whole or minimally processed plant-based protein per week per meal type.

Department of Education public schools offer vegan lunches on "Plant-Powered Fridays," part of its ongoing effort to support healthy and low-emission food offerings. Source: Mayor's Office

24

Reduce emissions of City agency food purchases 33% by 2030

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE

Carbon-intensive foods like red meat and dairy contribute to 81% of the annual GHG emissions of the City's food purchases.[286] Starting in July 2023, the City will require agencies to meet its updated Food Standards for meals and snacks purchased and served. Each year, the Mayor's Office of Food Policy (MOFP) will analyze procurement data reported by City agencies and report on GHG emissions reductions. MOFP will provide City agencies with resources and data to make positive shifts toward healthier, less carbon-intensive food options. These resources include culinary training, new plant-based menu development, and continued education and promotion of the benefits of low-carbon food options. By taking these steps, the City will reduce its total GHG emissions for foods purchased by 33% from its 2019 baseline.

25

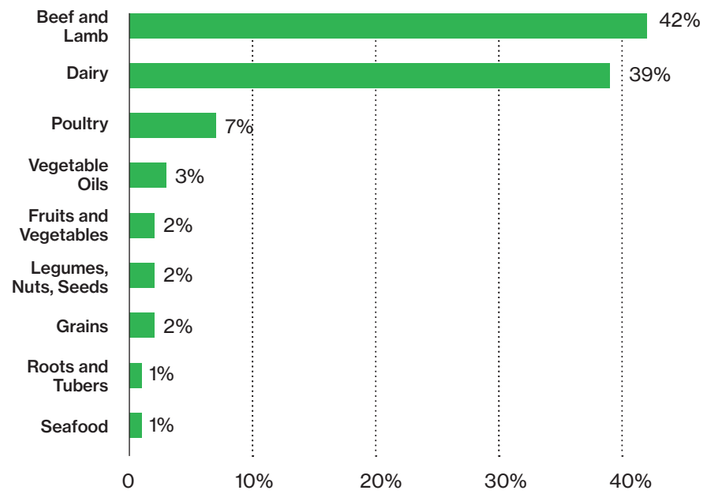
Promote reduction in institutional food-related emissions by 25% by 2030

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE

As the City shifts the way we buy food to reduce emissions, we will encourage institutional sector food providers – hospitals, universities, and corporations – to follow our lead and make similar changes. We will challenge leaders in private, institutional, and nonprofit sectors to voluntarily commit to decarbonizing food purchases 25% by 2030. MOFP will provide educational resources to help participants measure the carbon footprint of their existing procurement practices, develop a plan for meeting the carbon reduction target, and create more healthy, delicious, plant-based meals.

Fresh produce is good for New Yorkers' health and for our environment, especially when transferred using a reusable bag. Source: Mayor's Office of Food Policy

EMISSIONS BY FOOD TYPE (METRIC TONS CARBON DIOXIDE EQUIVALENT)
2019 Baseline of the City's Food Purchases



Source: Mayor's Office of Food Policy, 2018–2019

Meat, fish, and dairy are more carbon-intensive than plant-based foods. Reducing red meat in favor of plant-based foods like lentils, beans, fruits, vegetables, and whole grains will decrease citywide carbon emissions.

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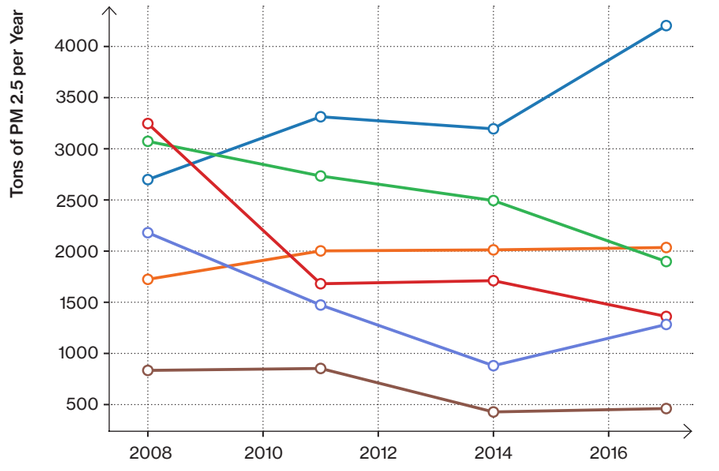
Reduce emissions from commercial cooking

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE

Commercial cooking, specifically charbroiling, accounts for almost 40% of local fine particulate (PM2.5) emissions in New York City.[292] These emissions contribute to a multitude of health issues, including asthma, heart disease, and lung cancer.[293] Additionally, 12% of the city's black carbon emissions – the black sooty material emitted from burning fossil fuels – come from restaurants.[294] Reducing these emissions could prevent more than 300 deaths and 200 emergency room visits every year.[295] We are primed to address this significant source of air and GHG pollution through the 2016 Air Code regulations that will require appropriate emissions control in establishments with a high volume of charbroiling.[296]

SOURCES OF PM2.5



This chart shows various sources of fine particulates (PM2.5) between 2008-2017. Commercial cooking is the leading source of this type of pollution and has increased over time, largely due to charbroiler use.

Source: NYC Community Air Survey, 2021

The Department of Environmental Protection launched a pilot program to use rotational grazing instead of mechanical mowing to manage some grassy fields, including on this farm in Neversink Damn, Sullivan County. Source: Department of Environmental Protection

● Require retrofitting of charbroilers by 2027

Phasing in appropriate mitigation policies requires thoughtful implementation by DEP in collaboration with both the restaurant and emissions control industries. By December 2024, DEP commits to enacting a rule to require retrofitting of existing but uncontrolled under-fired charbroilers. Enforcement of the rule would start in December 2027 to give the restaurant industry time to come into compliance with the rule. Charbroilers will require an emission control device that reduces particulate matter emissions by at least 75%.[297] While a handful of regulators at the State and local level have passed similar regulations, none have achieved widespread compliance due to barriers that include availability of technology, cost, and complexity of installation.

Mercy Center, a Bronx-based organization that serves underprivileged New Yorkers, addresses food insecurity by distributing healthy and sustainable produce. Source: Mayor's Office

● Develop an NYC Restaurant Accelerator Program to assist businesses with compliance

We recognize that there are barriers to compliance with new emissions regulations for restaurants, including the limited availability of applicable technologies and significant expenses for retrofitting equipment that can range from $50,000 to $225,000 with installation costs.

In response, the City is committed to developing and seeking funding for an innovative NYC Restaurant Accelerator Program that will provide businesses facing financial hardship with a needs assessment, technical support, and an approach to securing grant funding to help make our commercial cooking infrastructure more sustainable. DEP and other agencies will engage with small businesses, industry, and other stakeholders throughout the development of the NYC Restaurant Accelerator Program.

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Support NYC's watershed farmers in expanding sustainability practices and food production

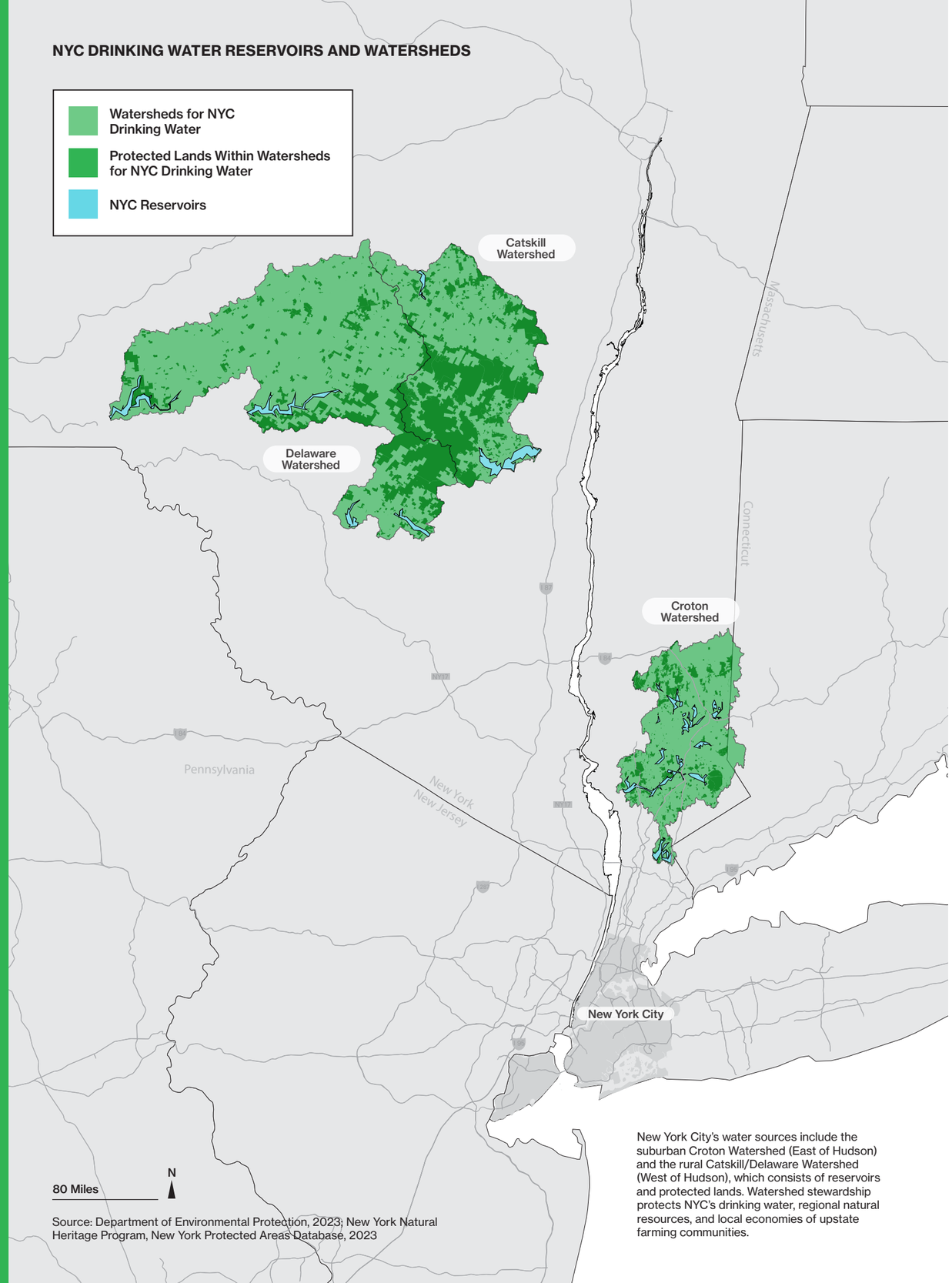
GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE

Since 1992, DEP has operated under the Filtration Avoidance Determination to support farmers, foresters, and food producers across the watershed. The City has invested approximately $400 million in helping watershed farmers adopt sustainable land use and water quality-safe farming practices through a partnership with the locally run Watershed Agricultural Council (WAC).[298, 299]

We will leverage our partnership with WAC to support the reduction in carbon emissions from agricultural operations and promote plant-based food production. These initiatives will help us maintain the highest quality water while enhancing the operations of the farmers that operate around DEP's reservoirs.

● Advance agricultural best management practices to improve GHG reduction and carbon sequestration

Many of these best management practices (BMPs) have climate benefits, in addition to water quality benefits. We will partner with WAC and the Columbia Climate School to research the amount of GHG reduction and carbon capture being achieved through the best management practices currently used in the watershed. This will inform how best to adapt existing practices and implement new BMPs that can foster regenerative



Source: Department of Environmental Protection, 2023; New York Natural Heritage Program, New York Protected Areas Database, 2023

New York City's water sources include the suburban Croton Watershed (East of Hudson) and the rural Catskill/Delaware Watershed (West of Hudson), which consists of reservoirs and protected lands. Watershed stewardship protects NYC's drinking water, regional natural resources, and local economies of upstate farming communities.

farming, soil remediation, and other carbon sequestration approaches that are aligned with water quality objectives. Understanding which BMPs are most effective in mitigating climate change will inform farmers seeking to achieve more sustainable operations. The success of these climate-friendly BMPs could be replicated at urban farms within the five boroughs or at City-owned sites.

- **Create an incentive program to support farmers in the NYC watershed who expand agricultural production of fruits and vegetables**

It takes resources for farmers to expand climate-beneficial agricultural practices and food production. They may need technical and financial support to advance changes in their operations. DEP funds agricultural, forestry, and economic viability programs, carried out by WAC, for farmers in the West-of-Hudson watershed. This allows the City to protect water quality while supporting agricultural sectors in upstate New York. Through our partnership with WAC, we will seek to assist farmers in the watershed who expand their production of fruits and vegetables.

We will also leverage DEP's existing funding for activities such as marketing, training, event planning, and staffing, which help farmers connect with buyers and expand their markets. The City will continue to fund Pure Catskills, WAC's regional buy-local campaign that promotes hundreds of farming, forestry, and local businesses throughout New York's upstate counties.[300] Pure Catskills, which had 325 members in 2022, will help farmers make connections with local and downstate customers and wholesale buyers looking to purchase regionally grown produce.[301]

SPOTLIGHT

Eleanor Blakeslee-Drain *Watershed Agricultural Council*

Berry Brook Farm is in WAC's conservation easement program, which works with farm and forest landowners in the New York City watershed to protect water quality on behalf of New York City residents.

"My husband and I don't come from farming families, so we didn't have a hereditary claim to an existing farm. We were able to buy Berry Brook because of a conservation easement. It made the farm cheaper because the development rights belong to the Watershed Agricultural Council and it gave the prior owners, who were dairy farmers, money when they sold the rights.

We grow organic vegetables and sell mostly at farmers markets upstate. We are about to sell in two markets in New York City.

All the water on our property goes into the West Branch of the Delaware, which goes straight into the Cannonsville Reservoir. The system that gets unfiltered water to the biggest city in the country is excellent, but we've taken resources from the area. The reservoirs are in the lowest land, which is the best farmland. That was taken 180 years ago from our communities by eminent domain. The City has a responsibility to support upstate agriculture and infrastructure. We have talked to our kids about where the water from our streams ends up. We were just in the City and we went to the American Museum of Natural History. We were filling up our water bottles at the fountain and I said, 'This water came from our farm. This is the same water we drink.' He understood it."

Eleanor Blakeslee-Drain, co-farmer with her husband Patrick Hennebery of Berry Brook Farm in Hamden, New York, which is a member of Pure Catskills.

Source: Mayor's Office of Climate & Environmental Justice

Building the Green Economic Engine

GREEN ECONOMY

WASTE & CIRCULAR ECONOMY

This is a once-in-a-generation opportunity for the City, State, and Federal governments to leverage public and private investments and local innovation to transform our economy into one that is more sustainable, resilient, and equitable. Through a climate-smart transition, we can create new opportunities for growth and evolution across multiple industries in New York City and our entire country. For example, we can fuel the expansion of established industries like construction while also accelerating the development of cutting-edge technologies such as battery storage for renewable energy. We can also support and propel new and emerging sectors such as offshore wind. Our shift towards a more circular economy, one that eliminates unnecessary waste and produces goods in a sustainable manner, is a critical component of this transformation. By embracing these changes, we can position our city to better adapt to and mitigate the impacts of climate change while simultaneously creating new jobs and opportunities for a skilled workforce in the green and circular economies. We are committed to seizing this moment and driving sustainable and equitable growth for generations to come.

Construction of Wildflower Studios, a new film studio in Astoria, Queens, will include the installation of 150,000 square feet of solar panels and create green economy jobs.

Source: Mayor's Office

GREEN ECONOMY

Thomas Edison High School is one the largest career and technical education schools in New York City. It is an example of the City's success investing in educating the green workforce of the future. Source: Department of Education

The green economy represents industries and workers that are contributing to our decarbonization and environmental goals. Growing the green economy will unlock enormous investments while creating a strong and resilient city for future generations. It means investing in public education and training to prepare students for green jobs, more well-paying and accessible jobs, and a supportive landscape for small and expanding businesses. The green economy will generate new businesses, industries, institutions, products, and technologies while also creating pathways for traditional companies to transition away from carbon- and waste-intensive processes toward low-carbon or net-zero solutions. These transformations will be a boon to New York City's large and diverse base of entrepreneurs and workers who can help discover and scale climate solutions.

Since the release of the first *PlaNYC* in 2007, the City's green economy has grown substantially. In 2021 there were at least 140,000 New Yorkers employed in the green economy with key employment clusters in the building decarbonization, renewable energy, climate adaptation, green finance, and waste management industries.[302] We are planning creatively across several interlocking areas of focus – climate, public education, economy, infrastructure, and housing – to accelerate job and investment growth, including through the recent release of three plans: *Rebuild, Renew, Reinvent*,[303] *Get Stuff Built*,[304] and *Housing our Neighbors: A Blueprint for Housing and Homelessness*.[305] These plans, coupled with public and private sector actions and changes in consumer preferences, could expand the green economy to employ more than 230,000 New Yorkers by 2030. Many of these opportunities will be new jobs created specifically to meet the needs of the green economy, while others will be the result of traditional jobs evolving into green jobs.

This *PlaNYC* builds on past work to lay out a holistic vision for how New York City can promote a strong and equitable economy as it responds to the challenges of climate change. New York City is well positioned to maximize economic opportunity from the transition to a green economy. We have pioneered many green practices in the urban environment and are continually expanding the opportunities offered by green economic growth. We seek to align Federal, State, and City funding opportunities to make significant impacts in climate education, resilience, decarbonization, and workforce development. We are leveraging City-owned assets to test ideas and partner with the private sector on green technologies. And we are communicating and branding New York City as a place where everyone has opportunities to make a living while supporting better environmental outcomes.

CITY LEADING BY EXAMPLE

NYC Solar Schools Program

In 2022, the Department of Education (DOE) added 10 new solar photovoltaic installations for nearly 2.6 megawatts of clean energy as part of its New York City (NYC) Solar Schools Program.[307] There are currently 69 total solar schools contributing 14.2 megawatts and another 5.6 megawatts in construction.[308] This collaborative program between DOE and the Department of Citywide Administrative Services (DCAS) goes beyond investment in physical infrastructure; DOE also provides free professional learning for any interested public school teacher in partnership with the local nonprofit Solar One. Additionally, a Solar Career and Technical Education (CTE) Program is active in 14 CTE high schools citywide to date, integrating concepts of clean energy and the solar installation industry to existing courses in the construction, engineering, and electrical trades.[309] Students receive hands-on technical instruction, job skills training, and access to work-based learning opportunities to help prepare them for careers in the burgeoning green energy industry or college. At the Thomas A. Edison CTE High School in Queens, for example, the Solar CTE program is a robust offering for students on the electrical learning track.[310] Having solar installations as a lens for learning provides students with real-world skill development that will help prepare them for jobs and careers in the green economy.

OUR PLAN

Our plan recognizes that the future of our green economy, and our ability to create and capture the enormous investment in a just transition, will require both transformation and invention. The City will rigorously chart the path to prepare New Yorkers of all backgrounds to work on the frontlines of sustainability and resilience investments and businesses. We will advance critical new technologies, some of which have demonstrated their value in other markets but have yet to penetrate the NYC market, and others that are only on the cusp of research, development, and commercialization. We will work with Federal, State, and local governments to harness policies and generational investments across green industries including energy storage, embodied carbon, and energy efficiency.

Our initiatives will help address disparities in access and support economically vulnerable New Yorkers facing significant barriers to gainful employment. Through NYC Public Schools, private and nonprofit partners, and the City University of New York (CUNY) post-secondary programs, we will focus on training the next generation of workers for the jobs of the future to meet greenhouse gas emissions reduction goals, fill talent gaps, and ensure equitable pathways into jobs with high economic mobility.

In addition, through new public-private partnerships focused on sustainable construction; building energy efficiency; and renewable energy generation, storage, and charging, we will expand the number and success of small and startup Minority, Woman, Disadvantaged Business Enterprise (M/W/DBE) and Service-Disabled Veteran-Owned Businesses that are creating or implementing innovative climate technology solutions. We will activate our vast portfolio of City-owned or -managed real estate assets – nearly 500 million square feet in total – to support piloting, deployment, and scaling for both traditional and innovative green economy solutions.[306] New York City will be a leader in green economy and climate tech solutions, propelled by our historic investments and bold commitments to resilience and sustainability.

OUR GREEN ECONOMY GOAL

We will accelerate an equitable green economy transition by advancing climate education, work, and entrepreneurship opportunities.

Launch new climate education and training programs for public schools:

- Integrate climate education in public school classrooms across all subjects and grade levels
- Launch new Career Connected Learning Programs for public school students dedicated to green job training and placement

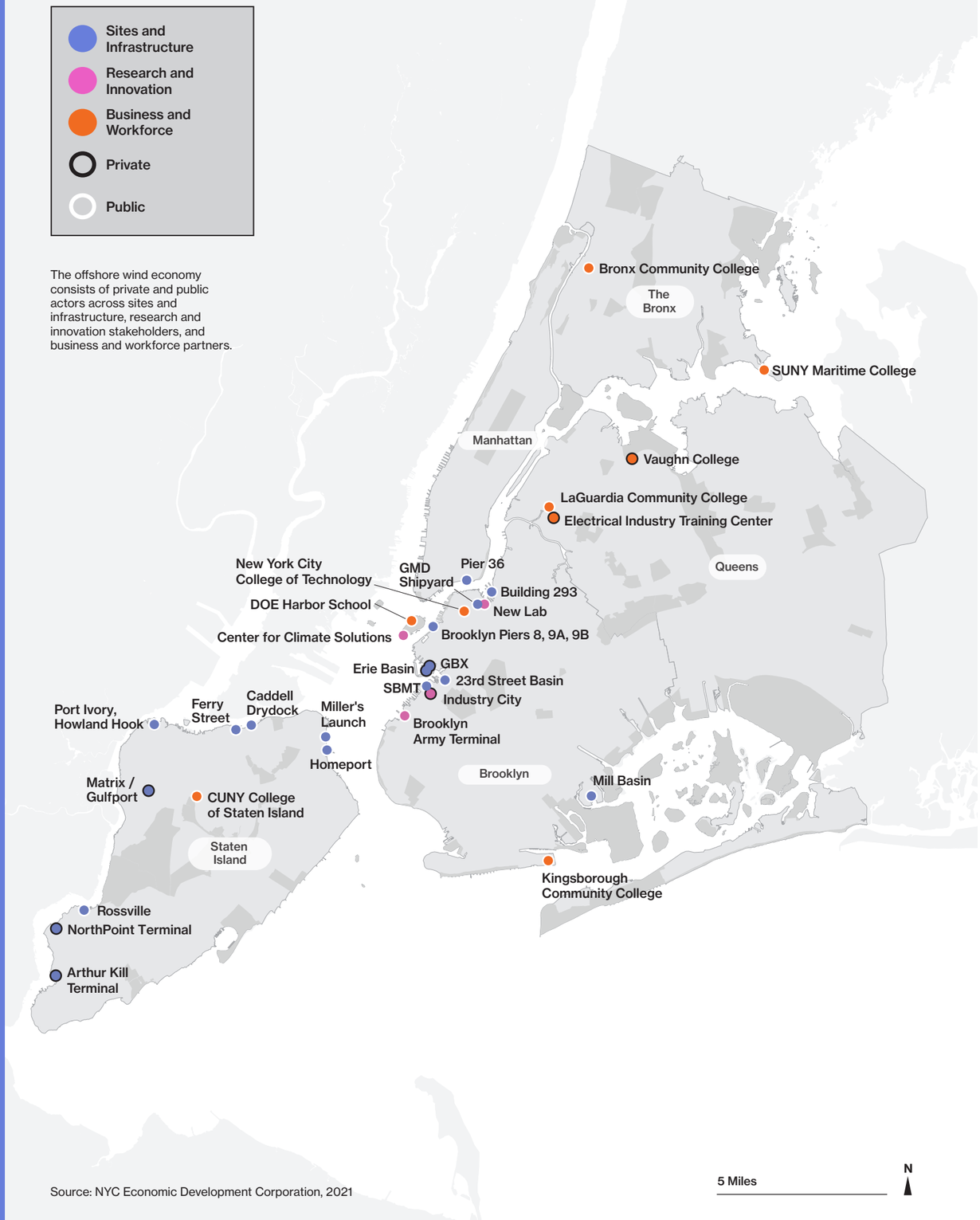
Grow NYC's green workforce:

- Position New Yorkers for fulfilling green economy careers
- Cultivate the offshore wind sector to provide residents with opportunities for economic mobility
- Establish a Green Economy Advisory Council in 2023
- Activate NYC's climate resource hubs and natural areas for workforce development

Support entrepreneurship and industry innovation:

- Launch new partnerships and projects in 2023 to support the growth of sustainability-focused biotechnology and materials innovation
- Launch and expand climate technology innovation, commercialization, and scaling opportunities across local industries
- Launch portal to connect public agencies with private startups and investors by 2024
- Provide resources to attract international investments in climate technologies

MAP OF OFFSHORE WIND PARTNER ORGANIZATIONS



The offshore wind economy consists of private and public actors across sites and infrastructure, research and innovation stakeholders, and business and workforce partners.

