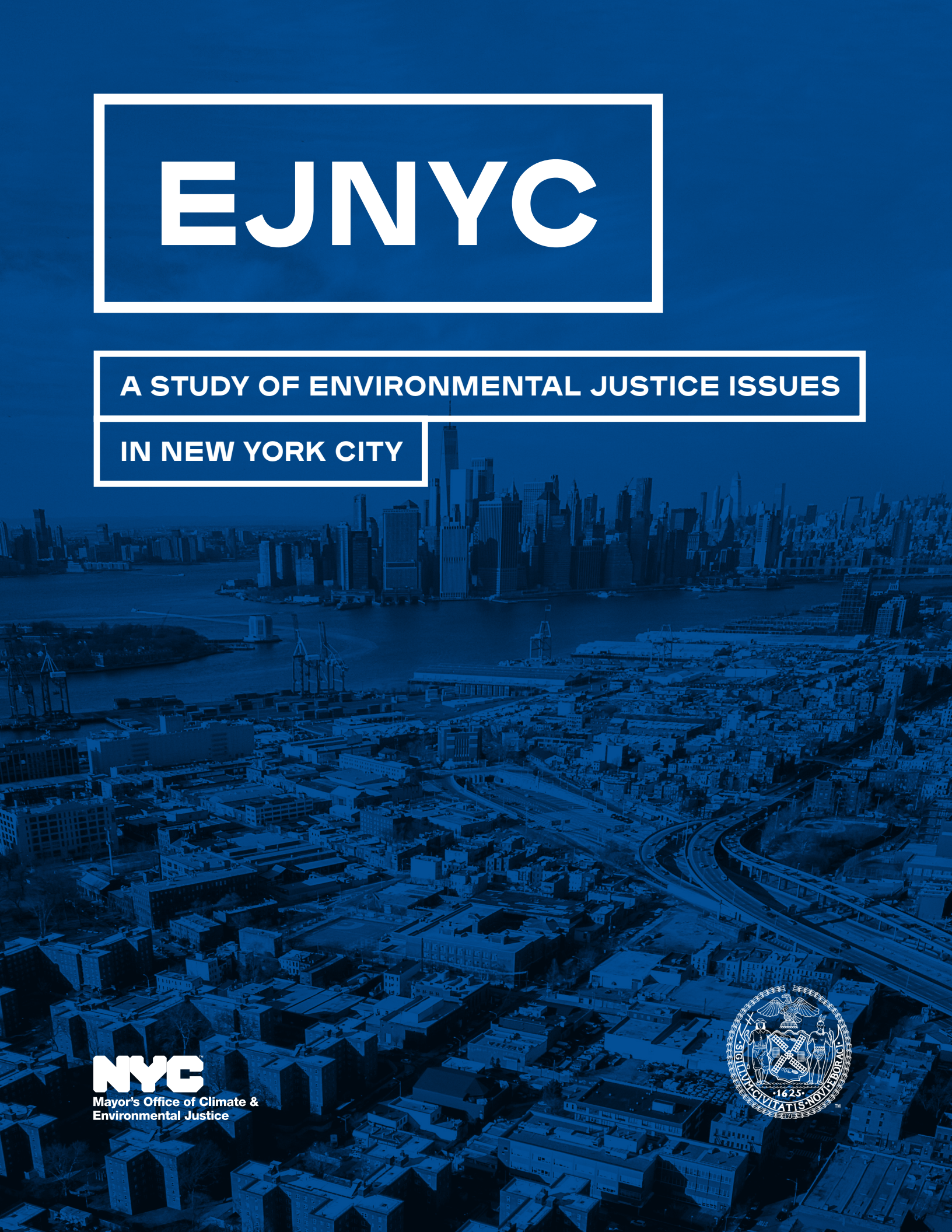
EJNYC

A STUDY OF ENVIRONMENTAL JUSTICE ISSUES IN NEW YORK CITY



NYC
Mayor's Office of Climate & Environmental Justice

Environmental justice advocates of all ages and backgrounds have been fighting for their communities for decades. We admire and commend their tireless efforts to make our city a safer, cleaner, and more equitable place to thrive.

New York City Mayor Eric Adams and the Mayor's Office of Climate & Environmental Justice Executive Director Elijah Hutchinson would like to extend their gratitude to the city's Environmental Justice Advisory Board (EJAB) members and all community stakeholder participants for committing their time, insights, and experience to the Environmental Justice NYC (EJNYC) Report and EJNYC Mapping Tool.

Established in 2019, the EJAB is composed of environmental justice leaders—advocates, academics, and subject matter experts whose expertise and leadership were fundamental to the report's development. Our priority was to develop a collaborative resource that was truly reflective of local community needs and priorities. It is our belief that no one knows this city better than its community leaders.

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LETTER FROM THE MAYOR

To my fellow New Yorkers,

New York City is the greatest city in the world, but it has not always been the fairest. The lasting legacies of federal, state, and local policies have created economic and environmental inequalities within our city. Today, climate change threatens to exacerbate these disparities, putting the most vulnerable New Yorkers at even greater risk. That is why our administration established The Mayor's Office of Climate & Environmental Justice, released *PlaNYC: Getting Sustainability Done*, and is now publishing Environmental Justice NYC (EJNYC), the first comprehensive study of environmental inequalities produced by any city in the United States.

The fact is, while heat kills more New Yorkers every year than any other extreme weather event, Black New Yorkers die of heat-related illness at twice the rate of white New Yorkers. Communities of color are disproportionately exposed to emissions from heavy-duty diesel vehicles when compared to communities that are mostly white. Bronx residents experience both the highest rates of food insecurity and the highest rates of diet-related diseases like diabetes and high blood pressure. We cannot allow these injustices to continue.

To make the information in this report more accessible, we have created an interactive mapping tool that consolidates over one hundred data layers into a single platform. Users can now zoom in on a neighborhood to see environmental injustices brought to light.

Studying environmental injustices is the first step towards addressing the problem. We will use the data gathered here to target environmental injustices so that we can build a city that is more environmentally resilient and is one in which all New Yorkers can live healthier and longer lives.

Eric Adams

EXECUTIVE SUMMARY

Environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, policies and activities and with respect to the distribution of environmental benefits. [1] Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state or local programs and policies or receive an inequitably low share of resources and environmental benefits.

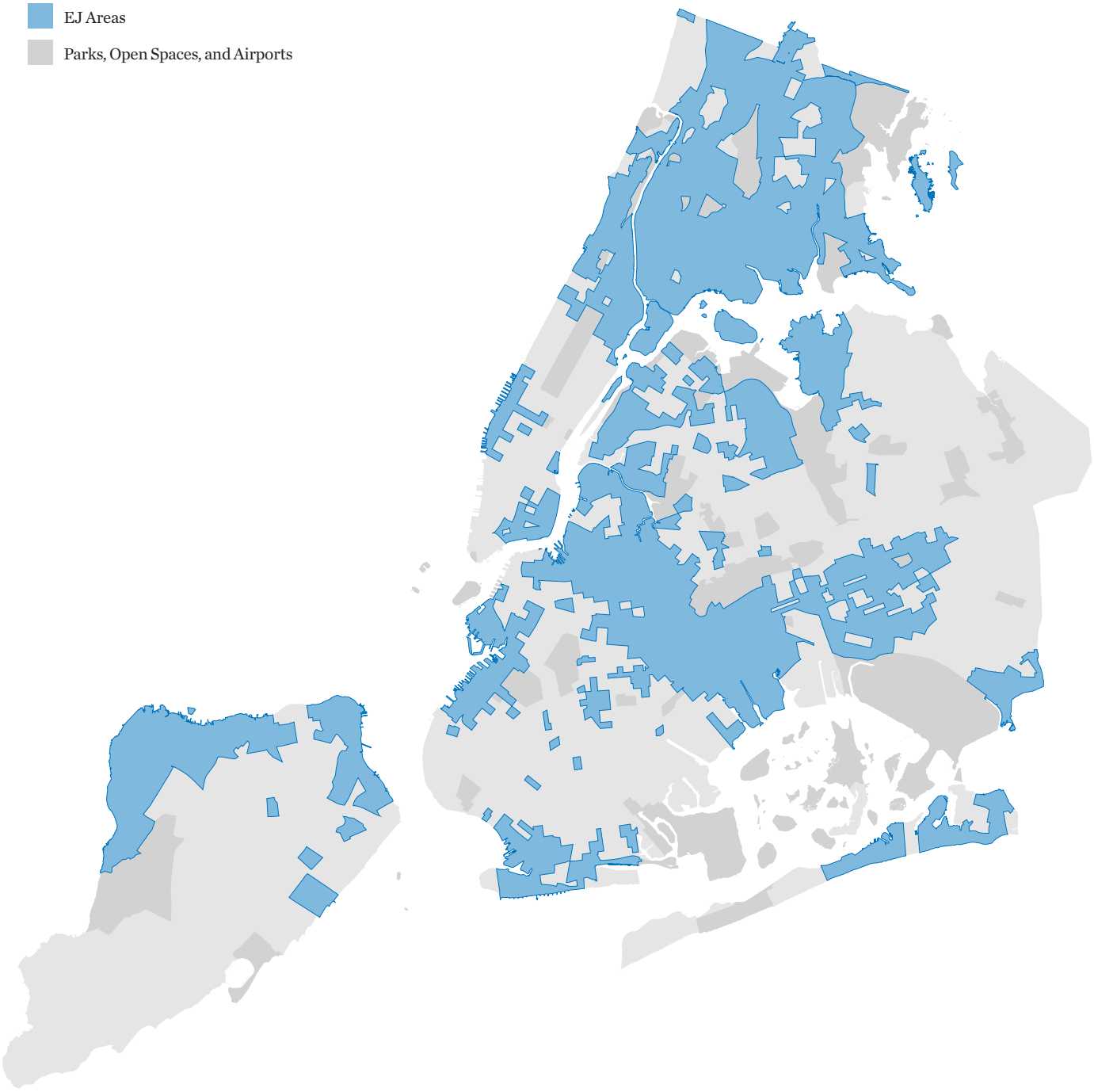
Prevalent and persistent environmental inequities in New York City create profound economic, social, and health disparities among affected communities. Low-income communities and communities of color are disproportionately impacted by these environmental inequities, due to legacies of discriminatory actions by public and private entities. Achieving environmental justice will require that all New Yorkers have the same degree of protection from environmental and health hazards and equal access to the decision-making to have a healthy environment to live, learn, and work.[2]

The Environmental Justice New York City (EJNYC) initiative represents the Mayor's Office of Climate & Environmental Justice's (MOCEJ) implementation of the City's landmark environmental justice legislation, Local Laws 60 and 64 of 2017. These laws establish foundational requirements to guide the City's efforts to advance environmental justice in New York City, including the development of the EJNYC Report and EJNYC Mapping Tool, and the forthcoming development of the EJNYC Plan. Together, these efforts will accomplish two objectives: first, to develop a study that provides New Yorkers with an understanding of present-day systemic environmental inequities in the city, and second, to develop a robust plan that effectively advances environmental justice and embeds equity and environmental justice considerations into the City's decision-making processes.

ENVIRONMENTAL JUSTICE AREAS

In this report, the term "Environmental Justice Area" or "EJ Area" denotes a geographic area that has experienced disproportionate negative impacts from environmental pollution due to historical and existing social inequities without equal protection and enforcement of environmental laws and regulations. The report

New York City's Environmental Justice Areas



SOURCE: NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

identifies the city's EJ Areas using the state's Disadvantaged Communities (DAC) designation, which is based on a scoring of 45 indicators that describe various sociodemographic and environmental conditions across census tracts.[3] Based on this designation, EJ Areas account for 44 percent of all New York City census tracts, containing 49 percent of the city's population. This report also uses the term "Environmental Justice Neighborhood" or "EJ Neighborhood" to denote a geographic area consisting of a majority (greater than 50 percent) of census tracts designated as EJ Areas.

The State of Environmental Justice (p. 38) contains an explanation of why the DAC designation is used in this report and a comprehensive review of the DAC methodology, its limitations, and potential improvements.

KEY FINDINGS

The EJNYC Report evaluates a selection of environmental burdens and benefits across the city and between EJ Areas and non-EJ Areas to identify potential disparities. Key takeaways from this analysis include:

» Historically, New York City's low-income communities and communities of color bore the disproportionate burden of polluting infrastructure while simultaneously experiencing disinvestment in environmental benefits such as parks and natural resources, and solid waste pickup.

ACCESS TO RESOURCES

» The impact of redlining (racially discriminatory real estate practices) persists today. Residents living in historically redlined areas are both disproportionately Black and Hispanic or Latino; 67 percent of the total population in historically redlined areas live in EJ Areas today (by comparison, 49 percent of the total New York City population lives in EJ Areas).

» Low-income Hispanic or Latino and Black residents report the highest rates of transit hardship, or inability to afford transit fares, across racial groups. Low-income Bronx residents report the highest rates of transit hardship across the five boroughs.

» New York City has made great progress toward its goals of increasing access to parks and open space, however, there remains a gap in park density: the average amount of accessible park space is 9 acres per 1,000 residents in EJ Areas and 11 acres per 1,000 residents in non-EJ Areas, amounting to a 19 percent deficit for residents in EJ Areas.

» Residents in the Bronx experience both the highest rates of food insecurity and the highest rates of diet-related diseases, such as diabetes and high blood pressure.

EXPOSURE TO POLLUTED AIR

» Communities of color are disproportionately exposed to emissions from heavy-duty diesel vehicles due to the location of arterial highways, commercial waste routes, delivery routes, and parking facilities for medium and heavy-duty fleets. These communities also experience observed health disparities, with EJ Areas sustaining the greatest levels of pollution-attributable emergency department visits.

» Stationary sources of pollution, including "peaker" power plants, waste processing facilities, and hazardous waste generators, are disproportionately located in and around EJ Areas.

EXPOSURE TO HAZARDOUS MATERIALS

» Hazardous waste generators and storage facilities, including large facilities and chemically-intensive small businesses such as auto shops, are predominantly located in EJ Areas. These facilities can emit hazardous

materials that can pose adverse health effects to exposed populations.

