

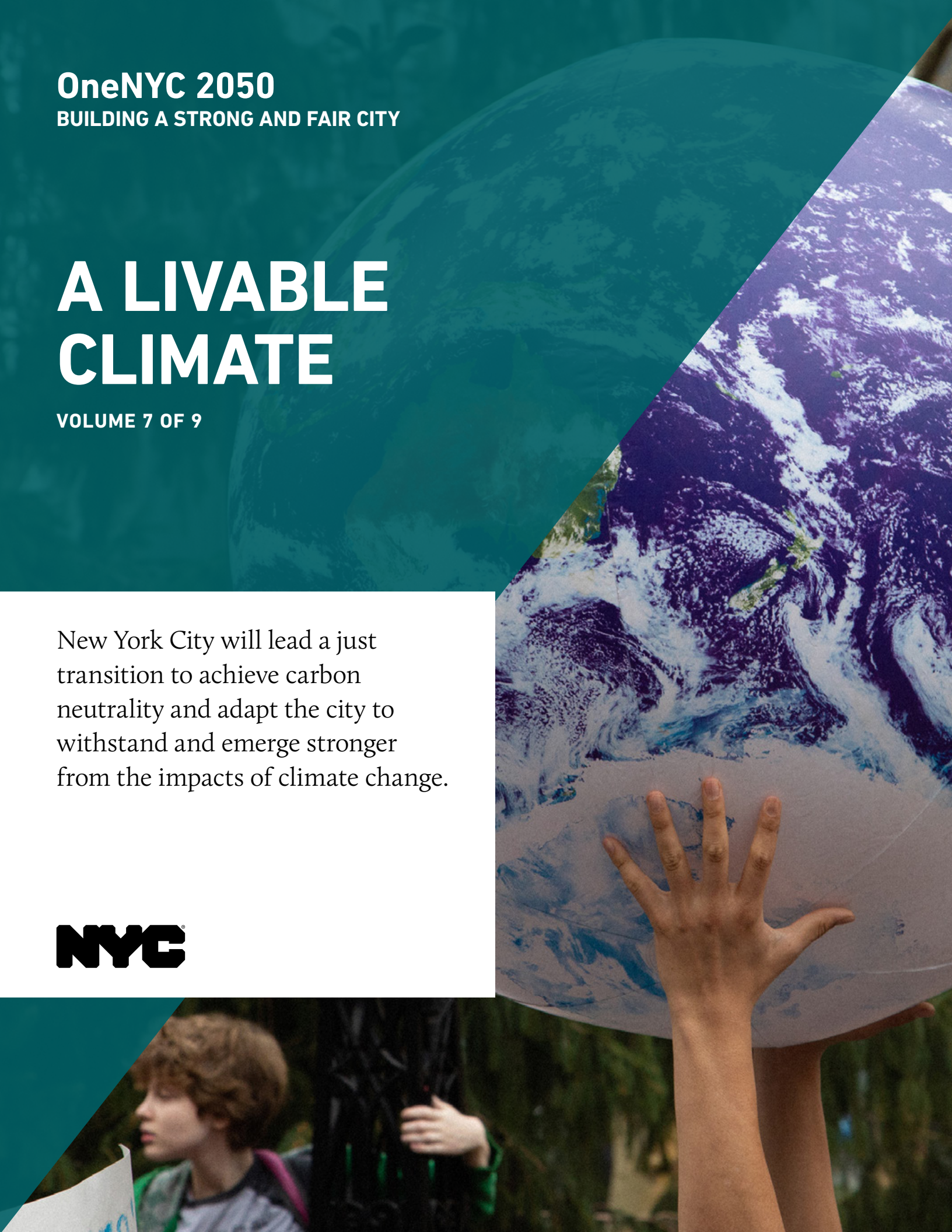
**OneNYC 2050**  
BUILDING A STRONG AND FAIR CITY

# A LIVABLE CLIMATE

VOLUME 7 OF 9

New York City will lead a just transition to achieve carbon neutrality and adapt the city to withstand and emerge stronger from the impacts of climate change.

**NYC**



# ONENYC 2050 IS A STRATEGY TO SECURE OUR CITY'S FUTURE AGAINST THE CHALLENGES OF TODAY AND TOMORROW. WITH BOLD ACTIONS TO CONFRONT OUR CLIMATE CRISIS, ACHIEVE EQUITY, AND STRENGTHEN OUR DEMOCRACY, WE ARE BUILDING A STRONG AND FAIR CITY. JOIN US.

OneNYC 2050  
BUILDING A STRONG AND FAIR CITY

## A VIBRANT DEMOCRACY

VOLUME 2 OF 9

New York City will involve every New Yorker in the civic and democratic life of the city, welcoming immigrants, advancing justice, and leading on the global stage.

NYC

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## AN INCLUSIVE ECONOMY

VOLUME 3 OF 9

New York City will grow and diversify its economy so that it creates opportunity for all, safeguards the American dream and addresses the racial wealth gap.

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## THRIVING NEIGHBORHOODS

VOLUME 4 OF 9

New York City will foster communities that have safe and affordable housing and are well-served by parks, cultural resources, and shared spaces.

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## HEALTHY LIVES

VOLUME 5 OF 9

New York City will reduce inequities in health outcomes by addressing their root causes in residents' daily lives, guaranteeing health care, and facilitating both healthy lifestyles and a healthy physical environment.

NYC

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## EQUITY AND EXCELLENCE IN EDUCATION

VOLUME 6 OF 9

New York City will have a diverse and fair school system that delivers a high-quality education to children of all backgrounds and serves as a national model.

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## A LIVABLE CLIMATE

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## EFFICIENT MOBILITY

VOLUME 8 OF 9

New York City will enable reliable, safe, and sustainable transportation options so that no New Yorker needs to rely on a car.

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## MODERN INFRASTRUCTURE

VOLUME 9 OF 9

New York City will invest in reliable physical and digital infrastructure that is ready to meet the needs of a 21st century city.

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VOLUME 1 OF 9  
APRIL 2019

THE CITY OF NEW YORK  
OFFICE OF THE COMPTROLLER  
OF CAPITAL PLANNING AND  
CONSTRUCTION

NYC

Learn more about how we are building a strong and fair city:  
[NYC.GOV/OneNYC](https://nyc.gov/OneNYC)

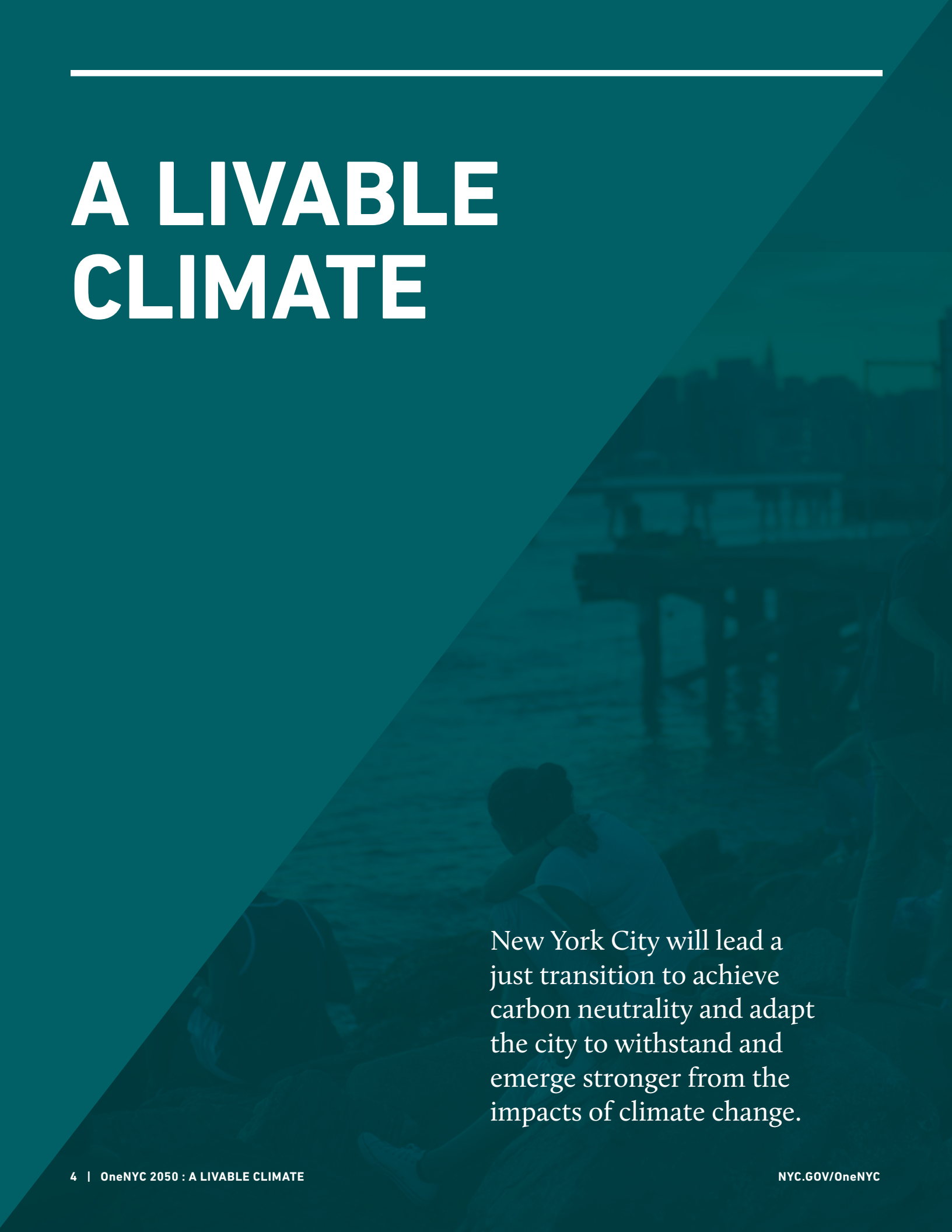
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**ONENYC 2050 CONSISTS OF 8 GOALS AND 30 INITIATIVES TO SECURE OUR CITY'S FUTURE.**

<b>A VIBRANT DEMOCRACY</b>	1. Empower all New Yorkers to participate in our democracy
	2. Welcome new New Yorkers from around the world and involve them fully in civic life
	3. Promote justice and equal rights, and build trust between New Yorkers and government
	4. Promote democracy and civic innovation on the global stage
<b>AN INCLUSIVE ECONOMY</b>	5. Grow the economy and create good-paying jobs and prepare New Yorkers to fill them
	6. Provide economic security for all through fair wages and expanded benefits
	7. Expand the voice, ownership, and decision-making power of workers and communities
	8. Strengthen the City's fiscal health to meet current and future needs
<b>THRIVING NEIGHBORHOODS</b>	9. Ensure all New Yorkers have access to safe, secure, and affordable housing
	10. Ensure all New Yorkers have access to neighborhood open spaces and cultural resources
	11. Advance shared responsibility for community safety and promote neighborhood policing
	12. Promote place-based community planning and strategies
<b>HEALTHY LIVES</b>	13. Guarantee high-quality, affordable, and accessible health care for all New Yorkers
	14. Advance equity by addressing the health and mental health needs of all communities
	15. Make healthy lifestyles easier in all neighborhoods
	16. Design a physical environment that creates the conditions for health and well-being
<b>EQUITY AND EXCELLENCE IN EDUCATION</b>	17. Make New York City a leading national model for early childhood education
	18. Advance equity in K-12 opportunity and achievement
	19. Increase integration, diversity and inclusion in New York City schools
<b>A LIVABLE CLIMATE</b>	20. Achieve carbon neutrality and 100 percent clean electricity
	21. Strengthen communities, buildings, infrastructure, and the waterfront to be more resilient
	22. Create economic opportunities for all New Yorkers through climate action
	23. Fight for climate accountability and justice
<b>EFFICIENT MOBILITY</b>	24. Modernize New York City's mass transit networks
	25. Ensure New York City's streets are safe and accessible
	26. Reduce congestion and emissions
	27. Strengthen connections to the region and the world
<b>MODERN INFRASTRUCTURE</b>	28. Make forward-thinking investments in core physical infrastructure and hazard mitigation
	29. Improve digital infrastructure to meet the needs of the 21st century
	30. Implement best practices for asset maintenance and capital project delivery

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# A LIVABLE CLIMATE

A group of people are sitting on a boat, looking out at the water. The scene is dimly lit, with a teal overlay. The people are in the foreground, and the water and a pier are visible in the background.

New York City will lead a just transition to achieve carbon neutrality and adapt the city to withstand and emerge stronger from the impacts of climate change.

## CLIMATE CHANGE POSES AN EXISTENTIAL THREAT TO OUR FUTURE.

### IT IS HAPPENING ON BOTH A NATIONAL AND GLOBAL LEVEL AND ON OUR CITY'S STREETS.

Communities across the city devastated by Hurricane Sandy fear another extreme weather event. We all worry about aging relatives and children during heat waves that now occur more frequently. New Yorkers are already affected by regular tidal flooding — and it will only get worse and more widespread as sea levels continue to rise in New York City at twice the global average. Lives are on the line, time is not on our side, and the future of our city is in jeopardy.

The science behind climate change is indisputable: The burning of fossil fuels is the single largest contributor to human-caused climate change. Unfortunately, climate change is a national emergency without a national policy, and efforts to curb fossil

fuels and greenhouse gas (GHG) emissions have been stymied by federal actions such as the repeal of the Clean Power Plan, the federal government's intention to withdraw from the Paris Climate Agreement, and the weakening of vehicle fuel standards—as well as a persistent campaign of deception and denial by fossil fuel companies.

Our goal is to achieve carbon neutrality by 2050, and do so in a just and equitable way. To make our communities safe and resilient, we will continue to invest in flood and heat mitigation, and in hardening our critical infrastructure, including transit, energy, telecommunications, water, wastewater, and waste management. We will also ensure our air and water are clean, residents have access to open and natural spaces, and sustainable transportation options are available to everyone. We will do all of this while housing a diverse and growing population and creating good-paying and accessible jobs. New York City will have a livable climate and take a leadership role both at home and abroad in confronting climate change.

## INDICATORS

NEW YORK CITY WILL MEASURE PROGRESS BY TRACKING THE FOLLOWING INDICATORS:

INDICATOR	LATEST DATA	TARGET
GREENHOUSE GAS EMISSIONS ELIMINATED, REDUCED, OR OFFSET	17% (2017)	100% BY 2050
SHARE OF ELECTRICITY MIX FROM CLEAN SOURCES	27% (2019)	100% BY 2040
FLOOD INSURANCE ENROLLMENTS	35,494 (2019)	INCREASE
CITY PENSION FUND INVESTMENTS IN CLIMATE CHANGE SOLUTIONS	\$2B (2019)	INCREASE TO \$4B BY 2021

## CONTEXT

### **CLIMATE CHANGE IS ALREADY HAVING AN IMPACT ON OUR HEALTH, OUR LIVELIHOODS, OUR COMMUNITIES, AND OUR BUILT AND NATURAL ENVIRONMENTS, WITH A DISPROPORTIONATE BURDEN FALLING ON THE CITY'S MOST VULNERABLE POPULATIONS AND COMMUNITIES.**

Heat and rising temperatures threaten the city's livability: In fact, extreme heat is nationally the number one cause of mortality from weather conditions. Destructive storms are also dangerous to the city: In 2012, Hurricane Sandy killed 44 people and caused \$19 billion in damages in New York City. Unfortunately, that storm was not an isolated incident.

More-frequent extreme weather events are likely to come. Recently, we've seen massive hurricanes batter the U.S. Gulf Coast and Puerto Rico, inland flooding hit the Midwest, extreme heat waves in Japan send tens of thousands of people to the hospital, and deadly

wildfires devastate communities in California. These disasters killed hundreds, displaced many more, and resulted in hundreds of billions of dollars in damages and lost economic activity.