Source: NYC Economic Development Corporation, 2021

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Launch new climate education and training programs for public schools

PROSPERITY

Education plays a key role in building climate literacy and encouraging sustainable behaviors. Our plan is to implement a strong set of educational and training programs that will empower our youth to be at the center of the green economy. We will accomplish this by training our educators in the latest climate science and technology. We will create new opportunities where climate education is part of the solution in helping the City meet our decarbonization, resilience, and just transition goals.

- **Integrate climate education in public school classrooms across all subjects and grade levels**

The Department of Education (DOE) will lead the integration of climate education and action across all subjects and grade levels through new educator training. A teacher leadership team of up to 50 teacher-leaders across different schools will provide up to 1,000 educators with professional development through climate education trainings, workshops, and programs. DOE will also establish a school certification program for climate education, supporting up to 25 schools per year in achieving climate credentials. Additionally, DOE will launch its inaugural Climate Action Day in all public schools in the 2023-2024 school year, showcasing the importance of climate education and sustainability practices.

- **Launch new Career-Connected Learning Programs for public school students dedicated to green job training and placement**

By 2024, DOE will launch new Career-Connected Learning Programs to prepare public school students for careers in the green economy. Career-Connected Learning integrates academic excellence with real-world skills and experience, helping students build a strong foundation for a rewarding career. The programs will build on the City's Career and Technical Education (CTE) schools and two successful pilot programs launched during the 2022–2023 school year: FutureReady NYC and Career Readiness and Modern Youth Apprenticeship. Through new and expanded Career-Connected Learning Programs, more than 1,000 students will have access to DOE's career exploration and work-based learning opportunities across the next three school years with a focus on climate sustainability, resilience, and the green economy.

NYC schools expose our youth to sustainable practices through hands-on learning in community gardens.
Source: Department of Environmental Protection

The Jamaica Bay Wetlands Fellowship is a paid 6-month job training program for young adults focused on skills related to wetlands maintenance, monitoring, and restoration (top). The Electrical Industry Training Center in Long Island City, Queens offers hands-on training that prepares workers for emerging solar infrastructure jobs among other green economy opportunities (bottom). Sources: Jamaica Bay Parks Conservancy; Mayor's Office

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Grow NYC's green workforce

GHG EMISSIONS REDUCTION
ENVIRONMENTAL JUSTICE
PROSPERITY

Our plan will advance green workforce development with an emphasis on underserved and environmental justice communities. We will support skills-based and industry specific training to enhance the economic mobility of unemployed and underemployed New Yorkers and prepare them for strong career pathways with family-sustaining wages.

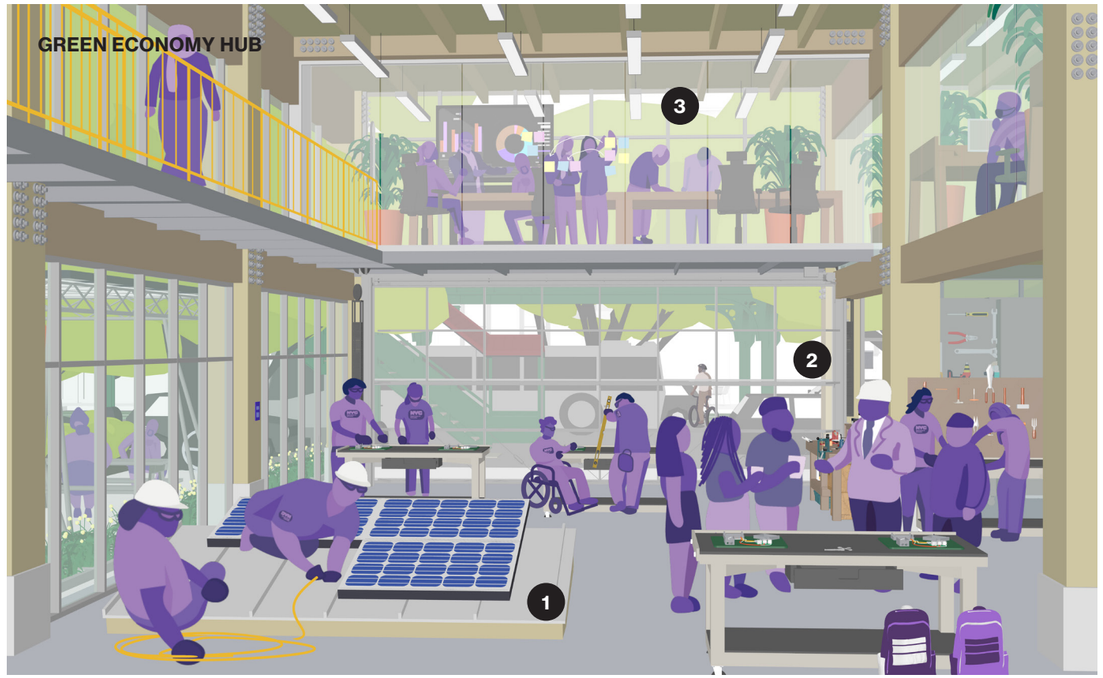
- **Position New Yorkers for fulfilling green economy careers**

This year, the City will release a comprehensive green economy industry action plan that will highlight priority industries, identify in-demand skills and occupations, and recommend actionable opportunities, partnerships, and interventions to help create an equitable green workforce. The action plan will identify viable pathways for New Yorkers to take advantage of the opportunities created by public, private, and philanthropic investment in growing climate innovation. Using these insights, we will launch new talent development programs, including occupational training and apprenticeships that promote economic mobility for New Yorkers through green economy jobs. The City will work with industry, educational institutions, and nonprofit training providers to develop pathways that match local talent to promising opportunities in the green economy and address skill gaps and needs in the workforce. Using data analysis and stakeholder feedback, we will ensure that investments are directed to sectors and occupations that will benefit New Yorkers the most.

Transformations taking shape in our most carbon-intensive industries, such as the implementation of Local Law 97 and the growing adoption of electric vehicles, will also spur the demand for new skills and new jobs. We will work with training providers, unions, and industry representatives to deliver trainings and certifications that help fulfill this growing demand and accelerate decarbonization.

- **Cultivate the offshore wind sector to provide residents with opportunities for economic mobility**

The recent auctioning of offshore wind development rights in the North Atlantic has given New York City an opportunity to expand its own local offshore wind sector. Delivering on NYCEDC's Offshore Wind Plan, investments in the offshore wind



The illustration shows potential components of a green economy hub. The City will advance education, talent development, and critical new technologies and innovations for climate sustainability and resilience investments.

1. Hands-on technical training for green economy jobs
2. Climate education for public school students
3. Space to test and scale transformative climate technologies

GREEN ECONOMY SECTORS

INDUSTRY	SECTOR
ENERGY	Renewable Energy
	Clean Fuels
	Smart Grid
	Storage
BUILDINGS	Building Decarbonization
	Sustainable Building Materials
TRANSPORTATION	Electric Vehicles
	Micromobility
	Green Freight and Logistics
WASTE	Reuse
	Recycling and Composting
CONSUMER PRODUCTS	Sustainable Food
	Sustainable Fashion
FINANCE & CONSULTING	Green Finance
	Climate Consulting & Accounting
CLIMATE ADAPTATION	Resilience Infrastructure
POLICY AND ADVOCACY	Sustainability Policy, Planning & Advocacy

NYC GREEN ECONOMY JOBS

~140,000
2021 Baseline Job Numbers

~230,000
2030 Forecast Job Numbers

In 2021, there were at least 140,000 New Yorkers employed in the green economy with key employment clusters in the building decarbonization, renewable energy, climate adaptation, green finance, and waste management industries. The City's efforts to grow the green economy, coupled with private sector actions and changes in consumer preferences, could expand the green economy to employ over 230,000 New Yorkers by 2030.

Source: NYC Economic Development Corporation, 2023

ecosystem will create 8,000 to 13,000 new jobs across multiple industries in New York City by 2035, including jobs that help meet new power generation, supply chain, and local business needs. Many of these new jobs will be focused in green economy sectors, including through component manufacturing and support of M/W/DBEs in construction and professional services as they pivot to meet demand in the offshore wind industry.[311]

The City will also partner with CUNY campuses to develop facilities and programming to train students for jobs in offshore wind, including as skilled machinists, fabricators, engineers, environmental scientists, and wind technicians. As an example of our workforce commitment to local communities, we are partnering with Equinor and the Sunset Park community to deploy $5 million in grants. These grants will support sustainable growth, empower underserved communities, and lead to climate justice in the offshore wind ecosystem in New York City.

- **Establish a Green Economy Advisory Council in 2023**

The City will establish a Green Economy Advisory Council made up of key stakeholders from across industry, academia, government, non-governmental organizations, and workforce organizations with representation from all five boroughs. The Council will advise policy makers and other stakeholders on long-term industry growth and identify potential bottlenecks hindering decarbonization. The Council will provide expertise and enable partnerships that the City needs to ensure industry is working in tandem with government to decarbonize all sectors of the economy, build efficient supply chains, and adapt to climate change. The Council will also build consensus around key ecosystem gaps and opportunities through the formation of subcommittees with focus areas such as climate finance, innovation, and education.

Mayor Adams announced the City-owned South Brooklyn Marine Terminal's transformation into one of the largest offshore wind port facilities in the nation. The South Brooklyn Marine Terminal will generate a substantial number of green economy jobs and help the City achieve our nation-leading climate goals. Source: New York City Economic Development Corporation.

- **Activate NYC's climate resource hubs and natural areas for workforce development**

The City is partnering with diverse educational institutions to train and educate New Yorkers for green economy jobs and to foster entrepreneurship in the climate and environmental science sectors through climate research and workforce hubs. These programs and partnerships will be hosted at new and repurposed buildings on campuses where talent from across these sectors can interact, share ideas, and generate solutions for real-world climate problems. These hubs will provide opportunities to generate research, new products and services, and knowledge that can be commercialized locally, nationally, and internationally. Along with growing green jobs, our efforts will support the critical work needed to restore ecosystems and preserve endangered species.

One example of the City implementing an innovative campus concept is the Trust for Governors Island, which is expected to select an academic anchor institution this year for its Center for Climate Solutions.[312] The new center is planning to house research and educational space. Proposed programming includes new educational degrees, workforce development offerings in green economy sectors, opportunities for people to interact with the harbor, and construction that incorporates sustainability and resilience best practices.

A consortium at Floyd Bennett Field in Jamaica Bay is an example of good work already being done. This consortium is repurposing historic buildings and delivering programs that support ecological education; training for green jobs in biology, ecology, planning, and environmental sciences; and areas for coastal resilience experimentation and research.[313] Partners include the National Park Service, CUNY, the Science and Resilience Institute at Jamaica Bay, and the Jamaica Bay-Rockaway Parks Conservancy.

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Support entrepreneurship and industry innovation

GHG EMISSIONS REDUCTION
PROSPERITY

New York City needs bold new ideas to help the city's economy recover following the COVID-19 pandemic and to attract new innovators that are advancing climate technologies and the transition to cleaner energy. The City has a robust landscape of incubators and accelerators to support startups and emerging businesses. Our plan builds on commitments articulated in the December 2022 *Making New York Work for Everyone* report, a State and City collaborative vision for NYC's post-pandemic future.[314] This plan focuses on specific opportunities

to support climate entrepreneurship in areas such as biotechnology, building technologies (also known as proptech) and energy storage through piloting opportunities with a focus on supporting startups and M/W/DBE entrepreneurs who face hurdles to bringing products to market.

- **Launch new partnerships and projects in 2023 to support the growth of sustainability-focused biotechnology and materials innovation**

Earlier this year, we announced an initiative to make biotechnology the basis of new climate and sustainability innovations and bring solutions to market that will address our growing climate and sustainability challenges. The initiative will focus on three key subsectors: materials, food and agriculture, including alternative proteins and bioenergy. As a part of this focus, NYCEDC, in partnership with the Brooklyn Navy Yard and Newlab, announced a first of its kind 50,000-square-foot innovation space for companies using biotechnology to transform food, materials, and the environment.[315] This space will provide offices, research laboratories, events, and programming to support the growth of sustainability-focused biotechnology startups and companies, with an emphasis on creating opportunities for women and people of color and increasing diversity in the industry. The City also issued a separate Request for Expressions of Interest for a Materials Innovation Hub which will catalyze materials science research and development, establish connections to industries like fashion and construction, support early-stage materials science companies, and create opportunities for New Yorkers from a diverse range of backgrounds.[316] Responses to the Request for Expressions of Interest from academic and other entities will provide NYCEDC with another set of potential partnership opportunities in sustainable biotech and materials innovation.

- **Launch and expand climate technology innovation, commercialization, and scaling opportunities across local industries**

We will launch a Climate Innovation Accelerator Network to advance our climate technology priorities and overall sector growth by scaling up best-in-class venture and innovation studio models that help startups research, test, and scale climate solutions to some of our toughest climate challenges. The Network will work with multiple innovators to deliver end-to-end support that startups need to thrive; create a community of practice and advance models of innovation; and support New York City's ambitious efforts to become a world-leading, social-equity-centered capital for climate technology and the green economy. This work, which builds and expands climate tech piloting programs and innovation studios, will help emerging solutions leverage research to refine climate innovation challenge areas, participate in coalitions of actors best positioned to streamline implementation of climate technology, and engage in pilots to test innovations in live environments across NYC to support the incremental growth of our green economy sectors. For example, in the energy storage arena, NYCEDC and Newlab launched the Resilient Energy Studio in 2021.[317] The City will build off of the success of this studio to launch its latest set of energy storage pilots in 2023. Companies that participate in the Resilient Energy Studio will work with NYCEDC to identify assets on which to evaluate their energy storage concepts and develop ways to scale safely. Also in 2023, the City will launch a set of micromobility public charging pilots in partnership between NYCEDC, the Department of Transportation (DOT), Newlab and tech startups, building on the success of the EV-focused DOT Innovation Studio that was launched in 2022. We will also evaluate piloting opportunities on the 491 million square feet of real estate collectively managed between NYCEDC, the New York City Housing Authority (NYCHA), and the Department of Citywide Administrative Services that will make our City-owned assets available for the testing of innovative technologies that support energy efficiency.[318] Through a public-private partnership with JLL Technologies, Urbansense, TRC Engineers, KO2, and Solar One, our NYC Proptech Piloting Program will launch more than a dozen pilots in the next two years, while offering project-based learning opportunities for fellows from CUNY and OpportunityNYCHA.

- **Launch portal to connect public agencies with private startups and investors by 2024**

This year, the City will develop a digital "front door" to address piloting challenges facing climate technology startups. The digital portal will provide information on policy priorities and implementation, regulations, and innovation challenges, including those encountered while working with City or State agencies that may offer testing or piloting opportunities. The website will help startups network with leading industry sponsors, gain expertise in business expansion, and decrease time-to-market delivery of their products. The goal will be to increase the number of businesses receiving proof-of-concept affirmation from credible institutions, such as public sector entities. The program will also facilitate learning opportunities across NYC-based, publicly oriented piloting programs run by the City, State, or their program partners. This initiative will support best practices in climate industries to scale local innovation and strengthen and heavily market New York City's innovation brand.

- **Provide resources to attract international investments in climate technologies**

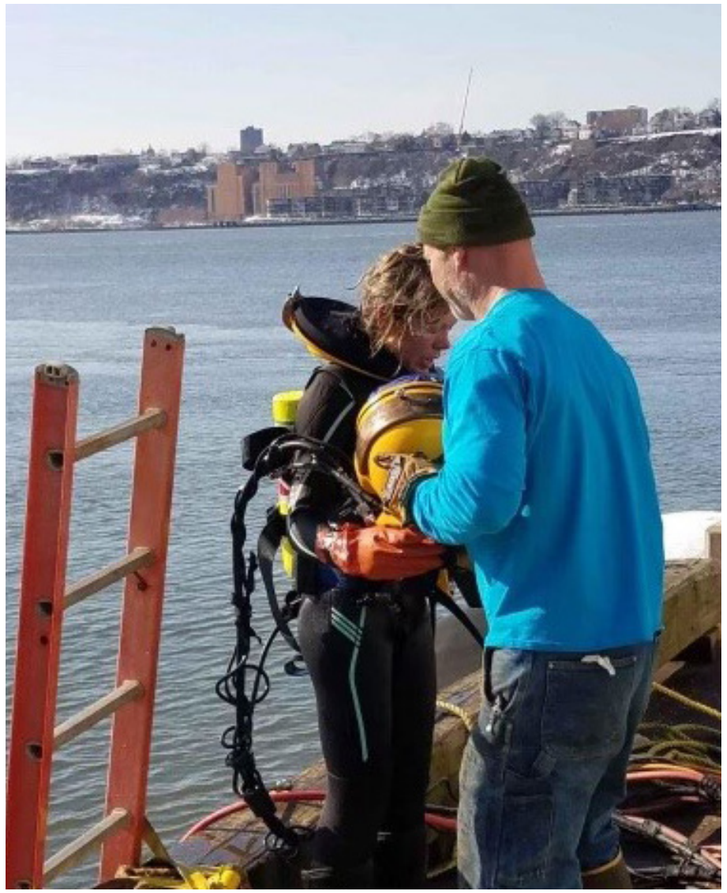
Other cities and countries have invested significantly in climate technology and research over the last decade, creating promising innovations and companies poised to enter the U.S. market. Similar to the early days of the technology ecosystem, we need to invest in resources that make it easier for companies to integrate into the U.S. market, acclimate to the business culture, and navigate the complexities of scaling a business. NYC is well positioned to attract international climate technology companies with its large technology ecosystem, robust climate legislation, and international dimension. To support this work, the City will launch a Global Climate Tech Hub initiative to establish dedicated coworking spaces and essential resources that will attract and support mid-sized climate technology companies in entering the NYC market. We will establish resources alongside established partners to make it easier for climate technology companies to conduct business here, including ecosystem-wide networking, mentorship, and event programming; legal, policy, and business culture consultation; and access to talent, piloting, financing, and manufacturing resources. The City will encourage climate innovation in specific NYC geographies to further accelerate the collision of ideas and talent while enabling product testing, development, and showcasing. This concept will be implemented through partnerships with several international trade and business offices.

Small Business Participants of ConstructNYC:

S&M Mechanical

A multi-generational family business, S&M Mechanical's company tagline reflects the company's values: "sustainability isn't about doing less harm, it's about doing more good." Started in 1987 by Stanley Moore, S&M Mechanical is a City-certified, Black-owned business.[319] S&M Mechanical has grown to take on large commercial boiler and HVAC replacement work, with an expertise in replacing old systems with modern, sustainable ones.

S&M Mechanical joined NYCEDC's ConstructNYC Program in 2019 and continues to take on work to help decarbonize and clean up NYC.[320] S&M Mechanical has performed numerous wastewater facility upgrades across NYC, including Jamaica, Newtown Creek, and Rockaway Sewage Treatment Plants. The company was also subcontracted to install the natural gas system and the Pavilion drainage system for One World Trade Center.



Celtic Marine divers and staff install fabricated oyster sleeves to assist in a natural clean up of the Hudson River. Source: Billion Oyster Program

Small Business Participants of ConstructNYC:

Celtic Marine Services Inc.

Celtic Marine Services Inc. is a City-certified, woman-owned business owned by Catherine McHugh-Russo.[321] Russo worked at IBM before deciding to open Celtic Marine Services alongside her brother and husband. Celtic Marine Services joined and was prequalified by NYCEDC's ConstructNYC Program in 2019. Celtic Marine Services was subsequently awarded its first ConstructNYC project opportunity in 2021, a pilot project at Manhattan Cruise Terminal Pier 88.[322]

Celtic Marine Services installed and fabricated oyster sleeves that were attached to the pier's piles to assist in a natural clean up of the Hudson River. Celtic Marine Services utilized a female diver on this project and continues to hire and forge pathways for female divers. Prior to this project, the bulk of Celtic Marine Services' work was focused on waterfront inspection and maintenance. Through their work on Pier 88, Celtic Marine Services gained experience in artificial reef construction and participated in the Billion Oyster Program.[323] Their strategically-placed oyster spats on the pier helped reduce the impact of storm surges.

SPOTLIGHT

Michael Magazine
Youth Leadership Council

The Youth Leadership Council helps give members the opportunity to learn more about climate change and sustainability, develop leadership skills, earn community service hours, and build community relationships.

"I took the AP Environmental Science course during quarantine. Dr. Pasternack talked about climate and soil systems and their impact on coastal regions like New York City. For examples of soil contamination and water contamination he would use local examples, like the Gowanus Canal.

That class was the academic catalyst of my life. It was the first time that school led me to change what I wanted for myself and my future. I go to an arts high school. Before that class I was on the photography path, but after this environmental escapade I want to major in sustainable development and be an environmental attorney, such as counsel to the DEP.