- In New York City and across the country, there is no complete list of potentially contaminated sites and currently no widespread effort to characterize legacy industrial areas across the city for existing contamination, as these investigations are typically managed on a site-specific basis. This makes it difficult to assess the true distribution of contaminated land in EJ Areas and its impact on residents.
- Federal and state Superfund cleanup sites are established based on environmental and public health concerns. Brownfield cleanup projects are typically driven by the real estate market and area-wide rezonings. As a result, brownfields addressed under local and state government oversight tend to be concentrated in areas that have been rezoned and are undergoing large-scale redevelopment or are localized city-driven projects or infrastructure. The locations of these cleanup sites therefore do not necessarily reflect the distribution of land contamination across the city. There is no public data on cleanup work done privately.

ACCESS TO SAFE AND HEALTHY HOUSING

- The legacy of discriminatory housing policies impacts housing conditions for today's EJ communities. Neighborhoods reporting the most housing maintenance deficiencies and lead paint violations are disproportionately located in historically redlined EJ Areas in the Bronx, Central Brooklyn, and Upper Manhattan, compared to non-EJ Areas.
- Nine out of 10 neighborhoods with the highest incidents of three or more maintenance deficiencies in renter households are EJ Neighborhoods.
- Neighborhoods with the lowest rates of air conditioning at home are predominantly EJ Neighborhoods with high heat vulnerability.

CONTRIBUTING THEMES IN ENVIRONMENTAL INJUSTICE

STRUCTURAL RACISM

Structural racism is rooted in public policy designed for racial segregation. Historically redlined areas have a higher proportion of Black and Hispanic or Latino residents than the city overall, and these areas experience a pattern of disparities in benefits and burdens across multiple EJ issues. For example, Black and Hispanic or Latino residents are more likely to experience health-related housing maintenance deficiencies, transit hardship, and energy cost burden.

POVERTY

Poverty often means that marginalized communities have greater exposure to environmental hazards and pollution. Poverty can also restrict access to safe and stable housing, transit, and fresh food. Industries that produce pollution or waste tend to be in low-income areas, further exacerbating the environmental burdens faced by these communities.

EXPOSURE TO POLLUTED WATER

- New York City has approximately 14 miles of swimming beaches that serve around 7 million swimmers per year, and many of its waterways are suitable for boating. However, many of the waterways within and surrounding New York City are impaired or stressed and limited for swimming due to a number of factors including water quality, current, and boat traffic.

- Areas of New York City most impacted by stormwater flooding include Southeast and Central Queens, North Staten Island, and the Southeast Bronx.
- Black residents are overrepresented among the census tracts with an above average number of confirmed sewer backup complaints.

EXPOSURE TO CLIMATE CHANGE

- Most of New York City's population living in neighborhoods with high heat vulnerability (HVI-5 and HVI-4) live in EJ Areas, particularly in Central Brooklyn, Upper Manhattan, Southeast Queens, and the Bronx.
- The population living in the city's EJ Areas is disproportionately exposed to flooding due to coastal storm surge, chronic tidal flooding, and extreme rainfall in the current decade. If EJ Areas remain the same, current hazard forecasts for the 2080s suggest that this disproportionate exposure to flooding due to coastal storm surge and chronic tidal flooding could persist.
- Climate change will impact the lives of all New Yorkers, but existing environmental inequities can make residents of EJ Areas more vulnerable. For example, neighborhoods with the lowest rates of air conditioning at home and high heat vulnerability are concentrated in EJ Areas, and seven of the top 10 neighborhoods in New York City with the least tree canopy coverage are EJ Neighborhoods.

ENGAGING THE PUBLIC ON ENVIRONMENTAL JUSTICE

The EJNYC Report also evaluates select City engagement practices to understand how City agencies involve the public in environmental decision-making. This evaluation is supplemented by findings from conversations with New Yorkers in EJ communities and community leaders on the frontlines of the EJ movement. Key takeaways from this evaluation include:

- The City's efforts to involve the public in environmental decision-making include legally required and voluntary engagement processes. For the public, participating in these processes can be complex, resource and time-intensive, and at times inaccessible, thus limiting the perspectives that are represented. City agencies have used online engagement tools and participatory planning workshops to overcome some of these barriers; however, there are opportunities to expand these efforts in the future.
- The City's public engagement efforts are often perceived as lacking transparency and not adequately incorporating community feedback. Stakeholder conversations affirmed that improving transparency in engagement processes, collaborating with community-based organizations, and providing resources to support community capacity-building and leadership development are effective means of advancing meaningful involvement and environmental justice.

HOW THIS REPORT WILL LEAD TO MEANINGFUL CHANGES

The next step of the EJNYC initiative is the development of a comprehensive citywide environmental justice plan, the EJNYC Plan. Based on the findings of this report, the City will work with environmental justice communities to identify opportunities to advance environmental justice in New York City. In developing this report, the City has begun to identify those opportunities and anticipates exploring them further in the forthcoming EJNYC Plan:

Invest in environmental justice communities

Addressing legacies of environmental injustice requires targeted investments in overburdened and under-resourced areas. Incorporating equity measures into planning, investments, and

decision-making will ensure EJ communities get the resources they need to thrive in the face of climate change. Environmental justice investments could include creating new infrastructure that promotes environmental and climate benefits and modernizing existing infrastructure to reduce and eliminate negative impacts.

Integrate environmental justice in agency decisions through Climate Budgeting

Climate Budgeting can further embed climate and environmental justice considerations into City budgeting to evaluate how budgeting decisions impact long-term climate and environmental justice goals. Embedding environmental justice in this process will help the City align the impact of its investments, identify gaps and opportunities, and increase budget transparency.

Improve accountability through increased data transparency and communication

Transparency in government decision-making is essential to building community trust. Promoting access to information, clear communication channels, and inclusive mechanisms for participation are key to advancing environmental justice priorities. Online data tools, for example, will continue to improve accountability and support residents to advocate for transformational change within their communities.

Coordinate with permitting and regulatory authorities to embed equity and environmental justice considerations in the siting and permitting of infrastructure

Embedding equity and EJ considerations in infrastructure siting decisions will help prevent further negative impacts or environmental burdens in EJ communities and encourage new access to resources such as parks and tree canopy coverage. The City is committed to working with partners to support policies and regulations, such as New York State's Climate Act and its forthcoming regulations, which accelerate the investments and benefits of clean energy, climate resilience, and pollution reduction in environmental justice communities.

Explore and develop new ways to collaborate with environmental justice communities

Going beyond traditional engagement, there is opportunity for greater transparency and more meaningful involvement that occurs earlier in decision-making processes. New engagement models, such as the City's equity-driven Climate Strong Communities approach of initiating work with communities to identify projects for funding opportunities, will help build more meaningful partnerships.

The City recognizes there is substantial work to be done to successfully implement and support citywide environmental justice priorities and is committed to working with the Environmental Justice Advisory Board and EJ communities to identify and establish environmental justice priorities, initiatives, policies, and recommendations through the development of the EJNYC Plan.

INTRODUCTION

BACKGROUND ON LOCAL LAWS 60 AND 64 OF 2017

In 2017, the New York City Council adopted Local Laws 60 and 64, which require the City of New York to assess citywide environmental inequity and develop a plan to incorporate environmental justice into the fabric of City decision-making. The Environmental Justice New York City (EJNYC) initiative represents MOCEJ's implementation of this landmark environmental justice legislation.

Local Law 60 requires that a citywide study of environmental justice be conducted and that the results of the study be made available to the public and placed on the City's website. The law also requires the creation of an online environmental justice portal with access to a mapping tool for environmental justice data. This EJNYC Report and the accompanying EJNYC Mapping Tool satisfy these requirements by providing a comprehensive view of the historical and present state of environmental justice in New York City and by providing stakeholders the information and tools to advocate for and advance the best outcomes for impacted communities.

The EJNYC Report and Mapping Tool serve as the foundation for the next major milestone required by Local Law 64: the development of a comprehensive citywide environmental justice plan, the EJNYC Plan. This plan will propose actions to address environmental injustices in communities of color and low-income communities in consultation with EJ communities.

THE ENVIRONMENTAL JUSTICE MOVEMENT

The environmental justice movement emerged out of decades of grassroots organizing, primarily led by people of color who believed that a person's race or class should not determine their quality of life.[4] Racist historical housing policies contributed to the concentration of polluting and harmful infrastructure in low-income communities and communities of color. In New York City, a legacy of health disparities across racial and socioeconomic lines remains.[5, 6, 7, 8] For generations, community groups and individuals have advocated for healthy neighborhoods and protection from exposure to environmental and health hazards.[9] Now, the City of New York is publishing its study of these impacts on New Yorkers through the lens of environmental justice.

The EJ movement advocates for all people to have the right to equal protection and equal enforcement of environmental laws and regulations, including laws pertaining to human health. The movement

recognizes that due to structural racism and class discrimination, communities of color, low-income neighborhoods, and Indigenous Peoples are the most likely to be impacted by harmful exposures, economic injustices, and negative land uses.[10, 11, 12, 13, 14, 15, 16] At the same time, these historically impacted communities are disproportionately affected by climate change impacts, while generally contributing the least to the climate crisis, and are historically the least likely to benefit from investments to improve the environment.[17, 18, 19, 20]

WHY THIS REPORT NOW?

The legislative mandate to create this report stemmed from an array of factors. First and foremost, the City acknowledges the determined leadership and immense amount of work that residents have volunteered to fight for the health and safety of their communities. For generations, New York City residents have called for the City to rectify environmental injustices, including removing or remediating lead paint, closing fossil fuel power plants, and providing waterfront access, to name just a few examples.

This report also aligns with the increasing prevalence of EJ action at the state and federal level, which are summarized below. Through the forthcoming EJNYC Plan, the City has the potential to harness some of these emerging resources to benefit New York City's EJ communities.

- With the Climate Leadership and Community Protection Act (CLCPA or the Climate Act) in 2019, in 2019, the New York State legislature created a permanent EJ advisory group, the Climate Justice Working Group. One of the nation's most ambitious climate laws, the Climate Act requires the State to reduce economy-wide greenhouse gas emissions and direct a minimum of 35 percent with a goal of 40 percent of the overall benefits on clean energy and energy-efficiency programs, projects, or investments to disadvantaged communities.
- In 2022, New York State voters passed the Clean Water, Clean Air and Green Jobs Environmental Bond Act to support environmental improvements that preserve, enhance, and restore New York's natural resources and create local green jobs.
- At the federal level, President Biden signed the Bipartisan Infrastructure Law in 2021 and the Inflation Reduction Act in 2022, both of which advance opportunities for environmental and infrastructure improvements and the creation of green jobs.
- The Biden Administration's Justice40 initiative aims to deliver 40 percent of the overall benefits of certain federal investments to communities that are marginalized and overburdened by pollution. To help define these disadvantaged communities, the Council on Environmental Quality released a Climate and Economic Justice Screening Tool in November 2022.
- In addition, the United States Environmental Protection Agency (U.S. EPA) created a new Office of Environmental Justice and External Civil Rights in 2022 to better advance environmental justice, enforce civil rights laws in overburdened communities, and deliver new grants and technical assistance nationwide.
- The U.S. EPA opened applications for the Environmental Justice Government-to-Government (EJG2G) program in January 2023, which provides funding at the state, local, territorial, and tribal level to support government activities that lead to measurable environmental or public health benefits in communities disproportionately burdened by environmental harms.
- The White House's Climate and Economic Just Screening Tool (CEJST) is used to direct and prioritize federal funding to disadvantaged communities, such as in the EPA's Greenhouse Gas Reduction Fund (GGRF).

Compounding crises have heightened the need for this EJNYC Report. EJ issues intersect with many other social justice issues faced by

communities of color, including over-policing and mass incarceration, inequitable public health outcomes, access to transit and healthy food, and climate justice. As such, addressing EJ issues can support positive outcomes in other areas of concern. For example, the COVID-19 pandemic disproportionately affected low-income communities and communities of color, in part due to higher historical exposure to poor air quality.[21]

HOW WAS THIS REPORT DEVELOPED?

This report's development began with a public scoping process that included thousands of comments from New Yorkers. The City, in partnership with the EJ Advisory Board, conducted this process to ensure that the resulting report would lay the foundation for addressing the issues that EJ communities face. Comments were open to all New Yorkers, though efforts were made to prioritize outreach in the low-income communities and communities of color that have borne the brunt of environmental health issues, the climate crisis, and impacts of the fossil fuel industry. Public input was formalized into a report scope by MOCEJ and the EJ Interagency Working Group, with input from the EJ Advisory Board.

This report's development involved a mixed methods research approach to provide a comprehensive understanding of New York City's historical and current EJ issues, informed by data, expert input, and New Yorkers' day-to-day experiences. This included a review of academic literature, government reports, and materials produced by EJ organizations and advocates in New York City; quantitative and spatial analysis of various EJ indicators; stakeholder conversations from focus groups and interviews; and a targeted survey. Relevant indicators, datasets, and analyses were validated by the EJ Advisory Board and EJ Interagency Working Group. Most of the data used in this report is publicly available, except for a few instances where members of the EJ Interagency Working Group provided non-publicly available data to address discrete information gaps and provide updated datasets.

The purpose of the report was determined to be twofold:

1. To study cumulative impacts of environmental burdens affecting low-income communities and communities of color, as well as disparities in environmental benefits. This relates to distributional equity, or programs and policies resulting in fair distribution of benefits and burdens across all segments of a community, prioritizing those with the greatest need.[22]
2. To study the extent to which City processes meaningfully involve and take direction from New Yorkers, particularly those in EJ communities. This relates to procedural equity, or inclusive, accessible, and authentic engagement and representation in processes to develop or implement programs and policies.[23]

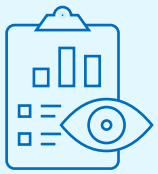
Furthermore, MOCEJ, in partnership with the EJ Interagency Working Group, developed an inventory of City programs, policies, and processes to be evaluated in this report. Policy evaluations were sensitive to the different forms of equity, including distributional (ensuring programs and policies result in fair distributions of benefits and burdens across all segments of a community, prioritizing those with highest need); and procedural (inclusive, accessible, authentic engagement and representation in decision-making processes regarding programs and policies).[24] Program, policies, and processes that met the criteria developed in the public

EJNYC INITIATIVE PROCESS AND TIMELINE

PHASE 1

PRIORITIZING ENVIRONMENTAL JUSTICE

- New York City Council passed **Local Laws 60** and **64** of 2017, requiring the City to convene the Interagency Working Group and Environmental Justice Advisory Board and conduct a comprehensive study of environmental justice
- **Public scoping process** to develop the scope of the EJNYC Report



PHASE 2

STUDYING ENVIRONMENTAL JUSTICE

Development of the **EJNYC Report and Mapping Tool**, informed by:

- **Research and discovery**
  - Literature review
  - Focus groups with residents of EJ communities
  - Interviews with EJ advocates
  - Survey about environmental processes and decision-making
- **Review and input from IWG and EJAB**

PHASE 3

ACTING ON ENVIRONMENTAL JUSTICE

Looking ahead, the City will use the findings from the EJNYC Report to **lead a public engagement process and develop the EJNYC Plan**, which will identify strategies and initiatives to address New York City's environmental justice disparities

scoping process were evaluated to determine the extent to which they benefit EJ communities and provide opportunities for meaningful public involvement. These findings are included in *The State of Environmental Justice in New York City* (p. 38) and *Engaging the Public on Environmental Justice* (p. 159). For more detailed information on the various research methodologies used to develop this report, please see the methodology statements in the *Appendix* (p. 185).