And it will only get worse. As a result of climate change, we will see disruptions in the global food supply as flood, droughts, and pests damage crops, and ocean fisheries collapse from acidification and oxygen depletion; mass migrations — particularly of communities dependent on agricultural or coastal livelihoods — as whole regions become uninhabitable; impacts on human health with more heat-related deaths and vector-borne diseases, such as malaria, dengue fever, Zika, and Lyme disease; and unpredictable impacts on our economy and way of life.

By the 2050s, New York City will be hotter than ever before. Average temperatures are expected to increase by up to 5.7 degrees Fahrenheit, and many more New Yorkers may die each summer from intense heat than the 130 who die annually today. By the 2050s, the estimated average annual precipitation increase of up to 11 percent will pose significant risks to the entire city. The nearly 1 million residents who will live in the expanded coastal floodplain will be particularly vulnerable to coastal flooding, with sea levels expected to rise by up to 30 inches. High tides will cause flooding twice a day in some areas, and permanent inundation in others. Without added protections, much, if not all, of Coney Island, the Rockaway peninsula, Flushing Meadows, Hunts Point, East Harlem, Throgs Neck, and the East Shore of Staten Island could be flooded during storms.

Scientists continue to generate ever-more sophisticated climate models and projections related to flooding, heat, drought, and other climate impacts, and deepen our understanding of how human-caused activity could further exacerbate these effects. In a landmark report released in 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) concluded that the world has as few as 12 years to keep global temperature rise under the 1.5 degrees Celsius threshold, beyond which the impacts of climate change could become both catastrophic and irreversible.



The Sustainable Development Goals (SDGs) are the global blueprint adopted by all countries at the United Nations to achieve a better and more sustainable future for all, encompassing strategies to end poverty, improve health and education, reduce inequality, spur economic growth, and tackle climate change. By demonstrating directly how OneNYC 2050 aligns with the SDGs, we strengthen our efforts to build a strong and fair city. Our goal to achieve A Livable Climate supports the following SDGs:



Learn more about the SDGs online at:  
<https://sustainabledevelopment.un.org/sdgs>

## PROGRESS

**NEW YORK CITY IS RISING TO THE CHALLENGE, AND HAS BECOME A GLOBAL LEADER IN THE FIGHT AGAINST CLIMATE CHANGE.** We are putting into action a bold vision that meets the twin challenges of climate change and inequality, demonstrating what the Green New Deal looks like in practice, at the local level.

Because of our density and vast public transportation system, New York City already has a smaller per-capita carbon footprint than any big city in the United States. In 2017, the City committed to developing a pathway to limit global temperature rise to 1.5 degrees Celsius, in alignment with the Paris Climate Agreement, and in response to the urgency of the climate crisis as presented by the IPCC and echoed in the Fourth U.S. National Climate Assessment. The City released *1.5°C: Aligning New York*

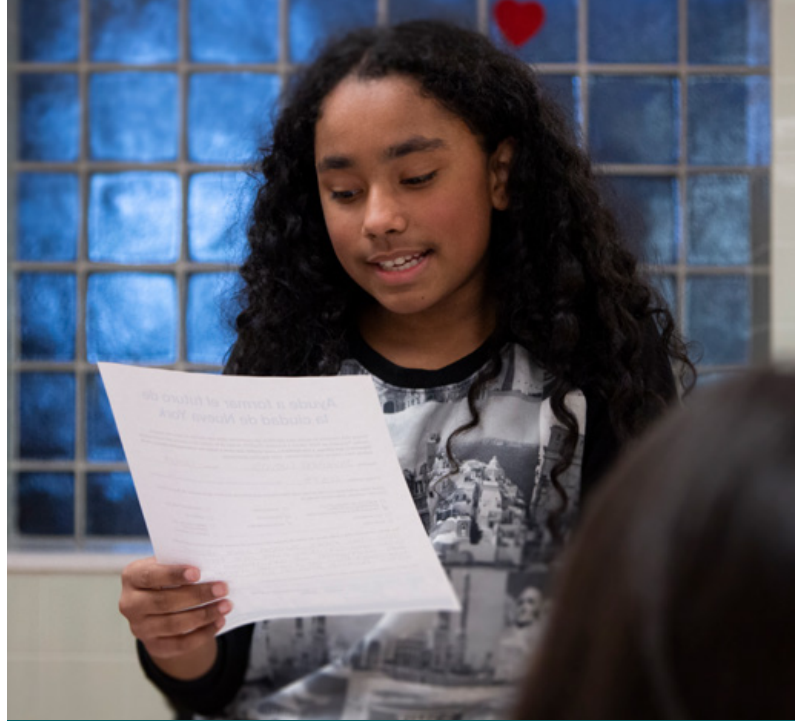
City with the Paris Climate Agreement, which, alongside near-term action commitments, provided a vision and a plan for how the City and its partners can both reach carbon neutrality and aggressively reduce GHG emissions as soon as possible.

The City has been actively working to reduce GHG emissions. As of 2017, we have reduced municipal GHG emissions by nearly 30 percent, and citywide emissions by 17 percent, from a 2005 baseline. The City has committed billions of dollars to energy-efficiency measures in municipal buildings, resulting in more than \$60 million per year in recurring annual savings. To date, these measures are in place in more than 1,600 municipal buildings. Our Retrofit Accelerator and Community Retrofit NYC programs have also helped more than 5,000 privately-owned buildings complete energy retrofits. The City also operates the largest electric municipal fleet in the nation, with more than 1,750 electric vehicles (EV), and are on track to meet our Clean Fleet goal of 2,000 EVs by 2025. And we have expanded the bicycle network, adding 244 miles of bike lanes since 2015, installed 550 EV charging stations for the City's municipal fleet, and provided incentives to replace or upgrade 500 old, dirty trucks with clean new models through the Hunts Point Clean Truck Program.

New York City has also experienced significant growth in solar power. Since the beginning of 2014, installed solar capacity has increased sevenfold, and we now have enough solar installed across the city to meet the needs of nearly 50,000 households. Installation and equipment costs also continue to go down and have dropped by 25 percent since that start of 2014 — thanks, in part, to the City's solar property tax abatement of up to 20 percent off system costs — making solar more affordable and more accessible than ever.

Not only has the city reduced GHG emissions, it has also become safer and more resilient. Several important coastal protection projects have been completed, including the reconstructed Rockaway Boardwalk, a coastal erosion protection project in Sea Gate, and nearly 10 miles of dunes across Staten Island and the Rockaway Peninsula. Other projects are underway to curb the effects of extreme heat and increased precipitation — and to help engineers, architects, and planners integrate future climate change data into their designs.

Along with our efforts to reduce emissions and become more resilient, we are investing in the future and will double the investment of City pension funds in renewable energy, energy efficiency, and climate solutions. New York City is also bringing the fight against climate change straight to the fossil fuel industry that caused the climate crisis in the first place. We are divesting our pension funds from fossil fuel reserve owners and have filed a lawsuit against five investor-owned fossil fuel companies that have contributed the most to climate change. While they deceptively encouraged dependence on fossil fuels and reaped the profits, cities like New York have been left to foot the bill for the damage fossil fuels have caused.



## WHAT WE HEARD FROM NEW YORKERS

**OF THE MORE THAN 14,000 NEW YORKERS WHO RESPONDED TO OUR SURVEY ON THE CITY'S GREATEST CHALLENGES, 19 PERCENT SELECTED CLIMATE CHANGE, AND 17 PERCENT SELECTED THE ENVIRONMENT. THE KEY THEMES EXPRESSED INCLUDE:**

- Desire for New York City to be a national and global leader on climate policy
- Desire for City leadership on renewable energy and energy retrofits
- Support for infrastructure and policy to protect shorelines and mitigate flood impacts
- Need for increased convenience of climate-friendly actions
- Call to curb pollution and address poor air and water quality
- Support for fossil fuel divestment, carbon pricing, and new green regulations

Specifically, respondents called on the City to create “stricter environmental laws as well as incentives for people and companies to go green,” including “holding New York City agencies and institutions accountable to the 1.5 Degree Climate Action Plan.” Respondents also encouraged the City to enforce “environmental justice guidelines for all projects.”

# CLIMATE SCIENCE

**IT'S UNDENIABLE: THE IMPACTS OF CLIMATE CHANGE ARE PLAYING OUT RIGHT BEFORE OUR EYES.** Increasingly severe weather events around the globe have disrupted the lives of millions and are providing an alarming glimpse into what the future will hold if the world doesn't dramatically cut its GHG emissions.

Our understanding of the links between human-caused climate change and natural disasters is being enriched by the evolving scientific field of extreme weather attribution. At the same time, scientists are continuing to generate more sophisticated climate models and projections related to flooding, heat, drought, and other climate impacts, and how human-caused activity could further exacerbate these effects.

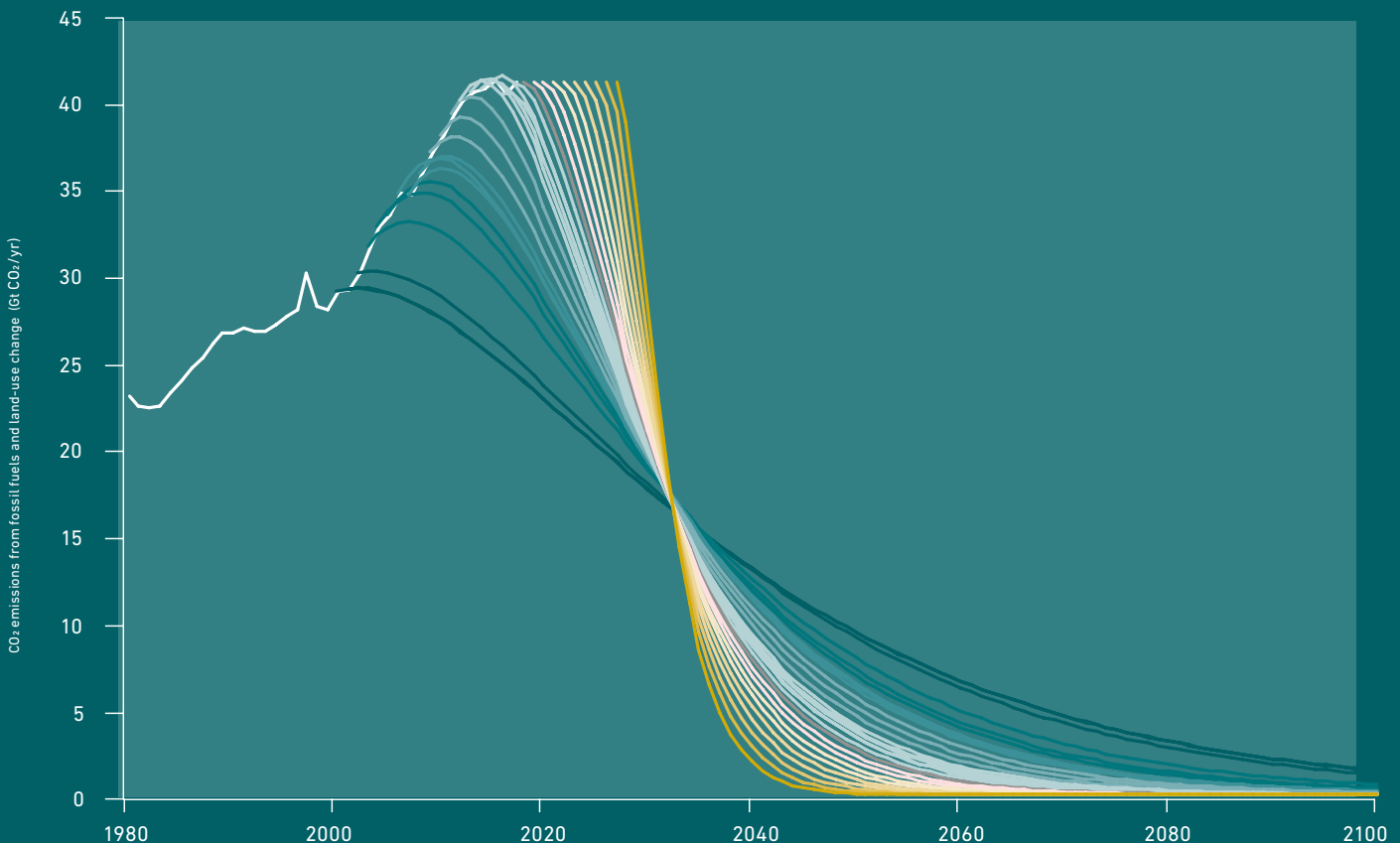
In 2018, IPCC published *Global Warming of 1.5°C* — an assessment of over six thousand recent scientific papers and documents that provided new evidence of the scale of the challenge at hand. As stated in the report, global temperatures have already warmed 1.0°C above pre-industrial levels, and dramatic action — essentially, reaching net-zero global emissions — will be required to keep warming at or below 1.5°C.

With 2.0°C of warming, the impacts of climate change would verge into catastrophic and irreversible. As compared with a 1.5°C scenario, 2.0°C of warming would triple the number of insect species, and double the number of plant species, projected to lose their habitats. The global population suffering water scarcity would double and 99 percent of all corals would be lost. The impacts to food systems, local and global poverty, and migration will be significant.

It is still possible to limit global temperature rise to 1.5°C, but only if all government and private-sector leaders make ambitious climate action an urgent priority. There is no simple or absolute path forward for limiting warming to 1.5°C. The IPCC special report includes an analysis of the “pathways,” or scenario-based projections, of future action for limiting warming to 1.5°C, and shows that they all have one thing in common: They require global emissions to peak almost immediately and then continue to drop until they reach net-zero as soon as possible. The longer we wait, the more expensive and difficult it will be to reduce emissions, as shown in the below chart.

## The longer we wait to reduce GHG emissions, the harder it will be.

Source: Center for International Climate Research





For more than a decade, New York City has been at the forefront of science-informed climate policy, leveraging the expertise of the New York City Panel on Climate Change (NPCC), an independent panel of academic and private-sector experts formed by the City of New York and whose members are appointed by the Mayor. This body, which is unprecedented among American cities, provides downscaled scientific projections for the region and assists New York City’s policymakers in understanding and planning for the climate change risks of today and the threats of the future.

In their most recent 2019 report, *Advancing Tools and Methods for Flexible Adaptation Pathways and Science-Policy Integration*, NPCC reaffirmed its earlier climate science projections made in 2015, validating them as the basis for planning and decision-making in the region. In addition, the 2019 report provides new understanding of

long-term, low-probability flood risk from rapid Antarctic ice melt and recurring “sunny-day” flood events due to sea level rise along with increased awareness of the potential impacts on communities and infrastructure from increased emissions, further underscoring the connection between the City’s plan for GHG emissions reduction and its comprehensive climate resiliency strategy.

These NPCC findings and other climate projections are being put into practice in New York City’s ambitious climate planning. We recognize the importance of basing our decision-making in science and will continue to conduct rigorous, peer-reviewed scientific research to ensure that our policies and actions are protective and cost effective.

## NPCC projections on climate hazards and extreme events through the end of the century.

Source: NPCC

CHRONIC HAZARDS	BASELINE 1971–2000	2050		2100	
		MIDDLE RANGE	HIGH END	MIDDLE RANGE	HIGH END
AVERAGE TEMPERATURE	54°F	+4.1 TO 5.7°F	+6.6°F	+5.8 TO 10.4°F	+12.1°F
PRECIPITATION	50.1 IN.	+4 TO 11%	+13%	-1 TO +19%	+25%
SEA LEVEL RISE	BASELINE 2000–2004	2050		2100	
		MIDDLE RANGE	HIGH END	MIDDLE RANGE	HIGH END
SEA LEVEL RISE	0	+11 TO 21 IN.	+30 IN.	+22 TO 50 IN.	+75 IN.