I got involved in the Youth Leadership Council and that spiraled into environmental advocacy. I go to Albany with New York Renews to lobby on state climate policy. I am reshaping my YouTube episode on green space into an event in East Flatbush, which will talk about green space deficiency, the environment, racism, and demographics.

East Flatbush gets the worst of the worst particularly when it comes to heat and in the south side, flooding. There was a monsoon a year and a half ago. We really feel the urban heat island effect. We have the highest heat vulnerability, no cooling centers, and a large youth and elderly population.

Climate change curriculum has to be taught in schools. But education shouldn't just be about young people. We need to educate middle-aged America. Getting ahead of the curve and establishing a course of authority that can explain climate change and its effects is the biggest tool for fighting against it."

Michael Magazine,
high school senior, climate activist,
member of the Department of
Education Office of Sustainability's
Youth Leadership Council

Source: Mayor's Office of Climate & Environmental Justice

LEVERAGING FEDERAL AND STATE FUNDING

Pathways to Industrial and Construction Careers

The New York City Pathways to Industrial and Construction Careers initiative, offered by the NYC Human Resources Administration (HRA) and the Mayor's Office of Talent and Workforce Development, will help connect more than 2,300 low-income New Yorkers to in-demand, valuable skills that will lead to family-sustaining and union jobs. The initiative is funded by a grant from the U.S. Economic Development Administration in response to New York City's winning proposal to the Good Jobs Challenge created under the American Rescue Plan Act of 2021. The New York City Pathways to Industrial and Construction Careers initiative will build regional workforce systems in the industrial, transportation, and construction industries, including in green economy subsectors such as green infrastructure, green construction, and building retrofits. The City will partner with the Consortium for Worker Education and leverage its Project Labor Agreement with the Building and Construction Trades Council of Greater New York to create a pipeline into apprenticeships and direct entry into union jobs for HRA clients, including New Yorkers living in high-poverty ZIP codes or NYCHA developments. The program will provide participants with support from a dedicated, in-house team at HRA and integrated referral, employer network, and wraparound services to ensure their long-term career growth and success.

We will continue to pursue Federal and State funding to grow our green economy, such as the New York State Energy Research Development Authority Green Jobs Green New York program.

Climber and Pruner Training Program

NYC Parks will launch a Climber and Pruner Training program to connect capable, motivated individuals to the training and experience needed to succeed in the title of Climber and Pruner. In doing so, the training program will serve as a pipeline for a growing green workforce in well-paid titles with no degree requirement for entry. Parks will lead a 15-month training program that will generate 15 graduates in its pilot year in 2023 and grow to 30 graduates as well as a 6-month skill-building bridge program of 40 additional participants in 2024 and beyond.

LEVERAGING FEDERAL AND STATE FUNDING

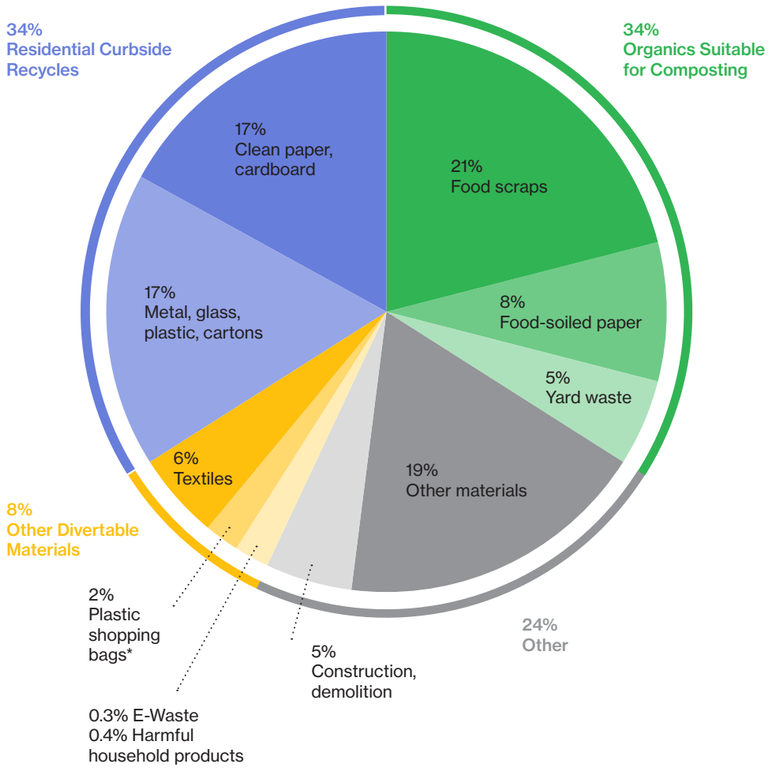
HOPE Program and Workforce Training

In 2020, The HOPE Program was awarded a Federal grant to install cool roofs on industrial buildings in the South Bronx.[324] Due to lack of green space and heavy truck traffic, industrial areas tend to be hotter and more polluted than other areas. Clusters of cool roofs can lower ambient temperatures and decrease the amount of energy needed for cooling.

The EPA Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program provides funds for community-driven solutions to local environmental problems.[325] Managed by the NYC Department of Small Business Services in partnership with HOPE, NYC CoolRoofs provides New Yorkers with paid training and work experience installing energy-saving reflective rooftops that can mitigate the urban heat island effect and lower air pollution and greenhouse gas emissions by reducing power demand. This $120,000 grant enabled HOPE to coat an additional 100,000 square feet of rooftops for the NYC CoolRoofs program on industrial buildings in Hunts Point, an area facing a particularly heavy environmental burden and high heat vulnerability.[326]

WASTE & CIRCULAR ECONOMY

WASTE CHARACTERIZATION



This chart shows a composition of residential curbside waste collection in NYC. 34% of waste consists of items suitable for recycling while another 34% includes materials suitable for composting. Other divertable materials represent 8% of waste.

*Plastic shopping bags have been banned in New York since March 1, 2020

Source: Department of Sanitation, 2017

While New York City's population is increasing, we are generating less waste. From 2005 to 2022, our population grew by more than 4%, while our overall residential waste decreased by nearly 7%.[327] But there is still more we can do to reduce the waste we generate and ensure that less of the waste we do create ends up in landfills.

Of the 24 million pounds of waste collected by the Department of Sanitation (DSNY) every day, 76% could be recycled, composted, or otherwise diverted away from landfills.[328, 329] Further, we can use materials from what we throw away to create new products and generate value. Our waste system is still largely a one-way flow of new products and materials into the city and waste materials shipped outside of the city, mainly by barge and rail. Alternatively, by putting these materials to use right here in New York City we can develop a circular economy that leads to the creation of new jobs and furthers the City's climate goals.

Over the last decade, we have seen a global shift toward a circular economy, a model that replaces a one-directional material flow from product to waste with material flow based on reuse, extended product life, and recirculating components. Because the supply of materials and the demand are all within New York City, the circular economy also offers the greatest opportunity to create manufacturing jobs within the city. Since 2016, the City Council has also supported the Made in NYC initiative to facilitate the growth of local manufacturing *(see Made in NYC)*.[330]

We are already investing in systems that give new life to spent materials; recycled metal, glass, plastic, and paper are collected and manufactured into new products. New York City is home to the only urban paper recycling mill in the country, which recycles nearly 400,000 tons of paper into new cardboard boxes each year.[331] The City also offers programs to make it easy to collect and reuse or recycle unwanted textiles, electronics, and other goods.

For food scraps and yard waste, we have the largest curbside organics collection program in the country and we turn that waste into compost as well as other uses. At the Newtown Creek Wastewater Resource Recovery Facility, New Yorkers' food scraps and wastewater biosolids are turned into renewable energy through a full-scale co-digestion program that the City has been running since 2016.[332] Co-digestion means adding food waste to the anaerobic digestion phase of wastewater treatment to produce biogas, compost, and other soil amendments.[333] We are also continuing to look for ways to reduce our waste before it is created and have led the way by banning foam products and working with the State to ban plastic shopping bags.[334]

Our mission is to divert more waste to reuse while ensuring that we are processing as much as possible within the city to capture economic activity. Merely replacing the export of mixed waste to landfills with the export of organic material to out-of-town composters would not be sufficient because it would not benefit our economic development. When we capture material headed for a landfill and turn it into local manufacturing or use it to generate energy, we create resilience, reduce truck traffic, and add jobs.

Made in NYC

Made in NYC is a nonprofit initiative that supports more than 1,500 local manufacturers and makers in New York City, with the recognition that local manufacturing is essential to an environmentally sustainable city. Most manufacturers truck in all the products they need to survive and truck out their waste. Alternatively, they can begin to "close the loop" by encouraging the recycling and re-use of products that have finished their original planned life. Local manufacturers can divert hundreds of tons of glass, plastics, fabric, metals, cardboard, wood, and building materials away from landfills and into supply chains for new industries. Because urban manufacturers are located near their markets, they can work with their customers and designers to develop new, environmentally responsible products.

Launched in 2003 by the Pratt Center for Community Development, Made in NYC provides training, marketing, and promotional platforms, and small business resources for free.[335] The initiative aims to build a more equitable and sustainable local manufacturing sector that creates quality jobs, supports entrepreneurs and workers, fosters creativity, and nurtures a thriving ecosystem of goods made and consumed locally.

OUR PLAN

Transitioning to a circular economy will require improved infrastructure, effective service delivery, data collection, and nimble policymaking, as well as the participation of every resident and business. There is a strong foundation for building a circular economy in NYC and we have already seen success with organics collection and recirculation.

Our plan builds on this success and involves two key components. First, we will stitch together existing organics policies, collection programs, and infrastructure to develop a comprehensive citywide program for organics. This will offer a blueprint for addressing historically difficult-to-recycle waste streams. Second, we will kickstart circular systems for hard-to-recycle waste streams by expanding our asphalt, wood, and construction and excavation soil reuse programs.

OUR WASTE & CIRCULAR ECONOMY GOAL

We will create a circular economy starting with organics and asphalt.

Collect organic materials and turn into energy and reusable assets:

- Launch citywide curbside organics collection by 2024
- Expand commercial organics separation requirements to all food businesses by 2026
- Leverage existing Department of Environmental Protection infrastructure to process collected organics into biogas and compost within the city as much as possible

Develop new markets and expand recycling and reuse:

- Expand production and use of recycled asphalt
- Expand NYC Parks' tree wood reuse pilot
- Expand the Clean Soil Bank program by 2030

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Collect organic materials and turn into energy and reusable assets

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
PROSPERITY

- **Launch citywide curbside organics collection by 2024**

More than one-third of New York City's residential waste per ton comes from organics – materials originating from living sources that are suitable for composting, such as food scraps and yard waste. Sending organics to landfills releases methane, a GHG about 85 times more potent than carbon dioxide over a 20-year period.[336, 337] In October 2022, the City launched a new curbside composting program for the entire borough of Queens. In its first 12 weeks, the program was wildly successful, diverting nearly 13 million pounds of yard and food waste from landfills.[338]

To reach our climate goals, clean up our streets, and eliminate food sources for rats, the City will expand this program citywide by fall 2024, achieving a long-sought goal of universal curbside composting with a program that is cost effective.

This summer, DSNY is also expanding its network of Smart Compost Bins – 24/7 food-scrap drop-off bins accessed with a smart phone app – from 250 to 400. Additionally, DSNY will take the first step toward a mandatory program with a requirement for buildings to separate leaf and yard waste. In March 2023, DSNY published a draft rule to make separation for leaf and yard waste mandatory, to go into effect as curbside organics service begins in each borough over the next year and a half. DSNY will continue to evaluate the best ways to maximize diversion of organic material from landfills, including a mandatory separation of food waste.

While City facilities and current contracts have enough capacity to receive and process these increasing deliveries of food and yard waste, they are concentrated in just a few locations. To ensure reliability and reduce truck traffic impacts on neighborhoods with transfer stations, DSNY will issue a new solicitation for additional organics processing capacity this summer. Vendors will be competitively selected to pre-process the collected organics, remove contaminants, and ensure the organics are converted into beneficial products such as compost or renewable energy. As part of the solicitation, vendors will have the option to deliver pre-processed organics to select DEP Wastewater Resource Recovery Facilities for co-digestion.

- **Expand commercial organics separation requirements to all food businesses by 2026**

New York City's more than 50,000 restaurants, grocery stores, and other food-related businesses generate nearly one million tons of organic waste per year.[339] These food businesses are crucial partners in a local circular economy for organics. Local Law 146 of 2013 requires certain food-related businesses to separate back-of-house organic waste handled by staff from refuse, provide clearly signed bins for organics, and arrange for organics to be collected, transported, and processed by licensed haulers.[340] The City has taken a phased approach, starting with the largest food businesses. Today, more than 20,000 larger restaurants, chain restaurants, grocery stores, hotels, arenas, food manufacturers, and other establishments are required to separate their food waste for composting or digestion.

The City plans to expand these requirements to all food-related businesses, in concert with the implementation of commercial waste zones. Working with the City Council, we will enact a new universal business composting law by 2026. Combining regulation with outreach and education, we will support food businesses in adding composting alongside recycling in both food preparation spaces and consumer-facing disposal areas.

- **Leverage existing Department of Environmental Protection infrastructure to process collected organics into biogas and compost within the city as much as possible**

The success of organics collection efforts hinges on our ability to process organics and transform them into valuable products that can be used locally. One of the ways the City will handle the increased volume of organic material is through the expansion of DEP's co-digestion program.

CITY LEADING BY EXAMPLE

Curbside Organics Collection Processing

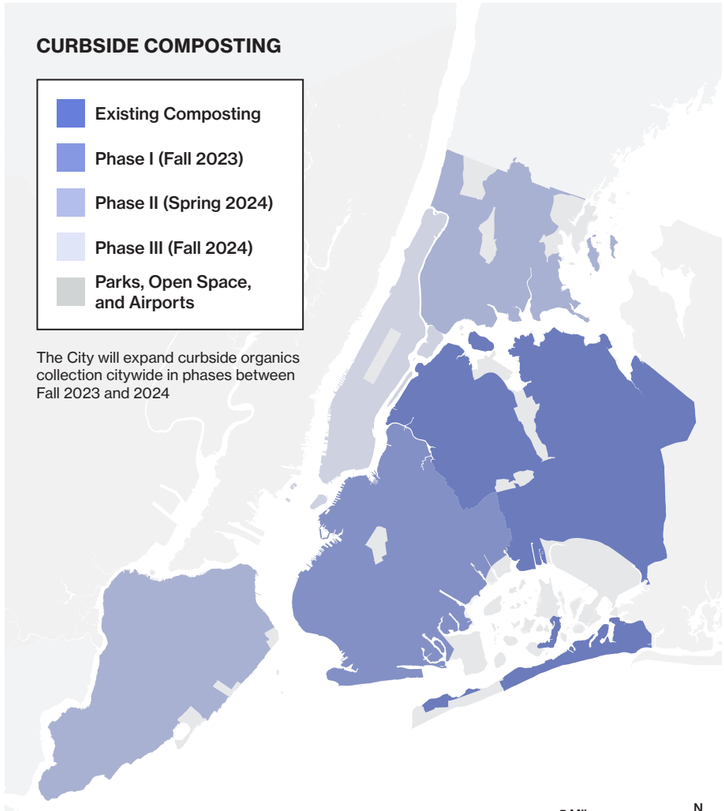
In February 2023, Mayor Adams and DSNY announced a roadmap to implement the nation's largest composting program to include weekly collection of compostable material that will be automatic, guaranteed, free, and year-round for every resident of the five boroughs.[346] It will be the first-ever plan and commitment to reach 100% coverage citywide and will include weekly collection of leaf and yard waste, food scraps, and food-soiled paper products.[347]

DSNY is planning to issue a solicitation for additional organics processing capacity in and around the city to receive source-separated organics collected from residents and DOE schools. The selected vendors will pre-process the collected organics, remove any contaminants, and ensure the organics are converted into beneficial products such as compost or renewable energy. DSNY will also benefit from investments at the Staten Island Compost Facility, where upgrades are nearly complete, to enable more food scraps to be composted with leaf and yard waste. As part of the solicitation, vendors will have the option to deliver pre-processed organics to select DEP Wastewater Resource Recovery Facilities for co-digestion.

CITY LEADING BY EXAMPLE

Composting at NYC Public Schools

DSNY and DOE launched the Zero Waste School program in 2016, focusing on full separation of recyclables and compostable material at 100 schools receiving curbside compost.[348] We will bring organics collection to all public schools in the city by the end of the 2023-2024 school year. Organics collection in schools reduces waste, supports the City's efforts to fight rats, and generates compost. The program also engages younger New Yorkers and provides education on the benefits of local material cycles, furthering the City's transition to circularity.



Source: NYC Department of Sanitation, 2023

CITY LEADING BY EXAMPLE

Achieving 100% Beneficial Reuse of Biogas

To encourage projects that identify pathways to 100% beneficial reuse of biogas, DEP released a Request for Expression of Interest to solicit responses focused on project conceptualization, financing and institutional strategies, and end users for renewable biogas.[349] Respondents will propose which technologies might be appropriate, benefits of recommended projects, examples of similar installations, and provide other information to inform DEP's decision-making process. The Request for Expressions of Interest also allows respondents to indicate their interest in purchasing a supply of renewable natural gas from the city and what contractual guarantees would be required to enter into such a contract.

In February 2023, Mayor Adams and the Department of Sanitation announced a roadmap to implement the nation's largest composting program. Curbside compost collection will promote household composting practices. Source: Department of Sanitation

SPOTLIGHT

Domingo Morales *Green City Force Composting*

Green City Force enlists and trains young people from low-income housing communities to be prepared for a new and more equitable economy. Compost Power is a social enterprise and core partner to Green City Force.[350]

"I grew up in public housing and really didn't know much about composting or sustainable systems. I joined Green City Force and got a job at the Red Hook Community Compost site. We were processing 190 tons a year of organic waste by hand. It was insane but fun and I became the manager—it was the largest human-powered compost site in the United States.

When I was a kid, I was germophobic, but composting got me over it. I started to learn more about the good fungus, microbiomes, and the healthy layer of organisms on our skin.

In 2020 I created Compost Power and built a 3-bin system compost site in Canarsie at the Bayview Houses Farm. Now I operate nine sites in all boroughs. Eight are on NYCHA land. All of my staffers are NYCHA residents or former NYCHA residents. We have processed 220 tons of organic waste in two years. It reduces waste and also rodents. We are picking up trash, pruning gardens, and collapsing the rat tunnels.

For composting sites, we choose hot spots in the community where there may be a lot of crime. Crime moves elsewhere. The sites are an oasis. We have tomatoes on the vine, wood chips, and lush trees. It shows people we have a farm in our backyard, in our home."

Domingo Morales,
Green City Force alumnus and
founder of Compost Power

Source: Mayor's Office of
Climate & Environmental Justice

Digestion transforms food scraps primarily into biogas – less than 25% of the volume remains as biosolids.[341] DEP has decades of experience processing large volumes of organic wastes into renewable bioproducts, including energy. DEP operates 75 anaerobic digesters spread across 14 Wastewater Resource Recovery Facilities (WRRFs) in all five boroughs.[342] These facilities can reduce waste and produce beneficial outputs such as soil amendments and power while generating green jobs for New Yorkers.

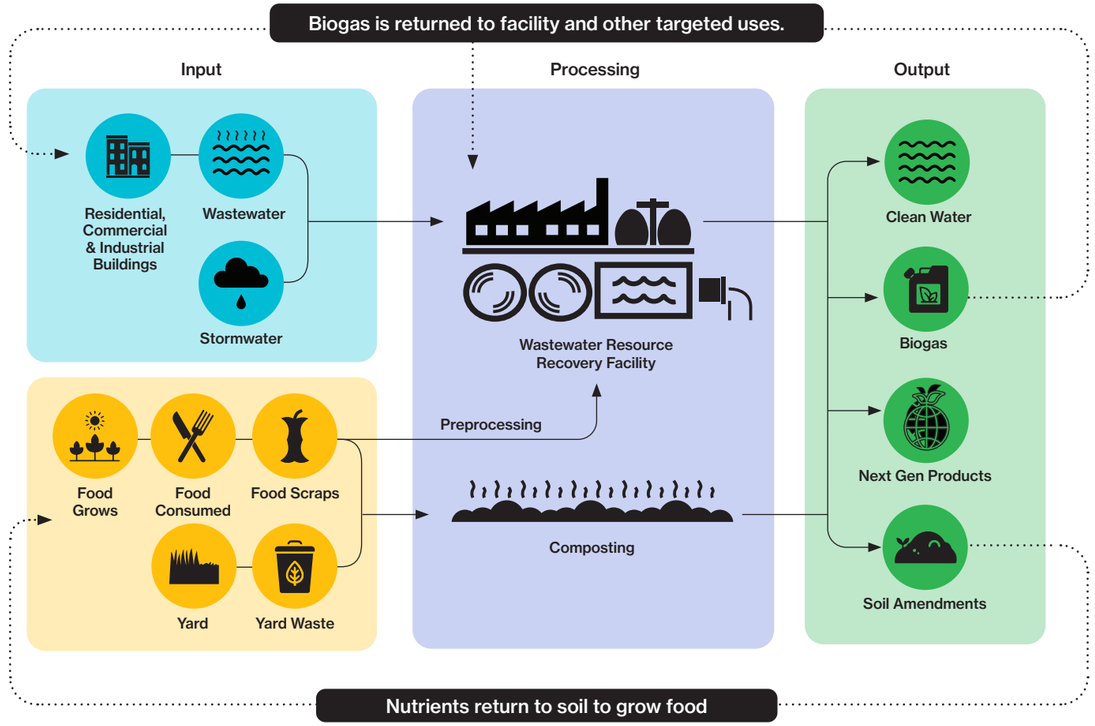
DEP is working to achieve 100% biogas beneficial use at its WRRFs and will maximize public-private partnerships to accomplish this. As detailed in the *Biosolids Beneficial Use Plan*, DEP plans to increase beneficial usage of biosolids from WRRFs to more than 50% by 2025 through three new negotiated acquisition contracts and expects to reach 100% by 2030.[343] These new facilities will reduce waste and produce beneficial outputs such as soil amendments and power while generating green jobs for New Yorkers.

In April 2023, DEP will release a Request for Expressions of Interest to identify pathways to achieve this 100% beneficial use goal. This year DEP will also bring a biogas purification system online at Newtown Creek, in collaboration with National Grid. By 2025, DEP will also complete the installation of cogeneration equipment at North River WRRF.

In locations where we co-digest food scraps, we will achieve this even faster. Currently, 95% of the output of food scraps digested at Newtown Creek are transformed into valuable uses including renewable energy, soil amendments, and landfill cover, which replaces the use of soil.[344] By 2026, none of these biosolids will be landfilled.

The City also broke ground on a new Sustainability Hub at Hunts Point WRRF that will include new digesters, allowing it to accept and process organics directly from the neighboring Hunts Point Market.[345] The first phase of construction will be complete by 2027 and enable the WRRF to accept 250 tons per day of organics. A second phase that is in design now could allow processing of up to 1,000 tons per day.