This EJNYC Report is also accompanied by the EJNYC Mapping Tool, which contains a series of interactive maps with information on EJ indicators citywide. The EJNYC Mapping Tool is designed to equip New Yorkers and cross-sectoral stakeholders with the information necessary to advocate for and make more informed decisions about EJ in New York City. The tool consists of six maps, grouped thematically to reflect the analysis in the EJNYC Report and offering users the ability to explore and analyze a wide range of data layers from City, State, and federal agencies through a user-friendly interface. The mapping tool also allows users to analyze and compare datasets, offering the ability to overlay multiple data layers to identify spatial

patterns and relationships to understand the intersections between various environmental and social factors. Users can download the underlying data for additional analysis. The EJNYC Report and Mapping Tool were prepared from summer 2022 through winter 2024 and represent the latest data available at the time.

WHAT ARE THE CONTENTS OF THIS REPORT?

This report begins with a *History of Environmental Injustice and Racism in New York City* (p. 25) to ground the findings in their root causes and further the understanding of government's role in producing environmental disparities across racial and socioeconomic groups.

The State of Environmental Justice (p. 38) analyzes EJ issues affecting New York City across impact areas including but not limited to air quality, housing quality, and access to resources. This chapter focuses on distributional equity issues, analyzing the ways environmental benefits and burdens are distributed across EJ communities as compared to the rest of New York City. For example, Is air quality significantly worse in EJ communities? Each topic area is accompanied by maps that highlight disparities between EJ and non-EJ communities, case studies on community-led EJ initiatives, spotlights on related City programs and policies, and feedback from the stakeholder engagement conducted to inform this report.

Engaging the Public on Environmental Justice (p. 159) focuses on procedural equity, analyzing formal and informal methods of engagement in the City's environmental decision-making processes, supplemented by community perspectives from focus groups, interviews, and surveys. This chapter analyzes planning and policy-making processes, such as the Uniform Land Use Review Procedure (ULURP).

The final chapters of the report look ahead, exploring how the City could prioritize and operationalize EJ principles in decision-making processes, policies, and programs. These chapters are supplemented by case studies from other governments across the country that address EJ issues, as well as implementation principles for City agencies informed by values from the EJ movement and feedback from stakeholder engagement. The report closes with an overview of the accompanying mapping tool and a description of this report's relationship to the forthcoming EJNYC Plan.

WHAT IS THE SCOPE OF THIS REPORT?

This report is a snapshot of EJ issues experienced today in New York City. Specific strategies and actions for addressing EJ issues will be elucidated in the subsequent EJNYC Plan. While the issues discussed in this report often transcend jurisdictional boundaries, the findings and the subsequent plan focus on the sphere of influence of City government. In some cases, collaboration with the state and federal government may be necessary to implement the recommendations that emerge from the forthcoming EJNYC Plan.

Jurisdictional interaction in New York City creates a complex regulatory environment for residents and regulators alike. Addressing EJ issues requires careful coordination across levels of government. For example, the NYC Department of Environmental Protection (DEP) manages the city's drinking water supply, sewage treatment, and stormwater management; the NYS Department of Environmental Conservation (DEC) monitors wetlands and administers the State Pollution Discharge Elimination System (SPDES) permitting; and at the federal level, the U.S. EPA administers the Clean Water Act and the Safe Drinking Water Act and the United States Army Corps of Engineers (USACE) regulates dredging, the discharge of dredged or fill material, and the construction of certain structures in waterways and wetlands.

ADDITIONAL QUALITATIVE RESEARCH CONDUCTED FOR THE EJNYC REPORT

Targeted qualitative research was conducted for the EJNYC Report in the form of focus groups, key stakeholder interviews, and a survey to better understand issues affecting EJ communities and the ways communities have self-organized to address these issues. To promote inclusiveness in public processes, which have historically favored well-resourced individuals and organizations that can more easily afford to donate their time, all participants in the targeted focus groups and interviews were compensated for their time.

A key takeaway from this research effort is that New York City residents have undertaken tremendous efforts and achieved many environmental justice victories. Participants in the focus groups identified several impactful initiatives spearheaded by EJ organizers across the city, including a community garden in Edgemere, Queens, that addresses food access issues, and a high school EJ group advocating for tree corridors in Washington Heights, Manhattan.

The scope of stakeholder outreach conducted for this report was limited, so to collect feedback informed by experience at the forefront of the EJ movement, engagement focused on residents experiencing the brunt of EJ issues in New York City and EJ leaders citywide. The stakeholder feedback is not representative of all EJ communities, and the City will conduct additional engagement for the development of the EJNYC Plan.

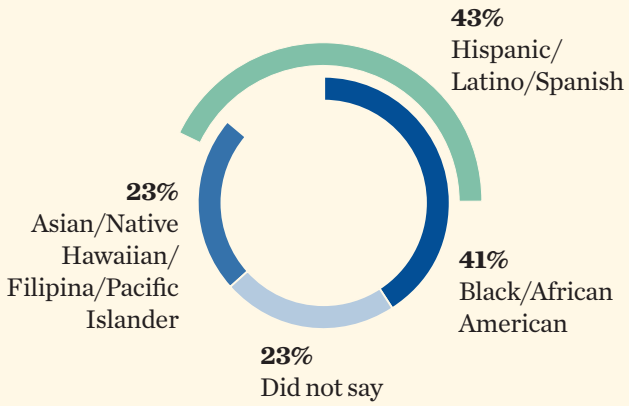
The findings from the qualitative research are incorporated throughout the report, particularly in *Engaging the Public on Environmental Justice* (p. 159).

"It doesn't matter if you are not biologically related to your neighbors down here, but everybody really takes care of each other."

—FOCUS GROUP PARTICIPANT

FOCUS GROUPS

Facilitators convened a diverse group of EJ community members, recruited primarily through referrals by community-based organizations, to evaluate relevant City programs, policies, and public engagement protocols in environmental decision-making. Twenty-two New Yorkers participated in the focus groups, representing all five boroughs and various EJ communities to speak about a cross-section of EJ issues. Though the overall number of participants was small, they represented a range of racial and ethnic identities, ages, and gender identities:



47% 25-44 years old

65% identified as female

25% NYCHA residents

“A basic tenet of environmental justice is that we speak for ourselves. . . . Any design or strategic plan must begin with the work already being done by [environmental justice organizations].”

—EJ STAKEHOLDER

INTERVIEWS

Leaders of grassroots EJ organizations were interviewed about their direct experience organizing in EJ communities and interacting with City government. Participants shared information on their work, identified the most pressing EJ concerns in their communities, and discussed perceptions of City environmental policies and programs. Interviewers reached 16 stakeholders across all five boroughs and touched on a wide range of EJ issues.

SURVEY

The survey reached a broader audience, collecting feedback from the residents of EJ communities on civic participation in environmental decision-making, receiving a total of 992 responses.

The City has identified several opportunities to advance environmental justice in New York City through the comprehensive and collaborative first phases of the EJNYC initiative.

The private sector also plays a role in both exacerbating and addressing some of the issues outlined in this report. Private entities and individuals may exacerbate EJ issues by not complying with environmental regulations. There are documented examples of private actors illegally dumping waste and hazardous materials, creating illegal sewer connections, and other unlawful actions. Even when complying with environmental regulations, private actors can contribute to environmental degradation and loss of green space. As such, addressing environmental issues often relies on private sector participation, in many cases through the cleanup of brownfield sites: former industrial or commercial sites where future use is affected by real or perceived environmental contamination. Almost all brownfield cleanup in the city is undertaken by private developers who incorporate site cleanup into redevelopment (even when they themselves did not cause the contamination). Partnership with and cooperation from the private sector will continue to be necessary to address many EJ issues in New York City, where the free market largely drives investment and disinvestment in certain communities.

The City recognizes the urgency of EJ issues and looks forward to working directly with EJ communities to turn the findings of this report into a plan for action that will improve quality of life for those bearing the brunt of the most pressing environmental issues.

HOW WILL THIS REPORT LEAD TO MEANINGFUL CHANGES?

The City of New York is committed to advancing environmental justice and addressing systemic inequities. Disadvantaged communities have borne the brunt of pollution, exposure to hazardous materials and pollution, and insufficient access to resources. The Mayor's Office of Climate & Environmental Justice (MOCEJ), Environmental Justice Interagency Working Group (IWG), and Environmental Justice Advisory Board (EJAB) will build on this EJNYC Report and Mapping Tool by launching a community-based process to develop the EJNYC Plan, which will propose strategies and initiatives to address EJ issues, including those studied in this report.

The forthcoming EJNYC Plan will outline what the City will do to address the cumulative impacts of local EJ issues and improve quality of life and wellbeing for communities experiencing longstanding and disproportionate burdens. The plan will provide guidance on incorporating EJ priorities into City decision-making, identify possible citywide initiatives that will promote EJ, and provide recommendations for City agencies. Recommendations in the EJNYC Plan may include policies designed to close the gap on environmental health disparities, expand environmental benefits and investments to communities, and ensure protection from environmental and health hazards and access and inclusion to planning and decision-making processes.

The policy opportunities below represent some of the City's key areas to advance transformative change for environmental justice in the five boroughs. These opportunities and others will be explored further through the forthcoming EJNYC Plan.

INVEST IN ENVIRONMENTAL JUSTICE COMMUNITIES

Historically, New York City's low-income communities and communities of color have been overburdened by polluting infrastructure and decades of disinvestment. Tackling the resulting inequities requires deliberate and targeted investments in critical resources and environmental benefits for those most in need and those most vulnerable to climate change.

The federal and New York State government have made unprecedented commitments to directing investments in disadvantaged communities. The federal Justice40 initiative aims to direct 40 percent of overall benefits of certain federal programs to disadvantaged communities as identified with the White House's Climate and Economic Justice Screening Tool (CEJST). New York State's Climate Act requires that state agencies, authorities, and entities direct a minimum of 35 percent with a goal of 40 percent of the overall benefits on clean energy and energy-efficiency programs, projects, or investments in the areas of housing, workforce development, pollution reduction, low-income energy assistance, energy, transportation, and economic development to disadvantaged communities. In addition to the State's commitment to invest in disadvantaged communities, the NYS Commission to Study Reparations and Racial Justice is analyzing the lasting impacts of slavery to recommend ways to address historical inequities. The City applauds these historic policies and will work to establish local investment commitments that directly benefit EJ communities and address local EJ concerns.

The City will build on this EJNYC Report and Mapping Tool by launching a community-based process to develop the EJNYC Plan, which will propose strategies and initiatives to address EJ issues

The City will also build on successful components of existing equity-driven programs such as DOT's Priority Investment Areas and DEP's Lead Service Line Replacement Program. In addition to scaling existing equity initiatives, the City will work across agencies to develop new strategies and processes to further institutionalize EJ investments.

INTEGRATE ENVIRONMENTAL JUSTICE IN AGENCY DECISIONS THROUGH CLIMATE BUDGETING

Climate Budgeting is a key component of the City's ambitious climate agenda. This innovative approach integrates science-based climate considerations into municipal budget decisions, evaluating the alignment of budgeting decisions with long-term climate priorities.

The City's Climate Budgeting initiative was announced in 2023 in *PlaNYC: Getting Sustainability Done* and, as of the release of this

HOW THIS REPORT WILL LEAD TO MEANINGFUL CHANGES

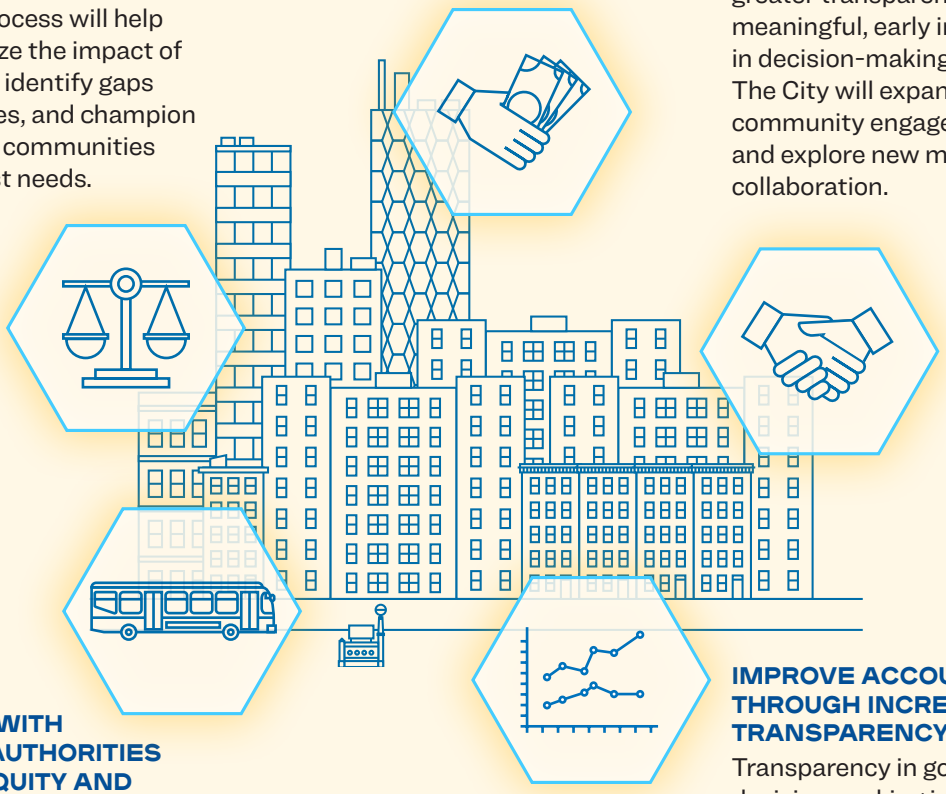
Based on these findings, the City has identified several opportunities to advance environmental justice for EJ communities that will be explored further in the forthcoming EJNYC Plan.