EXTREME EVENTS	BASELINE 1971–2000	2050		2100		
		MIDDLE RANGE	HIGH END	MIDDLE RANGE	HIGH END	
HEAT WAVES & COLD EVENTS	NUMBER OF DAYS PER YEAR WITH MAXIMUM TEMPERATURE AT OR ABOVE 90 °F	18	39 TO 52	57	-	-
	NUMBER OF HEAT WAVES PER YEAR	2	5 TO 7	7	-	-
	AVERAGE DURATION IN DAYS	4	5 TO 6	6	-	-
	NUMBER OF DAYS PER YEAR WITH MINIMUM TEMPERATURE AT OR BELOW 32 °F	71	42 TO 48	52	-	-
INTENSE PRECIPITATION	NUMBER OF DAYS PER YEAR WITH RAINFALL EXCEEDING 2 INCHES	3	4	5	-	-
COASTAL FLOODS AT THE BATTERY	BASELINE 2000–2004	2050		2100		
		MIDDLE RANGE	HIGH END	MIDDLE RANGE	HIGH END	
		FUTURE ANNUAL FREQUENCY OF TODAY’S 100-YEAR FLOOD	1%	1.6 TO 2.4%	3.6%	-
FLOOD HEIGHTS (FEET) ASSOCIATED WITH 100-YEAR FLOOD	11.3	12.2 TO 13.1	13.8	-	-	

Middle range is 25th-75th percentile. High end is 90th percentile.

## WHAT WE WILL DO

**NEW YORK CITY IS ALREADY DEMONSTRATING ITS DETERMINATION TO CONFRONT THE CLIMATE CHANGE CRISIS, FIGHT FOR CLIMATE JUSTICE, AND TAKE A LEADING GLOBAL ROLE IN ENSURING A LIVABLE CLIMATE.** But much more must be done, especially for our most vulnerable populations and communities.

We must achieve carbon neutrality — which means a 100 percent reduction in net GHG emissions — by 2050. This will require a radical shift to end our reliance on fossil fuels and ensure 100 percent clean electricity resources, and to transform the city's buildings, energy, transportation, and waste sectors to fully electrify the city. It will also require major shifts in our own lives — to more sustainable lifestyles — and smart urban planning to prioritize sustainable modes of transit in dense neighborhoods (see more in *Efficient Mobility* and *Thriving Neighborhoods*). At the same time, to limit the effects of climate change and protect people and communities, we must continue to invest in infrastructure that mitigates the physical risks posed by climate change — including our natural infrastructure such as wetlands and upland forests; ensure City capital investments take into account the changing climate; and promote programs that protect New Yorkers from the impacts of extreme heat and flooding. To ensure these resiliency

strategies keep up with climate science and continue to reflect the most innovative and effective ways to adapt, we will create a Climate Adaptation Roadmap that thoroughly evaluates the climate hazards we face and prioritizes our responses for the decades to come.

The transformation to carbon neutrality and climate resiliency will create new jobs and opportunities for New Yorkers. It will require innovation to find less expensive and more effective solutions; creative financing and financial investment; and partnerships across communities, sectors, geographies, and all levels of government. And to ensure the transition is just and equitable, we will demand that the costs are borne by those most responsible for our climate crisis — and the benefits shared — so no community is left behind.

Our multifaceted strategy for action is ambitious and far-reaching — as it must be. And by focusing on the intersection between climate action and growth, equity, and justice, New York City is demonstrating how the ideals of a Green New Deal are put into practice. We know that environmental and economic sustainability must go hand in hand. And our actions will not only demonstrate the effectiveness of this model, but also its necessity. Our city, and indeed our planet, deserve nothing less.

## WHAT IS A JUST TRANSITION?

We are committed to a just transition to carbon neutrality, climate resiliency, and a clean economy — one that improves environmental quality for all, prioritizes front line communities, seeks to redress current and past injustice, and creates economic opportunities for all, while holding those responsible for climate change to account. This philosophy is based on a set of foundational principles developed by organizations with decades of experience fighting for climate and environmental justice worldwide and here in New York City.

A just transition extends beyond our *A Livable Climate* commitments and can be found throughout OneNYC 2050, as we:

- **ENSURE EVERY NEW YORKER'S VOICE COUNTS** and that everyone can participate equally and vigorously in our democracy
- **PREPARE NEW YORKERS FOR MEANINGFUL WORK** and build pathways to jobs that support our communities in sectors ranging from cybersecurity to mental health care to offshore wind development
- **EXPLORE NEW MODELS OF OWNERSHIP** for all kinds of organizations and systems that generate and keep value in communities
- **IMPROVE THE SAFETY, ACCESSIBILITY, AND SUSTAINABILITY OF OUR TRANSPORTATION SYSTEM** through continuing efforts such as Vision Zero, and new ones such as congestion pricing
- **TACKLE HEALTH INEQUALITY** by building guaranteed access to health care for all New Yorkers, addressing racial, economic, and social inequities in health outcomes, cleaning our air and water, managing the impacts of extreme heat, and expanding access to nature
- **MAKE SURE EVERYONE HAS ACCESS TO FRESH, HEALTHY FOOD**
- **BUILD NEW AND BETTER AFFORDABLE HOUSING**
- **MAKE SURE EVERY NEW YORK CITY CHILD GETS AN EXCELLENT EDUCATION** that prepares them to thrive in the modern world

# INITIATIVE 20 OF 30

## ACHIEVE CARBON NEUTRALITY AND 100 PERCENT CLEAN ELECTRICITY

**NEW YORK CITY IS COMMITTED TO ACHIEVING CARBON NEUTRALITY BY 2050, AND WILL DO SO IN A JUST AND EQUITABLE WAY.** By 2050, New York City will have net-zero GHG emissions citywide. To achieve this, we will reduce our emissions as much as possible and offset our “irreducible emissions,” — those that are not feasible to eliminate — with projects that create negative emissions outside New York City. As detailed in *1.5°C: Aligning New York City with the Paris Climate Agreement*, achieving carbon neutrality requires a shift away from fossil fuels. This means receiving electricity that comes from 100 percent clean sources. We will also maximize opportunities for energy efficiency in all buildings, and replace systems that provide heat and hot water for our buildings with efficient electric systems or other GHG-free thermal systems.

Carbon neutrality also requires getting more people out of cars and onto public transit, bikes, or sidewalks, and supporting the transition from gasoline-powered to EVs for remaining vehicles (see more in *Efficient Mobility*). Additionally, although waste

makes up a relatively small portion of our total GHG emissions, carbon neutrality necessitates New York City achieving zero waste. It also requires investment in natural spaces that can act as carbon sinks within the city, the region, and globally to accelerate emissions reductions and address the sources of emissions that cannot be eliminated with technology. And although many of the technologies to make the shift to carbon neutrality already exist today, we will need lower-cost and more-efficient technologies for everything from air-source heat pumps to electric buses.

As we chart the steps needed to achieve carbon neutrality, we must ensure the transition is fair and equitable in terms of the cost and burden to people and communities, and that we create good-paying jobs and continue to support the economic vitality that enables us to make our city strong and fair. The City will have to act both inside our borders and at the state, regional, and federal levels. We must inspire all New Yorkers to participate in this ambitious, once-in-a-generation commitment in order to ensure a livable climate and a better future.

SOLAR INSTALLATIONS ON THE ROOFS OF Q204 AND Q445 SCHOOLS IN QUEENS.

Source: Michael Appleton/Mayoral Photography Office



# ACHIEVING CARBON NEUTRALITY IN CITIES 101

## WHY CARBON NEUTRALITY?

In 2018, the Intergovernmental Panel on Climate Change (IPCC) released a report detailing how crucial it is to limit global warming to 1.5°C, and confirming that, to do this, we must collectively pursue strategies to achieve major greenhouse gas emissions reductions ahead of 2030 and reach carbon neutrality as soon as possible.

## WHAT IS A CARBON NEUTRAL CITY?

A carbon neutral city generates net-zero greenhouse gas emissions in all of the sectors it reports on, including — at a minimum — net-zero emissions in the buildings, energy, transportation, and waste sectors.

## WHAT ARE THE BENEFITS AND OPPORTUNITIES?

Carbon neutrality is essential to limiting the impacts of climate change on water and food scarcity, living standards, and human health for generations to come. It also presents a massive opportunity to create more equitable and prosperous cities. Benefits of a net-zero carbon economy include better health and life expectancy of residents, improved air quality, higher productivity and job creation, and more walkable and livable cities.

## HOW CAN CITIES BECOME CARBON NEUTRAL?

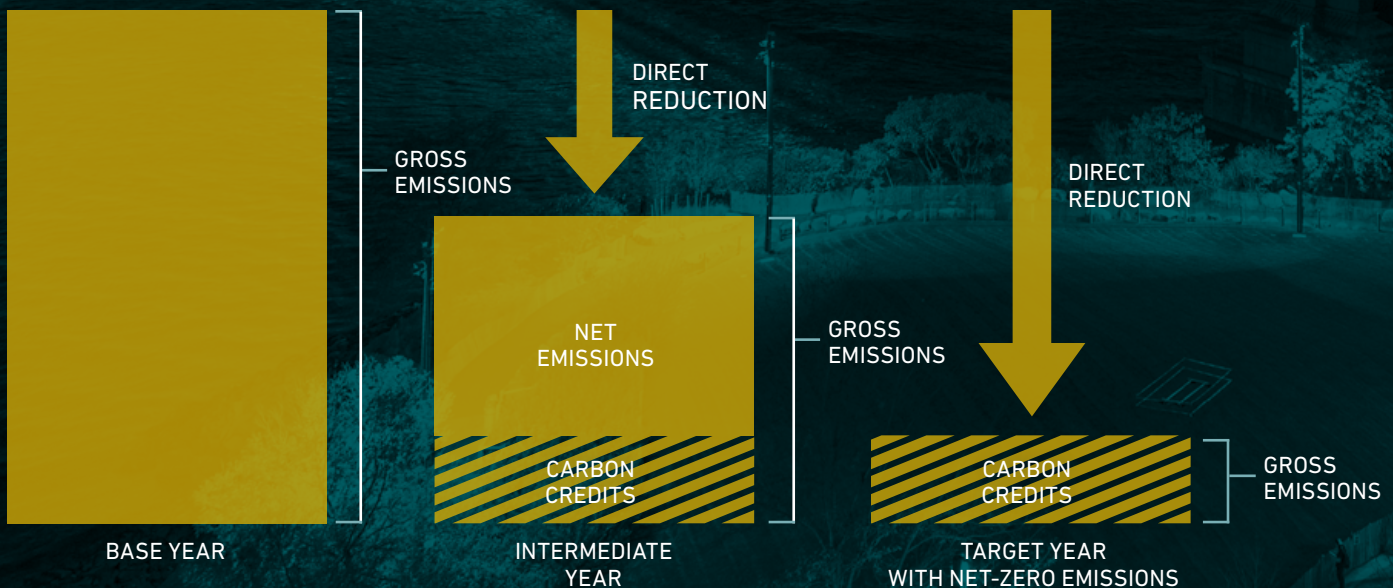
Cities should work with local communities to develop and implement:

- Ambitious climate action plans that reduce emissions and achieve zero or near-zero emissions by a target year
- Strategies to compensate for any residual emissions such as the use of high quality carbon credits to bring net emissions to zero

One carbon credit represents one metric ton of carbon dioxide equivalent that is avoided or removed from the atmosphere through a project that is outside of a city’s emissions inventory boundary. Credits are issued for projects such as planting new forests or capturing and destroying methane emissions from farms. Projects must follow strict environmental integrity principles to ensure the credits they generate are valid.

## NEW YORK CITY IS LEADING THE WAY

In 2017, New York City partnered with C40 to establish a working group of cities to develop the guidance document *Defining Carbon Neutrality for Cities & Managing Residual Emissions*, which establishes a shared definition of citywide carbon neutrality, and provides guidance and best practices for approaches that cities can take to achieve carbon neutrality.



After all strategies to reduce greenhouse gas emissions have been exhausted, “residual emissions” may still remain. Carbon credits play an important role on the path to carbon neutrality. They address residual emissions and accelerate emissions reductions, while longer-term infrastructural, regulatory, and economic changes take place.

Source: *Defining Carbon Neutrality for Cities & Managing Residual Emissions: Cities’ Perspective & Guidance*

## ENSURE 100 PERCENT CLEAN ELECTRICITY RESOURCES

Achieving carbon neutrality requires a shift to renewable energy from many sources — from rooftop solar energy generation and utility-scale renewables to building- and grid-scale energy storage. Our work to green the grid is necessary to achieve deeper reductions in GHG emissions across our building, transportation, and waste sectors. A clean, resilient electricity grid will improve air quality for residents throughout New York City, support the electrification of building heating and hot water systems, and increase the resiliency of our electricity supply.

Today, the city's electricity is generated by natural gas, as well as nuclear, hydropower, and wind and solar resources from upstate regions. While half of our electricity is generated within city limits, electricity generated outside New York City reaches the city through a network of high-voltage transmission power lines, the majority of which come through the northern part of the city. Once it gets to New York City, electricity travels through a distribution grid composed of underground and above-ground equipment owned and operated by Con Edison to reach the end user.

New York State has committed to 100 percent clean electricity by 2040. This means the deployment of wind, both upstate and offshore, as well as solar power, must expand rapidly in the next 20 years, and will need to be complemented by a significant expansion in energy storage. At the same time, the transition to clean electricity must drive down the energy cost burden. Almost half a million families living in New York City are currently over the state's target for spending on energy bills.

Attaining a clean electricity future, however, is constrained by the available transmission capacity directly connected into New York City. Almost all of the renewables currently deployed in New York are located upstate, but the power lines that bring clean electricity from upstate to New York City are at capacity, so very little can reach the city. In order to open up our grid to existing and new renewables, we will need to build more transmission into New York City in cooperation with New York State, the New York Power Authority, and the New York Independent System Operator.

## CASE STUDY: SOLAR UPTOWN NOW

**IT'S HARD TO KNOW EXACTLY WHAT THE WORLD WILL LOOK LIKE IN 2050**, but New Yorkers got a preview in 2018 when two innovative solar projects launched on affordable housing buildings in Crown Heights and Northern Manhattan. The first, an installation of solar and heat pumps at an affordable co-op in Crown Heights, Brooklyn, was supported by the City's Community Retrofit Program and nonprofits Solar One and the Urban Homesteading Assistance Board (UHAB). The 100 solar panels will generate electricity that will provide solar credits on the utility bills of the individual shareholders in the co-op. This may be the first affordable co-op in New York City to use a Community Shared Solar model to provide the benefits of solar directly to low- and moderate-income households, and demonstrates a model for deploying advanced energy efficiency technologies in affordable housing. In Northern Manhattan, WE ACT for Environmental Justice, UHAB, and Solar One organized Solar Uptown Now, a campaign that installed solar arrays across nine rooftops of affordable buildings in Northern Manhattan, reaching 900 residents. These panels will provide over \$1 million in lifetime electricity savings across the nine participating buildings. More than 90 community residents received solar installation training through the campaign, and the solar partners on the project hired five job trainees to install the solar arrays.

THE SOLAR UPTOWN NOW CAMPAIGN INSTALLED SOLAR ARRAYS ACROSS NORTHERN MANHATTAN ROOFTOPS.

Source: WE ACT for Environmental Justice



“New York City needs to lead the way by changing its energy sources to be more sustainable. We’ve started the process, and are setting the example for the rest of the country.”

– Resident of Kensington, Brooklyn

While we are working in coordination with our state, regional, and market partners to expand transmission capacity and increase large-scale renewable energy generation, we will continue to expand renewable generation at the local level by both making it easier to install energy storage and accelerating the expansion of solar on rooftops across the city. We have a long history of generating renewable gas from our city’s wastewater and are now starting to generate renewable gas from our organic waste. Greening the grid and ensuring 100 percent clean electricity resources by 2040 will pave the way for deeper reductions in GHG emissions in buildings, in addition to the transportation and waste sectors, all while creating jobs locally.