DIGESTER AND BIOSOLIDS PLAN



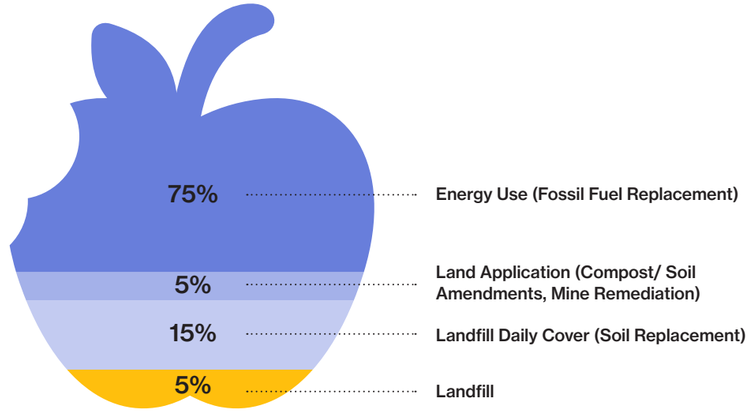
The City will handle an increased volume of organic material through the expansion of Department of Environmental Protection's co-digestion program. Co-digestion is the process of adding food and yard waste to the anaerobic digestion phase of the wastewater treatment process to produce new products like biogas, compost, and other soil amendments.

Source: Department of Environmental Protection, 2023

REUSE OF ORGANICS AFTER PROCESSING AT THE NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION'S NEWTOWN CREEK FACILITY

The Department of Environmental Protection's co-digestion program processes organics to produce new and useful products. 75% of organics processed at the Newtown Creek facility become biogas, a sustainable energy source, followed by soil that covers waste in landfills to maintain sanitary conditions (15%) and soil amendments to restore contaminated land (5%). Only 5% of processed organics are not re-usable and go to a landfill.

Source: Department of Environmental Protection, 2023



LEVERAGING FEDERAL AND STATE FUNDING

Brownfield Job Training Grants

To support skill-building and employment among residents of areas affected by the presence of polluted sites, the U.S. Environmental Protection Agency offers Brownfields Job Training Grants.[351] Brownfields are sites where redevelopment is complicated by actual or potential environmental contamination, and they are often located in low-income areas and communities of color. In December 2022, three community-based organizations in New York City were awarded $500,000 each to recruit, train, and place workers for community revitalization and cleanup projects at brownfield sites.[352]

St. Nicks Alliance, The Fortune Society, and the HOPE Program will each train 95 to 120 students in hazardous waste operations, asbestos handling, lead abatement, mold remediation, and site safety, among other subjects. These certifications, along with job placement assistance and follow-up support from the grantees, will help the students get jobs in the environmental industry. St. Nicks' recruitment will focus on north and central Brooklyn, HOPE is targeting people lacking postsecondary education in the South Bronx, and The Fortune Society concentrates on individuals with incarceration histories throughout New York City. Past graduates of Brownfields Job Training programs have become employed with firms in fields including environmental consulting, contracting, and solar panel installation. The Mayor's Office of Environmental Remediation assists the grantees by providing support letters, offering introductions to potential employers, and promoting connections to the remediation industry for grantees and program graduates.

The City will continue to pursue Federal and State funding to support our waste and circular economy work, including the new Federal Solid Waste Infrastructure for Recycling program, which can provide additional funding to this sector.[353]

Since 2016, the City operates a full-scale co-digestion program at the Newtown Creek Wastewater Resource Recovery Facility to turn wastewater biosolids into renewable energy. Source: Mayor's Office of Climate & Environmental Justice

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Develop new markets and expand recycling and reuse

GHG EMISSIONS REDUCTION
HEALTH EQUITY
ENVIRONMENTAL JUSTICE
PROSPERITY

A key component of building circular systems is bolstering local markets for recirculated materials. As recycling rates have been stagnant for the past decade and there is a lack of consistent secondary uses for some materials, innovation must identify new pathways and buyers for historically difficult-to-recycle materials. The City will partner with local recycling and construction industries to support the recirculation of challenging materials.

New York City will also advocate for the Waste Reduction and Recycling Infrastructure Act at the State level to create an Extended Producer Responsibility (EPR) policy to shift the end-of-life responsibility of packaging and paper materials upstream to the producers. Right now, manufacturers have no responsibility for recovering or recycling their packaging or paper products, leaving New York taxpayers and municipalities to pay the bill to process these materials. An EPR program would incentivize those manufacturers to innovate to reduce waste, increase recyclability, and remove toxins from their products, lowering recycling costs for cities and reducing waste in landfills. EPR programs are common throughout the world and have been proven to increase recycling rates and reduce methane emissions by limiting the amount of waste that enters landfills and reducing demand for new raw materials. An EPR bill for packaging and paper would also provide desperately-needed funding for New York City's recycling program, bolstering collection and funding new investments in consumer education, recycling sorting, and processing infrastructure, ensuring a sustainable future for recycling for decades to come.

- **Expand production and use of recycled asphalt**

DOT is a national leader in the use of recycled asphalt pavement (RAP). By incorporating recycled content, the City saves on new material and the costs associated with transport and landfill fees. With RAP, yesterday's pavement becomes today's streets

Road paving in Crown Heights, Brooklyn. Source: Department of Transportation

as old paving materials get removed from City streets during routine resurfacing operations. The milled material is then reprocessed and reconstituted with new materials before use in subsequent paving. The new Harper Street Asphalt Plant will allow DOT to increase its use of RAP. By producing more recycled asphalt, the City will avoid two million miles of annual truck trips that are used to carry milled asphalt to landfills – reducing congestion, pollution, and wear and tear on our streets. The new asphalt plant will increase the amount of City-produced asphalt from 50% of the asphalt used by the City to approximately 75% and will improve efficiency in the City's efforts to restore streets and roadways citywide.

DOT trialed an innovation in pavement as part of a pilot project on Staten Island, incorporating recycled plastic as a component of road repairs. Roughly 10,400 pounds of plastic waste, the equivalent of 214,000 water bottles, was incorporated into the pavement mix. DOT is monitoring the project area to see how well the recycled plastic asphalt holds up throughout multiple seasons and weather conditions, as part of evaluating its use on a wider scale.

- **Expand the NYC Parks' tree wood reuse pilot by 2024**

NYC Parks generates an estimated 12,400 metric tons of woody debris annually which, until recently, had no end use and was sent to landfills.[354] Collecting and recirculating such a large quantity of wood presents opportunities for both cost and carbon reductions. A 10-year wood reuse program could capture up to 38,000 metric tons of carbon dioxide equivalent.[355] We will study the best way to expand this wood reuse pilot to facilitate each step along the way, from tree removal to woody debris processing to identifying end users of wood material. Parks will also identify a site for a wood salvage and processing operation.

- **Expand the Clean Soil Bank program by 2030**

We will increase soil recycling and utilization of recycled soils by City agencies and for private resilience-focused projects by increasing the City's Clean Soil Bank stockpile operations from two days to three days per week. We will also establish Clean Soil Bank sites in additional locations throughout the city according to agencies' needs for soil.

CITY LEADING BY EXAMPLE

Office of Environmental Remediation's Commitment to Neighborhoods

The Clean Soil Bank, a system of direct soil exchanges between generating and receiving sites in OER's land cleanup program, was launched in 2012.[356] The system delivers clean, native soil recovered from deep excavations at construction sites for resilience and remediation projects and supplies soil to community and school gardens. To date, the Clean Soil Bank has kept more than 540,000 cubic yards of soil in NYC, saved 2.45 million miles of truck trips and spared the atmosphere 5,300 metric tons of carbon dioxide.[357]

In 2020, the Clean Soil Bank opened a clean soil stockpile, a fixed facility on surplus City land in Brooklyn, to capture more clean soil and save the City money by encouraging City agencies to use the free stockpile soil on City projects instead of buying it from vendors.[358] Ten City agencies use stockpile soil for purposes that include restoring parks and ballfields, planting beach grass at recently opened City parks, and raising grades at an ocean-front housing development. In the past two and a half years, the clean soil stockpile has supplied 81,000 cubic yards of soil to City operations and capital projects for a savings of more than $1.8 million.[359] Recently, stockpile savings exceeded the City's cost to run the facility, allowing the stockpile to operate in the black for the first time.[360]
This circular effort to recycle clean soil within the city replaces the one-way flows of trucking excavated soil beyond the city for disposal and inbound clean fill purchases. This results in fewer truck miles driven, less diesel fuel consumed, and reduced GHG from the construction industry. In eight years, the Soil Bank has made more than 600,000 tons of clean soil available to projects across New York City.[361] Clean Soil Bank material has been used to raise the grade in flood zones, restore wetlands, implement flood protection measures, and remediate contaminated land.[362]

A topsoil delivery to Hands and Heart Garden in New Lots, Brooklyn (top). A soil in a bin at our clean soil stockpile in East New York, Brooklyn (bottom).
Source: Mayor's Office of Environmental Remediation

Next Steps

For the last 16 years, across three mayoral administrations, New York City has been a leader among cities in facing the challenges presented by climate change and transitioning to a decarbonized economy. Through this fifth iteration of our city's strategic climate plan, we have laid out an action agenda for a cleaner, greener, and more just city for all.

PlaNYC: Getting Sustainability Done is grounded in a comprehensive understanding of the impacts of climate change to New York City communities, as well as a more complete picture of our GHG emissions footprint, including a new consumption-based inventory. Through this plan we also acknowledge that climate change is critically interrelated to public health risks, population growth and migration, environmental injustices, and the state of the economy. The actions outlined in this plan will be realized across the five boroughs, tracked annually in reports of progress for each goal and initiative. Importantly, this work will also have global repercussions as one of the world's largest economies – New York City – tirelessly acts to mitigate its own impact on our planet, and to foster cross-industry innovation to strengthen our future.

This is an all-of-government effort that builds on the knowledge and experience of City government agencies, that aims to maximize unprecedented available State and Federal funding, that commits New York City government to lead by example, and that seeks to broaden climate impact through collaborations with public sector, private, and non profit partners. We will push this agenda forward through these initiatives, and through upcoming related efforts including *PowerUp*, the results of a year-long study, that will lay out the obstacles, opportunities, and implementation steps to transition New York City to an electrified and decarbonized electric power system, and the *Environmental Justice Report* that will describe the present state of environmental justice in New York City and provide a basis for a plan to more systemically address environmental injustices in our city.

The Adams administration's intent is to ensure that environmental justice, public health, and climate considerations are at the center of our governing and budgeting process. This is how we will get sustainability done in NYC on behalf of our neighbors.

Brookyn Bridge
Source:
NYC & Company

Appendices

Mayor Adams visiting a new rooftop farm in Teleport Campus on Staten Island. The rooftop farm grows healthy organic food and absorbs stormwater in an effort to help reduce neighborhood flooding and protect the health of New York Harbor.
Source: Mayor's Office

POPULATION PROJECTIONS

New Yorkers crowd 5th Avenue in Manhattan during a festive Open Streets event. Source: Department of Transportation

New York City has experienced continuous growth, maintaining its position as the nation's most populous city since the nineteenth century and reflecting its commitment to diversity and quality of life.[363] In addition, NYC's density has supported a low per-capita carbon footprint as many residents walk, bike, or use public transit to reach their destination, share utility systems with neighbors of their multifamily apartment buildings, and enjoy outdoor activities in public parks and open spaces as opposed to individually owned water-intensive yards. Nevertheless, rising population levels heighten the importance of climate action, not only because an increase in residents corresponds with an increase in resource demands, but also because many of our communities face increasingly severe climate threats. This plan's initiatives build upon our collective knowledge and experience to support sustainable growth while also improving the lives of all New Yorkers.

New York City's population increased from 3.4 million in 1900 to 8.8 million in 2020, a 120-year period marked by steady growth over most decades and strong recoveries following population dips in the 1950s and 1970s.[364] New York City experienced its most recent population decline at the onset of the COVID-19 pandemic in 2020 – driven by the relocation of New Yorkers to less dense parts of the country, emergency restrictions on international migration, and a higher-than-average death rate. Although New York City lost approximately 468,000 residents between April 2020 and July 2022 (-5.3%), our population show signs of rebounding once again.[365] The rate of population decline is slowing, and domestic and international migration have nearly returned to their pre-pandemic levels.[366]

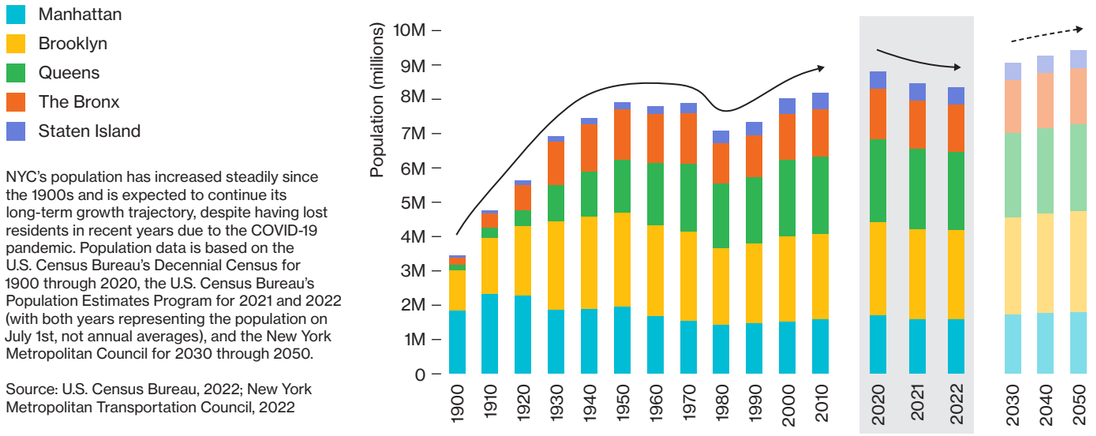
NYC HISTORICAL AND PROJECTED POPULATION AND YEAR OVER YEAR (YOY) CHANGE

	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
NYC Total Population	3.4 M	4.8 M	5.6 M	6.9 M	7.5 M	7.9 M	7.8 M	7.9 M	7.1 M	7.3 M	8.0 M	8.2 M	8.8 M	9.1 M	9.3 M	9.4 M
% Change		38.7%	17.9%	23.3%	7.6%	5.9%	-1.4%	1.5%	-10.4%	3.5%	9.4%	2.1%	7.7%	2.9%	2.2%	1.7%

	2020	2021	2022
NYC Total Population	8.8 M	8.5 M	8.3 M
% Change		-3.9%	-1.5%

Source: U.S. Census Bureau, 2022; New York Metropolitan Transportation Council, 2022

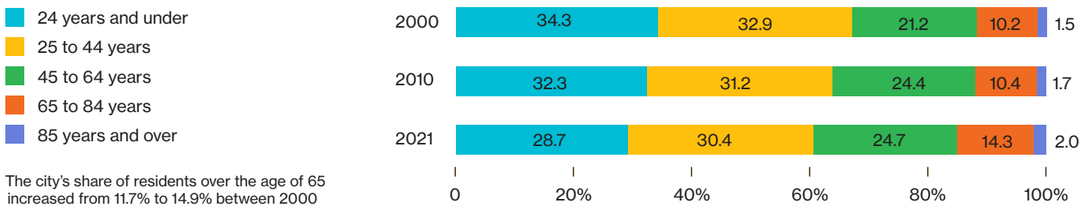
NYC HISTORICAL AND PROJECTED POPULATION BY BOROUGH



NYC's population has increased steadily since the 1900s and is expected to continue its long-term growth trajectory, despite having lost residents in recent years due to the COVID-19 pandemic. Population data is based on the U.S. Census Bureau's Decennial Census for 1900 through 2020, the U.S. Census Bureau's Population Estimates Program for 2021 and 2022 (with both years representing the population on July 1st, not annual averages), and the New York Metropolitan Council for 2030 through 2050.

Source: U.S. Census Bureau, 2022; New York Metropolitan Transportation Council, 2022

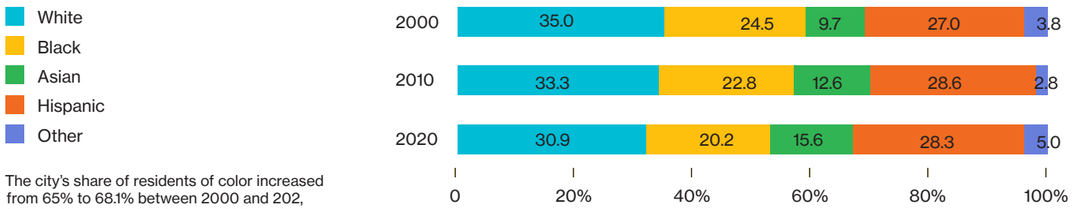
NYC POPULATION BY AGE GROUP



The city's share of residents over the age of 65 increased from 11.7% to 14.9% between 2000 and 2021. Population data is based on the U.S. Census Bureau's Decennial Census for 2000 and 2010 and the U.S. Census Bureau's American Community Survey, 1-Year Estimates, for 2021.

Source: U.S. Census Bureau, 2022

NYC POPULATION BY RACE



The city's share of residents of color increased from 65% to 68.1% between 2000 and 202, largely due to growing Asian and Hispanic populations. Population data is based on the U.S. Census Bureau's Decennial Census for 2000, 2010, and 2020.

Source: U.S. Census Bureau, 2022

New York City's population is expected to continue its long-term growth trajectory over the next three decades, adding an estimated 250,000 residents in the 2020s (+2.9%), 200,000 in the 2030s (+2.2%), and 150,000 in the 2040s (+1.7%).[367] As has been the case since the 1950s, positive natural change (more births than deaths) and net international inflow are expected to offset net domestic outflow. As we grow, our city's population is also aging and becoming more diverse. Residents over the age of 65 represented 16.3% of the overall population in 2021, a notable increase from 11.7% in 2000,[368] and our share of Asian and Hispanic residents increased by 5.9 and 1.3 percentage points, respectively, between 2000 and 2020.[369] Recent demographic shifts have amplified the call for climate action as elderly New Yorkers are at heightened risk from extreme weather events, and due to a history of systemic racism, communities of color experience climate stressors more acutely.

ECONOMIC OUTLOOK

New York City's economy has a multi-century track record of growth and adaptation, continually reinventing itself to meet the challenges of each new age. The last two decades marked tremendous economic growth for the city with jobs reaching a record high of 4.7 million in 2020.[370] The city's increasingly diverse mix of industries and businesses, as well as its transit access and amenities, attracts talent from around the world and has made our city one of the fastest growing urban economies of its scale in the United States with jobs increasing at 1.5 times the national average since 2000.[371] New York City is also the center of the largest regional U.S. economy and relies on the metropolitan area for an interdependent ecosystem of talent and businesses to provide a range of goods, services, and shared infrastructure.

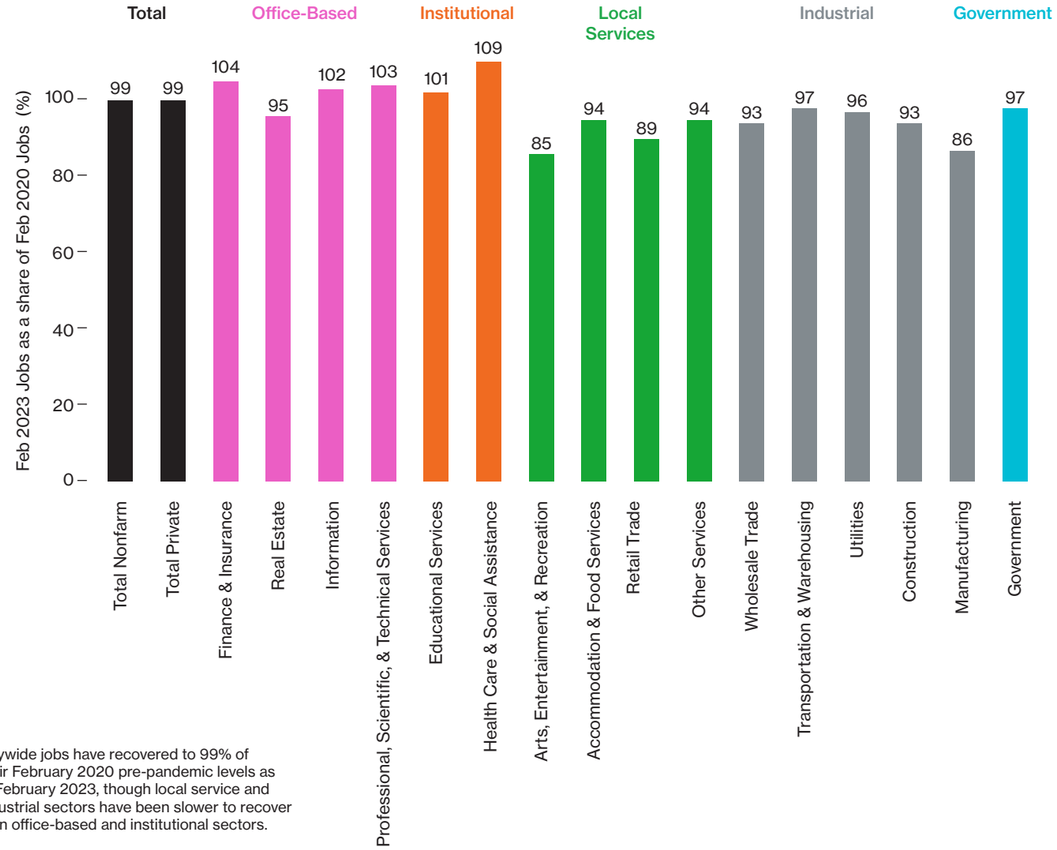
In 2020, the COVID-19 pandemic initiated an unprecedented shock to New York City's economy, forcing many businesses to close and dislocating much of the city's economic activity. It created fears that urban centers were especially vulnerable, and many thought the conditions that enabled the city to thrive over recent decades would catalyze its decline.

Three years later, our economy shows strong signs of recovery. As of February 2023, NYC jobs have reached 99.1% of their pre-pandemic February 2020 total.[372] Office-based industries like Finance & Insurance, Real Estate, Information, and Professional, Scientific & Technical Services, and institutional sectors, like Educational Services and Health Care & Social Assistance, have more than recovered employment losses, surpassing their February 2020 job levels.[373]

Yet challenges remain with many workers travelling to the office part time and tourism still below its pre-COVID pandemic historic peak, which sends rippling effects through the service economy.[374] Industries like Retail Trade, Accommodation & Food Services, and Arts, Entertainment & Recreation remain below their pre-COVID pandemic job levels, and industrial sectors like Manufacturing and Construction have been slower to recover.[375] Economic recovery has not only varied across sectors but also demographic groups; for example, Black New Yorkers face an unemployment rate that is four times as high as that of white New Yorkers.[376]

Despite our remaining challenges, New York City is doing what we always do in times of crisis: respond and adapt. We are facing both our economic and climate challenges head on. The City and State's *Making New York Work for Everyone Plan*, released in December 2022, established a framework and identified a broad range of interventions to help the city both rebuild and evolve its economy.[377]

NYC EMPLOYMENT RECOVERY BETWEEN FEBRUARY 2020 AND FEBRUARY 2023



Citywide jobs have recovered to 99% of their February 2020 pre-pandemic levels as of February 2023, though local service and industrial sectors have been slower to recover than office-based and institutional sectors.