INTEGRATE ENVIRONMENTAL JUSTICE IN AGENCY DECISIONS THROUGH CLIMATE BUDGETING

Climate Budgeting embeds climate considerations into City budgeting to ensure resources support long-term climate goals. Embedding environmental justice in this process will help the City maximize the impact of its investments, identify gaps and opportunities, and champion investments for communities with the greatest needs.

INVEST IN EJ COMMUNITIES

Addressing legacies of environmental injustice requires targeted investments in overburdened and under-resourced areas. Incorporating equity measures into planning and investment decision-making will ensure EJ communities get the resources they need to thrive.



EXPLORE NEW WAYS OF PARTNERING WITH EJ COMMUNITIES

The City continues to make progress on inclusive engagement as stakeholders advocate for greater transparency and more meaningful, early involvement in decision-making processes. The City will expand existing community engagement efforts and explore new models for collaboration.

COORDINATE WITH PERMITTING AUTHORITIES TO ENSURE EQUITY AND EJ ARE CONSIDERED IN THE SITING OF INFRASTRUCTURE

Embedding equity and EJ in infrastructure siting decisions will help mitigate the cumulative impacts of environmental burdens. Likewise, streamlining zoning regulations will accelerate the deployment and equitable distribution of environment benefits.

IMPROVE ACCOUNTABILITY THROUGH INCREASED DATA TRANSPARENCY

Transparency in government decision-making is essential to maintaining the public's trust. Promoting access to information, clear communication channels, and inclusive mechanisms for participation are key to advancing environmental justice. Online data tools, for example, will continue to improve accountability and empower residents to advocate for transformational change within their communities.

report, is in its first year of implementation. This initiative will provide insight into the projected sustainability and resiliency impacts of planned actions and foster public accountability and transparency. The Mayor's Office of Management and Budget (OMB) will include annual progress reports with the City's Executive Budget and is exploring ways to embed environmental justice as this process develops over time. This initiative will foster public accountability and transparency and can serve as a model for integrating equity in City spending.

IMPROVE ACCOUNTABILITY THROUGH INCREASED DATA TRANSPARENCY

Transparency in government decision-making is essential to maintaining the public's trust. Many stakeholders consulted through this study echoed longstanding calls for increased transparency and data accessibility. Promoting access to information, clear communication channels, and inclusive mechanisms for participation are key to advancing environmental justice.

In addition to progress reporting through the climate budgeting initiative, the City is leveraging online data tools to democratize access to data. Resources like the EJNYC Mapping Tool and the Equitable Development Data Explorer equip residents with valuable knowledge related to their built and natural environments, allowing them to more easily identify local inequities, advocate for community solutions, and promote greater accountability. The City will develop new and diverse opportunities to work with cross-sectoral stakeholders to improve data and information sharing. These and many other efforts will be further developed in the EJNYC Plan.

COORDINATE WITH PERMITTING AND REGULATORY AUTHORITIES TO EMBED EQUITY AND ENVIRONMENTAL JUSTICE CONSIDERATIONS IN THE SITING AND PERMITTING OF INFRASTRUCTURE

Environmental justice communities are historically overburdened by the siting of polluting infrastructure such as power plants, waste transfer stations, and congested highways. Such infrastructure can perpetuate social, climate, and environmental inequities by compounding existing burdens in EJ communities such as lower access to greenspace and healthy foods. The City seeks to leverage its partnerships with public authorities across all levels of government to ensure equity and environmental justice are central to future infrastructure siting decisions.

The New York State Cumulative Impacts Law provides a strong foundation for this; it prevents the approval and re-issuing of permits for actions that would increase disproportionate and/or inequitable pollution burdens on disadvantaged communities. This policy is a blueprint for a more equitable distribution of infrastructure benefits and burdens. The City will actively engage with relevant permitting and regulatory authorities to implement this law's principles.

EXPLORE AND DEVELOP NEW WAYS TO COLLABORATE WITH ENVIRONMENTAL JUSTICE COMMUNITIES

EJ communities have long advocated for their voices to be heard in decision-making that impacts their neighborhoods. While the City has made progress on meaningful engagement, stakeholders continue to advocate for greater transparency and more meaningful involvement that occurs earlier in decision-making processes. Stakeholders identified opportunities for the City to help EJ advocates

In addition to the EJNYC Plan, this report may inform related efforts, including but not limited to:

PlaNYC
A series of climate action plans released by New York City, pursuant to Local Law 84 of 2013. The latest action plan released in 2023, *PlaNYC: Getting Sustainability Done*, builds on the prior four plans while it faces the challenges and seizes the opportunities that are specific to today. It is grounded in a comprehensive understanding of climate change impacts in the city as they are happening, as well as a more complete picture of our GHG footprint.

PowerUp NYC
A collaborative, year-long energy planning study to catalyze City government action to clean up our air, make energy bills more affordable, create good-paying jobs, and create opportunities for local, community-owned clean energy.

Climate Strong Communities
An initiative to develop equitable resiliency projects focused in areas of New York City where residents face disproportionate risks from climate change.

Energy Cost Burden Study
A 2019 report which assesses the extent to which low-income New York City families are energy cost burdened, meaning they spend more than 6 percent of their pre-tax income toward their energy bills, and proposes policies that can lower the outstanding burden. An update to this analysis is being developed by MOCEJ and NYC Opportunity.

overcome resource challenges through capacity-building, training, and City agency liaisons.

The City aims to expand existing efforts and explore new models for collaboration to foster meaningful involvement in decision-making. In recent years innovative programs have emerged to meaningfully involve EJ communities, and these strategies can be scaled and replicated across agencies to institutionalize collaborative frameworks. The City is proactively advancing community partnerships through initiatives like the Climate Strong Communities (CSC) Program, a citywide strategy targeting multi-hazard resiliency projects in historically marginalized and at-risk communities. This approach emphasizes collaborative planning that involves City agencies, neighborhood groups, and residents to ensure investments align with community priorities. The Department of Housing Preservation (HPD) similarly champions community involvement through its Neighborhood Planning program. Through Community Visioning Workshops, HPD works directly with residents to co-create strategies for delivering high-quality affordable housing in a manner that aligns with local priorities and promotes equitable, diverse, and livable neighborhoods.

GLOSSARY OF TERMS

Disadvantaged Communities (DACs)
Communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate-income households, under the New York State Climate Act.

Disproportionate Significantly higher and more adverse health and environmental effects on EJ communities, or other communities if stated otherwise.

EJNYC Mapping Tool Local Law 60 of 2017 requires the EJ Interagency Working Group to make publicly available online an interactive map showing the boundaries of EJ Areas within the City and the locations of sites, facilities and infrastructure which may raise environmental concerns.

EJNYC Plan Local Law 64 of 2017 requires the EJ Interagency Working Group to develop a comprehensive Environmental Justice Plan that provides guidance on incorporating EJ concerns into City decision-making, identifies possible Citywide initiatives for promoting EJ and provides specific recommendations for City agencies to bring their operations, programs and projects in line with EJ concerns. The IWG must update the EJNYC Plan every five years. The bill also requires the EJ Advisory Board to closely consult the EJ Interagency Working Group during development of the EJNYC Plan. Development of the Plan will follow the release of this EJNYC Report.

EJNYC Report This report satisfies the requirement to produce an EJ study defined by Local Law 60 of 2017, which shall identify the locations and boundaries of EJ Areas within the City, describe environmental concerns affecting these areas, and identify data, studies, programs and other resources that are available and that may be used to advance EJ goals. The bill requires the EJ Interagency Working Group to issue recommendations for legislation, policy, budget initiatives and other measures to address environmental concerns affecting EJ communities.

Environmental Benefit Access to open space, green infrastructure and, where relevant, waterfronts. Environmental benefits also include the implementation of environmental initiatives, including climate resilience measures, as well as grants, subsidies, loans, and other financial assistance relating to energy-efficiency or environmental projects.

Environmental Burden An environmental factor that has the potential to negatively impact New Yorkers' health, wellbeing, quality of life or enjoyment. Examples include stationary sources of air pollution, hazardous waste, housing with maintenance deficiencies, and lack of public open space.

Environmental Justice (EJ) The fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, policies and activities and with respect to the distribution of environmental benefits.

Environmental Justice Advisory Board (EJAB) Local Law 64 of 2017 established an Environmental Justice Advisory Board comprised of external environmental justice leaders (advocates, academics, and public health experts) to advise the City as it implements these laws and

to bring this work to New Yorkers through public hearings and other forms of engagement. The EJ Advisory Board's charge is to ensure the work is grounded in the lived experiences of New Yorkers in the city's EJ communities.

Environmental Justice Area (EJ Area) This report defines EJ Areas as census tracts that meet the Disadvantaged Communities (DAC) designation established by DEC. This designation was developed by the Climate Justice Working Group, as mandated by the Climate Act, and is used to identify frontline and otherwise underserved communities that stand to benefit from New York State's historic transition to cleaner, greener sources of energy, reduced pollution and cleaner air, and economic opportunities.

Environmental Justice Community (EJ community) This term is used throughout the report to generally describe populations that have experienced and/or currently experience EJ issues.

Environmental Justice Interagency Working Group (IWG) Implementing body established to deliver on the requirements of the City's Environmental Justice Laws. Members of the EJ Interagency Working Group were selected based on their expertise in environmental policy and data analysis, and their agencies' contribution to the local environment as well as the health of New Yorkers.

Environmental Justice Neighborhood (EJ Neighborhood) A geographic area consisting of a majority (greater than 50 percent) of census tracts designated as EJ Areas.

New York State Climate Act (CLCPA) or Climate Act The New York State legislature passed the Climate Leadership and Community Protection Act (CLCPA or the Climate Act) in 2019. The Climate Act created a permanent EJ advisory group, the Climate Justice Working Group and requires the State to reduce economy-wide greenhouse gas emissions and ensure that at least 35 percent of clean energy and energy-efficiency program benefits are distributed to disadvantaged communities.

Structural Racism Racism is a system of power and oppression that assigns value and opportunities based on race and ethnicity; structural racism is racial bias across institutions, including government agencies, and society.

HISTORY OF ENVIRONMENTAL INJUSTICE AND RACISM IN NEW YORK CITY

THE ROOT OF ENVIRONMENTAL INJUSTICE AT NEW YORK'S FOUNDING

The history of structural racism in New York begins with colonization. Before the Dutch founded the colony of New Amsterdam in 1624, this land was part of Lenapehoking, a civilization of Lenape people that spanned across a vast region, including all of what are now called the five boroughs and present day New Jersey and the lower Hudson Valley, with Manahattan, known today as Manhattan, at its heart.[25] The pre-colonization Lenape civilization was dense and populous, with as many as 15,000 people living in what became the five boroughs.[26] By comparison, the non-Native population of New York did not reach that number until around the time of the American Revolution a century and a half later.[27] The Lenape built travel and trade routes through this land, including roads that later became Broadway in Manhattan and Flatbush Avenue in Brooklyn. Due to its strategic location, Manahahtaan was a trading hub and seat of government in Lenapehoking.[28]

When the Dutch arrived, they established exclusive possession of the land they settled on. They rapidly fortified their settlement, building a wall along what is now Wall Street to fence the Lenape out; and, piece by piece, grabbed more land, pushing the Lenape out or killing them. The Dutch (and later the British and French colonists) weakened the Lenape by destroying the environment, clearcutting forests, filling in marshes and streams, overhunting animals and fish, and overgrazing grasslands. They brought diseases that decimated the Native population, reducing it to a tenth of its original size.[29] Ecological destruction and disease became tools of settler colonialism—tools that bolstered the settlers' military strategy of genocide and domination.[30, 31]

As they wrested the land from the Lenape, the colonists used the forced labor of enslaved Africans and their descendants to transform land into a profitable asset within a globalizing, extractive, imperial economy. The Dutch West India Company, a for-profit enterprise, brought the first enslaved people to "New Amsterdam" in 1626. The Dutch forced these and future enslaved people to build much of the colony's earliest infrastructure, including Fort Amsterdam and Broadway.[32]

When the British gained control of the colony, they increased imports of enslaved people, implementing ever-harsher laws that entrenched slavery in the colony's legal system and legally subordinated Black people. As a result, New York became the capital of slavery in the North: in 1703,

Castello Plan New Amsterdam in 1660.

42 percent of white households owned enslaved people, more than any North American city except Charleston, South Carolina. It was through the forced labor of these enslaved people that New York's Dutch, British, and American colonizers transformed Manhattan from a small farm settlement into a wealthy global port city.[33, 34]

THE BURDENS AND BENEFITS OF GROWTH: NEW YORK IN THE 19TH CENTURY

The 19th century was a period of rapid growth and change during which New York City transformed from an important but relatively small port town to a bustling metropolis. Migration (both foreign and domestic) made New York's population boom from 60,515 in 1800 to 3,437,202 by the end of the century.[35] At the same time, rapid, largely unregulated industrialization degraded the environments where growing numbers of New Yorkers lived and worked, creating a public health crisis that disproportionately impacted the poor, immigrants, and people of color. In response, New York made massive investments in public infrastructure, including the sewer and water systems and many of our parks. These investments brought significant public health benefits, but these benefits were not always equally distributed, and in some cases, benefits for the privileged came at the expense of marginalized groups.