• **DIRECTLY CONNECT NEW YORK CITY TO LARGE-SCALE RENEWABLE RESOURCES**

We envision a 50 percent renewable electricity grid by 2030. To make this a reality, the City will need to access large-scale renewables — like solar, hydropower, and on- and offshore wind — from outside the city’s boundaries. As one key initial step, the City, in coordination with New York State, will pursue an investment in new transmission to access large-scale Canadian hydropower at a competitive price, resulting in a 100 percent carbon-free electricity supply for City government operations. At the same time, policies and programs must continue to drive down the high energy cost burden borne by low-income New Yorkers.

• **UNLOCK 500 MW OF BATTERY STORAGE CITYWIDE**

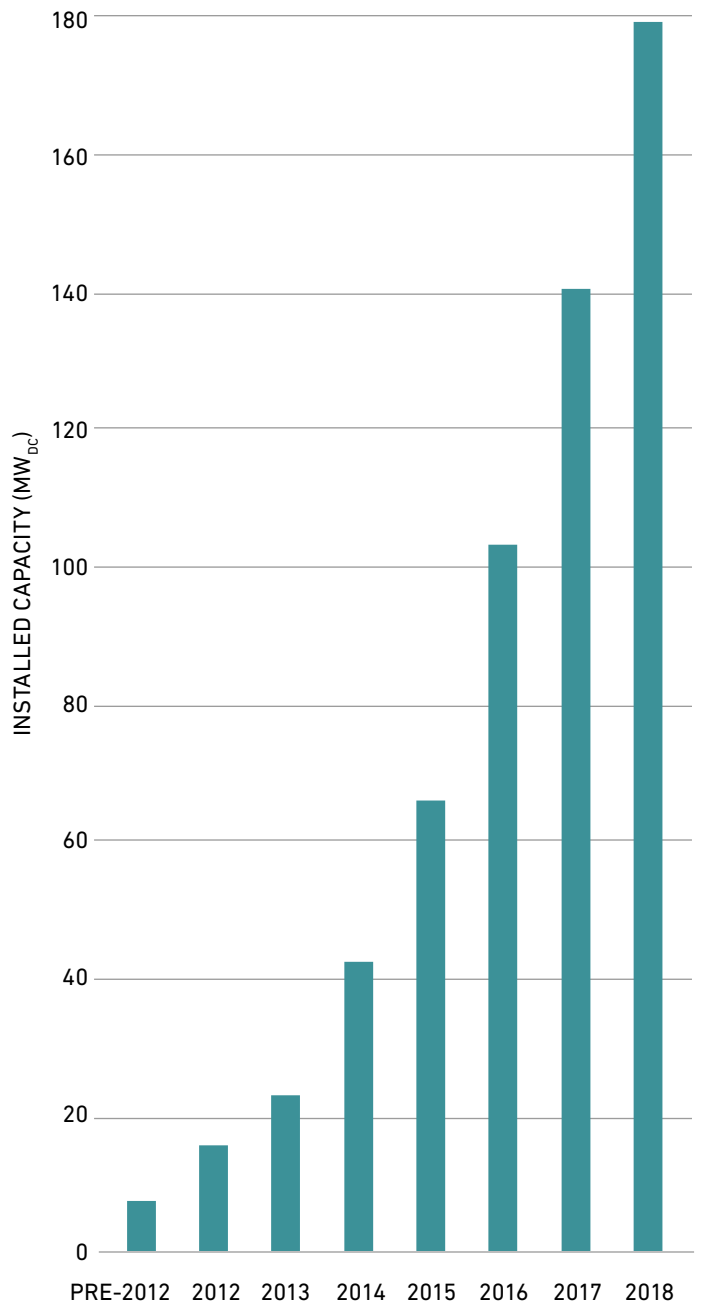
Energy storage resources will be required to balance the intermittent nature of renewable power generation, and we want to have 500 MW of storage available by 2025. To help accelerate the growth of this sector, the City will commit to permitting all small and medium installations within 12 months or less by 2020.

• **SCALE CLEAN DISTRIBUTED ENERGY AND LOAD MANAGEMENT FOR EFFICIENT DISTRIBUTION**

Building on our sevenfold increase in solar capacity since the start of 2014, we will continue to promote solar and other distributed energy generation in the city. We will require more solar and green roof installations on new construction citywide, expand accelerator programs to assist building owners with clean energy projects and the solar installation process, and continue to work with our utility and market partners to implement demand response and load management tools. We will also continue to maximize solar potential on the rooftops of City-owned buildings (see more in *Modern Infrastructure*).

New York City solar deployment has grown exponentially since the start of 2014.

Source: MOS



# NEW YORK CITY'S PATHWAY TO CARBON NEUTRALITY

Source: MOS

## 1 NEAR-TERM ACTIONS

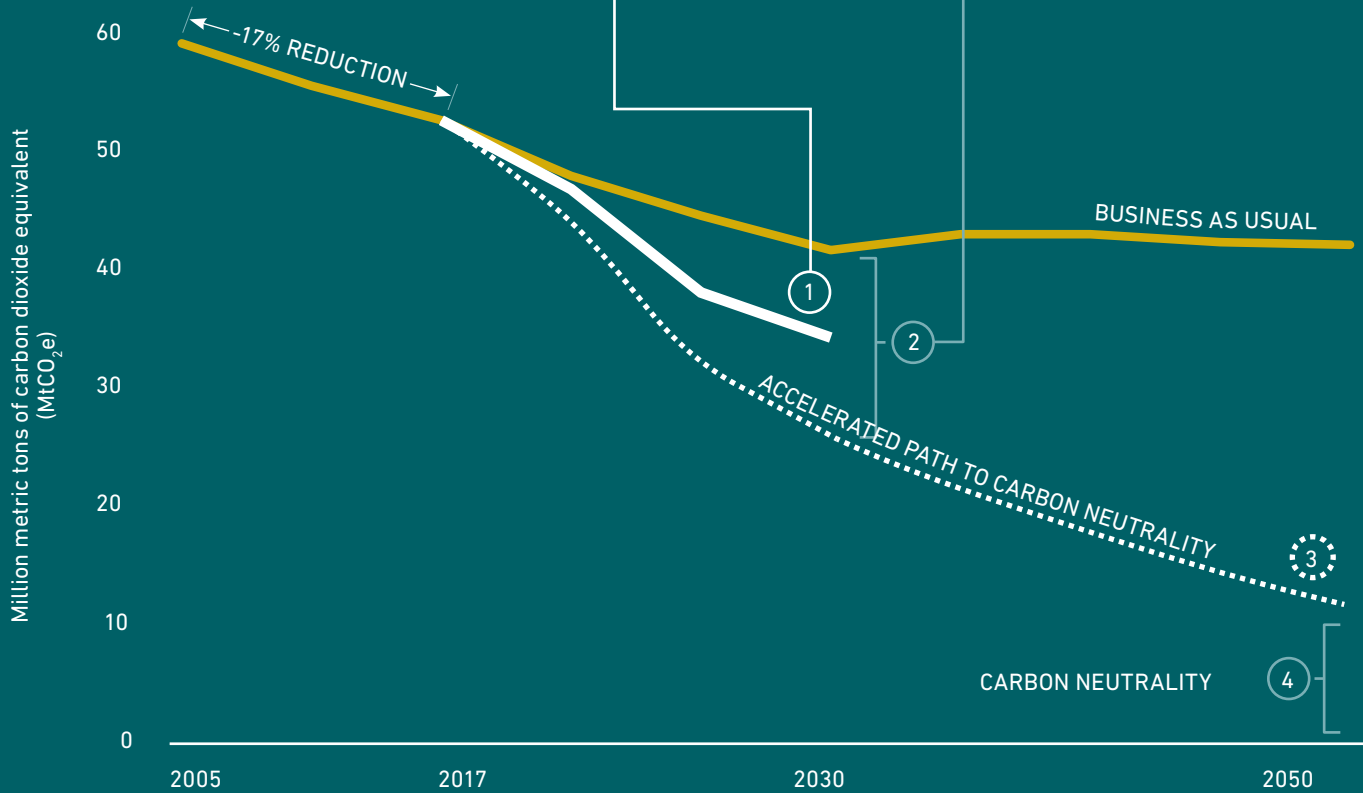
*1.5°C: Aligning New York City with the Paris Climate Agreement* established an accelerated path to carbon neutrality. Now, we will go even further to reduce our emissions and move our city in the right direction:

- 100 percent renewable electricity in City government operations
- Building energy performance mandates
- EV infrastructure
- Zero waste in City government operations

## 2 2050 ACTIONS

Through 2050, we will need continued action, collaboration, and partnership across communities, sectors, geographic boundaries, and all levels of government including:

- Ending our reliance on fossil fuels and ensuring 100 percent clean electricity resources
- Adopting more sustainable lifestyles
- Practicing smart urban planning and prioritizing sustainable modes of transit in dense neighborhoods



## 3 ACCELERATED PATH TO CARBON NEUTRALITY

Reaching our long-term climate objectives will require persistent effort and constant reevaluation of progress, strategies, and follow through.

## 4 CARBON NEUTRALITY

New York City will achieve carbon neutrality by reducing in-city emissions as much as is technically feasible and offsetting any remaining emissions with carbon credits.

## PURSUE DEEP CUTS IN EMISSIONS AND GAINS IN EFFICIENCY ACROSS ALL BUILDINGS AND INFRASTRUCTURE

We have made progress since 2015 in reducing GHG emissions in residential and commercial buildings, with more than 5,000 privately-owned buildings assisted by the Retrofit Accelerator and Community Retrofit NYC programs, reducing 95,000 metric tons of carbon dioxide equivalent. Buildings, however, still represent roughly 70 percent of the city’s GHG emissions profile; our buildings—old and new—will need to change dramatically in order to achieve carbon neutrality. The City will expand our initiatives to support deep energy retrofits in nearly every building in New York City, as well as require new buildings to eliminate their carbon emissions footprint. This includes buildings with inefficient glass facades. Existing glass-walled buildings will be required to dramatically improve performance, in line with the City’s mandates, and we will not allow all-glass facades in new construction, unless they meet strict new performance guidelines. Together, these actions will make inefficient glass-heavy building designs a relic of the past. And to help ensure that every building in New York City is able to participate in the transition to carbon neutrality, we will increase technical assistance programs and the availability of financing.

- **IMPLEMENT CITYWIDE ENERGY EFFICIENCY AND INTENSITY MANDATE**

In 2017, the City recognized that voluntary action was not sufficient and proposed mandatory energy use limits for existing buildings. The City is now working with City Council to implement legislative requirements to dramatically cut emissions in buildings over 25,000 square feet. We will then continue to protect affordability while expanding the benefits of energy efficiency upgrades to all buildings including affordable housing units and buildings smaller than the previously mandated threshold. To ensure every building has flexibility to meet the mandates, the City will study and launch an emissions trading regime. This first-of-its-kind program will provide an alternate pathway for mandate compliance while encouraging building owners to achieve even deeper savings than required by law.

- **REQUIRE NEW BUILDINGS BE BUILT TO NET-ZERO ENERGY**

Local Law 32 of 2017 introduced performance-based stretch-energy codes that require new construction be built to the latest energy efficiency standards. To meet the commitment of the Net-Zero Buildings Declaration, signed alongside 19 global cities in 2018, we will continue to work toward net-zero energy for all newly constructed buildings by 2030. The City will also pursue legislation to further regulate glass-walled buildings.

- **ACHIEVE DEEP EMISSIONS REDUCTIONS FROM CITY-OWNED BUILDINGS**

We will continue to lead by example and reduce GHG emissions using a portfolio-based approach for City buildings. Through creative and ambitious energy efficiency, clean energy, and innovative technology projects and programs, the City has

already achieved a 30 percent reduction from 2005 levels across our building portfolio, and will achieve a 50 percent reduction from City-owned buildings and operations by 2030 on the path to carbon neutral buildings.

- **REACH NET-ZERO ENERGY ACROSS CITY WASTEWATER RESOURCE RECOVERY FACILITIES**

The City will continue to implement deep energy-saving measures, increase the production of renewable gas through digestion of wastewater and organic waste, and generate renewable electricity to reach net-zero energy for treatment of wastewater by 2050.

- **INCREASE THE CAPACITY OF TECHNICAL AND FINANCIAL ASSISTANCE PROGRAMS**

The City will triple the capacity of the Retrofit Accelerator and Community Retrofit NYC programs to include new construction, smaller buildings, more neighborhoods, and support for deeper energy retrofits. These programs provide technical assistance and guidance to help building owners upgrade their systems, identify incentives, connect with qualified contractors, and train building operators. We will also strengthen the City’s Green Housing and Preservation Program, which provides low- or no-interest loans to finance energy efficiency improvements.

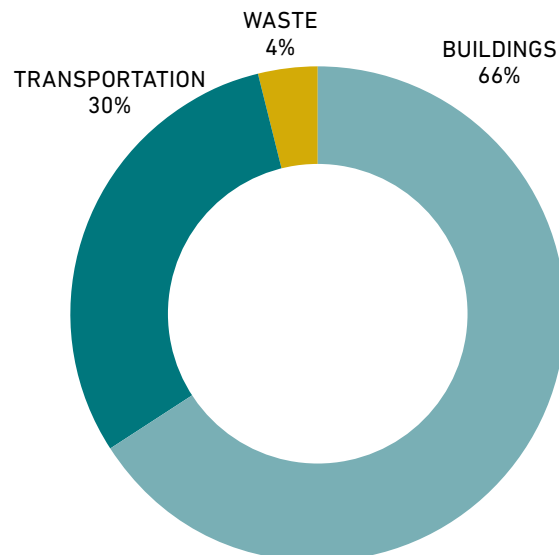
- **MAKE PROPERTY-ASSESSED CLEAN ENERGY (PACE) FINANCING AVAILABLE IN NEW YORK CITY**

The City will work with City Council and local financial institutions to enable property owners to access PACE financing, a low-cost mechanism for making energy-efficiency upgrades that is available in states and cities across the country.

Buildings account for two-thirds of New York City’s GHG emissions.

GHG EMISSIONS BY SECTOR

Source: MOS





## PROMOTE SUSTAINABLE TRANSPORTATION OPTIONS

A clean, safe, and affordable energy-efficient transportation network is critical to reaching our GHG-reduction goal. To achieve a carbon neutral transportation system, we will need to reduce our dependence on cars and ensure all transportation needs — including, but not limited to, commuting and freight — shift to more sustainable alternatives. We must reach an 80 percent sustainable mode share — trips completed via walking, biking, or transit — for commuting by 2050, and reduce or eliminate emissions for the remaining trips through the widespread adoption of alternative-fuel vehicles. This will require an expansion of electric charging networks for all types of vehicles, a reimagining of our streetscapes to encourage further shifts away from single-occupancy vehicles, and working with major employers and institutions to manage transportation. Even the way goods move around the city will need to change: Zero or near-zero emission vehicles will serve the city’s freight needs, complementing the use of barges, rail, and last mile “micromobility” options such as cargo bicycles.

See *Efficient Mobility* and *Modern Infrastructure* for a comprehensive vision for a safer, more-accessible, and more-sustainable citywide transportation system. Key commitments include:

- **DEVELOP A CITYWIDE NETWORK OF EV CHARGING INFRASTRUCTURE**

In order to encourage EV adoption, we will increase the number of publicly available EV chargers across the five boroughs by installing a network of fast charging stations on City-owned property and piloting curbside Level 2 charging in partnership with Con Edison.