Source: U.S. Census Bureau, 2022

NYC AND U.S. TOTAL EMPLOYMENT

	January 2000	January 2020	% Change
NYC Total Employment	3.7 M	4.7 M	27.6%
U.S. Total Employment	131.0 M	152.1 M	16.1%

NYC's jobs increased at 1.5 times the national average between January 2000 and January 2020

Source: U.S. Census Bureau, 2022.

This plan is already being implemented. Whether harnessing the power of our public realm to support new forms of outdoor dining and activity, allowing the conversion of underutilized office buildings into much-needed housing, or reinvesting in neighborhood main streets, we will create an environment that enables businesses of all sizes and types to start, grow, and thrive here. Our efforts to address climate change also create economic growth opportunities. Our continued prioritization of sustainability and resilience will fuel the green economy and contribute to an increasing share of high-quality jobs in renewable energy generation, building decarbonization, climate technology, and other related fields.

We expect New York City's economy to fully recover and continue on its long-term growth trend. But it is not just about growing jobs, it is also about creating an inclusive economy that continues to attract talent, provide workers with livable wages, and provide all New Yorkers with better access to opportunity. The COVID-19 crisis was both a reckoning and an opportunity, demanding that we interrogate the structural flaws of our earlier recoveries and challenging us to reimagine what truly inclusive growth and shared prosperity can and should be.

PLANYC IMPLEMENTATION MILESTONES

Protecting Us From Climate Threats

INITIATIVE / ACTION	LEAD AGENCY	MILESTONES TO COMPLETE (Assuming funding by end of 2026)
EXTREME HEAT		
1. Maximize access to indoor cooling		
Develop a maximum summer indoor temperature policy to protect all New Yorkers from extreme indoor heat by 2030	MOCEJ/DOHMH/DOB	Complete policy anaylsis, develop proposed local laws and code changes
Include mandatory cooling requirements for new construction by 2025	MOCEJ/DOB	Pass necessary local laws and building code
Reform the Home Energy Assistance Program to cover equipment and energy costs for cooling	MOCEJ/DOHMH	Advocate for expanded HEAP program and more streamlined application process
2. Cool our built environment		
Install 1 million square feet of cool roofs annually	SBS	Provide 250 low-income New Yorkers with paid work experience installing cool roofs
Invest in pools and swim safety programs in environmental justice communities	NYC Parks	Reach 3000 students at 10 locations for Swim Safety programs
3. Achieve a 30% tree canopy cover		
Expand the Tree Risk Management and in 2023, establish the Climber and Pruner Training Program pilot	NYC Parks	Reduce backlog of moderate-risk tree work orders
Ensure that all new buildings meet the City's street tree planting requirements through improved enforcement by 2035	DCP	Work with partners to monitor enforcement efforts
Incentivize New Yorkers to steward green spaces by 2035	NYC Parks	Reach out to stewards to understand incentive options and Develop 2-3 incentive options
Maximize tree preservation and planting opportunities, including in areas with challenging site conditions, by 2035	MOCEJ	Incorporate the latest design and preservation techniques in infrastructure projects
FLOODING		
4. Create a new leadership structure for coastal flood resilience in 2023, headed by DEP		
Create a new leadership structure for coastal flood resilience in 2023, headed by DEP	DEP	Build out full flood protection operations team to be prepared to deploy new coastal protection systems
5. Implement a multilayered strategy for flood resilience		
Develop minimum flood resilience standards for shoreline assets by 2026	DEP	Complete shoreline study and identify citywide standards
Continue to design and construct world-class neighborhood scale coastal protection projects and partner with the United States Army Corps of Engineers' (USACE) New York and New Jersey Harbor & Tributaries Feasibility Study (NYNJHATS) process	DEP/DDC/EDC	Continue design, construction and operations of our coastal protection portfolio. Work with our congressional partners to fund the NYNJHATS Plan
Develop a stormwater flooding adaptation plan by 2024 to establish a citywide flood protection target for stormwater infrastructure	DEP	Release plan establishing a citywide level of service and priority areas in 2024
Create nature-based stormwater management solutions that provide multiple functions, including shade, water and air quality improvement, and wildlife habitats	DEP/NYC Parks/DOT	Break ground on the first cloudburst pilot project and initiate design for five neighborhoods by 2024 Submit an additional five projects for state and federal funding by 2025 Complete 3 bluebelt projects in Staten Island by 2025 Complete at least 5 new stormwater green streets by 2026
6. Launch a voluntary housing mobility and land acquisition program to provide housing counseling and facilitate future land acquisition with Federal and State funds		
Enable the City to engage with interested residents	MOCEJ/CHO/HRO	Launch housing mobility and land acquisition program for intake and outreach

Protecting Us From Climate Threats

INITIATIVE / ACTION	LEAD AGENCY	MILESTONES TO COMPLETE (Assuming funding by end of 2026)
BUILDINGS		
7. Support building owners in complying with Local Law 97 emissions reduction goals by 2030		
Develop financing tools and innovative mechanisms to accelerate Local Law 97 compliance by 2030	MOCEJ	Work with NY State to identify tools and financial resources to support multifamily buildings subject to LL97
Develop trainings and certifications to support Local Law 97 compliance and implement resilience retrofits by 2024	MOCEJ	Develop trainings and certifications to support LL97 compliance and implement resiliency retrofits by 2024
Expand NYC Accelerator by 2024	MOCEJ	Launch NYC Accerator Expansion by 2024
8. Decarbonize affordable housing		
Install window heat pumps in 10,000 NYCHA units and unlock Federal funding for further upgrades and efficiency investments by 2030	NYCHA	Install 30,000 heat pumps in 10,000 units
Implement HPD design guidelines to address energy efficiency, sustainability, and resilience retrofits by 2026	HPD	Begin electrification of up to 12,000 existing affordable housing units Require all new construction to be electric by 2026
9. Pursue fossil fuel free City operations		
Phase out City capital spending on fossil fuel equipment and infrastructure	MOCEJ/DCAS/OMB/ DDC	Start replacing easiest to electrify fossil fuel equipment Complete planning schedule for full fossil fuel phase out by 2026
10. Reduce localized air pollution in NYC		
Develop a new air quality monitoring program by 2024	DEP	Launch program by 2024
11. Reduce the carbon footprint of the construction industry by 2033		
Implement performance based standards for low-carbon materials and equipment by 2025	MOCEJ/DOB	Complete citywide embodied carbon baseline, implement lowcarbon material standards for concrete citywide
Expand ConstructNYC in 2023	EDC	Train and prequalify ConstructNYC participants in green construction Connect prequalified participants to Green construction and decarbonization related EDC work
CLEAN AND RENEWABLE ENERGY		
12. Maximize climate infrastructure on City-owned property		
Evaluate all City roofs undergoing repair work for climate infrastructure installation by 2025	DCAS/OMB/MOCEJ/ DDC	Complete a Roof Plan by 2025 that evaluates all City roofs' best use for climate infrastructure installation
Install solar energy, battery storage, green roofs, or other electric building infrastructure on all viable City-owned property	DCAS/OMB/MOCEJ/ DDC	Identify all viable City properties to co-locate climate infrastructure projects and begin necessary building upgrades
13. Connect New York City to clean electricity resources		
Actively support the development, access, and interconnection of large-scale renewable energy projects like offshore wind and hydropower	MOCEJ/DCAS/EDC	Lead on clean energy and environmental justice advocacy efforts through strengthening interagency coordination and utility advocacy to meet State mandates
14. Assist building and homeowners with clean energy projects and solar installation		
Launch Public Solar program for one-to-four family low-income homeowners in environmental justice communities by 2025	MOCEJ/EDC	Launch Public Solar program for one- to four-family low-income homeowners in environmental justice communities by 2025
Advocate to the State to continue and expand the solar tax abatement program for NYC residents	MOCEJ	Demonstrate our consistent position on continuing and expanding the property tax abatement for solar and energy storage
Advocate for enactment of the City of Yes for Carbon Neutrality Citywide Text Amendment in 2023 to expand renewable energy generation in the city	DCP	Advocate to enact City of Yes for Carbon Neutrality Citywide text amendment

Improving Our Quality of Life

INITIATIVE / ACTION	LEAD AGENCY	MILESTONES TO COMPLETE (Assuming funding by end of 2026)
GREEN SPACE		
15. Create an accessible and connected network of open spaces		
Connect over 300 miles of trails and make 12,000 acres of natural areas accessible to all New Yorkers	NYC Parks	Formalize 100 miles, and improve 200 miles of trails
Create over 10 acres of new open space and safe connections between parks as part of the greenway network expansion	NYC Parks/DOT	Publish a Citywide Greenway Plan
16. Improve the health of our forested areas		
Restore and steward 1,000 acres of forests across 10 sites, planting more than 30,000 native trees and shrubs	NYC Parks	Plant 10,000 native trees and shrubs
WATERWAYS		
17. Reduce combined sewer overflows by more than 4 billion gallons per year by 2045		
Deliver the Long-Term Control Plans by 2045	DEP	Put forth 12 projects in design and 6 projects in construction prior to 2026
Continue to implement the NYC Green Infrastructure Program, the largest of its kind in the nation	DEP	668 MGY CSO reduced by 2025
Improve water quality by capturing stormwater at the source through the Unified Stormwater Rule	DEP	Non-City action needed to progress
18. Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060		
Develop a strategy to end the discharge of untreated sewage into the New York Harbor by 2060	DEP	Register contract by end of 2024 to develop additional CSO mitigation strategies (factoring in flood mitigation, water quality, and synergies with other projects) that DEP may initiate before 2060
19. Improve the health and ecological function of wetlands		
Restore wetlands for flood risk reduction, conservation, and open space benefits	NYC Parks	Initiate planning or design, complete design, begin implementation or complete construction of over 20 wetland restoration and mitigation projects Complete Phase 2 of Saw Mill Creek Mitigation bank with EDC
TRANSPORTATION		
20. Get polluting trucks off our streets		
Pilot the East Coast's first low-emission zone centered on environmental justice through incentives and other methods	DOT	Complete feasibility assessment and develop implementation strategy for feasible options
End unlawful truck idling	DEP	Put in place process improvements by early 2024, assuming approval of Air Code revisions
Create shared charging depots by 2030 to support the transition to electric trucks	EDC/DOT	Identify a funding strategy and sites for EV charging for commercial vehicles
Accelerate adoption of cargo bikes for deliveries by 2026	DOT	Identify funding for an incentive program to increase enrollment Address regulatory barriers subject to collaboration with State and City partners
Reactivate the marine highway by 2025 to move freight off trucks and onto waterways	EDC/DOT	Activate six waterfront sites for freight distribution by 2026
21. Prioritize public transit, walking, and biking		
Bring New Yorkers back to the transit system to achieve a sustainable mode share of 80% by 2050	DOT	Continue implementation of transit signal priority projects and support for MTA's bus network redesigns Continue partnership with MTA to expand and promote programs to improve affordability of riding transit system
Implement congestion pricing and use it to promote environmental justice	DOT	Include the City's environmental justice, air quality, and equity priorities in the final congestion pricing plan
Transform our streets and public spaces under the leadership of the Chief Public Realm Officer	DOT	Launch and implement permanent Outdoor Dining Program citywide Complete Broadway Vision street improvement projects Complete Vision plan for reimagined Fifth Avenue from 59th St/ Central Park to 42nd St./Bryant Park with contracted design firm and steering committee
Implement our ambitious bike, pedestrian, and Vision Zero infrastructure agenda	DOT	Implement projects to make biking and walking safe and accessible, including 31 major capital projects in partnership with DDC and DEP that will contribute to our Streets Plan goals
Increase sidewalk cleanliness by expanding waste containerization	DSNY	Public release of containerization report in spring 2023

Improving Our Quality of Life

INITIATIVE / ACTION	LEAD AGENCY	MILESTONES TO COMPLETE (Assuming funding by end of 2026)
22. Ensure every New Yorker can access a bike or scooter		
Create the next generation of bike lanes and facilities so every New Yorker can travel safely and efficiently	DOT	Implement and evaluate multiple pilots
23. Help New Yorkers who must drive to drive electric		
Ensure every New Yorker is no more than 2.5 miles from an EV fast-charging hub by 2035	DOT	Make seven fast charging stations on DOT sites operational Release citywide procurement for additional site released and select vendors
Mandate that private parking garages and lots make EV charging available by 2030	DOB	Finalize administrative rules
Transition taxis and for-hire vehicles to EVs	TLC	Work towards making 20% or more of trips dispatched by Uber and Lyft in electric vehicles
Electrify school buses by 2035	DOE	Incorporate electrification milestones into school bus vendor contracts
FOOD		
24. Reduce emissions of City agency food purchases 33% by 2030		
Reduce carbon emissions of food purchases across City agencies 33% by 2030	MOFP	Achieve a 33% reduction in GHG emissions from food purchased
25. Promote reduction in institutional food-related emissions 25% by 2030		
Promote reduction in institutional food-related emissions 25% by 2030	MOFP	Implement private sector Plant-Powered Carbon Challenge for food purchased by companies and other partners.
26. Reduce emissions from commercial cooking		
Require retrofitting of charbroilers by 2027	DEP	Promulgate rule by December 2024 (with effective date December 2027)
Develop an NYC Restaurant Accelerator Program to assist businesses with compliance	DEP	Put program in place by December 2024
27. Support NYC's watershed farmers in expanding sustainability practices and food production		
Advance agricultural best management practices to improve GHG reduction and carbon sequestration	DEP	Complete study on climate impacts of BMPs in collaboration with Columbia Climate School and the Watershed Agricultural Council
Create an incentive program to support farmers in the New York City watershed who expand agricultural production of fruits and vegetables	DEP	Launch incentive program by 2024

INITIATIVE / ACTION	LEAD AGENCY	MILESTONES TO COMPLETE (Assuming funding by end of 2026)
Building the Green Economic Engine		
GREEN ECONOMY		
28. Launch new climate education and training programs for public schools		
Integrate climate education in public school classrooms across all subjects and grade levels	DOE	Launch a school certification program for climate education in the 2023-2024 school year, and certify up to 25 schools per year Train up to 1,000 teachers by 2026 to deliver climate education content Launch an annual Climate Action Day in the 2023-2024 school year
Launch new Career Connected Learning Programs for public school students dedicated to green job training and placement	DOE	Connect 1,000 public school students to career exploration and work-based learning opportunities in the green economy
29. Grow NYC's green workforce		
Position New Yorkers for fulfilling green economy careers	NYC Talent/MOCEJ/ EDC	Launch new and expand existing talent development programs in green economy sectors
Cultivate the offshore wind sector to provide residents with opportunities for economic mobility	EDC/CUNY	Upgrade the South Brooklyn Marine Terminal for offshore wind (OSW) and enable OSW workforce opportunities for thousands of New Yorkers
Establish a Green Economy Advisory Council in 2023	EDC	Launch a new industry engagement platform in 2023 for green economy stakeholders to drive innovation, unify NYC's climate tech ecosystem, and share best practices
Activate New York City's climate resource hubs and natural areas for workforce development	Mayor's Office	Select an anchor education and research institution for the Center for Climate Solutions on Governors Island in 2023
30. Support entrepreneurship and industry innovation		
Launch new partnerships and projects in 2023 to support the growth of sustainability-focused biotechnology and materials innovation	EDC	Launch the sustainability-focused biotech center at the Brooklyn Navy Yard and the Materials Innovation Hub by 2026
Launch and expand climate technology innovation, commercialization, and scaling opportunities across local industries	EDC/DOT/DCAS/ NYCHA	Support at least 20 companies per year in successfully commercializing, demonstrating, deploying, and/or scaling their climate tech solutions
Launch portal to connect public agencies with private startups and investors by 2024	EDC/OTI	Develop and launch web portal to consolidate citywide innovation opportunities and startup resources
Provide resources to attract international investments in climate technologies	EDC	Launch a Global Climate Tech Hub to scale mid-sized climate tech companies entering the NYC market
WASTE & CIRCULAR ECONOMY		
31. Collect organic materials and turn into energy and reusable assets		
Launch citywide curbside organics by 2024	DSNY	n/a (goal is 2024)
Expand commercial organics separation requirements to all food businesses by 2026	DSNY	Expand commercial organics separation requirements
Leverage existing DEP infrastructure to process collected organics into biogas and compost within the city as much as possible	DEP	Complete Citywide Organics Study Complete construction of new anaerobic digester complex at Hunts Point WRRF
32. Develop new markets and expand recycling and reuse		
Double the number of buildings enrolled in textile donation and recycling programs by 2026 and expand opportunities for curbside collection of textiles	DSNY	Double the number of buildings enrolled in textile donation and recycling programs
Expand NYC Parks' tree wood reuse pilot	NYC Parks	Salvage trees removed in the Tibbetts Brook daylighting project Develop draft language for capital project scopes to include reuse opportunities for Parks projects
Expand the Clean Soil Bank program by 2030	OER	Expand soil bank operations from 2 to 3 days/week

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
VIBRANT DEMOCRACY					
VD.1 Empower all New Yorkers to participate in our democracy					
VD.1.1 Expand voting rights and representation to bring more New Yorkers to the polls	Democracy NYC	N/A	N/A	N/A	N/A
VD.1.2 Expand opportunities for democratic engagement	CEC	N/A	N/A	N/A	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.1.3 Lead a comprehensive effort to count every New Yorker, as part of the 2020 Census	Census	N/A	N/A	N/A	N/A
VD.1.4 Increase digital literacy and combat misinformation and digital hate speech that threatens democracy	Democracy NYC, OTI	Report on success of public awareness campaigns and collaboration with social media platforms to inform future city investments and programming decisions	Reconsidered in 2022	N/A	N/A
VD.1.5 Empower the next generation of New Yorkers to become informed residents and activists	CCHR, DOE, DYCD, NYC Service	Target outreach to start YLCs within Children's Cabinet agencies and key public high schools	Reconsidered in 2022	N/A	N/A
		The City will grow the number of Youth Leadership Councils to 300. Civics for All: An additional 600 Civics for All Ambassador teachers will be trained during the summer of 2020 for the 2020-2021 school year	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.2 Welcome new New Yorkers from around the world and involve them fully in civic life					
VD.2.1 Explore the reach of IDNYC	DSS, MOIA	Complete renewal for over one million cardholders	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Complete smart chip technology exploration leading to new integrations and access for cardholders	Reconsidered in 2022	N/A	N/A
		Expand Middle School ID card roll-out system-wide	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.2.2 Raise naturalization rates through targeted outreach and assistance	MOIA	Complete ActionNYC expansion in libraries and launch new scaled citizenship program with goal to file applications for more than 25,000+ New Yorkers annually, and launch voter registration initiative	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Complete ActionNYC RFP process and expansion of legal services into libraries and institutionalize learnings from NYCitizenship	Completed	N/A	N/A
		Take learnings from citizenship program, and pilot and launch large scale citizenship program in partnership with DSS and CUNY	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.2.3 Protect and provide resources to new and undocumented New Yorkers	MOIA	Guarantee affordable health care: Expand NYC Care to all five boroughs in 2021	Completed	N/A	N/A
		Implement public messaging and outreach campaigns to ensure communities are connected to right information, legal services and where eligible, apply for citizenship	Completed	N/A	N/A
		Solidify We Speak online platform for New Yorkers and launch beginner language classes; adopt tested language access tools for website translation and complete full LL30 compliance. Work with CEC on poll-site initiative in order to increase interpretation services for LEP voters	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.3 Promote justice and equal rights, and build trust between New Yorkers and government					
VD.3.1 Bring together residents, agencies, and community-based organizations to initiate system-wide solutions and increase trust	MOCJ	Continue to convene Local NSTAT meetings in all 15 MAP communities	Completed	N/A	N/A
VD.3.2 Invest in communities working to end gun violence in New York City	MOCJ	Continue to partner with New Yorkers to develop and implement investments in community- and evidence-based strategies to prevent gun violence	Completed	N/A	N/A
VD.3.3 Advance diversity in leadership roles	CEC, CGE, DCLA	Have at least 100 candidates, training and available for appointment, from each borough	Reconsidered in 2022	N/A	N/A
VD.3.4 Advance gender equity by engaging diverse stakeholder groups	CGE	Continue to expand the 2020-2021 Gender Equity Campaign, "Show Up for Gender Equity," and associated programs citywide with men and youth to build gender equity advocates and partners	Completed	N/A	N/A