One such case was that of Seneca Village. Located between present-day 82nd and 89th

Streets and 7th and 8th Avenues, Seneca Village was a prosperous and predominantly Black community.[36] Its residents were largely working-class, but many were able to attain property ownership and were building wealth. They had founded two churches, A.M.E. Zion and the African Union Church, as well as a school.[37] When the City made plans to build Central Park in the 1850s, Seneca Village was acquired through eminent domain. All the homes, churches, school, and businesses were leveled by the City.[38] This is an example of environmental injustice because it conferred a benefit to the public at the expense of working-class Black property owners, disenfranchising a thriving community.

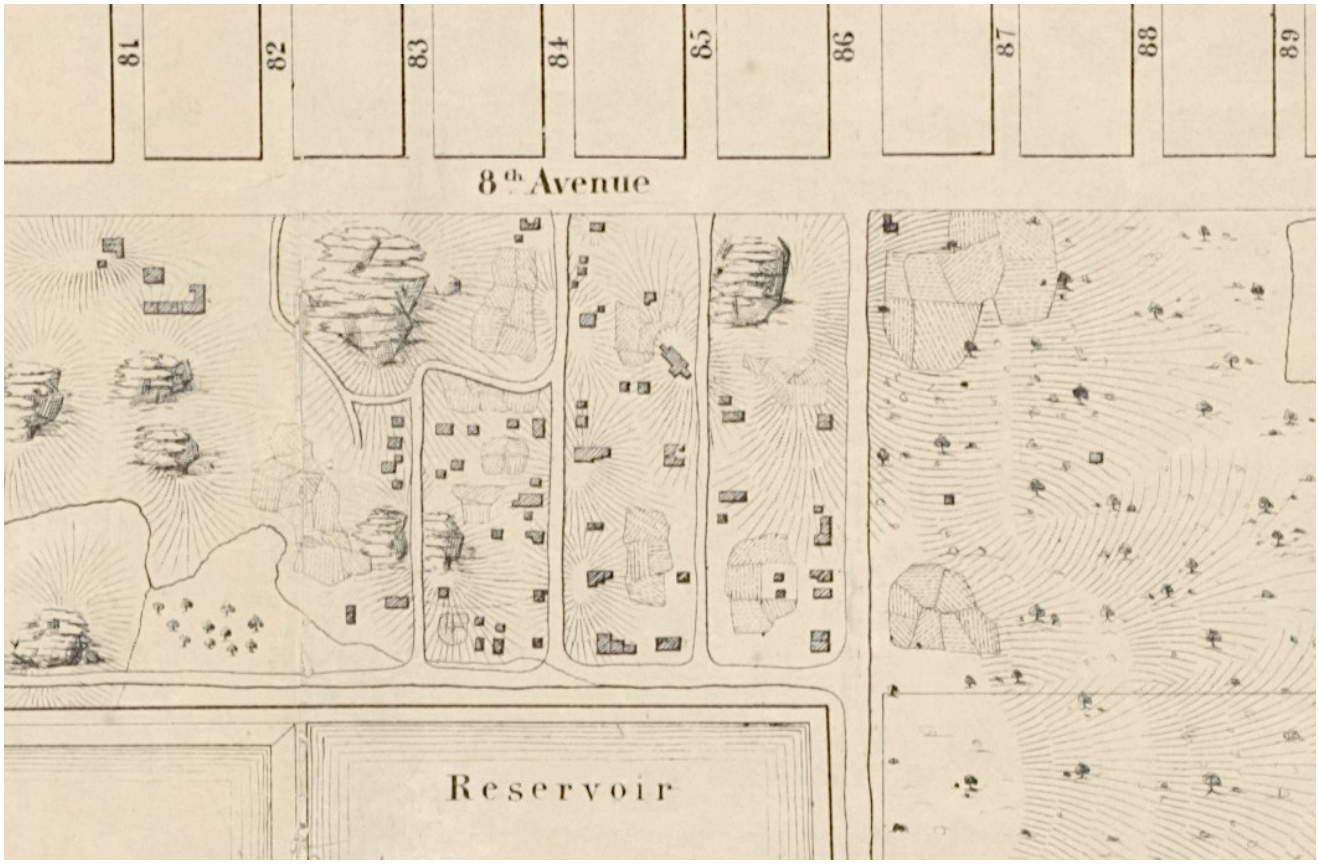
In the latter half of the 19th century, environmental and public health crises brought on by rapid industrialization and urbanization accelerated. Each decade, hundreds of thousands of additional New Yorkers were born in or came to the city seeking better lives. Poor residents lived in crowded tenements, lacking access to basic sanitary services, and they worked in dangerous, unregulated industrial workplaces. Living conditions resulted in striking health and mortality disparities between the poor and rich. Infectious diseases such as cholera, typhus, typhoid fever, and dysentery killed thousands of New Yorkers every year, most of them in slums. Because overcrowded tenements lacked access to clean water and adequate waste disposal, residents were vulnerable to waterborne diseases that periodically swept through the city in devastating epidemics.

The tide of infectious disease began to shift as improvements in public infrastructure brought clean water and sanitation to more New Yorkers. In response to rampant disease, the City and private groups began investigating the connection between the environment and health in the mid-19th century; the Departments of Health and Sanitation were founded in 1870 and 1881, respectively. Building on this emerging understanding of environmental health, the City implemented reforms that dramatically improved public health outcomes. In 1842, the City completed work on the Croton Aqueduct, for the first time bringing clean municipal water to its residents. A few years later in 1849, it began building the sewer system.

Benefits for the poorest New Yorkers materialized slowly; at first, the Aqueduct and sewer served wealthy New Yorkers who had access to pipes and water hookups.[39] Outbreaks of cholera and other waterborne diseases persisted in the city's slums, with deeply unequal and deadly results. But the City continued to increase municipal water and sewer capacity through the late 19th and early 20th centuries, all but eradicating those diseases by the early 20th century.[40, 41] Ultimately, the greatest improvements from these public health interventions accrued to low-income people, particularly Irish and Black residents, because these groups had been the hardest hit by waterborne diseases.[42]

On the waterfront, working-class communities often lived in the environments where they worked: industrial areas with docks, factories, refineries and sewer discharges. Industrial pollution in Newtown Creek, Brooklyn, for example, dates to the 17th century, with the country's first kerosene and oil refineries.[43, 44] Investment in port facilities grew industrial activity along Brooklyn's Gowanus Canal, home to coal, oil, and chemical processing facilities; a cement plant; and a tannery. The New York Harbor and working waterfronts along the Hudson and East Rivers also had working-class residential neighborhoods within heavy industrial areas.

The history of industrialization that began along New York's waterways in the 19th century extended into the 20th and 21st centuries. Today, Newtown Creek and the Gowanus Canal are designated Superfund sites because of pollution that dates to the 19th century and continued into the 20th century.[45, 46, 47] In Newtown Creek, for example, industrial parties leaked between 17 and 30 million gallons of oil, as well as tar and other chemicals into the creek over the course of several decades, in flagrant disregard of health and safety.[48]



Seneca Village near 81st and 89th Streets and 8th Avenue

The history of industrialization in New York City continues to be felt by residents of EJ communities today, as described in *Exposure to Hazardous Materials* (p. 94).

LAND USE AND HOUSING SEGREGATION IN THE 20TH CENTURY

In the 19th century, development in New York City was largely unregulated, contributing to overcrowding, public health concerns, and lower property values.[49] In 1916, the City adopted its first zoning ordinance, and in doing so gained a powerful new tool to shape the urban environment. Zoning is the process by which local governments carry out planning policy through organizing the types and densities of land uses (residential, commercial, industrial, or mixed-use) allowed in each area of the city. In the 1916 code, the city was divided into residential, commercial and unrestricted zones. Unrestricted zones had no regulations or restrictions, meaning that industrial uses could be sited alongside residential uses and vice versa.[50] Then, in 1961, the City overhauled its zoning code to separate land uses by type, rezoning unrestricted areas as either Residential ("R") or Manufacturing ("M"). The rezoning of the unrestricted areas were, in part, shaped by existing industrial development patterns that pre-date the 1916 zoning ordinance. Growing industrial activity during that time was often located near transportation, waterways, and dense concentrations of labor.[51] Additionally, city planners factored existing land use trends into their rezoning decisions; however, inconsistencies in final designations raised concerns of potential racial bias.[52]

Residential mortgage lending was another tool that influenced development patterns during this time. The Home Owners' Loan Act of 1933

established two federal agencies to support the residential housing market during a period of rising mortgage defaults: the Federal Housing Administration (FHA) and the Home Owners' Loan Corporation (HOLC). The FHA was created to provide an "economically sound" publicly-sponsored mortgage lending system to stimulate growth in the economy through residential home construction.[53] However, the FHA largely excluded Black homeowners living in low-income urban neighborhoods from its insured loans, which perpetuated residential segregation.[54]

The HOLC, a temporary agency intended to support homeownership for Americans by refinancing home mortgages during an economic downturn, created its own "residential security maps" that charted the supposed riskiness of issuing mortgages in neighborhoods across the country. In a process commonly known as redlining, the maps ranked neighborhoods as "A (Best)" in green; "B (Still Desirable)" in blue; "C (Definitely Declining)" in yellow; or "D (Hazardous)" in red. HOLC assessed each neighborhood based on its percentage foreign-born population, percentage Jewish population, percentage Black population, and whether any of these groups were "infiltrating." By explicitly using race and ethnicity as central determinants of a neighborhood's property value, the maps reinforced existing patterns of residential segregation.[55] In Brooklyn, not one of the 18 neighborhoods that had any Black population received a better than a "C" grade, and any neighborhood that had a greater than 5 percent Black population received a "D" grade.[56] HOLC's maps contributed to a racist perception among some white New Yorkers that the mere presence of Black residents was enough to depreciate property values—these maps are now viewed as deliberate, systematic racism perpetrated by the government.[57]

By labeling Black, Jewish and immigrant communities as unstable areas for mortgage lending, redlining legitimized the sentiment that low-income communities and communities of color are less valuable than white communities. Redlining became a self-fulfilling prophecy: the restriction of financial resources into redlined neighborhoods hindered the ability of residents to purchase homes, invest in properties, and start businesses, subsequently suppressing land values and limiting economic opportunities.[58] It created a cycle of disinvestment in communities of color and low-income communities, where polluting infrastructure could most easily be sited. These economic conditions, coupled with a lack of civic infrastructure tied to homeownership, made these communities prime destinations for siting the city's most undesirable facilities.

During this same period, white homeowners, particularly those in suburban areas, benefited from generous public subsidies that allowed them to build intergenerational wealth. These generous public subsidies were designed to relocate white homeowners outside of the city, and it worked; many Black homeowners lost wealth as a result of these policies, while many white homeowners were given a government-subsidized opportunity to generate wealth.[59]

Beginning with the New Deal, subsidized home loans to white New Yorkers helped them accumulate wealth, and this wealth ultimately enabled them and their children, grandchildren, and great grandchildren to more easily access safe and healthy housing.[60] At the same time, government-funded public housing projects were often segregated and unequal. In the late 1930s, for example, New York City Housing Authority (NYCHA) opened Harlem River Houses for Black residents and Williamsburg Houses for white residents.[61] In the words of Harlem-based newspaper *The People's Voice*, these segregated projects were "crystallizing patterns of segregation and condemning thousands of Negroes to a secondary citizenship status for generations to come."[62] In other cases, the government funded housing developments only for white New Yorkers without creating analogous projects for Black New Yorkers, further contributing to racial inequities in housing access.

Starrett City, the largest subsidized housing development in the country, initially filled vacancies through racial quotas: 62 percent white tenants, 23 percent Black tenants, 9 percent Hispanic tenants, and 6 percent Asian tenants or other tenants of color.[63, 64] As a result, Black tenants were waiting nearly eight times as long as white applicants to get an apartment in the development. In 1984, the U.S. Justice Department sued Starrett City, on the basis that the racial quota system violated anti-discrimination laws.[65] The Court ruled that the racial quotas were in fact unlawful.[66]

Taken together, these and other policies perpetuated racial segregation and contributed to disparities in access to resources and health outcomes between white residents and residents of color. While the use of redlining maps became illegal following the adoption of the Fair Housing Act in 1968, the effects of this policy continue to be felt today and are deeply intertwined with environmental injustice.