- **REDUCE THE CITY’S MUNICIPAL FLEET AND LOWER EMISSIONS**

The City is making smart reforms to our municipal fleet, capitalizing on emerging technology and transportation trends to reduce the number and size of City vehicles and vehicle miles traveled, thereby reducing emissions, and by 2040, the City fleet will be carbon neutral. Near term emissions reductions will be achieved by implementing renewable diesel fuel, accelerating the transition to EV and hybrid vehicles, and increasing the efficiency of the fleet. Longer-term reductions will rely on achieving a 100 percent clean electricity grid and encouraging technological advances for emergency response and other heavy vehicles.

- **INCENTIVIZE COMMERCIAL AND FLEET VEHICLES TO REDUCE EMISSIONS**

We will explore dedicated curb space for zero-emission vehicles, expand clean truck programs, and use advanced sensing for vehicle air pollution. We will encourage operators to upgrade their fleet vehicles to the most efficient models available. The City will also leverage funding allocated by the Volkswagen settlement to promote diesel-to-electric replacements of commercial vehicles.

## Adopting EVs will help New York City achieve carbon neutrality.

Source: DCAS

2,000

EXPECTED NUMBER OF ON-ROAD EVs IN CITY FLEET BY JUNE 2019

555

EV CHARGING STATIONS FOR CITY FLEET

1,750

CITY ON-ROAD EV FLEET

60

SOLAR CARPORTS TO SUPPORT EV CHARGING (NON-GRID CONNECTED)

- **ESTABLISH COMMERCIAL WASTE ZONES**

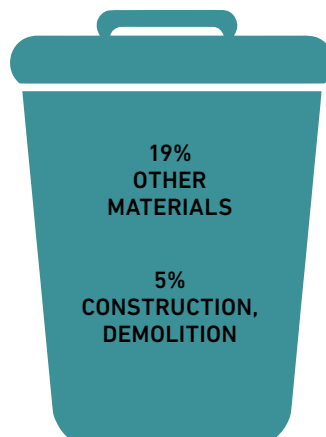
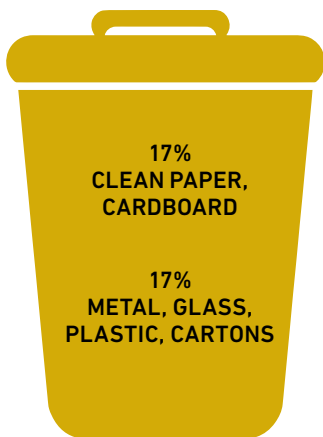
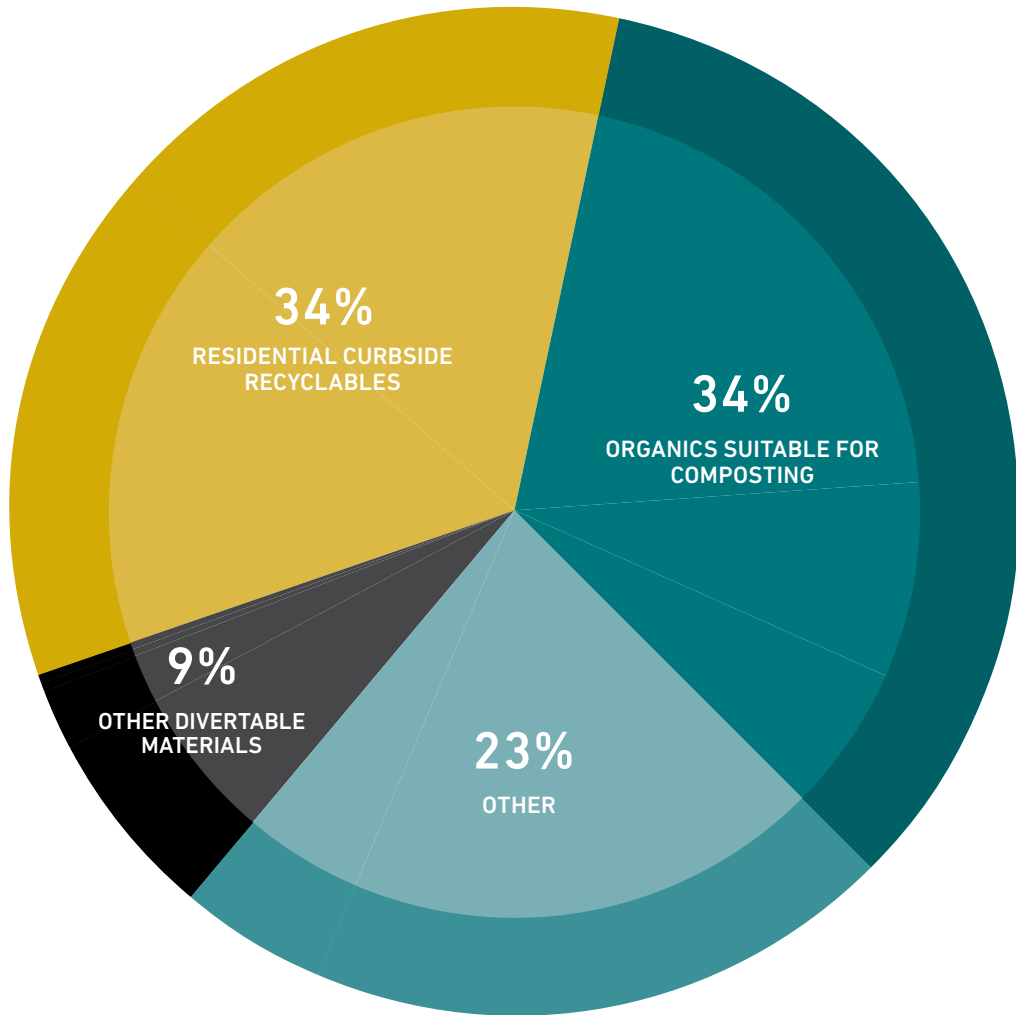
Commercial waste zoning will reduce truck traffic associated with commercial waste collection by more than 50 percent, with corresponding air quality and GHG emissions improvements. It will also give the City additional tools to promote zero waste, enforce existing laws, ensure safety and worker rights, and advance the City’s efficient transportation goals, while creating high-quality, low-cost waste management services. To do this, we will reform the City’s commercial waste collection system and associated regulatory framework. We will also continue to expand the types of establishments covered under the City’s commercial organics law, with the goal of covering all potential categories.

# Over one-third of New York City's residential waste by tonnage comes from organics.

Landfilling organics results in the release of methane, a potent GHG. Reducing, composting, and digesting organics for energy are key strategies to reducing GHG emissions from the waste sector.

## NEW YORK CITY RESIDENTIAL WASTE PROFILE

Source: DSNY



Sums of individual waste streams might not equal the total due to rounding.

## ADOPT ZERO WASTE MANAGEMENT STRATEGIES CITYWIDE

Waste comprises an important part of the City's GHG emission profile. When our organic trash goes to landfill, it decomposes and generates methane, a greenhouse gas roughly 30 times more potent than carbon dioxide. The farther we have to transport our trash to landfills, the more emissions are generated. Conversely, our carbon footprint will shrink if we reduce the amount of waste generated by New Yorkers, and encourage sustainable products that can be more easily recycled at their end of life.

While New Yorkers produce less waste than ever before, a large percentage of what we send to landfills could be diverted to beneficial use and support our climate mitigation goals. The City's 2017 *Waste Characterization Study* shows that if every New Yorker recycled and composted perfectly, we could divert 68 percent of our trash from landfills. Recycled paper, cardboard, metal, glass, and plastic are used in the manufacturing of new products. Organic material, food scraps, and yard waste are turned into compost — a natural soil amendment that improves soil health — and renewable energy (including electricity, heat, and fuel) through anaerobic digestion.

Through our Zero Waste initiatives, we have implemented the country's largest curbside organics program, providing organics collection to more than 3.5 million New Yorkers, or more than a third of the city. We have increased the citywide residential diversion rate to over 20 percent — and we are recycling more than ever. We are using the power of policy to hold product manufacturers accountable for sustainable design choices, including a ban on foam products, which have widely available recyclable alternatives.

Despite these successes, we continue to face local, regional, and global challenges to our Zero Waste goals. Our population continues to grow and produce more trash, even as our per capita waste generation goes down. Global recycling markets are also experiencing a period of instability that has left some municipalities with no other option than to send their recyclables to landfills. In New York City, past investments in recycling infrastructure have allowed our program to remain strong; however, we need to be creative and committed, and have the participation of all New Yorkers, to reach our goal.

### • **TRANSITION TO MANDATORY ORGANICS COLLECTION CITYWIDE**

The City will pursue expanding the country's largest organics management program, including curbside pickup, drop-off sites, and support for community composting opportunities, by working with the City Council to establish mandatory organics recycling citywide — phasing in starting in low- and medium-density areas that already have access to organics collection and expanding over time to include the entire city — so that all New Yorkers can participate. We will also increase the diversion of organics from commercial establishments. Organics will continue to be used for compost and energy production.

### • **DEVELOP REGIONAL ORGANICS PROCESSING CAPACITY TO HANDLE 1 MILLION TONS OF FOOD AND YARD WASTE PER YEAR**

We will increase our capacity to process organics both inside and outside the city, working with our agencies and private-sector partners to process organics for beneficial use. Some organic wastes can be processed into renewable natural gas using digesters, whereas others can continue to be turned into soil amendments or compost for use in our parks, green infrastructure, landscaping, street trees, gardens, and farms.

### • **REACH ZERO WASTE ACROSS NEW YORK CITY GOVERNMENT OPERATIONS**

The City will lead by example and implement sustainable waste management strategies and operations in City buildings, facilities, and programs. We will add organics collection service at all agencies, design buildings for zero waste in all new construction, leverage procurement requirements to minimize the purchase of non-divertible goods, maximize capture rates of recyclables at City agencies, and beneficially use our biosolids.

### • **MAXIMIZE THE DIVERSION OF TRADITIONAL RECYCLABLES, TEXTILES, AND OTHER PRODUCTS**

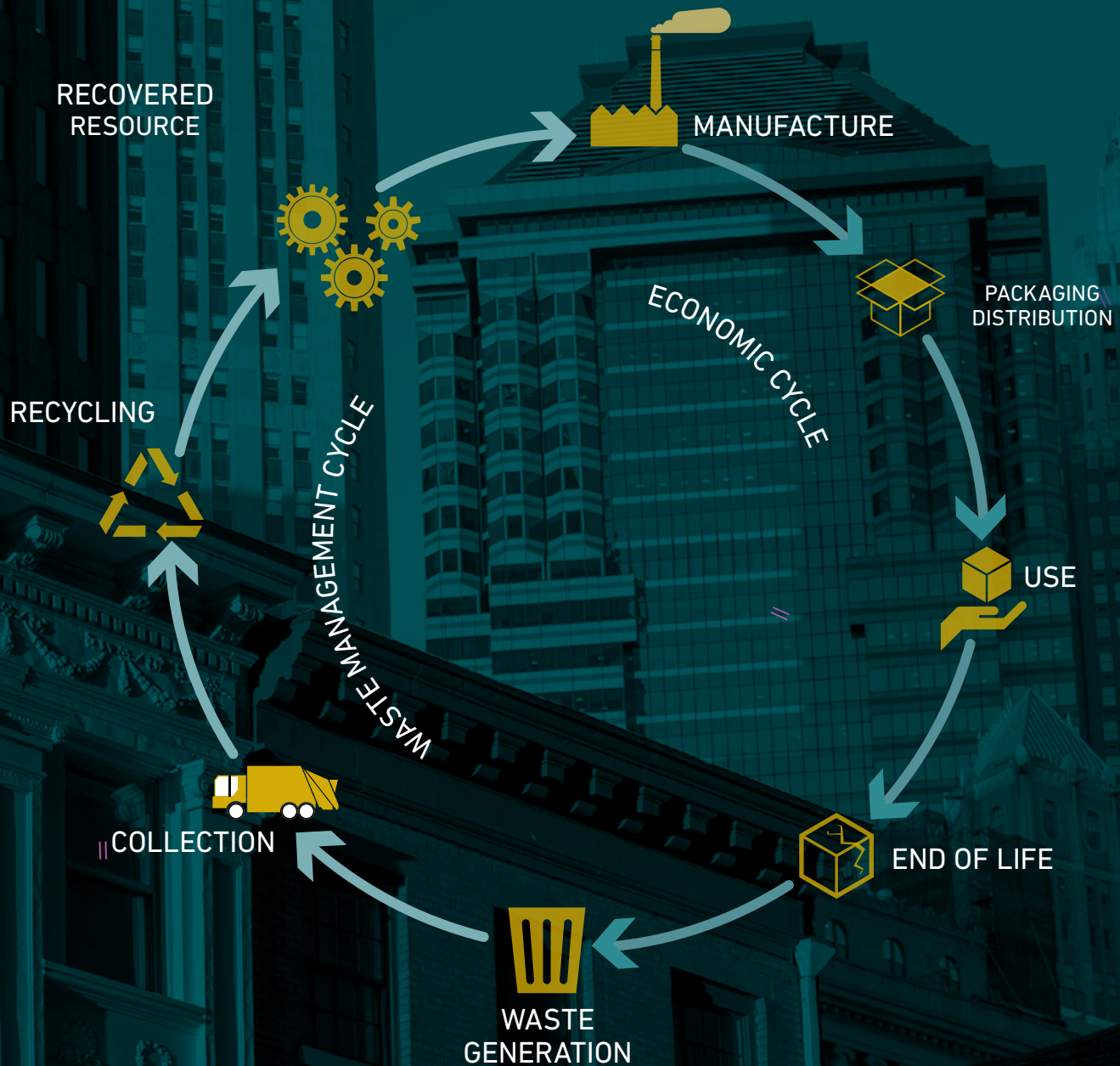
New Yorkers throw away about half of their recyclables — and 10 percent of the waste stream consists of textiles and other products that could be diverted to beneficial use. For example, we throw away nearly 200,000 tons of textile waste citywide per year, at great cost to both taxpayers and our environment. We will provide universal access to programs to divert these materials and motivate New Yorkers through education and outreach. We will also pursue increased compliance through expanded enforcement. At the same time, we will strengthen demand for these recyclable items by working with manufacturers to use recycled content in new products. We will also expand the use of extended producer-responsibility measures to keep more products out of our landfills and continue to reduce the amount of non-recyclable products in our waste stream. We will work with our City and State partners to implement a ban on single-use plastic bags and a fee on paper bags.

### • **TRANSITION NEW YORK CITY TOWARD A CIRCULAR ECONOMY**

New York City will become a center of excellence for sustainable product design by partnering with the private sector to design and market products that are reusable, repairable, or recyclable. We will create incentives and infrastructure for city businesses and consumers to use recycled materials to support the growth of closed-loop recycling. Through the power of policy, advocacy, procurement, and regulation, we will take a leadership role in driving brands and product manufacturers to design for returnability, reusability, repairability, recyclability, and compostability. We will also expand the use of extended producer-responsibility measures to keep more products out of our landfills. We will raise consumer awareness, explore new business models, and incorporate technological innovations.

# THE CIRCULAR ECONOMY

Source: MOS



In our current linear economy, manufacturers operate in the “take-make-dispose” model, in which they use finite resources to create products that are disposed of after a limited life. This system has contributed to negative consequences including air and water pollution, deforestation, depletion of natural resources, creation of landfills, and loss of biodiversity.

We have seen these impacts on a local level, as New York City has run out of landfills and begun the costly practice of transporting disposed waste. Meanwhile, China, formerly the recipient of much of the recyclable and scrap material from the United States,

has placed a ban on the importation of disposed waste, shifting the responsibility back to the local level.

This has, in part, prompted a global systemic shift toward the circular economy, a model that goes beyond recycling to reduce or eliminate waste — even before it is set out for collection — through reuse, innovative and intentional business models, technology, and design. In the circular economy framework, materials are valued throughout their lifecycle and kept in use longer. The circular economy model will not only help the City achieve its goals, it presents an opportunity for economic growth and job creation.