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
VD.3.2.5.2B Implement a regular citywide method of surveying resident sentiment	MOCJ	N/A	N/A	N/A	N/A
VD.3.2.5.1D Reduce incarceration by examining risk, needs, programming, and system flow	MOCJ	N/A	N/A	N/A	N/A
VD.4 Promote democracy and civic innovation on the global stage					
VD.4.1 Provide global leadership on climate, migration, and other shared challenges	Int'l Affairs, MOCEJ	Submit a Voluntary Local Review of NYC's progress towards reaching Sustainable Development Goals	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.4.2 Leverage the SDGs as a framework to share sustainability challenges and solutions	Int'l Affairs	Submit a Voluntary Local Review of NYC's progress towards reaching Sustainable Development Goals	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
VD.4.3 Empower students to lead on the global stage	CCHR, Int'l Affairs	Increase the number of participants (educators, students, community members) across the five boroughs	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
INCLUSIVE ECONOMY					
IE.5 Grow the economy with good-paying jobs and prepare New Yorkers to fill them					
IE.5.1 Diversify the City's economy and broaden access to good-paying jobs	EDC, WKDEV	Complete construction on MiNY Garment Hub and public realm improvements	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Open additional community health centers	Completed	N/A	N/A
IE.5.2 Strengthen and expand the capacity of adult education in a connected workforce system	DOE, DYCD, WKDEV	Further increase access to professional development and technical assistance for bridge programs and for providers preparing to launch bridge programs	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Increase the number and percentage of New Yorkers successfully connected to workforce services that meet their needs	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Increase the number of young adults aged 22 to 24 served by District 79 youth programs	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Increased number of New Yorkers earning a high school equivalency diploma	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Launch service-year bridge pilot	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
IE.5.3 Integrate human capital investment into all City initiatives	DCAS, WKDEV	Further increase the number of New Yorkers from underrepresented groups connected to construction jobs created by City investments	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Further increase the number of New Yorkers without a college degree who are connected to entry-level City job opportunities and apprenticeships	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
IE.5.4 Support the growth and retention of small businesses	SBS	Implement the collection of the EIN at 3 additional City agencies that regulate businesses. Continue to implement previously identified method of verifying EINs to ensure accuracy	Completed	N/A	N/A
IE.5.5 Invest in the space for equitable growth	DCLA, DCP, EDC	Complete 100 units of affordable artist workspace as part of the AREA initiative	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Continue to develop new mechanisms to promote expansion of businesses and creation of new workspace in suitable locations	Completed	N/A	N/A
IE.5.4.S.4.1 Economic Recovery 1. Launch Business Recovery and Resiliency Programs	MOCEJ, SBS	Establish self-guided online assessment that helps businesses understand risks that they face and provides guidance how to integrate the most valuable resiliency measures	Completed	N/A	N/A
		Integrate business resiliency best practices into SBS services	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Launch web-based business resiliency toolkit	Completed	N/A	N/A
IE.5.4.S.15.5 Food Supply 5. Continue to support the FRESH program to increase the number of full-line grocers in underserved neighborhoods	EDC	Approve additional projects for FRESH benefits and open approved stores	Completed	N/A	N/A
		Continue to close on a first ASTEP for food retail deal	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
IE.6 Provide economic security for all through fair wages and expanded benefits					
IE.6.1 Aggressively enforce fair wages and working conditions	DCWP, NYC Opportunity	Conduct an alternative dispute resolute program for paid care workers' wage hour claims and evaluate how it might expand into other industries	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
IE.6.2 Guarantee access to lifeline benefits	HRA, NYC Opportunity	N/A	N/A	N/A	N/A
IE.6.3 Address high living costs and debt loads	DCWP, NYC Opportunity	Serve 1,000 student loan borrowers through Student Loan Debt Clinics targeting neighborhoods and communities identified as having high levels of student loan debt-related financial distress	Completed	N/A	N/A
IE.7 Expand the voice, ownership, and decision-making power of workers and communities					
IE.7.1 Increase Economic Opportunities for Minority- and Women-owned Business Enterprises	MWBE	Award $16.25B to MWBEs	Completed	N/A	N/A
IE.7.2 Leverage the buying power of anchor institutions to strengthen local economies	MWBE, SBS	Report on first year impact of the anchor networks	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
IE.7.3 Increase employee-ownership to produce value for working New Yorkers	DMSPI, SBS	Report on first year impact and launch subsequent initiatives	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
IE.7.4 Leverage City-owned assets to protect community wealth and generate housing assets	HPD	Continue construction for existing buildings in pipeline	Completed	N/A	N/A
		Continue pre-development work of existing ANCP buildings so they can begin construction	Completed	N/A	N/A
IE.7.5 Expand community ownership of renewable energy infrastructure	MOCEJ	Continue offering the community energy planning tool to guide decision-making for community-owned energy assets	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
IE.7.6 Increase economic opportunities for diverse participants in the evolving cannabis industry	IGA, MOCJ	N/A	N/A	N/A	N/A
IE.8 Strengthen the City's fiscal health to meet current and future needs					
IE.8.1 Increase centralized savings through improved government operations	DCAS, MOCS, OLR, OMB	Continue to improve government operations	Completed	N/A	N/A
THRIVING NEIGHBORHOODS					
TN.9 Ensure all New Yorkers have access to safe, secure, and affordable housing					
TN.9.1 Keep New Yorkers in their homes and protect the housing stock	DSS, HPD, MOPT, NYCHA	Continue to expand the number of New Yorkers receiving universal access to counsel in eviction cases	Completed	N/A	N/A
		Review impacts of new State rent regulation laws	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
TN.9.2 Create or preserve 300,000 affordable units by 2026 and increase the overall housing supply	HPD, OER	Clean up an additional 850 brownfields between 2019 and 2021	Completed	N/A	N/A
		Create or preserve 25,000 affordable housing units	Completed	N/A	N/A
		Fund the acquisition of approximately 1,000 homes annually through Neighborhood Pillars	Reconsidered	Reconsidered in 2022	N/A
		Serve 100 low income households annually through HomeFix	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
TN.9.3 Expand housing and related services to support the city's most vulnerable populations	DSS, HPD	Advance Seniors First sites & continue implementing 'Aging in Place' across preservation projects	Completed	N/A	N/A
		Close all cluster shelter units by the end of 2021	Completed	N/A	N/A
		Continue to expand the number of New Yorkers receiving rental assistance	Completed	N/A	N/A
TN.9.4 Analyze residential segregation and promote fair housing	HPD	Implement policies and programs identified in federal report	Partially Complete	Reconsidered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
TN.9.5 Support efforts to create new housing and jobs throughout the region	DCP	Convene regional stakeholders, planning professionals, and government partners to discuss shared challenges and potential strategies for building affordable housing and growing the supply of a range of housing types, including senior housing, and opportunities to coordinate efforts and housing production targets	Completed	N/A	N/A

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
TN.9.1.4.1A Pursue neighborhood planning strategies that expand opportunities for mixed-use development, and especially for attraction of retail and services to underserved neighborhoods.	DCP, SBS	Continue to track commitments made through previous neighborhood study areas and invest in infrastructure in additional neighborhood study areas as they arise	Completed	N/A	N/A
TN.9.1.3.3PlaNYC.1 Explore additional areas for new development	DCP, HPD, NYCHA	Developer Selection for 6 additional affordable and mixed-income housing sites	Completed	N/A	N/A
		Financial closing for 6 additional affordable and mixed-income housing sites	Completed	N/A	N/A
		Release of RFPs for 6 additional affordable and mixed-income housing sites	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
TN.9.1.3.1B Conduct collaborative, holistic neighborhood planning to support new mixed-income housing creation with supporting infrastructure and services	DCP, HPD	Continue to conduct collaborative, holistic community-oriented planning efforts in multiple neighborhoods including Soho/Noho in Manhattan, Southern Boulevard in the Bronx and Crown Heights North in Brooklyn	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Continue to utilize the Neighborhood Planning Playbook in its community visioning workshops as part of current and future neighborhood studies	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
TN.10 Ensure all New Yorkers have access to neighborhood open spaces and cultural resources					
TN.10.1 Strengthen open spaces and opportunities for recreation in under-resourced and growing neighborhoods	DCP, DOT, NYC Parks	Complete capital reconstruction on an additional 11 Community Parks Initiative Phase 2 sites pending successful procurement results	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Complete Phase 3 pilot sites in Brooklyn, Staten Island and the Bronx	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Continue Summer Streets and Weekend Walks	Completed	N/A	N/A
		Create and implement a transportation master plan, which will include creating and maintaining one million square feet of pedestrian space within the first two years	Completed	N/A	N/A
		Issue and implement a transportation master plan. The plan will include creating and maintaining one million square feet of pedestrian space within the first two years	Completed	N/A	N/A
TN.10.2 Enhance neighborhood access and connectivity to parks and open spaces	NYC Parks	Complete construction on Phase 2 projects at four Anchor Parks sites (BX, BK, MN, QN)	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Formalize and improve hiking trails in parks	Completed	N/A	N/A
TN.10.3 Support arts and culture in all communities	DCLA, LPC	Install four more permanent artwork honoring underrepresented communities as part of the monuments initiative	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Provide professional development to 50 more cultural workers through CreateNYC Leadership Accelerator	Reconsidered in 2022	N/A	N/A
		Support four more artist residencies at City agencies	Completed	N/A	N/A
TN.10.4 Create and upgrade shared spaces to promote social cohesion and holistic service delivery	BPL, DOE, NYC Parks, MOCJ, NYPL, QPL	Codify and communicate the universal community school practices that can be adopted by any school	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Develop a sustainability plan for community school contracts	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Establish new GreenThumb community gardens	Completed	N/A	N/A
		Expand stewardship support through GreenThumb's 'Help a Garden Grow' Volunteer Program to 25 garden sites	Completed	N/A	N/A
TN.10.3.6.4 NYC is committed to opening up streets for safe recreational events	DOT	Complete Phase 3 pilots	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Continue El-Space Planning Framework and Inventory citywide	Completed	N/A	N/A
		Secure additional staff resources and interagency programmatic support	Completed	N/A	N/A

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TN.10.3.6.5 The City is investing in new street trees and other plantings, benches, wayfinding signs, and other amenities	DOT	DOT will continue to install wayfinding signs, benches and other street amenities as funding allows	Completed	N/A	N/A
		Grand Concourse (up to Fordham Rd), Atlantic Ave Phase 2, 4th Ave Phase 1, and Queens Blvd Segment 1 will likely begin by the end of 2021	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
TN.10.4.S.9.2 Community Preparedness 2. Continue and expand NYCEM's Community Emergency Response Teams (CERT)	NYCEM	Continue to work with agency partners and other professionals to offer multiple volunteer leadership training opportunities several times throughout the year.	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Continue to work with NYCEM Logistics division to offer Commodity Distribution Point (CDP) field staff training twice annually	Reconsidered in 2022	N/A	N/A
TN.10.4.2.12.14 Parks 14. Quantify the benefits of the city's ecosystems and green infrastructure	NYC Parks	N/A	N/A	N/A	N/A
TN.11 Advance shared responsibility for community safety and promote neighborhood policing					
TN.11.1 Create design solutions for public safety through Neighborhood Activation	MOCJ	Continue to seek partnerships and implement additional Neighborhood Activation projects	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
TN.11.2 Involve residents in crime prevention using environmental design	MOCJ	Continue to train residents in CPTED and implement recommendation	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
TN.11.3 Improve neighborhood cleanliness and safety	DMOPS	N/A	N/A	N/A	N/A
TN.11.4.2.12.4 Parks 4. Expand the City's greenstreets plan, including for Jamaica Bay	NYC Parks	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A
TN.12 Promote place-based community planning and strategies					
TN.12.1 Create tools and resources to support place-based planning	DCP	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A
TN.12.1.4.1B Maximize the use of available financing tools that assist the commercial components of mixed-use projects to support vibrant mixed-use neighborhoods.	SBS	Launch additional cohort of Neighborhood 360	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
TN.12.4.S.17.10 Brooklyn-Queens Waterfront 10. Create and implement a revitalization strategy for targeted retail and community spaces within Red Hook Houses	NYCHA	N/A	N/A	N/A	N/A
TN.12.4.S.21.9 South Queens 9. Develop a revitalization strategy for the Beach 108th Street corridor	DOT	Continue construction	Completed	N/A	N/A
TN.12.4.S.21.11 South Queens 11. Develop a commercial revitalization strategy for Far Rockaway, potentially involving repositioning of City- and MTA-controlled sites	EDC	Continued construction on Beach 21st Street project	Completed	N/A	N/A
TN.12.4.S.18.15 Southern Brooklyn 15. Support area recovery through the rebuilding and expansion of the entertainment district	EDC	N/A	N/A	N/A	N/A
HEALTHY LIVES					
HL.13 Guarantee high-quality, affordable, and accessible health care for all New Yorkers					
HL.13.1 Guarantee health care for all New Yorkers	H+H	Continue NYC Care in all five boroughs and monitor healthcare access and outcomes	Completed	N/A	N/A
		Reach 100,000 active NYC Care members	Completed	N/A	N/A
HL.13.2 Improve and modernize primary and specialty health care delivery	H+H	Open three additional health centers (1 in Queens, 1 in Brooklyn and 1 in the Bronx)	Completed	N/A	N/A
HL.13.2.4.4 Co-located and integrated behavioral healthcare in primary care through the integrated Collaborative Care model	H+H	N/A	N/A	N/A	N/A
HL.13.2.4.3 Create at least 16 Health Clinics in primary care shortage areas	EDC, H+H	Open one health center: Charles. B Wang Community Health Center in Queens	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.

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HL.13.2.4.2B Ensure critical hospital services are fully functioning in the face of increased demand, weather disasters, and aging infrastructure	H+H	Complete relocation of electrical switchgear from basement to elevator areas at Bellevue Hospital	Completed	N/A	N/A
		Complete relocation of HVAC air handling units at Bellevue hospital	Completed	N/A	N/A
HL.13.4.S.8.2 Healthcare 2. Require the retrofitting of existing hospitals in the 500-year floodplain	H+H, MOCEJ	N/A	N/A	N/A	N/A
HL.14 Advance equity by addressing the health and mental health needs of all communities					
HL.14.1 Reduce the leading causes of premature mortality	DOHMH, H+H	1,000 New Yorkers complete National Diabetes Prevention Program (DPP) programs at new sites	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Enroll 3,000 Medicaid recipients in Medication Therapy Management	Reconsidered in 2022	N/A	N/A
		Reach 1,000 New Yorkers through the Pharmacy to Farm Prescriptions program	Completed	N/A	N/A
HL.14.2 Ensure every New Yorker in need has access to mental health support	OCMH	Engage 400 new individuals through NYPD/ DOHMH Co-Response Teams in FY2021	Completed	N/A	N/A
		Provide access to ThriveNYC-funded on-site clinical mental health services in 173 public schools	Completed	N/A	N/A
		Provide clinical services to 4,950 individuals through the Mental Health Service Corps in FY2021	Completed	N/A	N/A
		Provide over 264,000 supportive connections through NYC Well, New York City's behavioral health helpline, in FY2021	Completed	N/A	N/A
		Provide support to 55,000 individuals to deal with the emotional, physical and financial aftermath of crime through the Crime Victim Assistance Program in FY2021	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
HL.14.3 End the opioid epidemic	DOHMH, H+H	Distribute 100,000 naloxone kits citywide annually	Completed	N/A	N/A
		Expand peer-response initiative, Relay, to maintain 15 hospital emergency departments	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Reach 1500 providers through public health detailing and other outreach efforts to educate about the drug overdose epidemic and the City's public health response (annual target)	Reconsidered in 2022	N/A	N/A
		Train 1,800 prescribers in buprenorphine (total)	Completed	N/A	N/A
HL.14.4 Reduce racial-ethnic inequities in both maternal mortality and infant mortality	DOHMH, H+H	Begin cohort 2 of the quality improvement initiative in 10 hospitals	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Implement MHQIN initiative, convene maternal mortality and morbidity review committee, review 2019 maternal deaths, and produce annual report, including recommendations for action as per City Council legislation (Local Law 188 of 2018)	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
HL.15 Make healthy lifestyles easier in all neighborhoods					
HL.15.1 Expand healthy food choices	DOHMH, MOFP	Continue to offer $1 for $1 SNAP incentive match at participating supermarkets and promote program to increase program utilization	Completed	N/A	N/A
		Encourage companies to commit to meeting targets, promote the targets, and begin to monitor changes in the national food supply	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Plan for and launch $2 for $2 Health Bucks SNAP incentive match and promote program to increase usage	Completed	N/A	N/A
		Provide technical assistance to City agencies and monitor changes made by agencies who purchase and serve food	Completed	N/A	N/A
HL.15.2 Create a built environment that encourages physical activity, community building, and better mental health	DDC, DOHMH	Amend Executive Order 359 to reference the updated and expanded Active Design Guidelines	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Release and disseminate update to the Active Design Guidelines	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
HL.15.4.S.4.5 Economic Recovery 5. Continue to support the FRESH program to increase the number of full-line grocers in underserved neighborhoods	EDC	Approve additional projects for FRESH benefits and open approved stores	Completed	N/A	N/A
		Continue to close on ASTEP for food retail deals	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
HL.16 Design a physical environment that creates the conditions for health and well-being					
HL.16.1 Reduce childhood exposure to lead	DOHMH	Identify products contaminated with lead and take action when such dangerous levels are found	Completed	N/A	N/A
		Improve the Citywide Immunization Registry by expanding the text messaging tool for reminding parents of the need for blood lead testing, and developing an interface to display recommendations to healthcare providers about lead testing for individual children	Completed	N/A	N/A
		Reduce the rate of children with BLL of 5 mcg/ dL or greater while reducing the disparity between high- and low-income neighborhoods by 10%	Completed	N/A	N/A
HL.16.2 Expand Heat-health Programming and Education	DOHMH, MOCEJ	Complete "Be A Buddy" community resilience project and share best practices learned and other evaluation findings	Completed	N/A	N/A
		Examine utility disconnect policy and operational options to protect users of electrically powered life sustaining equipment during power outages	Completed	N/A	N/A
HL.16.3 Advance equitable improvements in air quality	DCAS, DEP, DOHMH, DOT, MOCEJ	DEP will convene an advisory group to assist in determining the best technologies for char broilers	Reconsidered in 2022	N/A	N/A
		DOHMH to finalize screening tool including user testing and apply to current policy questions of interest to Mayor's Office, DOT, DEP, among others	Completed	N/A	N/A
		Operate at least 2,500 electric vehicle (EV) units at City agencies with new goal of 4,000+ by 2025	Completed	N/A	N/A
HL.16.4 Improve the quality of our waterways	DEP	Continue to implement SWMP programming	Completed	N/A	N/A
HL.16.5 Protect, restore and conserve the City's natural environment	NYC Parks	Improve over 250 acres of forested natural areas citywide annually	Completed	N/A	N/A
		Plant over 5,000 street trees in neighborhoods with the highest vulnerability to heat	Completed	N/A	N/A
		Update NYC Freshwater Wetlands and Stream Map	Completed	N/A	N/A
HL.16.2.3.3A Reduce asthma triggers in the home	NYCHA	Continue the roof replacement at the 186 buildings in Tranche 6 and begin the design of the approximately 89 buildings in the 7th Tranche	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
HL.16.2.3.3C Reduce housing-related fall hazards for older adults	DFTA, DOHMH	Continue falls prevention training efforts with City agency partners, with a focus on falls risk assessment and mitigation in the home	Completed	N/A	N/A
		Continue implementing and refining the Home Safety checklist, training materials and presentations, and other public education tools and curricula, promoting wide dissemination	Completed	N/A	N/A
		Continue to work with sister agencies to identify novel pathways to disseminate falls prevention tools and/or items	Completed	N/A	N/A
		Work to reinforce efforts (i.e., solidify commitments in Scopes of Work) to include falls risk assessment tools for professionals who enter the homes of older adults	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.