DISINVESTMENT AND HEALTH INEQUITIES IN NEW YORK'S EJ COMMUNITIES

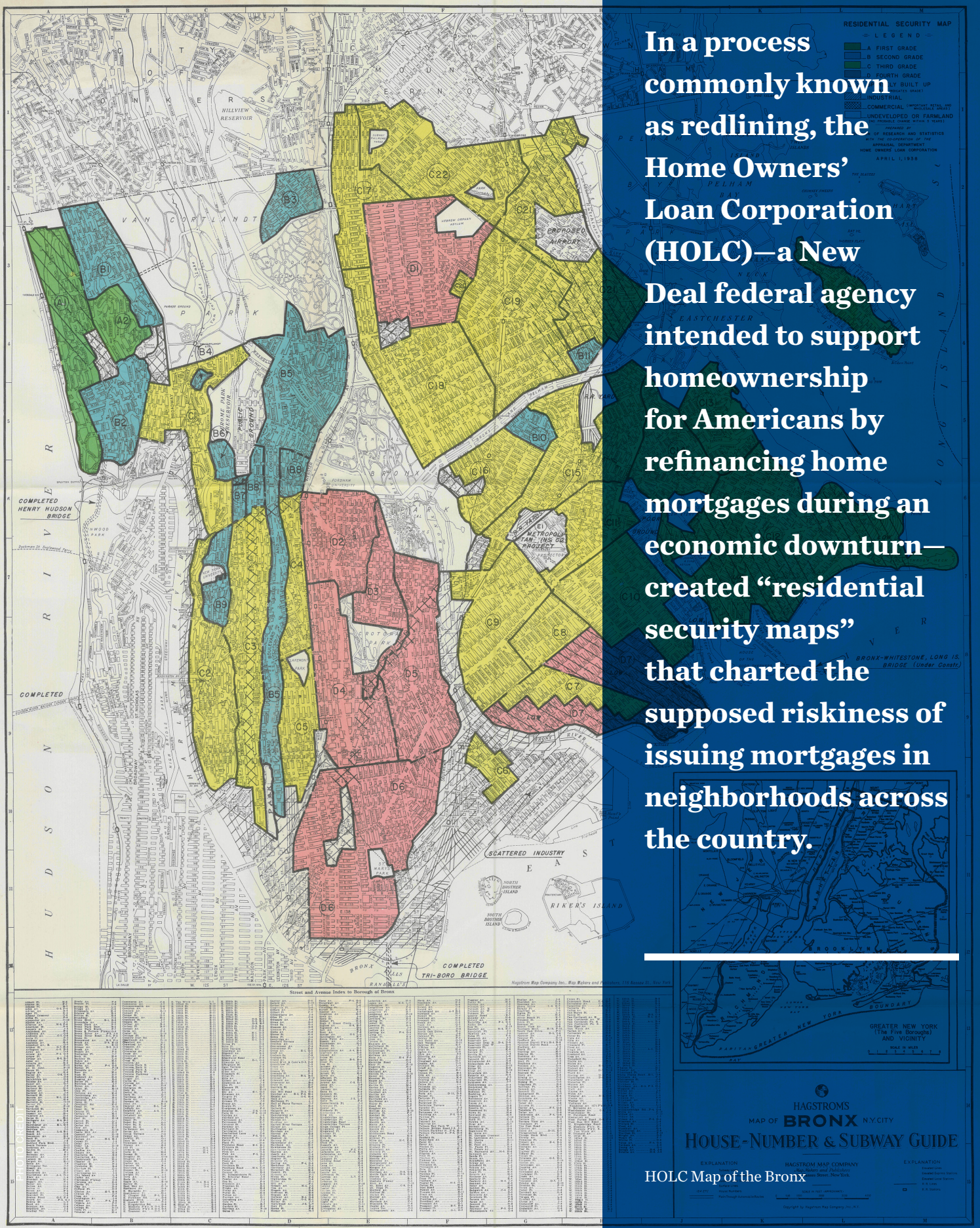
A closer examination of redlined areas indicates that "low risk" neighborhoods were generally located away from environmental burdens, while low-income communities and communities of color were generally clustered near environmental burdens. These included hazards that were connected to government-owned and -operated infrastructure, such as expressways and airports. More often, hazards emanated from privately-owned and -operated facilities. Many large-scale industrial facilities known to contribute to air pollution, including power plants and solid waste facilities, were legally constructed in and around EJ communities. So, too, were smaller-scale pollution sources such as auto body shops and dry cleaners built in manufacturing districts abutting EJ communities. At the same time, communities of color and low-income communities experienced disinvestment, and were denied equal access to housing, green space, and solid waste pickup, exacerbating environmental hazards such as unhealthy housing, extreme heat, dirty streets, and pests such as rats and insects.[67, 68, 69]

Environmental injustice affects all aspects of the built and natural environments in cities: water, soil, and air pollution; greenspace access and environmental service provision; and less traditionally "environmental" issues such as housing quality, traffic safety, and policing. The following discussion, divided into three sections on mobile and stationary source air pollution, unhealthy housing and indoor environments, and environmental service provision, offers a glimpse of the relationship between environmental injustice and health inequities. While not exhaustive, it makes clear that New York's EJ communities face myriad compounding injustices that interact in complex and often hidden ways to contribute to inequitable health outcomes.

MOBILE AND STATIONARY AIR POLLUTION

In the 20th century, city planners began supporting automobile ownership and use for affluent white suburbanites. Inequitable commuter infrastructure and car ownership created additional environmental injustices in the form of air pollution, highways that divided neighborhoods and destroyed homes, and traffic violence. When the Cross Bronx Expressway was built in 1955, it tore through the heart of the Bronx and displaced approximately 40,000 residents, most of them Jewish, Irish, Italian, and Black.[70, 71] This created a deep divide within a tight-knit community—destroying homes, businesses, and a once-thriving open market on Bathgate Avenue.[72]

The Gowanus Expressway, built in 1941, similarly displaced thousands of people and destroyed a bustling commercial corridor along Third Avenue in Sunset Park, Brooklyn.[73, 74] The Gowanus



In a process commonly known as redlining, the Home Owners' Loan Corporation (HOLC)—a New Deal federal agency intended to support homeownership for Americans by refinancing home mortgages during an economic downturn—created "residential security maps" that charted the supposed riskiness of issuing mortgages in neighborhoods across the country.

PHOTO CREDIT

HOLC Map of the Bronx

Cross-Bronx Expressway Construction, 1952

SOURCE: CUNY Academic Commons

Cars, which largely benefited the affluent white suburbanites who could afford them for their commutes into the city, created myriad environmental injustices for the communities they sped through.

Expressway is a prime example of the cascading impacts created by major infrastructure projects. By facilitating truck traffic, the expressways accelerated the industrialization of areas already stricken by industrial pollution.[75]

As the Gowanus Expressway example demonstrates, industrial land uses and vehicle infrastructure have a mutually reinforcing relationship that compounds hazards in environmental justice communities. Vehicle infrastructure enables and attracts industrial uses, and industrial uses generate vehicle traffic. In particular, land uses such as warehouses and logistics centers, last-mile delivery facilities, bus depots, and waste transfer stations, which have all disproportionately been sited in New York's low-income communities and communities of color, attract heavy bus and truck traffic to those neighborhoods. These heavy-duty vehicles are often diesel-powered and produce emissions that are even more damaging to human health than those produced by gasoline-powered passenger vehicles. Traffic is a major source of $PM_{2.5}$, or fine particulate matter, which can cause health problems to the respiratory and circulatory systems and can decrease life expectancy.[76]

The 20th century also saw the proliferation of stationary sources of air pollution, including power plants, waste incinerators, and other publicly- and privately-owned industrial facilities. The New York Independent System Operator (NYISO), the nonprofit corporation that oversees New York State's bulk energy grid, requires facilities to sustain generating capacity within the five boroughs to maintain resilience during disruptions to imported power. Beginning in the 1960s, the State approved the construction of "peaker" power plants to ensure power reliability during times of peak demand. Although they operate infrequently, peaker plants are often switched on during high heat days when air quality is already stressed, in order to meet increased air conditioning power demand. Emissions from baseload generation plants are known to exacerbate multiple respiratory and pulmonary diseases, and when operating, peaker plants typically emit more particulate matter than baseload plants.[77] Several peaker plants are still in operation today, including in EJ neighborhoods such as the South Bronx, South Williamsburg, Astoria, and Sunset Park.[78]

As recently as 2001, the New York Power Authority (NYPA), a state-owned utility, sited a dozen new power plants at seven sites across New York City as part of its PowerNow! program. These plants were presented to the public as a temporary solution to prevent summer power shortages but they remain in operation today. All of them are sited in or adjacent to EJ neighborhoods.[79] Peaker plants and EJ neighborhoods are often co-located in industrial areas due to zoning, placing an unfair share of the environmental burden of energy production on these residents. In 2023, New York State Legislature passed the Build Public Renewables Act, which requires NYPA to transition to 100 percent clean energy by 2030. This includes a provision to shut down all NYPA-owned peaker

power plants by 2030, a significant win for EJ communities impacted by these facilities.

UNHEALTHY HOUSING AND INDOOR ENVIRONMENTS

Environmental injustice extends to New Yorkers' most intimate environments: their homes. In New York City, housing quality has been vastly unequal, with low-income people and people of color disproportionately exposed to hazards such as lead in paint, asbestos, mold, and pests. These disparities stem in part from racist housing policies such as redlining which prevented people of color, especially Black people, from attaining homeownership, building wealth, and investing in housing quality improvements.[80, 81]

Today, people of color still make up a disproportionate share of New Yorkers living in public housing and in housing assistance programs such as Section 8—properties that have higher rates of home-related health hazards such as pests, mold, and maintenance deficiencies.[82] The result is that Black and Hispanic or Latino households are more likely to live in housing with maintenance deficiencies and more likely to have higher asthma-related hospital utilization rates, compared to white households.[83]

UNEQUAL BENEFITS AND BURDENS OF ENVIRONMENTAL SERVICE PROVISION

Already overburdened by pollution, EJ communities have also been denied equitable access to essential environmental services. These include recreational spaces such as parks, playgrounds, and pools; natural resources such as street trees; and services such as sanitation and street cleaning. During the 1930s, the City built 255 playgrounds using federal funding, that were disproportionately sited in wealthy and white neighborhoods.[84] Disproportionately high police presence, compounded with a lack of access to public space, left Black children without many safe spaces to play. As one Stuyvesant Heights mother said, "the police just keep the kids moving and there is no place to send them."[85]

In the mid-20th century in Black and Hispanic/Latino neighborhoods such as Bedford-Stuyvesant and East Harlem, the City neglected to regularly collect trash, provide trash receptacles on the street, or perform street sweeping, which led to notoriously dirty conditions on streets where children played and neighbors gathered.[86, 87] Trash can attract pests and pollute the soil, air, and water, negatively impacting human health.[88] Residents in these neighborhoods fought back against this neglect in some of the earliest EJ mobilizations in the country. In 1962, the Brooklyn chapter of the Congress of Racial Equity (CORE) collected trash in Bedford-Stuyvesant and dumped it on the steps of Brooklyn's Borough Hall in protest of discriminatory treatment by the Department of Sanitation (DSNY).[89] In 1969, the Young Lords organized a similar action in East Harlem (dubbed the "Garbage Offensive") heaping garbage at key intersections to force DSNY to face the consequences of its neglect.[90] In more recent times, DSNY has taken major strides to integrate equity concerns into its programs. See *A Closer Look at Waste Transfer Stations* (p. 36) for more information.

EJ communities were not only excluded from the benefits of sanitation but disproportionately harmed by the siting of sanitation facilities. Beginning in the 1980s, the City began efforts to reduce dependence on the Fresh Kills landfill in Staten Island. This led to a proliferation of privately-operated waste transfer stations in EJ communities across New York City.[91] In 1996, Mayor Rudy Giuliani and Governor George E. Pataki jointly announced plans to permanently close the landfill by 2001, and they also agreed to support a ban on the use of waste incinerators. While the ban was seen as a victory in many EJ communities, Fresh Kills' closure further increased reliance on waste transfer stations, which are private lots where commercial waste is sorted or transferred before being transported outside of the

city's boundaries.[92] Since the closing of Fresh Kills, over 75 percent of the city's waste is now sorted or transferred in EJ communities.[93]

THE FIGHT FOR ENVIRONMENTAL JUSTICE FROM THE LATE 20TH CENTURY TO THE PRESENT

Beginning in the latter half of the 20th century, New Yorkers joined a worldwide movement for environmental justice. While people had been organizing for healthy environments for centuries, EJ organizers built a powerful movement based on the conviction that all people have the right to a healthy environment. Worldwide and in the U.S., the EJ movement is based on a framework of anti-racism, Indigenous sovereignty, and self-determination.[94] In the U.S. it also is rooted in the civil rights movement of the 1960s.

Civil rights activists secured the foundational rights that underpin environmental justice, chiefly equal protection under the law. They also built a powerful coalition of organizations that later coordinated some of the earliest EJ campaigns. The EJ movement is strongly rooted in racial justice and premised on an intersectional rights-based framework.

Since the 1970s, New York City has been working to better integrate environmental considerations into land use and facility siting decisions. The 1977 adoption of the City Environmental Quality Review (CEQR) process was the first major act to systematize environmental review in City decision-making. In 2013, EJ advocates under the NYC Environmental Justice Alliance (NYC-EJA) coalition organized for waterfront justice in Significant Maritime Industrial Areas (SMIAs), which are the special designated areas of the city for clustering heavy industrial and maritime activity. Their work helped ensure that environmental and climate justice considerations were incorporated into City waterfront planning processes that impact land use decisions in New York's waterfront EJ communities.[95, 96]

The environmental justice movement is based on a framework of anti-racism, Indigenous sovereignty, and self-determination.

In conjunction with these land use- and siting-related efforts, New York City has seen major progress in efforts to remediate contamination from historical land uses and lead-based paint. In the late 1990s, a coalition of EJ, business, legal, and environmental groups, along with the City, were powerful advocates for the adoption of New York State's Brownfield Cleanup Law.[97] Since the Office of Environmental Remediation (OER)'s creation in 2009, the City has established its own Voluntary Cleanup Program to oversee cleanups using NYS soil standard and administered a Brownfield Incentive Grant Program that empowers community-based organizations to plan for, investigate, remediate, and redevelop potentially contaminated sites and neighborhoods. The City's efforts to remedy legacy contaminants addresses hazards in New Yorkers' homes. Since 1997, the City has administered a Lead Hazard Reduction grant program that provides property owners with funding to remediate lead paint and other hazards in eligible buildings occupied by low-income residents.[98, 99] These and other programs have made progress toward remediating legacy hazards.

DSNY Staten Island transfer station

A CLOSER LOOK AT WASTE TRANSFER STATIONS

Over the past two decades, the City has taken steps to improve EJ outcomes related to solid waste management. Rising tipping fees (which are landfill disposal fees), and the phased closure of the Fresh Kills landfill in the 1990s contributed to the proliferation of private waste transfer stations in EJ communities.[100] In the late 1990s and early 2000s, the City imposed increasingly stringent regulatory controls on these transfer stations, which led to a reduction in the overall number of sites from 153 to 58 by 2013.[101] In 2006, the City adopted a Solid Waste Management Plan (SWMP), crafted in response to and with collaboration from EJ advocates. The SWMP began to address the unequal burdens of solid waste by shifting residential waste management from a truck-based waste hauling system to a barge- and rail-based system and by allocating the burden of waste transfer more equally among boroughs.

Since the adoption of the 2006 SWMP, New Yorkers have benefited from other laws and initiatives that aim to reduce the unequal burden of solid waste management. These include regulations on siting waste transfer stations and requirements for cleaner waste hauling trucks. In 2018, the City enacted the Waste Equity Law, directing DSNY to reduce capacity at commercial transfer stations in four historically overburdened Community Districts. The following year, the City adopted the Commercial Waste Zones Law, which will consolidate the city's commercial waste hauling under regulated zones, making the system more efficient and reducing associated diesel truck traffic by more than 50 percent. Together, these initiatives represent a historic and necessary shift toward equity and environmental justice in New York City's waste management systems and serve as inspiration for future efforts to revaluate the siting of polluting infrastructure.