HARBOR SCHOOL STUDENTS SUPPORTING THE BILLION OYSTER PROJECT.

Source: Hunter College New York City Food Policy Center

## SUPPORT EVERY NEW YORKER IN THE SHIFT TO A MORE SUSTAINABLE LIFESTYLE

Carbon neutrality is an “all-hands-on-deck” effort requiring collaboration, hard work, creativity, and ingenuity from individuals and organizations. We will work with existing and new partners from communities, corporations, and all sectors of civil society to create a just and accessible carbon neutral future. To help New Yorkers participate in the transition to carbon neutrality, we will build on the progress made so far and expand successful efforts.

- **EXPAND THE GREENYC PROGRAM TO MAXIMIZE CIVIC ACTION AND ENCOURAGE MORE NEW YORKERS TO LIVE SUSTAINABLY**

GreenYC, which supports resident behaviors that reduce emissions, will be expanded to include single-use plastics and other nonrecyclable or non-compostable waste, as well as awareness and behavior-change campaigns to support residents as they transition to EVs, and implement building energy efficiency measures.

- **EXPAND THE SCOPE OF THE NYC CARBON CHALLENGE TO FURTHER ENGAGE THE PRIVATE SECTOR**

The NYC Carbon Challenge, which partners with New York City institutions in committing to lowering their emissions beyond what’s legally required, has so far reduced 600,000 metric tons of GHG emissions. To achieve greater impact, the program will be expanded to measure additional sources of emissions, including transportation and waste, and will consider expansion to new building categories not currently represented in the Challenge.

- **ADOPT MORE SUSTAINABLE CONSUMPTION PRACTICES IN CITY GOVERNMENT OPERATIONS**

The City will shift away from goods that have an outsized impact on the environment and identify opportunities to reduce waste and cut GHG emissions throughout City government. Through updates to our Environmentally Preferable Purchasing (EPP) and

executive action, we are ending the purchasing of unnecessary single-use plastic foodware, reducing the purchasing of beef, and phasing out the purchasing of processed meat.

Single-use plastic foodware — including straws, cutlery, cups, plates, bowls, and trays — are designed to be used once and then thrown away. These petroleum-based products are a threat to our neighborhoods, waterways, and climate. The City is ending the purchasing of unnecessary single-use plastic foodware, switching to compostable, reusable, or recyclable alternatives while maintaining a sufficient supply of single-use plastic foodware for those who need it. And we will work with City Council to expand these requirements to private businesses.

Building on the success of implementing Meatless Mondays at all New York City public schools, the City will reduce the purchasing of beef by 50 percent. Beef has a relatively high environmental footprint compared to poultry, pork, and plant-based foods. Beef cattle, managing manure, and manufacturing fertilizer produces nitrous oxide and methane, two climate-warming pollutants 298 and 25 times more powerful than carbon dioxide, respectively. Processed meat consumption is linked with increased risk of cancer and is often high in saturated fat and sodium which is linked with heart disease. This policy would offer health benefits to the most vulnerable New Yorkers.

- **EXPAND OPPORTUNITIES FOR CLIMATE AND SUSTAINABILITY LITERACY FOR EDUCATORS AND STUDENTS**

The City will support local programs, organizations, and our agencies to expand climate and sustainability education resources in schools, including professional learning and curriculum development or alignment. Building on successful efforts such as Solar Schools curricula and youth climate summits, we will leverage and promote resources, programming, and events to engage and empower youth in climate action.

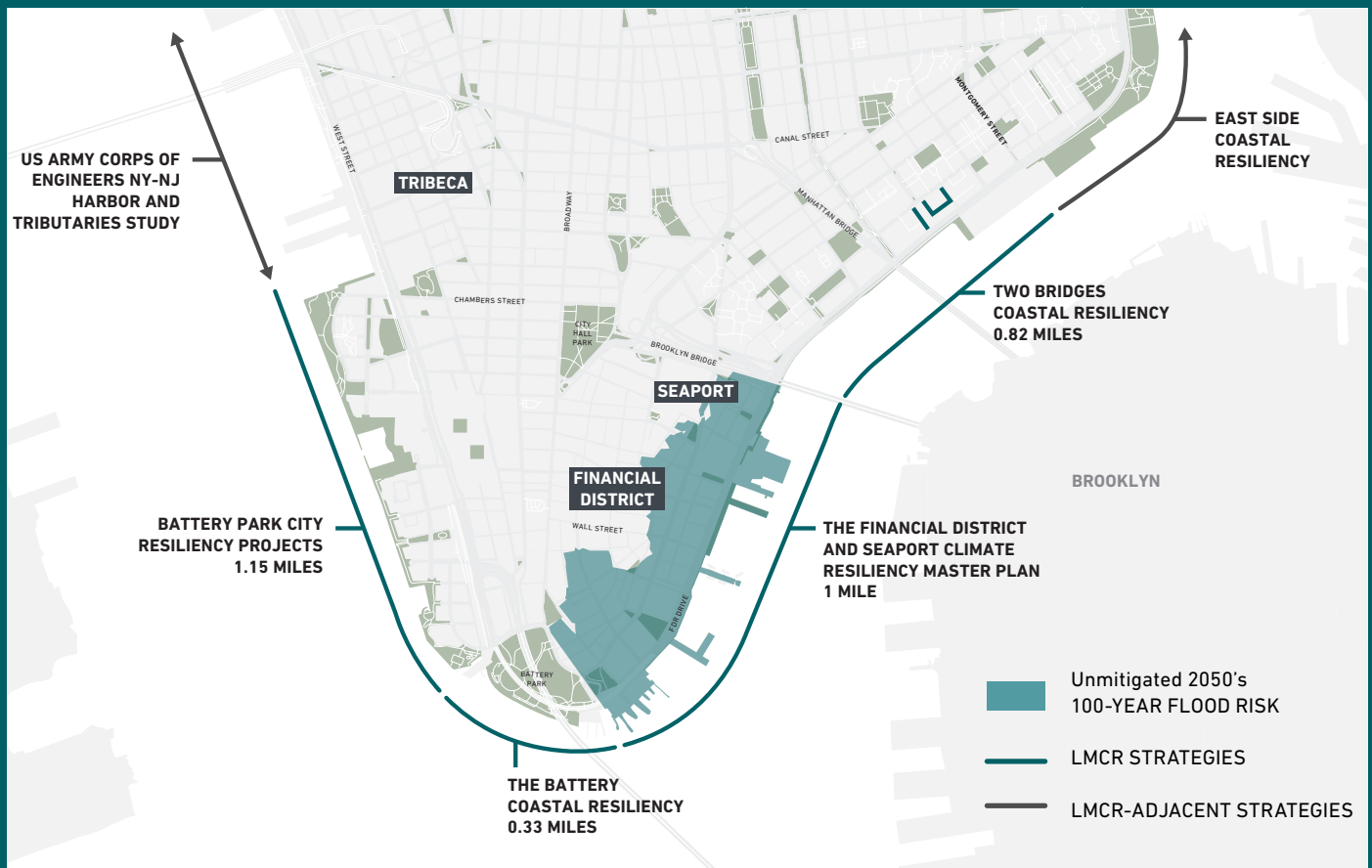
# LOWER MANHATTAN COASTAL RESILIENCY

In March 2019, New York City released the first-ever comprehensive study of climate risks to Lower Manhattan, one of the city's most important economic centers and the home to a growing number of residents. By the year 2100, 20 percent of streets in Lower Manhattan will be exposed to daily tidal flooding, and storm surge will continue to pose a widespread and severe threat to the area.

As a result of this study, the City is advancing approximately \$500 million in flood-risk-reduction projects in the Two Bridges neighborhood, The Battery, and Battery Park City, covering 70 percent of the Lower Manhattan shoreline. The City will deploy Interim Flood Protection Measures in the Seaport and parts of the Financial District and Two Bridges neighborhoods in time for the 2019 hurricane season.

In the low-lying and highly constrained Seaport and Financial District, which represent the remaining 30 percent of the Lower Manhattan coast, land-based adaptation measures were found to be technically infeasible. To protect these neighborhoods from sea level rise, coastal storms, and other climate threats, the City is moving forward with an ambitious plan to extend the shoreline into the East River. This will create a new piece of land with high points at or above 20 feet from the current sea level. The exact extent of the new shoreline, along with the design and construction of this innovative flood protection system, will be determined through an extensive public engagement process.

New York City is advancing multiple projects to protect Lower Manhattan from flooding.



# INITIATIVE 21 OF 30

## STRENGTHEN COMMUNITIES, BUILDINGS, INFRASTRUCTURE, AND WATERFRONT TO BE MORE RESILIENT

**HURRICANE SANDY FOREVER CHANGED THE FACE OF OUR CITY, STARKLY HIGHLIGHTING OUR PHYSICAL AND SOCIAL VULNERABILITIES TO COASTAL STORMS AND EXTREME WEATHER EVENTS.** As climate change continues to worsen, we can expect more powerful and destructive storms that will threaten residents, communities, and our economy — along with higher temperatures, increased precipitation, and rising seas.

To ensure New York City is prepared, we will advance an innovative, multilayered plan that enables a just and equitable transition to citywide climate resiliency. This strategy will mitigate the physical risks of climate change, empower New Yorkers to take climate-smart adaptation measures, and streamline and transform our policies and governance structures to support climate resiliency.

### MITIGATE PHYSICAL RISKS POSED BY CLIMATE CHANGE BY DELIVERING CRITICAL PROJECTS

New York City is making changes to its physical environment to promote resiliency and mitigate the most dangerous and destructive climate impacts. This includes hardening stormwater, wastewater, and other critical infrastructure to withstand climate impacts, and advancing nature-based solutions, such as wetland and forest restoration, to stabilize shorelines, reduce erosion, act as carbon sinks, and mitigate urban heat island effects. The City is also working with federal partners and making significant investments to mitigate neighborhood coastal flood risks, with a series of projects.

### PARTNERSHIP WITH THE U.S. ARMY CORPS OF ENGINEERS

The City is continuing to work closely with the U.S. Army Corps of Engineers (Corps), which is leading several projects that will reshape New York City's shoreline and could forever change New York Harbor and the surrounding region. This partnership has already resulted in new protections for New Yorkers, including nearly 5 miles of new dunes across the Rockaway Peninsula.

The City is currently working with the Corps on more than \$1 billion worth of funded resiliency projects on Staten Island and in Queens. Construction of the Staten Island Levee project, which will mitigate flood risks along 5.3 miles of Staten Island's East Shore, will begin in 2020, with full completion expected in 2024. In Southeast

Queens, the City and the Corps are working on a multilayered plan that will include a new tapered groin field and reinforced dune on Rockaway Beach combined with a system of berms, floodwalls, and nature-based features to increase resiliency for bayside communities. The Corps has set the goal of beginning the first elements of construction on this plan in late 2019.

The City, along with other state and local governments, is also collaborating with the Corps on the New York and New Jersey Harbor and Tributaries Study, which examines comprehensive resiliency solutions for the New York Harbor area. Depending on the scale of the projects recommended by this study, these efforts could take decades and billions of dollars to construct. As climate threats are here now, and will only continue to mount, the City will continue advancing its own coastal protection strategy while working with federal partners on additional long-term resiliency projects.

- **MITIGATE NEIGHBORHOOD COASTAL FLOOD RISKS**

The City will implement coastal projects designed to protect vulnerable coastal areas. These projects will be located in Lower Manhattan, Red Hook, the Rockaways, Jamaica Bay, the East Shore of Staten Island, and other at-risk areas.

- **MITIGATE PHYSICAL RISKS TO CRITICAL INFRASTRUCTURE**

The City will collaborate with local utilities to strengthen their energy and telecommunications assets against the impacts of climate change, and ensure climate risks are incorporated into system planning and design. The City will also harden transportation services, wastewater treatment plants, and sewers to provide critical services in the face of climate change.

- **ADVANCE NATURE-BASED SOLUTIONS TO MITIGATE PHYSICAL RISKS POSED BY CLIMATE CHANGE**

The City will increase the health and resiliency of green and natural infrastructure that provide vital services through stormwater management, coastal protection, and heat mitigation, as well as provide spaces that offer opportunities for education, engagement, and stewardship, and foster community interactions and togetherness that lead to neighborhood trust and social resiliency.

## **EMPOWER NEW YORKERS TO TAKE CLIMATE-SMART ADAPTATION MEASURES**

New York City will build capacity and provide the necessary tools and information to enable individuals, community groups, civic organizations, and businesses to prepare and plan for climate change.

- **EXPAND FLOOD-RISK AWARENESS, FLOOD-INSURANCE UPTAKE, AND RESILIENCY RETROFITS CITYWIDE**

The impacts of climate change on the city's built environment will be exacerbated over the coming years by sea level rise, torrential rainfall, and more powerful storms. We must build awareness and enable resiliency retrofits among all property owners and renters in the floodplain. The City is developing resources for property owners and renters to understand their flood risk and invest in flood mitigation to adapt — and build resiliency — to climate change. As the City's flood risk increases, flood insurance is a critical tool to ensure financial resiliency. The City will partner with FEMA and community organizations to increase the number of flood insurance enrollments.

- **PROMOTE COMMUNITY-LED EMERGENCY PREPAREDNESS AND PLANNING, AND INCREASE CIVIC ENGAGEMENT IN RESPONSE TO CLIMATE CHANGE**

Civic engagement and community-led emergency preparedness and planning help strengthen communities and encourage neighbors to help one another before and after climate-related disasters. Promoting volunteer opportunities, building volunteer capacity in nonprofits and agencies that provide services to at-risk New Yorkers, and engaging a diverse cross section of city residents as volunteers to address the city's greatest needs are all critical steps to building resiliency.

- **ENCOURAGE COMMUNITY ORGANIZATIONS AND SMALL BUSINESSES TO TAKE CLIMATE-SMART ADAPTATION MEASURES**

Community groups and small businesses can provide vital services in neighborhoods in times of disaster. Assisting small businesses with developing emergency and continuity of operations plans — and providing support for them to make climate-smart investments — increases overall community resiliency.

- **PROMOTE CLIMATE HEALTH PREPAREDNESS FOR HEAT-VULNERABLE NEW YORKERS**

As summers become hotter and our population ages, it is critical the City continues to engage New Yorkers in extreme-heat preparedness. Stewarding street trees and green infrastructure; coating roofs white; and checking in on at-risk family, friends, and neighbors are all critical steps to increase community resiliency and promote equity.

## **DEVELOP POLICIES AND GOVERNANCE STRUCTURES TO SUPPORT CLIMATE RESILIENCY AND ADAPTATION**

Our scientific understanding of climate change has deepened significantly over recent decades. The government's response to climate risks has not kept pace. Important tools are embedded in the City's legal and regulatory frameworks, including the zoning resolution, building codes, and others. By undertaking strategic regulatory reforms, the City can improve these tools, integrate climate resiliency features into future City capital projects, and help streamline ongoing resiliency projects. In developing new policies and reevaluating and modernizing governance structures, New York City will streamline and improve the planning and management of its multilayered resiliency plan in cooperation with state and federal partners.

- **EXPLORE ESTABLISHING A WATERFRONT MANAGEMENT STRUCTURE FOR NEW AND EXISTING INFRASTRUCTURE**

City-level legislation, regulation, and governance structures play an important role in helping public entities, households, and private businesses prepare for the impacts of a changing climate. The City is exploring establishing a management structure that will address oversight, inspections, and ongoing maintenance and operations of flood-control infrastructure such as floodwalls, berms, and levees, as well as existing waterfront infrastructure such as bulkheads and piers.