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EQUITY AND EXCELLENCE IN EDUCATION					
EE.17 Make New York City a leading national model for early childhood education					
EE.17.1 Ensure eligible children from birth to three years have access to developmental services	DOHMH	Continue to work with child care providers to determine the most effective distribution of toolkits in their community	Completed	N/A	N/A
		Continue to work with New York City clinicians to determine the most effective distribution of toolkits and any other necessary information	Completed	N/A	N/A
		Engage 5,000 community members a year to introduce the Early Intervention Program	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Increase annual referrals to the early intervention program by 600 children over the number referred in 2019	Reconsidered in 2022	N/A	N/A
EE.17.2 Expand 3-k for All to more than one-third of all school districts by end of 2020 school year	DOE	3-K for all will be at scale in the 14 funded districts	Completed	N/A	N/A
EE.17.3 Offer home-based childcare providers	DOE	Provide training and support to all home-based providers who are part of a family childcare network contracted with the City	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.17.4 Achieve universal literacy by second grade	DOE	2/3 of all second graders reading on grade level	Completed	N/A	N/A
EE.17.5 Offer free, full-day, high-quality Pre-K for every four-year-old	DOE	N/A	N/A	N/A	N/A
EE.17.2.1.2 Continue to focus on developing high-quality early childhood programs through teacher recruitment and training as well as through increased support for students whose native language is not English, students with disabilities, and students from high-need	DOE	Achieve 3-K for All at scale in the 14 funded districts	Completed	N/A	N/A
		Continue to expand dual language programs and other supports for emerging multilingual learners (EMLLs)	Completed	N/A	N/A
EE.17.2.2.1 Implement key system-building initiatives to strengthen Community Schools	DOE	Codify and communicate the universal community school practices that can be adopted by any school	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Develop a sustainability plan for community school contracts	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.18 Advance equity in K-12 opportunity and achievement					
EE.18.1 Improve school facilities, particularly in high-need districts	DOE	Allocate $284 million in additional funding in this plan to the Mayor's Air Conditioning for All initiative, ensuring that all classrooms will have A/C in 2021 so that students are learning in a comfortable classroom one year earlier	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.18.2 Improve college readiness by expanding algebra, AP, and Computer Science to every school by 2025	DOE	100% of high school students have access to five or more AP classes	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.18.3 Expand College Access for All	DOE	Continue to support middle school students with college readiness programs	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.18.4 Ensure students in temporary housing receive the support and services they need to succeed	DOE	Continue to collaborate with city agencies and community based organizations to expand resources to students and families experiencing homelessness	Completed	N/A	N/A
EE.18.1.2.4 Increase postsecondary attainment by promoting high school graduation, college matriculation and degree completion	DOE	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A
EE.19 Increase integration, diversity, and inclusion in New York City Schools					
EE.19.1 Support the Critically Conscious Educators Rising Series	DOE	Increase participants involved in the series	Completed	N/A	N/A
EE.19.2 Expand implicit bias training for City Teachers	DOE	Support strategic planning and implementation of trainings for remaining districts	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.19.3 Advance the diversity grants program	DOE	Complete community planning in 5 additional school districts (10 in total)	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
EE.19.4 Provide students with greater access to restorative justice	DOE	Continue to explore opportunities to further expand restorative practices into other districts	Completed	N/A	N/A
EE.19.5 Ensure inclusion for students of all gender identities and sexual orientations	DOE	Expand the number of student clubs that are funded	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
LIVABLE CLIMATE					
LC.20 Achieve carbon neutrality and 100% clean electricity					
LC.20.1 Ensure 100 percent clean electricity resources	MOCEJ	Develop a solar technical assistance program to accelerate adoption across the city	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.20.2 Pursue deep cuts in emissions and gains in efficiency across all buildings	MOCEJ	Work toward deep cuts in emissions for small buildings and affordable buildings	Completed	N/A	N/A
LC.20.3 Promote sustainable transportation options	DOT, MOCEJ	Complete the execution of Executive Order 41 of 2019 regarding fleet efficiency	Completed	N/A	N/A
LC.20.4 Adopt Zero Waste management strategies citywide	DSNY	Pass legislation to expand organic waste collection and processing in NYC	Reconsidered in 2022	N/A	N/A
LC.20.5 Support every New Yorker in the shift to sustainable living	MOCEJ	Implement first set of impact studies based on identified framework, and review results to inform and revise engagement priorities and strategies	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.20.4.S.6.9 Utilities 9. Work with industry partners, New York State, and regulators to strengthen New York City's power supply	MOCEJ	Develop Con Edison climate resiliency implementation plan	Completed	N/A	N/A
		Participate in quarterly working group meetings for Con Edison climate resiliency implementation plan	Completed	N/A	N/A
		Through the rate case process and ongoing regulatory discussions, work with utilities and regulators to develop a cost-effective system upgrade plan to address climate risks	Completed	N/A	N/A
LC.20.3.1.1F Achieve net-zero energy at in-city wastewater treatment plants by 2050	DEP	Complete construction of anaerobic digester gas system upgrade and beneficially use anaerobic digester gas in cogeneration engines	Reconsidered in 2022	N/A	N/A
LC.21 Strengthen communities, buildings, infrastructure, and the waterfront to be more resilient					
LC.21.1 Mitigate physical risks posed by climate change by delivering critical projects	NYC Parks, EDC, MOCEJ	Advance Construction on the Battery/South Battery Park City Resiliency Project	Reconsidered in 2022	N/A	N/A
		Release the Financial District and South Street Seaport Climate Resiliency Master Plan, including steps to establish public benefit corporation to manage next phases of work	Completed	N/A	N/A
		Start Construction of the Battery Wharf Reconstruction Project	Reconsidered in 2022	N/A	N/A
		Start construction of Two Bridges Coastal Resilience	Reconsidered in 2022	N/A	N/A
		Update NYC Freshwater Wetlands and Stream Map	Completed	N/A	N/A
LC.21.2 Empower New Yorkers to take climate-smart adaptation measures	MOCEJ, NYCEM, SBS	Continue conducting Community Preparedness Boot Camps to assist local organizations with their emergency planning and connect them with NYCEM's resources	Completed	N/A	N/A
		Host an annual symposium for local community and faith-based organizations to discuss best practices for community planning for vulnerable populations	Completed	N/A	N/A
		Host annual Community Preparedness Symposium (formerly called the Disability Access and Functional Needs Symposium)	Completed	N/A	N/A
		Host Community Preparedness Council three times per year to provide a forum for community, faith-based and government leaders to network and share best practices, challenges and next steps	Completed	N/A	N/A
LC.21.3 Develop policies and governance structures to support climate resiliency and adaptation	MOCEJ	Finalize Coastal Protection Design Guidelines	Completed	N/A	N/A
		Update the City's building code to ensure the safety and functionality of all new buildings built in locations with current or future risks associated with sea level rise	Completed	N/A	N/A
LC.21.4 Use the best available science to inform a multi-hazard approach to climate adaptation	MOCEJ	Begin to implement operational measures identified in the mitigation roadmap	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Complete review and analysis of collected monitoring data	Completed	N/A	N/A
LC.21.4.S.1.5 Climate Analysis 5. Explore improved approaches for mapping future flood risks, incorporating sea level rise	MOCEJ	Continue the process for developing future flood map product(s)	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
LC.21.4.1.2A Invest in emergency shelter sites to accommodate New Yorkers with disabilities and retrofit shelters to have accessible entrances, restrooms, and other aspects of universal design	NYCEM	Continue retrofits at DOE facilities identified as needing remediation for purposes of sheltering for coastal storms	Completed	N/A	N/A
LC.21.4.S.1.1 Climate Analysis 1. Work with FEMA to develop new FEMA FIRMs for New York City	MOCEJ	Complete review of FEMA's Intermediate Data Submissions (IDSs) and any other work products from the NY/NJ Coastal Restudy	Completed	N/A	N/A
LC.21.4.S.2.4 Coastal Protection 4. Install armor stone shoreline protection (revetments) in Coney Island	EDC, MOCEJ	Begin construction at three priority locations	Reconsidered in 2022	N/A	N/A
LC.21.4.S.1.2 Climate Analysis 2. Work with FEMA to improve the communication of current flood risks	MOCEJ	N/A	N/A	N/A	N/A
LC.21.4.S.2.5 Coastal Protection 5. Install armor stone shoreline protection (revetments) on Staten Island	NYC Parks, MOCEJ	Begin construction at three priority locations	Reconsidered in 2022	N/A	N/A
LC.21.4.S.2.33 Coastal Protection 33. Evaluate strategies to fund wetland restoration and explore the feasibility of wetland mitigation banking structures	EDC	Complete four rounds of invasive treatment and maintenance of restored wetland	Completed	N/A	N/A
LC.21.4.S.2.6 Coastal Protection 6. Raise bulkheads in low-lying neighborhoods across the city to minimize inland tidal flooding	EDC, MOCEJ	Begin construction at three priority locations	Reconsidered in 2022	N/A	N/A
LC.21.4.S.2.32 Coastal Protection 32. Evaluate the city's vulnerability to drainage pipe flooding and identify appropriate solutions to minimize those risks	MOCEJ	N/A	N/A	N/A	N/A
LC.21.4.S.5.2 Insurance 2. Develop FEMA-endorsed flood protection standards and certifications for existing urban buildings	MOCEJ	Subject to FEMA's release of the second phase of the guidance for buildings that cannot be elevated, the City will review and disseminate information	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.21.4.S.20.8 East and South Shores of Staten Island 8. Explore expansion of the City's mitigation banking pilot as a funding mechanism to facilitate the construction of the Mid-Island and South Shore Bluebelts	EDC	Complete four rounds of invasive treatment and maintenance of restored wetland	Completed	N/A	N/A
LC.21.4.S.2.12 Coastal Protection 12. Design and construct a protection system for the community of Breezy Point	DDC, MOCEJ	Begin construction	Completed	N/A	N/A
LC.21.4.S.5.4 Insurance 4. Call on FEMA to develop mitigation credits for resiliency measures	MOCEJ	N/A	N/A	N/A	N/A
LC.21.4.S.2.11 Coastal Protection 11. Continue to work with the USACE to complete existing studies of the Rockaway Peninsula and implement coastal protection projects	NYC Parks	Work with USACE as they advance construction of beachside measures	Completed	N/A	N/A
LC.21.4.S.5.8 Insurance 8. Call on New York State to improve policyholder awareness at the point of sale or renewal	MOCEJ	Continue to work with New York State government to improve awareness regarding flood risks during the sales of properties in the flood plain	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.21.4.S.2.19 Coastal Protection 19. Implement the Hunts Point Energy Resiliency Pilot Project	EDC	Groundbreaking on construction	Reconsidered in 2022	N/A	N/A
LC.21.4.S.19.3 Southern Manhattan 3. Construct physical enhancements to Water Street	EDC	Substantially complete construction	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.21.4.S.2.21 Coastal Protection 21. Implement the East Side Coastal Resiliency Project	DDC, NYC Parks, MOCEJ	Advance construction	Completed	N/A	N/A
LC.21.4.S.2.23 Coastal Protection 23. Install an integrated flood protection system in Red Hook	DDC, MOCEJ	Complete design and submit to FEMA for approval	Completed	N/A	N/A
LC.21.4.S.2.24 Coastal Protection 24. Continue to work with the USACE to complete existing studies on Staten Island and implement coastal protection projects	NYC Parks, MOCEJ	Work with USACE as they begin construction on one project element	Completed	N/A	N/A
LC.21.4.S.18.5 Southern Brooklyn 5. Develop an implementation plan and preliminary designs for new Coney Island Creek wetlands and tidal barrier	EDC, MOCEJ	Bid out for construction	Reconsidered in 2022	N/A	N/A

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
LC.22 Create economic opportunities for all New Yorkers through climate action					
LC.22.1 Grow the green economy with good-paying jobs and a skilled workforce	EDC, SBS, WKDEV	N/A	N/A	N/A	N/A
LC.22.2 Invest in a carbon neutral and climate resilient future	MOCEJ, NYC Pension Trustees	Achieve $4 billion (or 2 percent of the $195 billion pension portfolio) invested in renewable energy, energy efficiency, and other climate change solutions	Completed	N/A	N/A
LC.22.1.3.3PlaNYC.3 Increase the sustainability of City-financed and public housing	EDC, HPD, NYCHA	Begin work on modernizing ventilation systems in 13 East Harlem developments	Reconsidered in 2022	N/A	N/A
		Complete Ameresco B EPC construction	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Complete installation of energy, water, and GI at South Jamaica Houses (NYSERDA Cleaner Greener Communities)	Reconsidered in 2022	N/A	N/A
		Complete installations of DEP GI in 30 developments	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
LC.22.4.S.5.1 Insurance 1. Support Federal efforts to address affordability issues related to reform of the NFIP	MOCEJ	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A
LC.23 Fight for climate accountability and justice					
LC.23.1 Pursue the City's lawsuit against the five largest investor-owned fossil fuel companies	LAW, MOCEJ	Dependent on outcome of appeal in Second Circuit, continue litigation and explore other potential opportunities to address legal accountability for harms and costs associated with climate change impacts	Partially Complete	Reconsidered	After the Second Circuit's 2021 decision in the lawsuit the City initiated against the five largest investor-owned fossil fuel companies in 2018, the City initiated a separate lawsuit to enforce the City's consumer protection law to discourage unlawful actions by fossil fuel companies. The City has also sought to intervene in litigation pending in France concerning TotalEnergies' failure to develop an adequate plan regarding the climate impacts of its products.
LC.23.2 Divest the City's pension funds of all fossil fuel reserve owners	MOCEJ, NYC Pension Trustees	Begin to divest from fossil fuel owners	Completed	N/A	N/A
LC.23.3 Advocate for robust regulation of greenhouse gas emissions	LAW, MOCEJ	Continue to advocate for robust federal environmental regulation, oppose efforts to roll back GHG emissions regulations, and consider legal action challenging final rules that are not protective of the environment	Completed	N/A	N/A
LC.23.4 Partner with global cities to foster climate accountability and climate justice	MOCEJ	Work with cities in the Divest / Invest Forum to announce their intent to either divest from fossil fuels or pledge to invest a percentage of their assets in climate solutions	Completed	N/A	N/A
EFFICIENT MOBILITY					
EM.24 Modernize New York City's mass transit networks					
EM.24.1 Modernize the subway system and improve affordability and accessibility	DCP, HRA, IGA	Continue to expand Fair Fares for New Yorkers	Completed	N/A	N/A
EM.24.2 Improve bus network performance by expanding bus priority citywide	DOT, IGA, NYPD	Add 300 TSP intersections per year	Completed	N/A	N/A
		Improve 5 miles of existing bus lanes per year	Completed	N/A	N/A
		Install 10-15 miles of bus lanes per year	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Issue and implement a transportation master plan, which will include 150 miles of physically or camera-protected bus lanes over five years, with at least 20 miles in the first year and at least 30 miles in each subsequent year; transit signal priority at 750 intersections in the first year and 1,000 intersections in each subsequent year; and bust stop upgrades at 500 stops per year	Completed	N/A	N/A

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
EM.24.3 Provide New Yorkers with more transit options	EDC, IGA	Launch landing at Throgs Neck/Ferry Point Park	Completed	N/A	N/A
		Open Homeport II	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Remove DUMBO from South Brooklyn route	Reconsidered in 2022	N/A	N/A
		Replace and upgrade barges at DUMBO, South Williamsburg, and Hunters Point South	Completed	N/A	N/A
EM.25 Ensure New York City's streets are safe and accessible					
EM.25.1 Implement the Vision Zero Action Plan	DOT	Add exclusive pedestrian crossing time on Priority Corridors	Completed	N/A	N/A
		Implement at least 50 Vision Zero safety engineering improvements annually on the updated Priority Corridors, Intersections, and Areas citywide	Completed	N/A	N/A
		Keep seniors safe on city streets through engineering interventions and targeted outreach	Completed	N/A	N/A
		Modify signal timing on Priority Corridors	Completed	N/A	N/A
		Prioritize targeted enforcement and outreach on Priority Corridors, Intersections, and Areas	Completed	N/A	N/A
EM.25.2 Transform dangerous arterial roads into Vision Zero Great Streets	DOT	4th Ave: Continue design of Phase 2 (construction start in late 2022)	Completed	N/A	N/A
		Atlantic Ave: Continue construction of Phase 2 (completion in mid-2022)	Completed	N/A	N/A
		Grand Concourse: Continue construction of Phase 4, begin final design of Phase 5	Completed	N/A	N/A
EM.25.3 Reduce fatalities and serious injuries involving fleets managed or regulated by City agencies	BIC, DCAS, TLC	Complete 2nd Update to Safe Fleet Transition Plan (SFTP) with at least 75% of trucks outfitted with side-guards	Completed	N/A	N/A
		Further research and pilot truck driver alert systems and intelligent speed assist as a part of second update report	Completed	N/A	N/A
EM.25.4 Expand and increase connectivity of the bike network	DOT	Complete 5 miles of capital work along Brooklyn Waterfront Greenway, the Manhattan Waterfront Greenway and the Jamaica Bay Greenway	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Create or enhance 75 lane miles of bicycle facilities in Priority Bicycle Districts by 2022	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Help facilitate the expansion of New York City's bike share system to neighborhoods where it is currently unavailable	Completed	N/A	N/A
		If feasible, begin planning and implementing Eastern Queens Greenway	Completed	N/A	N/A
		Install 50 miles of bike lanes annually, including 10 miles of protected bike lanes	Completed	N/A	N/A
		Issue and implement a transportation master plan, which will include 250 miles of protected bike lanes over five years, with at least 30 miles in the first year and 50 miles in each subsequent year	Completed	N/A	N/A
EM.25.5 Enhance walkability and accessibility	DOT	Construct 26,000 corners with Ped Ramp upgrades by the end of FY 2021	Completed	N/A	N/A
		Deploy iRide app with multiple accessibility features	Reconsidered in 2022	N/A	N/A
		Enhance accessibility at ten additional bus stops per year	Completed	N/A	N/A
		Install APS at 375 intersections	Completed	N/A	N/A
EM.26 Reduce congestion and emissions					
EM.26.1 Manage vehicle demand on city streets	DOT, DSNY, IGA, NYPD, TLC	Deploy a 10-person DOT placard enforcement unit by end of 2021	Reconsidered in 2022	N/A	N/A
		Dispatch 15% of all trips to wheelchair accessible vehicles, regardless of whether or not one is needed for the trip	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Monitor the growth of battery-electric vehicles in the for-hire vehicle sector by tracking vehicles and passenger trips	Completed	N/A	N/A

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
EM.26.2 Develop a citywide network of electric charging infrastructure	DCAS, DOT, MOCEJ	Complete final 80 charging sites for public evaluation program	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Construct next 4 fast charging hubs	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
EM.26.3 Reduce the City's fleet and lower emissions	DCAS	Complete rollout of additional EV charging including EV Fast chargers at 100+ sites, and operate at least 750 charging locations	Completed	N/A	N/A
		Fully implement EO 41 of 2019 including reducing fleet size by at least 1,000 vehicles, down-sizing 250 SUVs to electric sedans, and reducing at least 500 commuters	Completed	N/A	N/A
		Operate at least 2,500 EV units at city agencies with new goal of 4,000+ by 2025	Completed	N/A	N/A
		Transition at least 75% of diesel fuel use to biofuels including biodiesel and renewable diesel	Reconsidered in 2022	N/A	N/A
EM.26.4 Incentivize commercial and fleet vehicles to reduce emissions	DOT, DSNY, MOCEJ, NYPD	Begin Commercial Waste Zones implementation	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
EM.27 Strengthen connections to the region and the world					
EM.27.1 Expand regional transportation connectivity and capacity	DCP, DOT, IGA	Support completion of major infrastructure projects including Gateway, Port Authority Bus Terminal and Penn Access	Completed	N/A	N/A
EM.27.2 Modernize New York City's freight transportation network	DOT, EDC, IGA	Add 500 new businesses to the participant list of the OHD (off-hours delivery) program	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Break ground for Hunts Point Marine Terminal	Reconsidered in 2022	N/A	N/A
		Break ground on at least one rail transload facility	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Complete Port Authority Cross Harbor Tier 2 EIS	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Explore opportunities for microfreight distribution centers in highly congested commercial areas	Completed	N/A	N/A
		Issue and implement a transportation master plan, which will include assessing and amending commercial loading zones and truck routes	Completed	N/A	N/A
EM.27.3 Improve the sustainability and efficiency of air travel	EDC, IGA	Continue promotion activities	Reconsidered in 2022	N/A	N/A
		Continue recruitment of new FTZ users	Completed	N/A	N/A
		Continue support for Gateway JFK BID	Completed	N/A	N/A
		FAA to implement additional elements of Northeast region NextGen air traffic control improvements to reduce delay	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		IGP and Delta to continue reconstruction of LGA terminals	Completed	N/A	N/A
		TOGA and JetBlue advance JFK terminal redevelopment	Completed	N/A	N/A
		Work with Port Authority as needed on implementation of the cargo area redevelopment as part of the JFK Redevelopment Program	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.

INITIATIVE / SUPPORTING INITIATIVE	LEAD AGENCY	MILESTONES TO COMPLETE BY DECEMBER 31, 2021	ONENYC 2022 MILESTONES STATUS	PLANYC 2023 STATUS	RATIONALE
MODERN INFRASTRUCTURE					
MI.28 Make forward-thinking investments in core physical infrastructure and hazard mitigation					
MI.28.1 Plan for capital investments holistically and collaboratively	DCP, DDC, DEP, DOT, SCA	Continue resurfacing program	Completed	N/A	N/A
		Continue to effectively manage and prioritize repaving work	Completed	N/A	N/A
		Develop a standardized triple-bottom line or benefit-cost framework to help prioritize the most cost effective projects	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
MI.28.2 Upgrade City infrastructure to continuously deliver high-quality services to New Yorkers	DEP, DOT, DSNY	Bid construction contract on the Williamsburg Bridge	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Complete construction of wastewater hardening projects by July 2021	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Complete construction on Brooklyn Bridge 6A	Completed	N/A	N/A
		Complete replacement of Tower Globes on the Manhattan Bridge	Completed	N/A	N/A
		Complete tunnel and shaft design for Kensico Eastview Connection Tunnel	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Continue construction on Manhattan and Queensboro Bridges	Completed	N/A	N/A
		Substantially complete the Gowanus high-level storm sewer (HLSS)	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
MI.28.3 Spur improvements to utility distribution and transmission networks	MOCEJ	Advocate for a robust transmission system to support direct connection of offshore wind into NYC in relevant state regulatory processes	Completed	N/A	N/A
		Through the rate case process and ongoing regulatory discussions, work with utilities and regulators to develop a cost-effective system upgrade plan to address climate risks	Completed	N/A	N/A
MI.28.4 Invest in innovative and resilient transportation networks	DOT, MOCEJ	Complete final 80 charging sites for public evaluation program	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Construct next 4 fast charging hubs	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
MI.28.5 Establish a Citywide Enterprise Risk Management Task Force	LAW, MOCEJ, NYCEM	N/A	N/A	N/A	N/A
MI.28.6 Invest in public health infrastructure to be able to withstand infectious disease	DOHMH, H+H, NYCEM	Accept ECR data into surveillance registries for use by epidemiology and fieldwork teams	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Agency Pandemic Plan is completed and approved by DOHMH Emergency Response Groups, Incident Commanders and COH	Reconsidered in 2022	N/A	N/A
		Invite additional urgent care centers to participate in the syndromic surveillance system	Completed	N/A	N/A
		Use strategic plan to prioritize technology projects, develop technology acquisition strategy (build-vs-buy) strategy and protocols, and propose organizational changes	Completed	N/A	N/A
MI.29 Improve digital infrastructure to meet the needs of the 21st century					
MI.29.1 Achieve universal broadband across the five boroughs	OTI	Update the Truth in Broadband Report, apply standards from the Internet Master Plan and Wi-Fi report in contract agreements to the extent possible, and make awards under the Citywide RFP	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
MI.29.2 Ensure all New Yorkers benefit from connectivity by expanding digital education programs	OTI	Update information on public computer centers citywide	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
MI.29.3 Build and cultivate the most innovative cybersecurity ecosystem and the most cyber-resilient city in the world	Democracy NYC, EDC, OTI, SBS	Bring entire Cyber NYC programs to near-completion of their original commitments, including graduating the third startup cohort from Hub.NYC Center	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Increase capacity of the City to defend against cyber threats, as well as formalizing the long-term role of NYC Cyber Command in that mission	Completed	N/A	N/A
		Launch National Cyber Consortium, formalize the long-term role of NYC, and complete & roll out a cyber emergency management plan for city employees	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Report on success of public awareness campaigns and collaboration with social media platforms to inform future city investments & programming decisions	Reconsidered in 2022	N/A	N/A
MI.29.4 Invest in the City's data infrastructure, enabling greater data integration and agency collaboration	OTI	Establish and productize a citywide data management platform	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Establish hybrid application integration platform	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Expand scope, availability, and quality of GIS products and services	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
		Implement an emergency incident data management platform	Reconsidered in 2022	N/A	N/A
		Implement domain-specific master data management	Partially Complete	Reconsid-ered	Per Local Law 84 of 2013, milestone is not in scope for PlaNYC 2023.
MI.30 Implement best practices for asset maintenance and capital project delivery					
MI.30.1 Anticipate maintenance needs and make smart repairs	DDC, DOT, NYC Parks, OTI	Implement consistent device deployment and government policies across agencies	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Implement management systems that track work histories at the component level	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Offer enhanced project scoping and capital planning support for a larger portion of sponsor agencies	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
		Publish the Executive FY 22-31 Ten-Year Capital Strategy document	Completed	N/A	N/A
		Roll out enhanced AIMS program for larger portion of DDC portfolio	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.
MI.30.2 Deliver new projects on-time and on-budget	DCAS, DDC, DEP, DOT, DSNY, MOCS, OMB, OPS	Implement comprehensive cost, schedule, and risk management for all DDC capital projects	Partially Complete	Superseded by active milestone	Superseded by PlaNYC 2023 milestone to align with current Administration and Local Law 84 of 2013.