The City has also made strides to mitigate or phase out operational sources of air and water pollution. In 1996 New York State's Clean Water/Clean Air Bond Act funded environmental remediation projects such as phasing out and replacing coal furnaces at 18 New York City schools.[102] More recently, in 2010, the Department of Environmental Protection (DEP) adopted its Green Infrastructure Plan, launching a multi-decade effort to reduce water pollution from combined sewer overflows by mitigating stormwater flow to the sewer system.[103] In 2023, DEP Protection committed to spend $3.5 billion to expand the 2010 green infrastructure program to address both combined sewer overflows and stormwater runoff, with a focus on EJ communities.[104] In 2012, the City's Clean Heat Program began phasing out heavy residual heating oils in buildings that contribute to indoor and outdoor air pollution, leading to significant improvements in air quality.[105] And in 2013, a coalition of environmental groups, EJ advocates, academics, and local elected officials won a decade-long campaign to shut down NYPA's Poletti peaker plant, which had been polluting the air in Astoria, Queens since the 1970s.[106]

Through these and many other programs, the City has taken steps to repair the destructive legacies of past decisions. In this work, the City has been encouraged and aided by EJ advocates' tireless advocacy and collaboration. The City is committed to learning from its history and continuing to repair past harms, and to examining the ways that ongoing programs and processes may unintentionally contribute to unjust outcomes. The following sections of this report will assess existing programs and processes to evaluate their impact on environmental justice in New York City.

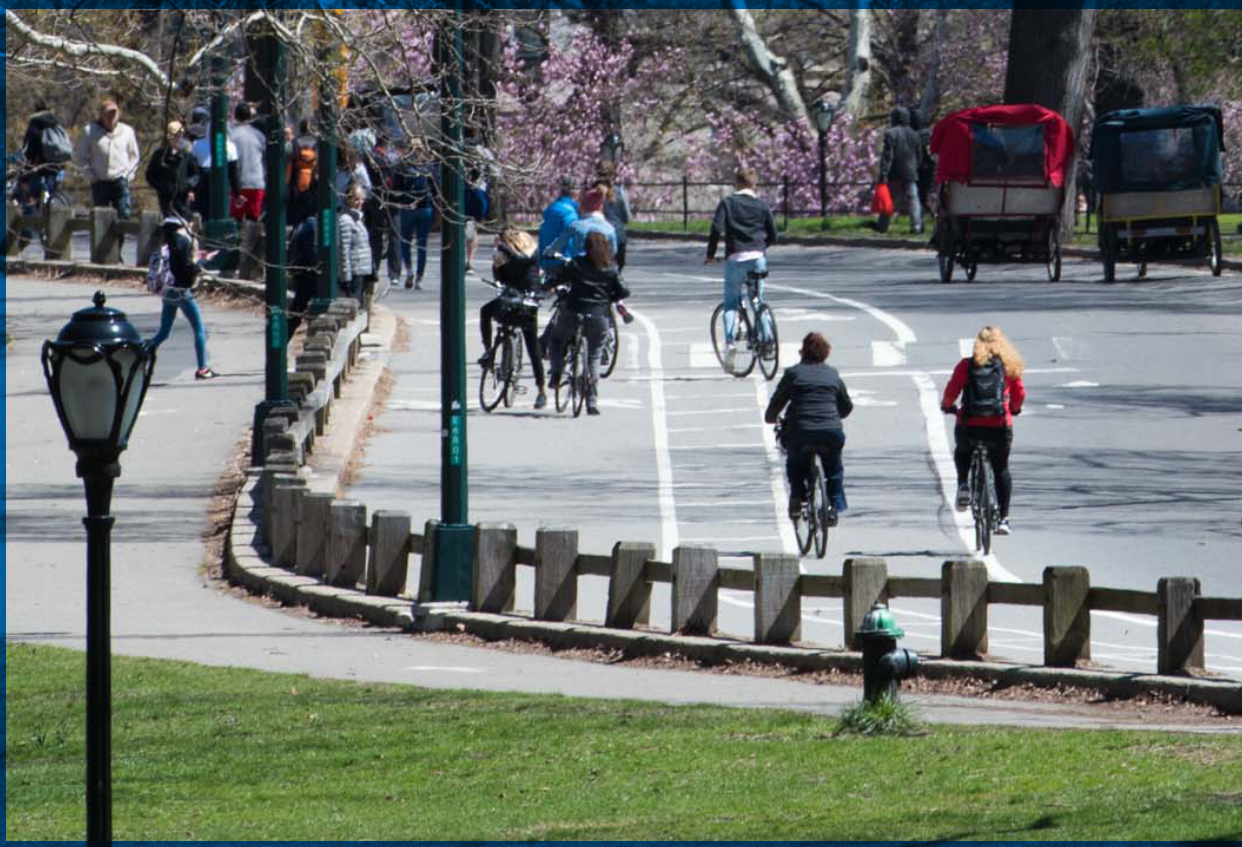
ENVIRONMENTAL JUSTICE TODAY AND TOMORROW

Community organizations and government agencies continue to work to secure healthy, safe environments for New Yorkers and build thriving communities across the city. However, low-income communities and communities of color continue to be disproportionately exposed to environmental burdens, resulting in unequal health outcomes. These disparities are connected to legacies of racist policies that inflicted environmental harm.[107] Climate change will further multiply the inequitable impacts from extreme heat and flooding in EJ areas. To remedy these disparities and build climate resilience, programs and investments should prioritize those communities that have faced chronic government disinvestment and been excluded from decision-making.

Recent State legislation builds upon the sustained advocacy work of EJ communities to evaluate the cumulative impacts of polluting infrastructure. With the 2022 Cumulative Impacts Law, New York is the second state in the nation to pass legislation ensuring that cumulative impacts will be considered in the state's environmental permitting processes when potentially polluting facilities seek permits in disadvantaged communities.[108] Decisions driven simply by land costs only compound polluting facilities in EJ communities. State and City agencies will need to balance economics with cumulative impacts in order to move towards a more equitable distribution of environmental burdens. The City will support the state with the Cumulative Impacts Law's implementation by leveraging existing programs and initiatives, expertise, and data sources to support overburdened communities.

The City is committed to creating a New York where all people can live, work, and play in safe, healthy, resilient, and sustainable environments that will allow them to thrive. This requires working in partnership with EJ communities so that they can meaningfully participate in shaping their places of work, homes, and neighborhoods spaces. New Yorkers organizing for environmental justice have the expertise, the organization, and the drive to create a just city.

THE STATE OF ENVIRONMENTAL JUSTICE IN NEW YORK CITY



The public scoping process for this report identified specific EJ concerns for assessment. This chapter describes these EJ concerns and analyzes the associated data to establish a baseline understanding of the current state of environmental justice in New York City, by determining the distribution of environmental benefits and burdens across New York City and, where possible, identifying neighborhoods where disparities and disproportionate vulnerabilities may exist.

By analyzing EJ issues in this way, this report serves to establish a common understanding of the current state of environmental justice in New York City among City officials, residents, and advocacy groups, setting the stage for solution development during the EJNYC Plan process. This report also seeks to help New York City residents at large to better understand the cumulative and often intersecting issues that their communities face.

IDENTIFYING EJ AREAS

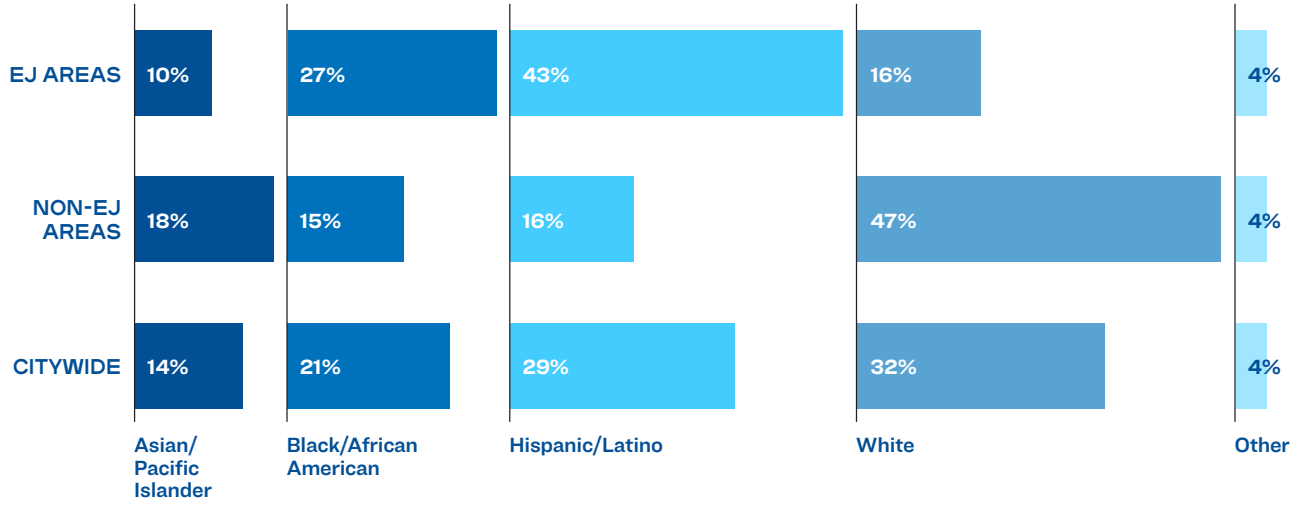
The criteria for identifying EJ Areas provided in Local Law 64 of 2017 relied on only two demographic characteristics (income and race). However, in anticipation of the state's legislative framework that was then under consideration, the law provided for the possibility of using New York State Department of Environmental Conservation (DEC)'s parameters for the identification of potential EJ areas. To align with the state, therefore, this report identifies EJ Areas using the state's Disadvantaged Communities (DAC) designation, which includes income and race and other parameters that are relevant to identifying communities that are burdened by environmental inequities.

New York State developed the DAC criteria pursuant to the Climate Act's requirement that state agencies, authorities, and entities direct a minimum of 35 percent with a goal of 40 percent of the overall benefits of clean energy and energy-efficiency programs, projects, or investments in the areas of housing, workforce development, pollution reduction, low-income energy assistance, energy, transportation, and economic development to disadvantaged communities.[109]

The State convened the Climate Justice Working Group, comprised of representatives from state agencies and EJ organizations from New York City and across the state, to work with subject matter experts to create and publish a methodology for identifying DACs. This methodology was developed over a multi-year process that included a public engagement and comment process with substantial community engagement and peer review. The DAC criteria ultimately consist of 45 indicators that describe various socio-demographic and environmental conditions across New York State's census tracts. Based on this methodology, 44 percent of New York City census tracts, containing 49 percent of the city's population, are designated as DACs. Residents of the city's DAC census tracts are predominantly Hispanic or Latino (43 percent, compared to 29 percent citywide) and Black (27 percent, compared to 21 percent citywide).[i] Additionally, 24 percent of residents in these areas are living below the Federal Poverty Level, compared to 17 percent of residents citywide.

i For the purposes of the analysis in this report, New York City's population is categorized into five racial and ethnic categories: Hispanic or Latino people of any race, non-Hispanic or Latino people in Asian/Pacific Islander, Black, White, or "other" racial groups.

Demographics of EJ Areas



SOURCE: NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023. American Community Survey, 2017-2021 Five-Year Estimates.

The DAC criteria are similar but not identical to the Climate and Economic Justice Screening Tool (CEJST) criteria, developed by the White House Council on Environmental Quality, which identifies 52 percent of New York City census tracts, containing 57 percent of the city's population, as disadvantaged communities. The DAC criteria use a ranking system to adjust for New York City's much higher rates of burden and vulnerability relative to the rest of the state, whereas the federal criteria rely solely on thresholds to determine whether a census tract is disadvantaged or not. Both the state and federal designations are expected to be used to direct public funding to disadvantaged communities. For example, state-designated DACs are slated to receive at least 35 percent of the benefits of spending on clean energy and energy-efficiency programs, projects, or investments in the areas of housing, workforce development, pollution reduction, low-income energy assistance, energy, transportation, and economic development. It should be noted that there are other screening tools related to environmental justice concerns, such as the EPA's EJ Screen and the CDC's Environmental Justice Index.[110]

ORGANIZATION OF EJ ISSUES

The environmental justice issues studied in this report are organized in sections by topic area (such as access to resources and exposure to polluted air). Each section focuses on EJ issues and indicators related to the topic area, which were determined through the report scoping process and amended to respond to findings from the research and stakeholder engagement conducted for this report. The issues and indicators included in this report are not exhaustive but highlight major issues impacting quality of life, health, and wellbeing for those living in New York City's EJ communities.

Each section contains a description and critical context for each EJ issue and a summary of the section's key findings, supported by data analysis of the distribution of EJ benefits and burdens (between EJ Areas and non-EJ Areas, where possible), and a discussion of data gaps where applicable. The following sections also feature community case studies, program and policy spotlights of related city programs and investments that either advance EJ or exacerbate EJ concerns, and stakeholder quotes that contextualize these analyses in New Yorkers' lived experiences.

Poverty Status of EJ Areas

SOURCE: NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023. American Community Survey, 2017-2021 Five-Year Estimates.

INCARCERATION AND ENVIRONMENTAL JUSTICE

This report would be incomplete without acknowledging the residents living within City jails. New York City continues to reckon with its legacy of discriminatory policing and sentencing practices that disproportionately targeted people of color and neighborhoods with a history of disinvestment.

A New York Civil Liberties Union (NYCLU) analysis of New York Police Department (NYPD) traffic data from an 18-month period, January 2022 to June 2023, revealed that Black and Hispanic or Latino New Yorkers are disproportionately stopped, accounting for 32 percent and 29 percent of traffic stops, respectively, while they each represent approximately 22 percent of the driving population.[111] Meanwhile, white New Yorkers are underrepresented in traffic stops, accounting for 25 percent of traffic stops, yet making up 40 percent of the driving population. Nearly 90 percent of people arrested during a traffic stop were Black or Hispanic/Latino.[112] This targeting of communities of color by the criminal justice system has adverse economic and health outcomes for the affected individuals, their families, and neighborhoods.[113]

People of color are disproportionately incarcerated nationwide, particularly Black men and boys. According to demographic reporting from the NYC Department of Corrections (DOC), 58 percent of people held in New York City jails in 2022 were Black, 31 percent Hispanic or Latino, 5 percent White, 4 percent Other, and 2 percent Asian.[114] The overall jail population is over 93 percent male.[115]

In 2022, 19 individuals died in the custody of the NYC Department of Corrections, with the majority of those deaths taking place on Rikers Island.[116] On Rikers Island in particular, staff

Elected officials and advocates hold rallies to urge Mayor Eric Adams to close Rikers Island prison by 2027 at City Hall Park.

shortages cause challenges in timely delivery of basic needs such as food and medical care and overcrowding and sanitation issues pose threats to human health.[117] In addition to these immediate operational concerns, Rikers Island faces multiple, compounding EJ issues. The jail complex is located less than 300 feet from LaGuardia Airport's runways, exposing residents and staff to jet fuel emissions and disruptive noise. Furthermore, its facilities are built on the site of a former landfill, with past reports suggesting the likely presence of methane emissions and coal ash discards.[118] Rikers Island and other DOC facilities are not fully air-conditioned, increasing heat vulnerability for those incarcerated and working inside, which is of increasing concern as climate change increases average temperatures and the frequency of heat waves.[119] Portions of Rikers Island are located within the current and projected 100-year floodplain.[120] Any formal studies of environmental and health impacts on the island are not publicly available.