*“Be proactive to protect against sea level rise and the effects of increasingly powerful hurricanes.”*

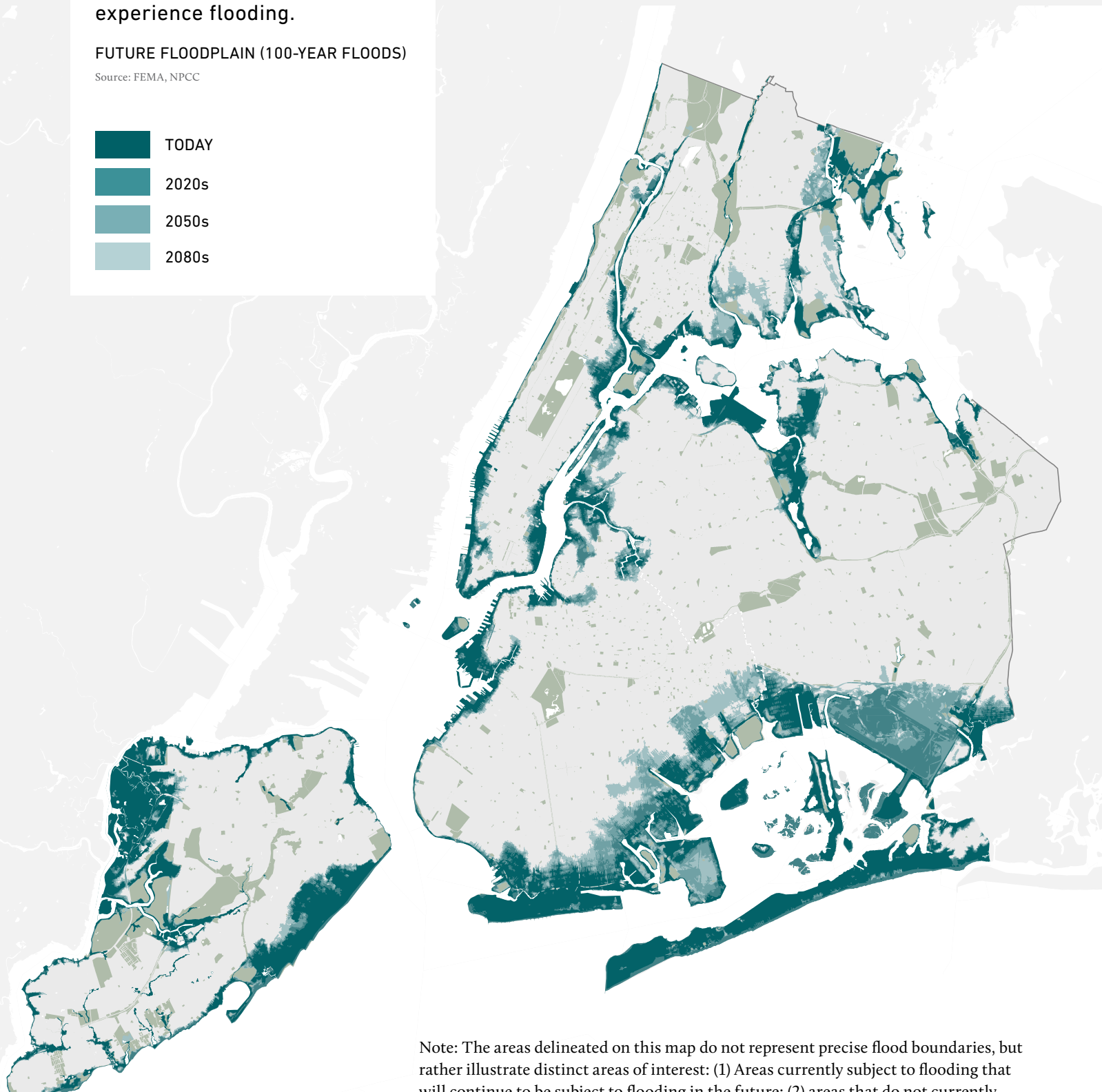
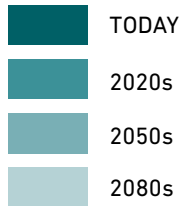
– Resident of Yorkville, Manhattan



As sea levels rise, more of New York City's neighborhoods will experience flooding.

FUTURE FLOODPLAIN (100-YEAR FLOODS)

Source: FEMA, NPCC

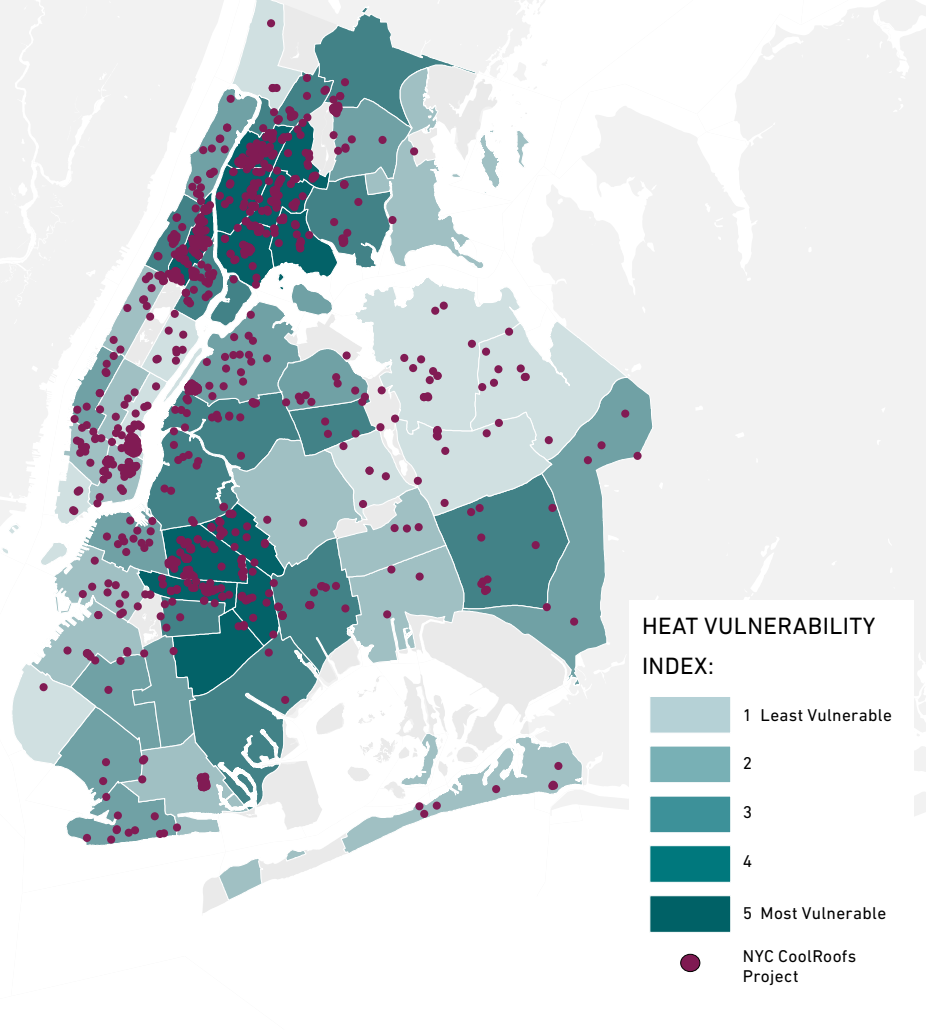


Note: The areas delineated on this map do not represent precise flood boundaries, but rather illustrate distinct areas of interest: (1) Areas currently subject to flooding that will continue to be subject to flooding in the future; (2) areas that do not currently flood but are expected to experience flooding in the future; and (3) areas that do not currently flood and are unlikely to do so in the timeline of the climate projection scenarios (end of the current century).

## The NYC CoolRoofs program addresses resiliency in heat-vulnerable communities.

Source: DOHMH, MOR

NYC CoolRoofs program promotes climate justice by prioritizing the installation of reflective roof coatings in New York City's most heat-vulnerable communities to help lower local temperatures and mitigate the health impacts of the urban heat island effect. Cool roofs also lower costs for building owners, conserve energy, and reduce the emissions driving climate change.



## RISKS OF HEAT-RELATED ILLNESSES

As New York City's climate is warming, cooling our neighborhoods, improving access to cool spaces, and sharing heat health messages are life-saving strategies. Most New Yorkers who fall ill or die from heat-related illness do so alone and at home. The Heat Vulnerability Index, shown on the map above, identifies areas where residents face increased risk of adverse health effects due to extreme heat. Some New Yorkers are more at risk of death or heat-related illnesses during heat waves, including older adults, low income people, non-Hispanic black residents, and those that have certain health conditions.

Heat illness and death are preventable with air conditioning, but many at-risk individuals are unable to purchase or pay to run air conditioning during very hot weather. Only 70 percent of households in Brownsville, Brooklyn one of the city's most heat-vulnerable neighborhoods, had air conditioning coverage compared with 99 percent of households on the South Shore of Staten Island, one of the city's least heat-vulnerable neighborhoods. Increasing street trees and vegetation, painting roofs white, ensuring residents are aware of cooling center locations, and promoting health messages in the city's most heat-vulnerable neighborhoods also help to combat the effect that extreme weather and the built environment have on the heat vulnerability of our residents.

- **CONTINUE TO REFINE THE CLIMATE RESILIENCY DESIGN GUIDELINES**

As climate science continues to evolve and resilient design matures, the City will continue to refine and strengthen the Climate Resiliency Design Guidelines, which help architects and engineers integrate future-looking climate change data into the design of buildings, landscapes, and infrastructure. The City developed these guidelines as a tool to help prepare our municipal facilities for the impacts of climate change. The guidelines can help the City increase the resiliency of essential services New Yorkers rely upon and save taxpayers money by reducing damages from future storms and chronic climate stresses.

- **ADVOCATE FOR LOCAL, STATE, AND FEDERAL LEGISLATION, REGULATIONS, AND POLICIES THAT SUPPORT CLIMATE ADAPTATION AND RESILIENCY**

The federal government and New York State are critical partners in ensuring New York City is prepared for the impacts of climate change. The City must continue to partner with state and federal authorities to facilitate the massive transitions that are necessary, including developing updated and accurate floodplain maps, securing funding for resiliency projects, and achieving key legal and regulatory changes. At the local level, the City will propose updates to the city’s building code in conjunction with developing and adopting flood maps that delineate future conditions based on the best available and actionable climate projections to ensure the safety and functionality of all new buildings built in locations with current or future risks associated with sea level rise. The City will also advance a citywide zoning text amendment to accommodate proactive investments in resilient building design that are informed by sea level rise projections.

## **USE THE BEST AVAILABLE SCIENCE TO INFORM A MULTI-HAZARD APPROACH TO CLIMATE ADAPTATION**

While there is overwhelming agreement that climate change is occurring now and is caused by human activity, climate science remains an evolving field. Climate impact projections are affected by and are inseparable from worldwide efforts to curb GHG emissions. We must continually study emerging climate impacts and modify our adaptation planning to reflect the best available science.

- **STUDY EMERGING CLIMATE IMPACTS TO BETTER UNDERSTAND NEW YORK CITY’S BUILT ENVIRONMENT AND COMMUNITIES**

The City continues to expand its understanding of the multiple hazards posed by climate change. Examples of this work include a citywide study on flooding from extreme precipitation and a project that collects baseline neighborhood-level outdoor temperature data across 14 New York City neighborhoods with high heat vulnerability. The City will also continue to work with key partners, including local utilities, transit agencies, community groups, and private developers, to ensure resiliency planning is transparent and based on the best available science and environmental monitoring data.

- **CREATE A CLIMATE ADAPTATION ROADMAP**

Building on recent NPCC findings and other scientific evidence, the City will develop a Climate Adaptation Roadmap that will incorporate successes and lessons learned from the post-Sandy recovery and rebuilding period, while also planning for the next generation of climate hazards. This roadmap will identify the greatest climate-related threats facing New York City, and recommend a prioritized sequence of climate adaptation measures for the short, medium, and long-term, with a particular focus on the most vulnerable New York City residents and neighborhoods.



VOLUNTEERS WITH SUSTAINABLE SOUTH BRONX HELP PAINT A ROOFTOP WHITE AT AN NYC COOLROOFS PROJECT SITE.

Source: Mark Sohan, Sustainable South Bronx / The HOPE Project

# INITIATIVE 22 OF 30

## CREATE ECONOMIC OPPORTUNITIES FOR ALL NEW YORKERS THROUGH CLIMATE ACTION

**NEW YORK CITY IS ALREADY WELL-POSITIONED TO BE A LEADER IN THE GREEN ECONOMY, IN WHICH SUSTAINABILITY, RESILIENCY, AND CLIMATE ACTION DRIVE JOB CREATION AND ECONOMIC GROWTH.** To capture this opportunity, we will invest in industries and businesses that have a positive impact on the environment, while improving quality of life and promoting equity. We will leverage our educational system and workforce programs to create accessible, good-paying green jobs and prepare New Yorkers of all ages to fill them. And we will harness technology to advance our climate actions and invest our financial resources into innovative climate solutions of the future. This work is already underway in New York City, and demonstrates what the ideals of the Green New Deal look like in practice.

### **GROW THE GREEN ECONOMY WITH GOOD-PAYING JOBS AND A SKILLED WORKFORCE**

New York City is addressing climate change head-on. Our actions to transform our energy system with large-scale renewable energy development, retrofit our nearly 1 million buildings, invest more than \$20 billion to guard against rising sea levels and increased extreme weather events, and protect New Yorkers from environmental hazards will not only address the climate crisis but also create thousands of good-paying jobs.

See *Inclusive Economy* for the City's comprehensive strategy for diversifying the economy and broadening access to good-paying jobs. To facilitate growth of climate related sectors and create in-demand green jobs, the City will continue to:

- **SUPPORT THE GROWTH OF BUSINESSES FOCUSED ON RESPONSIBLE INNOVATION**

New York City is already known as an incubator of responsible innovation, in which companies achieve financial success and also have a positive impact on communities and the environment. We will continue to provide the tools and resources needed to start, grow, and expand such businesses in the city, through programs like Urbantech NYC, which supports early and growth-stage companies by providing flexible and affordable workspace, prototyping resources, and

tailored programming to commercialize and demonstrate new technology. Through these investments, the City is supporting companies that make our city more livable, sustainable, and resilient, while also creating good-paying jobs.

- **PREPARE NEW YORKERS FOR MEANINGFUL WORK IN THE GREEN ECONOMY THROUGH TRAINING PROGRAMS AND PATHWAYS TO JOBS**

New York City's climate actions will create thousands of good-paying jobs in trades such as manufacturing, construction, landscaping, installation, and maintenance, to name a few. To ensure New Yorkers are prepared to capture these opportunities and that the jobs created are accessible, we will leverage the City's youth and adult educational system — including Career and Technical Education Offerings — and workforce system — including industry-specific training, internship, and apprenticeship programs, such as the City's Green Jobs Corps — to build a skilled local workforce. We will promote local hiring policies through City-funded contracts to create opportunities for good-paying jobs with career paths. And we will also leverage our job placement resources — such as our Workforce1 career centers — to provide pathways to these jobs.