PLANYC 2023 INDICATORS & METRICS

PlaNYC 2023 Indicators

CATEGORY	INDICATOR	FIGURE FOR MOST RECENT YEAR	TARGET
Air Quality	Citywide nitrogen dioxide (NO2) levels (parts per billion)	15.7 (2021)	Decrease
Air Quality	Citywide sulfur dioxide (SO2) levels (parts per billion)	0.2 (2016)	Decrease
Air Quality	Citywide three-year average PM2.5 levels (mcg/m3)	6.57 (2020)	Decrease
Air Quality	Asthma-related emergency department visits among children	150.6 (2020)	Decrease
Brownfields	Cumulative number of tax lots remediated	890 (2021)	Increase
Climate Change	Citywide greenhouse gas emissions reductions relative to 2005	17.6% (2023)	Increase
Climate Change	GHG emissions from City food purchases (tons CO2e/yr)*	123,724 (2021)	Decrease
Energy	Cumulative energy retrofit/conservation projects completed in City buildings (#)*	4,121 (2022)	Increase
Energy	Share of electricity mix from clean sources	7.3% (2023)	Increase
Energy	System Reliability (Average Interruption Frequency Index (SAIFI)) per 1,000 customers	234 (2022)	Decrease
Green Economy	New Yorkers completing green economy workforce development programs*	New Indicator - Data N/A	Increase
Green Economy	Share of (total private sector) jobs in innovation industries	15.5% (2022)	Increase
Housing	Number of elevated homes in the Build It Back program	1,330 (2023)	Increase
Housing	Percent of new units built within a 1/2 mile of transit	N/A (2023)	Increase
Housing	Total units of housing in NYC (millions)	3.64 (2021)	Increase
Infrastructure	Backlog of catch basin repairs (% of system)	2.4% (2022)	Decrease
Infrastructure	Bridges rated good or better (%)	35.8% (2020)	Increase
Infrastructure	Combined sewer overflow capture rate (%)	85.4% (2020)	Increase
Infrastructure	Streets maintained with a pavement rating of good (%)	73.6% (2021)	Increase
Open Space	Number of street trees pruned*	43,465 (2022)	Increase
Open Space	Percent of New Yorkers living within walking distance of a park	83.6% (2022)	Increase
Open Space	Tree canopy coverage citywide (%)*	22% (2021)	Increase
Open Space	Trees planted in parks and along city streets*	32,468 (2022)	Increase
Resiliency	Acres of wetlands cared for (restored and stewarded)*	10,000 (2023)	Increase
Resiliency	Heat-related mortality: heat-stress and heat-exacerbated deaths (annual average)*	370 (2022)	Decrease
Resiliency	Number of cloudburst management projects in design, construction, or completed*	14 (2023)	Increase
Resiliency	Number of flood insurance policies across the city	56,265 (2023)	Increase
Solid Waste	Curbside and containerized recycling diversion rate	17% (2022)	Increase
Solid Waste	Tons of organic waste and biosolids processed at DEP facilities*	New Indicator - Data N/A	Increase
Solid Waste	Total tons of organics collected*	N/A (2023)	Increase
Transportation	Bike parking spaces added*	7,442 (2023)	Increase
Transportation	Electric vehicles in the citywide fleet*	3,477 (2022)	Increase
Transportation	Miles of bike lanes installed*	62.25 (2022)	Increase
Transportation	Share of cargo volumes by water and rail	7.4% (2021)	Increase
Transportation	Share of NYC trips by sustainable modes (walking, biking, and mass transit)	65% (2022)	Increase
Water Quality	Average daily in-City water consumption (millions of gallons)	981 (2022)	Decrease
Water Quality	Average dissolved oxygen rate in New York Harbor (mg/L)	6.4 mg/L (2021)	Increase
Water Quality	Fecal coliform rates in New York Harbor (cells/100mL) (3 yr rolling avg)	41 cells/100 mL (2021)	Decrease
*New indicator for 2023 to account for expanded scope of work and most current data collection processes			

PlaNYC Retired Indicators

CATEGORY	RETIRED INIDCATORS (FROM PLANYC 2011 TO ONENYC 2019)	SOURCE	RATIONALE
Air Quality	Air-quality ranking among major U.S. cities	OneNYC	Reconsidered
Air Quality	Disparity in black carbon across city neighborhoods	OneNYC	Reconsidered
Air Quality	Disparity in PM2.5 levels across city neighborhoods	OneNYC	Superseded by PlaNYC 2023 Indicator
Air Quality	Disparity in SO2 across city neighborhoods	OneNYC	Superseded by PlaNYC 2023 Indicator
Brownfields	Number of vacant tax lots presumed to be remediated	PlaNYC	Reconsidered
Climate Change	Greenhouse gas emissions (100% = 2005 emissions)	PlaNYC	Superseded by PlaNYC 2023 Indicator
Climate Change	Greenhouse gas emissions (MTCO2e)	PlaNYC	Superseded by PlaNYC 2023 Indicator
Climate Change	Greenhouse gas emissions (MTCO2e) per capita	PlaNYC	Superseded by PlaNYC 2023 Indicator
Climate Change	Greenhouse gas emissions (MTCO2e) per GCP ($M)	PlaNYC	Superseded by PlaNYC 2023 Indicator
Climate Change	Greenhouse gas emissions from the transportation sector (%)	OneNYC	Superseded by PlaNYC 2023 Indicator
Energy	Energy use per capita (source MMBTU) (3 yr rolling avg)	PlaNYC	Reconsidered
Energy	Greenhouse gas emissions per unit of electrical power (lbs CO2e/MWh)	PlaNYC	Superseded by PlaNYC 2023 Indicator
Energy	System reliability – CAIDI (Customer Average Interruption Duration Index)	OneNYC	Reconsidered
Housing	Affordable housing units created or preserved	OneNYC	Out of scope per LL84 (2013)
Housing	Affordable housing units created or preserved since 2014	OneNYC	Out of scope per LL84 (2013)
Housing	Increase in new housing units since January 2007	PlaNYC	Superseded by PlaNYC 2023 Indicator
Housing	Number of housing units issued new building permits	OneNYC	Superseded by PlaNYC 2023 Indicator
Housing	Number of new affordable and market rate residential units (cumulative 10 year total, by permit)	OneNYC	Out of scope per LL84 (2013)
Housing	Percentage of housing affordable to median-income NYC household	PlaNYC	Reconsidered
Housing	Share of low income renter households that are severely rent burdened	OneNYC	Out of scope per LL84 (2013)
Housing	Total new construction permits issued (affordable and market rate housing units)	OneNYC	Superseded by PlaNYC 2023 Indicator
Housing	Vacancy rate of least expensive rental apartments	PlaNYC	Out of scope per LL84 (2013)
Open Space	Number of new construction affordable housing units	OneNYC	Reconsidered
Resiliency	Acres of coastal ecosystems restored	OneNYC	Superseded by PlaNYC 2023 Indicator
Resiliency	Bridge projects (structural work) substantially completed on schedule	OneNYC	Superseded by PlaNYC 2023 Indicator
Resiliency	Eliminate disaster-related long-term displacement of New Yorkers from homes by 2050	OneNYC	Reconsidered
Resiliency	Linear feet of coastal defenses completed	OneNYC	Reconsidered
Resiliency	Percentage of homes in the 100-yr floodplain with flood insurance policies	OneNYC	Superseded by PlaNYC 2023 Indicator
Resiliency	Reduce average annual economic losses resulting from climate related events	OneNYC	Reconsidered
Resiliency	Reduce risk of stormwater flooding in most affected communiites	OneNYC	Reconsidered
Resiliency	Square footage of buildings upgraded against flood risk	OneNYC	Reconsidered
Solid Waste	Citywide diversion rate (including all streams of waste: residential, commercial, construction and demolition, and fill)	OneNYC	Superseded by PlaNYC 2023 Indicator
Solid Waste	Percentage of waste diverted from landfills (includes fill)	PlaNYC	Superseded by PlaNYC 2023 Indicator
Solid Waste	Volume of DSNY-collected refuse (excluding material collected for reuse/recycling) relative to 2005 baseline of -3.6M tons	OneNYC	Reconsidered
Transportation	Annual bus ridership	OneNYC	Superseded by PlaNYC 2023 Indicator
Transportation	Annual NYC Ferry riders	OneNYC	Superseded by PlaNYC 2023 Indicator
Transportation	Average citywide bus speeds	OneNYC	Out of scope per LL84 (2013)
Transportation	Change in transit volume minus change in auto traffic volume since 2007	PlaNYC	Superseded by PlaNYC 2023 Indicator
Transportation	Electric vehicle share of new motor vehicle sales	OneNYC	Reconsidered
Transportation	NYC In-Season Commuter Cycling Index	OneNYC	Superseded by PlaNYC 2023 Indicator
Transportation	Overall transit capacity into the Manhattan Central Business District/core (8AM-9AM)	OneNYC	Reconsidered
Transportation	Percentage of transit station components meeting a state of good repair	PlaNYC	Superseded by PlaNYC 2023 Indicator
Transportation	Share of New Yorkers that live within a quarter-mile of the bike network	OneNYC	Reconsidered
Transportation	Traffic fatalities	OneNYC	Out of scope per LL84 (2013)
Transportation	Vehicle registrations in New York City	OneNYC	Reconsidered
Transportation	Vehicle revenue miles (miles transit vehicles travel in revenue service)	PlaNYC	Reconsidered
Water Quality and Infrastructure	Number of drinking water analyses below maximum contaminant level	PlaNYC	Superseded by PlaNYC 2023 Indicator
Water Quality and Infrastructure	Street segments with confirmed sewer backup in the last 12 months (% of total segments)	OneNYC	Superseded by PlaNYC 2023 Indicator
Water Quality and Infrastructure	Violations with Safe Drinking Water Act	OneNYC	Reconsidered

CATEGORY	RETIRED INIDCATORS (FROM PLANYC 2011 TO ONENYC 2019)	SOURCE	RATIONALE
N/A	Adult New Yorkers who exercised in the past 30 days	OneNYC	Out of scope per LL84 (2013)
N/A	Adult New Yorkers with raised blood pressure	OneNYC	Out of scope per LL84 (2013)
N/A	Adults with psychological distress who did not get treatment	OneNYC	Out of scope per LL84 (2013)
N/A	Amount awarded to City-certified Minority and Women-owned Business Enterprises (M/WBEs)	OneNYC	Out of scope per LL84 (2013)
N/A	Average daily jail population	OneNYC	Out of scope per LL84 (2013)
N/A	Average daily population (ADP) in jail	OneNYC	Out of scope per LL84 (2013)
N/A	Average length of suspensions	OneNYC	Out of scope per LL84 (2013)
N/A	Average number of servings of fruits and vegetables that adult New Yorkers eat per day	OneNYC	Out of scope per LL84 (2013)
N/A	Capacity of accessible emergency shelters	OneNYC	Out of scope per LL84 (2013)
N/A	Children with access to 3-K	OneNYC	Out of scope per LL84 (2013)
N/A	City pension fund investments in fossil fuel reserve owners	OneNYC	Reconsidered
N/A	City pension fund investments in renewable energy, energy efficiency, and other climate change solutions	OneNYC	Reconsidered
N/A	Citywide opioid overdose deaths	OneNYC	Out of scope per LL84 (2013)
N/A	College readiness	OneNYC	Out of scope per LL84 (2013)
N/A	Crime rate	OneNYC	Out of scope per LL84 (2013)
N/A	Cybersecurity jobs	OneNYC	Out of scope per LL84 (2013)
N/A	Decrease the percentage of domestic violence survivors not linked to shelters	OneNYC	Out of scope per LL84 (2013)
N/A	Decrease the percentage of domestic violence survivors turned away from shelters	OneNYC	Out of scope per LL84 (2013)
N/A	Districts with diversity plans	OneNYC	Out of scope per LL84 (2013)
N/A	Economic development, housing, and neighborhood enhancement proposals presented by the Department of City Planning to the public	OneNYC	Out of scope per LL84 (2013)
N/A	Food insecurity rate	OneNYC	Out of scope per LL84 (2013)
N/A	Four-year olds enrolled in full-day pre-K	OneNYC	Out of scope per LL84 (2013)
N/A	Gross City Product (GCP) growth	OneNYC	Out of scope per LL84 (2013)
N/A	Immigrant New Yorkers who are naturalized	OneNYC	Out of scope per LL84 (2013)
N/A	Income disparity by race/ethnicity	OneNYC	Out of scope per LL84 (2013)
N/A	Individuals connected to employment through the City's workforce system	OneNYC	Out of scope per LL84 (2013)
N/A	Inequity in infant mortality between babies born to black and white women	OneNYC	Out of scope per LL84 (2013)
N/A	Infant mortality rate	OneNYC	Out of scope per LL84 (2013)
N/A	Infant mortality rate disparity - Black vs. White	OneNYC	Out of scope per LL84 (2013)
N/A	Labor force participation rate	OneNYC	Out of scope per LL84 (2013)
N/A	Literacy by second grade	OneNYC	Out of scope per LL84 (2013)
N/A	Major felony crimes	OneNYC	Out of scope per LL84 (2013)
N/A	Median household income	OneNYC	Out of scope per LL84 (2013)
N/A	Neighborhoods with a commercial corridor served by free public Wi-Fi	OneNYC	Out of scope per LL84 (2013)
N/A	Neighborhoods with a zone that has three or more options for commercial fiber optic service	OneNYC	Out of scope per LL84 (2013)
N/A	New voter registrations	OneNYC	Out of scope per LL84 (2013)
N/A	New York City households with a residential broadband subscription	OneNYC	Out of scope per LL84 (2013)
N/A	New York City households with three or more residential broadband provider options	OneNYC	Out of scope per LL84 (2013)
N/A	New York City public school students who graduate on time	OneNYC	Out of scope per LL84 (2013)
N/A	New York City's general obligation bond credit rating	OneNYC	Out of scope per LL84 (2013)
N/A	New Yorkers eating the recommended number of servings of fruits and vegetables	OneNYC	Out of scope per LL84 (2013)
N/A	New Yorkers in high school who get the recommended level of physical activity	OneNYC	Out of scope per LL84 (2013)
N/A	New Yorkers lifted out of poverty or near poverty	OneNYC	Out of scope per LL84 (2013)
N/A	New Yorkers that felt that they received the medical care that they have needed in the past 12 months	OneNYC	Out of scope per LL84 (2013)
N/A	New Yorkers with health insurance	OneNYC	Out of scope per LL84 (2013)
N/A	Number of 4-year-olds enrolled in full day Pre-K	OneNYC	Out of scope per LL84 (2013)
N/A	Number of individuals receiving industry-focused training each year	OneNYC	Out of scope per LL84 (2013)
N/A	Number of jobs accessible to the average New Yorker within 45 minutes by transit	OneNYC	Out of scope per LL84 (2013)
N/A	Number of jobs in the City	OneNYC	Out of scope per LL84 (2013)
N/A	Number of new and preserved affordable housing units financed under Housing New York (cumulative)	OneNYC	Out of scope per LL84 (2013)
N/A	Number of New Yorkers lifted out of poverty or near poverty based on simulating wage changes to 2013 data and tracking certain anti-poverty initiatives	OneNYC	Out of scope per LL84 (2013)

CATEGORY	RETIRED INIDCATORS (FROM PLANYC 2011 TO ONENYC 2019)	SOURCE	RATIONALE
N/A	Number of NYC public school students attaining Associate's or Bachelor's degrees	OneNYC	Out of scope per LL84 (2013)
N/A	Number of NYC public school students attaining Associate's or Bachelor's degrees after 6 years	OneNYC	Out of scope per LL84 (2013)
N/A	Number of serious injuries due to traffic collisions	OneNYC	Out of scope per LL84 (2013)
N/A	Number of traffic fatalities	OneNYC	Out of scope per LL84 (2013)
N/A	NYC Secure App downloads	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of adult New Yorkers that meet physical activity recommendations	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of commercial enterprises with fast internet access at 1 gbps (gigabits per second) or higher	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of hospital and long-term care beds benefitting from facility retrofits for resiliency	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of New Yorkers that felt that they received the medical care that they have needed in the past 12 months	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of New Yorkers who report that their household has access to the internet	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of New Yorkers with a serious psychological distress that received mental health treatment in the past year	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of New Yorkers with access to free public WiFi within 1/8th of a mile from home	OneNYC	Out of scope per LL84 (2013)
N/A	Percentage of NYC public high school students who report meeting recommended levels of aerobic physical activity	OneNYC	Out of scope per LL84 (2013)
N/A	Poverty rate disparity between immigrants and U.S.-born individuals	OneNYC	Out of scope per LL84 (2013)
N/A	Poverty rate: Number of New Yorkers in or near poverty	OneNYC	Out of scope per LL84 (2013)
N/A	Premature mortality rate	OneNYC	Out of scope per LL84 (2013)
N/A	Premature mortality rate	OneNYC	Out of scope per LL84 (2013)
N/A	Preventable severe maternal morbidity rate	OneNYC	Out of scope per LL84 (2013)
N/A	Public school students who attain an Associate's degree or higher within six years	OneNYC	Out of scope per LL84 (2013)
N/A	Racial and ethnic graduation rate gap	OneNYC	Out of scope per LL84 (2013)
N/A	Rate of cultural participation in key neighborhoods	OneNYC	Out of scope per LL84 (2013)
N/A	Rate of volunteerism among New Yorkers	OneNYC	Out of scope per LL84 (2013)
N/A	Reduce average annual economic losses resulting from climate related events	OneNYC	Out of scope per LL84 (2013)
N/A	Reduce the Social Vulnerability Index for neighborhoods across the city	OneNYC	Out of scope per LL84 (2013)
N/A	Residential evictions	OneNYC	Out of scope per LL84 (2013)
N/A	Securities sector share of total wage earnings	OneNYC	Out of scope per LL84 (2013)
N/A	Submit a Voluntary Local Review to the United Nations	OneNYC	Out of scope per LL84 (2013)
N/A	Teachers who receive implicit bias training	OneNYC	Out of scope per LL84 (2013)
N/A	Total Department of Design and Construction construction projects completed early/on time	OneNYC	Out of scope per LL84 (2013)
N/A	Total employment (thousands)	OneNYC	Out of scope per LL84 (2013)
N/A	Total number of jobs	OneNYC	Out of scope per LL84 (2013)
N/A	Total number of Minority and Women-owned Business Enterprises certified	OneNYC	Out of scope per LL84 (2013)
N/A	Total number of worker cooperatives created through the Worker Cooperative Business Development Initiative	OneNYC	Out of scope per LL84 (2013)
N/A	Use of New York City public computer centers	OneNYC	Out of scope per LL84 (2013)
N/A	Volunteers counted in the annual survey	OneNYC	Out of scope per LL84 (2013)
N/A	Voter turnout in local elections	OneNYC	Out of scope per LL84 (2013)
N/A	Voter turnout in local elections - General	OneNYC	Out of scope per LL84 (2013)
N/A	Voter turnout in local elections - Primary	OneNYC	Out of scope per LL84 (2013)

GLOSSARY

Term	Definition
Adaptation	The process of adjusting to new climate conditions in order to reduce risks to valued assets.
Backwater Valve	A device used to reduce flooding from sewer backups.
Biogas	A renewable energy source made up of a mixture of gases including methane, carbon dioxide, and hydrogen sulfide produced by anaerobic digestion.
Bioswale	Natural or designed channels that concentrate and convey stormwater runoff, preventing flooding and often removing pollution.
Carbon Footprint	The amount of greenhouse gases emitted due to the consumption of fossil fuels by a person, group, or organization.
Carbon Neutrality	A net-zero state of carbon dioxide emissions wherein the amount of carbon emitted is not more than the amount absorbed from the atmosphere.
Chronic Tidal Flooding/ Sunny-Day Flooding	Temporary flooding of low-lying areas near a coast, also known as king tide flooding or nuisance flooding.
Circular Economy	An economic system that minimizes waste and maximizes resource efficiency and reuse.
Clean Energy	Energy that comes from renewable, zero-emission fuel sources.
Climate Budgeting	A systematic process that incorporates science-based climate considerations into the budget decision-making process by evaluating how actions and spending today contribute to meeting longer-term climate targets.
Climate Change	A change in the state of the climate attributed to human activity that alters the composition of the global atmosphere in addition to natural climate variability.
Climate Resilience	The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.
Cloudburst	A small, targeted, intense rainstorm that is highly localized.
Combined Sewer Overflow	Occurs when rainfall mixed with sewage must be discharged into the harbor to prevent large volumes of stormwater from overwhelming wastewater treatment plants during extreme rainfall events.
Congestion Pricing	An economic strategy that attempts to regulate demand by increasing prices without also increasing supply.
Decarbonize	To reduce or eliminate carbon dioxide emissions from a process.
Digester	A tank that aids in the decomposition of natural or organic waste.
Embodied Carbon	GHG emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.
Environmental Justice	The fair treatment and meaningful involvement of all people in the development of environmental laws, regulations, and policies, regardless of race, color, national origin, income, or other socioeconomic or demographic factors.
Green Infrastructure	A set of practices that use or mimic natural systems to manage climate hazards like stormwater runoff by collecting stormwater from streets, sidewalks, and other hard surfaces before it can enter the sewer system or cause local flooding.
GHG Inventory	A list of sources of emissions, and the amount of emissions from each source, using a standardized methodology.
Heat Pump	A device that provides heating and cooling to a building using a vapor-compression cooling cycle and uses electricity as an energy source.
Mitigation	Processes that can reduce the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing them from the atmosphere.
Resilience Hubs	Existing community spaces protected from climate-induced hazards such as flooding, extreme heat, and power outages.
Rain Garden	An area of trees, shrubs, perennials, and engineered soil, allowing rain to be naturally absorbed into the ground instead of flowing into the sewer system.
Sea Level Rise	An increase in the volume and elevation level of the world's oceans as a result of climate change.
Storm Surge	The abnormal rise in seawater during a storm caused primarily by storm winds pushing water onshore.
Tree Canopy Cover	The amount of the ground that is covered by the upper foliage, or canopy, provided by trees.
Urban Heat Island Effect	Areas with higher temperatures relative to outlying areas, due to a high concentration of structures such as buildings, roads, and other infrastructure, and limited greenery.

Sources: U.S. Climate Resilience Toolkit, 2023, WSP 2023, BJH 2023

ABBREVIATIONS

BMPs	Best Management Practices
BRIC	Building Resilient Infrastructure and Communities
CDBG	Community Development Block Grant
CHO	Chief Housing Officer
CHPE	Champlain Hudson Power Express
CLCPA	Climate Leadership Community Protection Act
CRDG	Climate Resiliency Design Guidelines
CSO	Combined sewer overflow
DCAS	Department of Citywide Administrative Services
DDC	Department of Design and Construction
DCP	Department of City Planning
DEP	Department of Environmental Protection
DMO	Deputy Mayor of Operations
DOB	Department of Buildings
DOE	Department of Education
DOHMH	Department of Health and Mental Hygiene
DOT	Department of Transportation
DSNY	Department of Sanitation
EBA	Environmental Bond Act
EV	Electric Vehicle
FEMA	Federal Emergency Management Agency
FHV	For-Hire Vehicles
GHG	Greenhouse Gas
NYNJHATS	New York & New Jersey Harbor & Tributaries Study
HEAP	Home Energy Assistance Program
HPD	Housing Preservation and Development
HMA	Hazard Mitigation Assistance
HRO	Mayor's Office of Housing Recovery Operations
HUD	Housing and Urban Development
IRA	Inflation Reduction Act of 222
KPIs	Key Performance Indicators
LL97	Local Law 97
M/W/DBE	Minority, Woman, Disadvantaged Business Enterprise Program
MOCEJ	Mayor's Office of Climate & Environmental Justice
MOCS	Mayor's Office of Contract Services
MOFP	Mayor's Office of Food Policy
MOUA	Mayor's Office of Urban Agriculture
MTA	Metropolitan Transportation Authority
NFIP	National Flood Insurance Program
NYC Parks	Department of Parks and Recreation
NYCEDC	New York City Economic Development Corporation
NYCEM	NYC Emergency Management
NYCHA	NYC Housing Authority
DEC	New York State Department of Environmental Conservation
DFS	New York State Department of Financial Services
NYSERDA	New York State Energy Research & Development Authority
OER	Mayor's Office of Environmental Remediation
OMB	Office of Management and Budget
PANYNJ	Port Authority of New York and New Jersey
PM2.5	Fine Particulate Matter
SBS	Department of Small Business Services
SCA	School Construction Authority
TGI	Trust for Governors Island
TLC	Taxi Limousine Commission
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture

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ACKNOWLEDGEMENTS

PlaNYC: Getting Sustainability Done reflects the hard work, ideas, creativity, and dedication of hundreds of individuals from nearly every City agency and office; and scores of community and non-profit organizations, elected officials, academics, and business leaders who contributed their time, energy, and knowledge of the city to help shape the vision and policies of this plan. The success of this effort would not have been possible without their involvement and care.

We would especially like to thank:

PlaNYC LEADERSHIP
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PlaNYC: Getting Sustainability Done is published pursuant to Local Law 84 of 2013.

Project management and policy support by BJH Advisors
Policy support and technical environmental and resiliency analysis by WSP USA
Graphical analysis by WXY
Design by Nowhere Office
Policy support by Thornton Tomasetti


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