### **INVEST IN A CARBON NEUTRAL AND CLIMATE RESILIENT FUTURE**

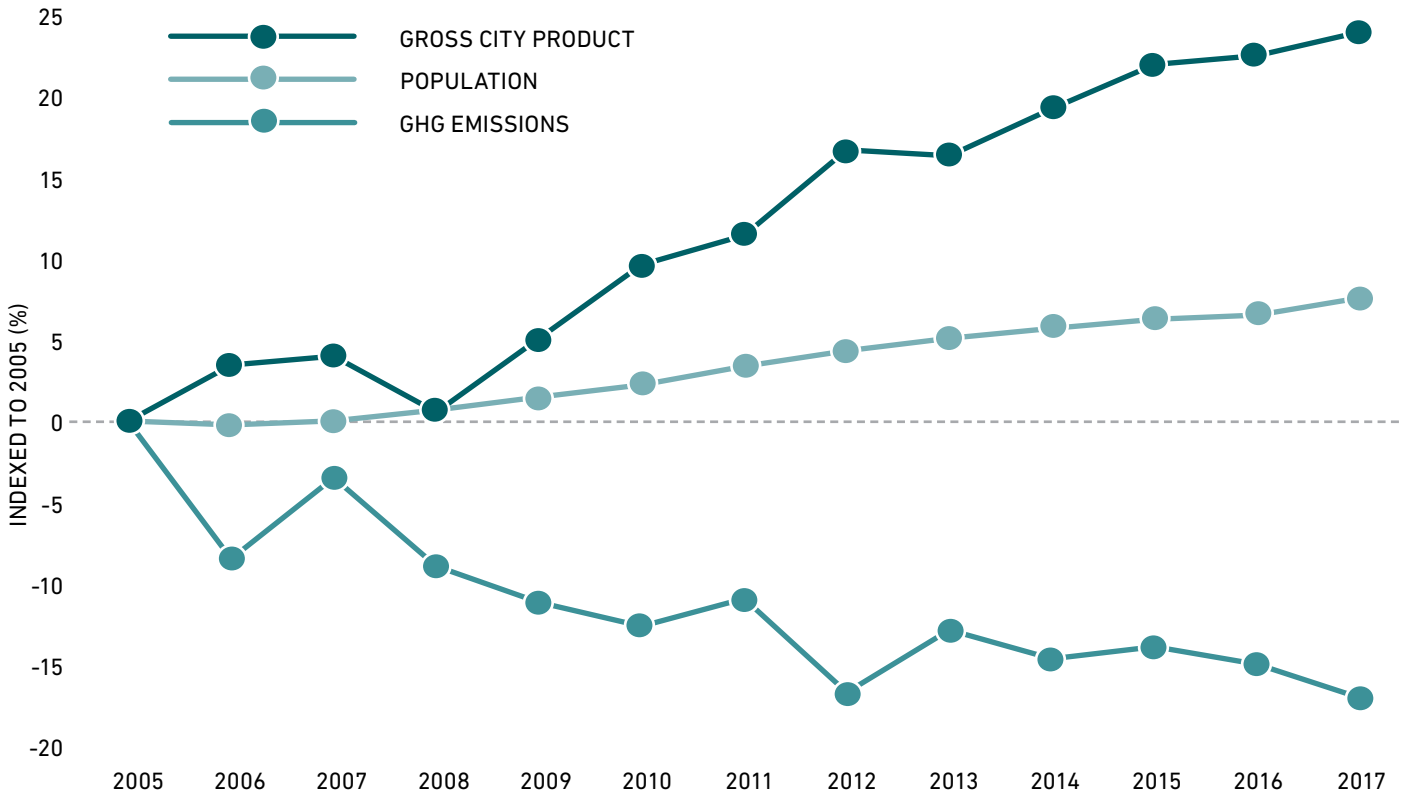
The City will leverage our financial resources to invest in job-creating climate solutions, while also supporting the development and commercialization of innovative carbon neutral and climate resilient technologies of the future. Many technologies exist today to make cities more livable, sustainable, and resilient; however, they are not widely in use and may still need iteration to be faster, better, and cheaper. We will continue to coordinate with public and private partners to create market opportunities for emerging technology and innovation, while helping to remove the technical, financial, and regulatory barriers that limit scale.

- **DOUBLE THE NEW YORK CITY PENSION FUNDS' INVESTMENTS IN CLIMATE SOLUTIONS**

New York City will change the paradigm for public pension

As New York City's GHG emissions have decreased, gross city product and population have continued to grow.

Source: MOS



plans and set a new standard for how such asset owners may use their investments to do well financially while also helping to save the planet. By the end of 2021, the City will double its investments in renewable energy, energy efficiency, and other climate change solutions to \$4 billion, thereby, reaching 2 percent of the \$195 billion pension portfolio. And we will pursue opportunities to leverage New York City's position as a financial capital to encourage public and private actors and financial institutions to join us and drive larger investments into climate solutions.

**• CREATE OPPORTUNITIES FOR TECHNOLOGY AND INNOVATION IN CLIMATE ACTION**

The City will continue to invest in programs and new models that leverage the city as a platform for technology and innovation that supports the development and adoption of new technologies and solutions. These include programs such as NYCx Co-Labs and Moonshot Challenges, wherein the City, entrepreneurs, and communities partner to cocreate and demonstrate technologies that solve real urban challenges and improve the way we live; the Innovative Demonstrations for Energy Adaptability (IDEA) program that engages entrepreneurs to test new or underutilized energy technologies in City-owned buildings; and the RISE : NYC program that provides small businesses impacted by Hurricane Sandy with innovative resiliency technologies to help them adapt to and mitigate the impacts of climate change.

**ENERGY MANAGER PROFILE**

Green jobs exist as part of the City's own operations. Many of our Agencies employ Energy Managers—who are responsible for overseeing energy efficiency projects, conducting energy planning, developing carbon reduction strategies, and reducing energy usage and costs across City agencies.

Daniel Donovan, the 2017 Energy Manager of the Year, works for the Department of Citywide Administrative Services. Under his leadership, the agency reduced energy consumption for their entire building portfolio by 12 percent, lowered utility expenses by \$5.5 million, reduced GHG emissions by 12 percent, and implemented energy efficiency projects at all scales. He also helped establish the City's Henry Chang Learning Center for Mechanical Engineers — a resource that provides training, simulators, and equipment available for lending to City agencies — and serves as an adjunct professor at CUNY's Building Performance Laboratory.

# INITIATIVE 23 OF 30

## FIGHT FOR CLIMATE ACCOUNTABILITY AND JUSTICE

### **NEW YORK CITY WILL CONTINUE TO FIGHT FOR CLIMATE ACCOUNTABILITY AND A JUST TRANSITION TO CARBON NEUTRALITY, CLIMATE RESILIENCY, AND A CLEAN ECONOMY.**

We will hold those responsible for climate change to account; advocate for sound policy that is grounded in science; and work alongside our communities to improve environmental quality for all, seek to redress current and past injustice, and create economic opportunities for every New Yorker.

The burning of fossil fuels is the single largest contributor to human-caused climate change, a fact long denied by fossil fuel companies. These companies knew that burning fossil fuels would change our climate, and cause sea level rise, increased heat, and severe storms. New York City is fighting to hold the fossil fuel industry responsible for its role in the climate crisis. We will continue to pursue our lawsuit against fossil fuel companies for refusing to act when they knew the damage they were causing and we are taking prudent steps to protect the financial interests of New Yorkers and divest City pension funds of fossil fuel company holdings.

Additionally, we will continue to support creative approaches to educate and engage New Yorkers about climate change and the importance of climate action. Public art campaigns and activism, particularly youth-led climate activism, play a valuable role in giving people a voice and bringing New Yorkers into the climate conversation. We will also continue to fight federal rollbacks and promote sound science in policymaking. And we are asking cities across the nation and around the world to join us in all of these efforts to foster climate accountability and justice.

### **PURSUE THE CITY'S LAWSUIT AGAINST THE FIVE LARGEST INVESTOR-OWNED FOSSIL FUEL COMPANIES**

The City is suing BP, Chevron, ConocoPhillips, Exxon Mobil, and Royal Dutch Shell to recover billions of dollars the City will spend on resiliency measures to protect the city from the ongoing and increasingly severe impacts of climate change. The resiliency

measures include physical infrastructure — such as coastal protections, upgraded water and sewer infrastructure, and heat mitigation — and public health programs, such as to help protect residents from the effects of extreme heat.

### **DIVEST THE CITY'S PENSION FUNDS OF ALL FOSSIL FUEL RESERVE OWNERS**

The City's pension funds hold roughly \$5 billion in securities in more than 100 fossil fuel reserve owners — those companies that own the oil and gas in the ground. The City's strategy is to divest these holdings by 2022, consistent with prudent practice and in line with our fiduciary responsibilities. Fossil fuel securities have consistently underperformed in the market in recent years, and the outlook for fossil fuel investments continues to be poor — making divestment not just the right thing to do in the fight against climate change, but also the responsible action to protect our pensions. And we will pursue opportunities to leverage New York City's position as a financial capital to further drive divestment from the fossil fuel industry.

### **ADVOCATE FOR ROBUST REGULATION OF GREENHOUSE GAS EMISSIONS**

It is essential that the City is a strong voice in advocating for strict GHG emissions regulation and that we fight federal attempts to divorce regulatory efforts from sound science. The City will support the State's inclusion in the Transportation and Climate Initiative's regional low carbon transportation proposal. And we will continue to pursue a lawsuit to fight federal attempts to rollback essential regulations limiting GHG emissions, including those that govern new and existing power plants and light duty vehicles. We will also continue to fight the federal government's attempts to discount valuable science and create insurmountable administrative and logistical hurdles to impede consideration of the best available scientific evidence.



STUDENTS PARTICIPATING IN THE MARCH TO COMMEMORATE THE FIVE-YEAR ANNIVERSARY OF HURRICANE SANDY.

Source: Rae Breaux

## PARTNER WITH GLOBAL CITIES TO FOSTER CLIMATE ACCOUNTABILITY AND CLIMATE JUSTICE

The City will continue to form valuable partnerships with other cities and work through networks to scale up climate solutions and share tools, knowledge, and best practices, to ensure climate change is addressed on a global scale. Climate change is affecting every city, state, and country, and it is imperative for New York City to share lessons on climate action.

In 2019, New York City partnered with the City of London and C40 Cities, a group of international cities working together to address climate change, to create the Divest/Invest Forum. This partnership will bring the best practices for sustainable investing and fossil fuel divestment to cities and pension funds around the globe. In addition, the City is also partnering with Barcelona for the Inclusive Climate Action Forum, also sponsored by C40 Cities, which aims to provide overarching guidance for cities to both assess inclusivity of their climate actions and recommendations, and to design fairer and more equitable policies.

# THE PATH FORWARD

**TO ACHIEVE OUR GOALS, WE MUST HAVE A PLAN AND HOLD OURSELVES ACCOUNTABLE.** Here, we identify the actions that are necessary to achieve our goals, the owners of each action, and the indicators that will help us measure progress and ensure success. We are also constantly working to raise our ambitions, with several opportunities in the near future to add more detail to select indicators and targets. For further information and a complete set of interim milestones, see our detailed action plans at [nyc.gov/OneNYC](http://nyc.gov/OneNYC).

INITIATIVE #20: ACHIEVE CARBON NEUTRALITY AND 100 PERCENT CLEAN ELECTRICITY		
STEPS TO GET THERE	AGENCY OWNER	FUNDING STATUS
Ensure 100 percent clean electricity resources	MOS	Partially Funded
Pursue deep cuts in emissions and gains in efficiency across all buildings and infrastructure	MOS	Partially Funded
Promote sustainable transportation options	DOT	Partially Funded
Adopt Zero Waste management strategies citywide	DSNY	Partially Funded
Support every New Yorker in the shift to a more sustainable lifestyle	MOS	Partially Funded
INDICATORS	LATEST DATA	TARGET
Share of electricity mix from clean sources	27% (2019)	100% by 2040
Greenhouse gas emissions eliminated, reduced, or offset	17% (2017)	100% by 2050
Curbside diversion rate	18% (FY2018)	Increase

INITIATIVE #21: STRENGTHEN OUR COMMUNITIES, BUILDINGS, INFRASTRUCTURE, AND WATERFRONT TO BE MORE RESILIENT		
STEPS TO GET THERE	AGENCY OWNER	FUNDING STATUS
Mitigate physical risks posed by climate change by delivering critical projects	MOR/EDC/DPR	Partially Funded
Empower New Yorkers to take climate-smart adaptation measures	MOR	Partially Funded
Develop policies and governance structures to support climate resiliency and adaptation	MOR	Partially Funded
Use the best available science to inform a multi-hazard approach to climate adaptation	MOR	Partially Funded
INDICATORS	LATEST DATA	TARGET
Flood insurance enrollments, using January 2019 NFIP policies in force as a baseline	35,494 (2019)	Increase
System Average Interruption Frequency Index (SAIFI) per 1,000 customers	84.5 (2017)	Decrease
Customer Average Interruption Duration Index (CAIDI) in hours	3.22 (2017)	Decrease



<b>INITIATIVE #22: CREATE ECONOMIC OPPORTUNITIES FOR ALL NEW YORKERS THROUGH CLIMATE ACTION</b>		
<b>STEPS TO GET THERE</b>	<b>AGENCY OWNER</b>	<b>FUNDING STATUS</b>
Grow the green economy with good-paying jobs and a skilled workforce	SBS, WKDEV, EDC	Partially Funded
Invest in a carbon neutral and climate resilient future	NYC Pension Trustees	Funded
<b>INDICATORS</b>	<b>LATEST DATA</b>	<b>TARGET</b>
City pension fund investments in renewable energy, energy efficiency, and other climate change solutions	\$2B (2019)	Increase to \$4B by 2021

<b>INITIATIVE #23: FIGHT FOR CLIMATE ACCOUNTABILITY AND JUSTICE</b>		
<b>STEPS TO GET THERE</b>	<b>AGENCY OWNER</b>	<b>FUNDING STATUS</b>
Pursue the City's lawsuit against the five largest investor-owned fossil fuel companies	Law/PPP	Budget Neutral
Divest the City's pension funds of all fossil fuel reserve owners	NYC Pension Trustees	Budget Neutral
Advocate for robust regulation of greenhouse gas emissions	Law/PPP	Partially Funded
Partner with global cities to foster climate accountability and climate justice	PPP	Budget Neutral
<b>INDICATORS</b>	<b>LATEST DATA</b>	<b>TARGET</b>
City pension fund investments in fossil fuel reserve owners	\$5B (2019)	Eliminate by 2022

For more information on the funding status of OneNYC initiatives, please see the City of New York Fiscal Year 2020 Executive Budget and Ten-Year Capital Strategy.



# WHAT YOU CAN DO

**BUILDING A STRONG AND FAIR CITY WILL REQUIRE THE HELP AND SUPPORT OF ALL NEW YORKERS. HERE ARE A FEW EASY STEPS YOU CAN TAKE:**

# 1

**REDUCE YOUR CARBON FOOTPRINT** through GreeNYC. Visit GreeNYC to learn how to live a green lifestyle and reduce your carbon footprint at home, at work, and on the go. Help New York City achieve Zero Waste by signing up to stop junk mail, taking the B.Y.O. pledge, and drinking tap water, rather than bottled water. Spread the word by signing up as a GreeNYC volunteer.

# 2

**LEARN ABOUT YOUR FLOOD RISK** and flood insurance requirements. Visit FloodHelpNY to enter your address and receive customized information about your existing flood risk, insurance requirements and estimated costs, as well as tips to help lower your exposure and flood insurance rates. FloodHelpNY also provides connections to more comprehensive assessments of risk, such as the Home Resiliency Audit Program.

# 3

**ADVOCATE FOR GLOBAL CLIMATE CHANGE ACTION.** Start by encouraging your employer and local institutions to sign up for the Carbon Challenge. The program encourages universities, hospitals, multi-family buildings, commercial building owners and tenants, and hotels to cut greenhouse gas emissions, improve air quality, and reduce the impact of climate change.

For more ways you can get involved, visit [NYC.GOV/OneNYC](https://nyc.gov/OneNYC). Share your story of taking action on social media and tag us at [#OneNYC](https://twitter.com/OneNYC).



THE CITY OF NEW YORK  
MAYOR BILL DE BLASIO

DEAN FULEIHAN  
FIRST DEPUTY MAYOR

DOMINIC WILLIAMS  
CHIEF POLICY ADVISOR

DANIEL A. ZARRILLI  
OneNYC DIRECTOR

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