In October 2019, New York City Council (City Council) passed legislation to close the jail

facilities on Rikers Island by 2027.[121] In February 2021, the City Council passed three additional laws to address the future of Rikers Island after the city closes the jails.[122] Local Law 16 of 2021 established a process for transferring the land and all infrastructure on Rikers Island from the NYC DOC to the NYC Department of Citywide Administrative Services (DCAS) by August 31, 2027. The law also established the Rikers Island Advisory Committee to evaluate and provide recommendations to the mayor and City Council on potential uses of Rikers Island for sustainability and resiliency purposes.[123] Local Law 17 of 2021 directed the Mayor's Office of Long-Term Planning and Sustainability (now the Mayor's Office of Climate & Environmental Justice, or MOCEJ) to complete this study to evaluate the feasibility of building renewable energy infrastructure on Rikers Island.[124] Finally, Local Law 31 of 2021 directed the New York City Department of Environmental Protection (DEP) to evaluate the feasibility of consolidating multiple Wastewater Resource Recovery Facilities (WRRFs) by placing new wastewater infrastructure on Rikers Island.[125]

A 2006 research project by the Columbia University Center for Spatial Research revealed concentrated areas of public spending on incarceration in New York City. The spatial analysis in the "Million Dollar Blocks" research project identified several city blocks where the city and state correctional agencies are spending in excess of one million dollars to incarcerate people from each of those blocks—all within the predominantly Black and Hispanic/Latino neighborhood of East New York, Brooklyn.[126] The researchers suggested this was an opportunity to reflect on what would happen if the funding spent to incarcerate individuals was routed to public programs.

INTERCONNECTED EJ ISSUES

The effects of exposure to multiple environmental and climate hazards, health vulnerabilities, and social factors often interconnect and compound one another. The following topics are examples of interconnected EJ issues.

POOR PHYSICAL AND MENTAL HEALTH OUTCOMES

Environmental injustices threaten the city's resiliency by straining the health and wellbeing of communities already impacted by existing health vulnerabilities. These threats to health and resilience impact residents in multiple ways, some obvious and some more hidden. Current and looming climate hazards that threaten to worsen economic and social inequities can lead to psychological insecurity and stress, thereby decreasing mental and emotional wellbeing of New Yorkers. Aspects of the built environment, such as mobile and stationary sources of pollution, expose nearby residents to noise, traffic, and air pollution. These environmental stressors can lead to high rates of respiratory issues, cancer, cardiovascular disease, increased stress, anxiety, and other adverse physical and mental health outcomes, particularly for those situated near multiple sources of pollution.

HOUSING INSECURITY AND MAINTENANCE DEFECTS

The high cost of housing in New York City can leave many low-income households in precarious living situations. People living in high-risk flood zones face an added risk of displacement, due to the potential for property damage, the high cost of flood repairs, and high flood insurance premiums. This risk is worse for neighborhoods with insufficient stormwater infrastructure and households that lack access to the financial resources to address housing needs and damages. Poor quality housing with persistent problems like cracks, holes, and water leaks can also lead to health-related home hazards, such as peeling paint, pest infestations, and mold.

CUMULATIVE IMPACTS

Impacts of environmental justice issues (individually or combined) can affect health and wellbeing over time. Vulnerable populations, including communities of color, low-income communities, youth, older adults, and those with pre-existing medical conditions, are especially at risk. Take a look at how intersecting environmental justice issues affect some New Yorkers.

Topic Areas and Corresponding EJ Issues and Indicators

ACCESS TO RESOURCES	EXPOSURE TO POLLUTED AIR	EXPOSURE TO HAZARDOUS MATERIALS	ACCESS TO SAFE AND HEALTHY HOUSING	EXPOSURE TO POLLUTED WATER	EXPOSURE TO CLIMATE CHANGE
Redlining	Outdoor Air Pollution	Hazardous Waste Generators and Storage Facilities	Housing Affordability	Polluted Water Bodies	Extreme Heat
Capital Planning	Stationary Sources of Pollution	Contaminated Land	Health-related Housing Maintenance Issues	Stormwater Management	Coastal Storm Surge
Land Use Planning and Zoning	Mobile Sources of Pollution	Hazardous Material Incidents	Public Housing		Chronic Tidal Flooding
Transit and Alternative Transportation Access	Solid Waste Facilities		Utility Access and Affordability		Extreme Rainfall
Open Space and Natural Resources	Indoor Air Quality		Lead in Housing Plumbing		
Food and Nutrition			Noise		

In the subsequent sections within this chapter, EJ issues and indicators are analyzed with the intent of answering the following questions:

What are the environmental issues and associated EJ concerns and risk factors?

Who is most affected by or vulnerable to the EJ concern?

How does the EJ concern affect EJ communities based on quantitative and qualitative research and input from the EJ Advisory Board?

Where are the EJ concerns concentrated? What spatial and data analysis provides support to

- assess the distribution of environmental benefits and burdens?
- identify locations and attributes of infrastructure which may cause or exacerbate EJ concerns?
- identify concentrations of complaints and violations of City environmental regulations which may reflect EJ concerns?
- identify areas experiencing multiple, compounding EJ concerns?

How do the EJ concerns overlap and relate?

How do climate change and intersecting issues, such as the COVID-19 pandemic, affect or exacerbate EJ concerns?

What are the related data gaps with an eye toward a research agenda for the future EJNYC Plan?

These conditions contribute to the development or worsening of health issues including lead poisoning and asthma.

CLIMATE VULNERABILITY

Climate change is a "threat multiplier" that increases risks of physical and mental health and social vulnerabilities and exacerbates pre-existing inequalities. For example, Black New Yorkers are most likely to lack access to functioning air conditioning, and twice as likely to die from heat stress as white New Yorkers.[127] This climate vulnerability is exacerbated when neighborhoods also lack access to the environmental benefits that mitigate climate hazards, such as green space and tree coverage.

CLIMATE CHANGE AND AIR QUALITY

Climate change is predicted to cause more frequent, severe, and longer-lasting extreme heat events.[128] Periods of elevated temperatures can worsen air pollution because hot weather facilitates the formation of ground-level ozone.[129] Drier conditions and drought can also lead to more frequent wildfires, which can spread dangerous pollution hundreds of miles.[130] In New York City, communities with the highest rates of pollution-attributable emergency visits are often the most vulnerable to heat due to a lack of green space in their neighborhood and less access to air conditioning.[131, 132] Additionally, increases in storms and precipitation due to climate change can create damp indoor environments that impact indoor air quality and result in mold growth.[133]

HOUSING QUALITY AND INDOOR AIR QUALITY

Poor housing quality can lead to elevated levels of indoor air pollution, particularly in low-income households. Inadequate ventilation, which is more prevalent in the housing of low-income New Yorkers, can lead to the accumulation of indoor air pollutants.[134] Leaky or poorly-sealed homes can result in the infiltration of outdoor air pollutants into the home. Inadequate housing maintenance can lead to home health hazards like pest infestation and mold growth, and dust from unsafe renovation or repair work are potential asthma triggers. Poor indoor air quality is associated with other negative health impacts like eye, nose, and throat irritation, headaches, dizziness, fatigue, cancer, heart disease, and other respiratory diseases.[135]

FLOODING AND HAZARDOUS MATERIALS

The concentration of hazardous waste generators, storage facilities, chemically-intensive small businesses, and known brownfields along the industrial waterfront presents a compounding challenge in the face of climate change. Rising sea levels, increased annual rainfall, and more days of intense precipitation will lead to an increase in more frequent and severe flooding.[136] There are clear regulations governing the storage of hazardous materials in facilities located in flood zones, but some businesses may not safely store their hazardous materials in the event of a flood. During a flood, improperly stored or abandoned materials can inundate the surrounding communities with hazardous chemicals, complicating cleanup efforts and worsening health impacts and contamination in the surrounding communities.[137] Further, the U.S. EPA warns that potential impacts from sea level rise can lead to contaminant releases from Treatment, Storage, and Disposal Facilities (TSDFs) such as landfills and seep into groundwater supplies, and that flooding from extreme precipitation could transport contaminants in surface waters and runoff to downstream populations.[138] Additionally, a study published in the National Library of Medicine concludes that contamination may likely migrate from known brownfields into surrounding communities due to flooding.[139] Facilities should be analyzed on an individual basis in order to assess specific risks and mitigate threats to hazardous waste facilities due to climate change.[140]

POTENTIAL IMPROVEMENTS TO THE NEW YORK STATE DISADVANTAGED COMMUNITIES CRITERIA

Despite the advantages of using the state's DAC designation to define New York City's EJ Areas in this report, the DAC criteria methodology has some notable limitations and does not reflect the locations and extent of all EJ communities in New York City. Crucially, the DAC criteria methodology is designed to be updated over time and the State mandates that the criteria be reviewed at least annually to make improvements where possible.

This section includes an analysis of potential improvements to the current DAC criteria methodology with the aim of contributing to the methodology's ongoing refinement. New York City government wants to ensure that EJ communities are appropriately represented by the DAC designation and equitably positioned to receive commensurate state funding. For a more detailed explanation of the DAC criteria methodology and the potential improvements proposed herein, please refer to the *Technical Supplement: Potential Improvements to the NYS Disadvantaged Communities Criteria* (p. 192) in the *Appendix*.

OVERVIEW OF THE CURRENT METHODOLOGY

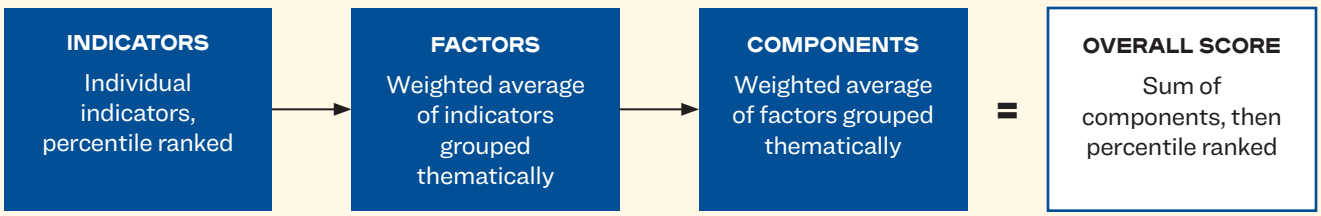
The 45 sociodemographic and environmental indicators used by the DAC identification methodology were selected from a larger body of available data comprised of over 100 variables based on data availability, accuracy, and relevance to describing climate justice at the census tract level.

Individual indicators were grouped thematically and weighted to produce seven factor scores. These factor scores were weighted and combined to produce two component scores, which were then summed to create the final combined score for each census tract. These final scores were then ranked and used to determine which census tracts are designated as DACs.

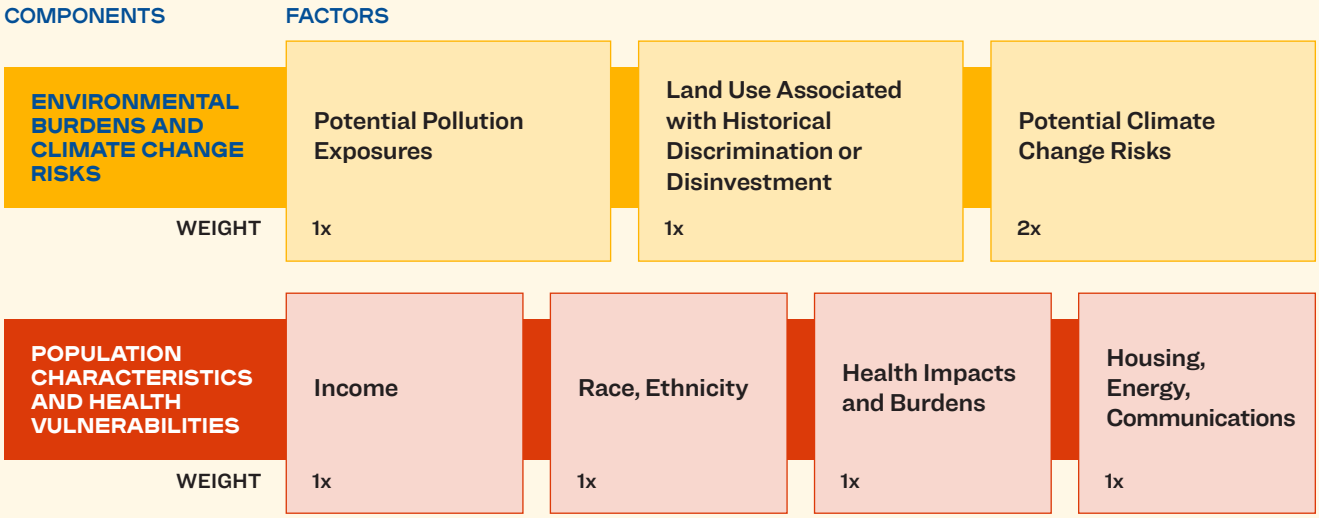
This methodology identifies areas that exhibit high scores across both components (*Environmental Burdens and Climate Change Risks* as well as *Population Characteristics and Health Vulnerabilities*). However, there are certain areas in New York State that are not classified as DACs because they score highly in one of the individual components but not both. As a result, there are areas that are grappling with environmental burdens or public health concerns that do not meet the criteria for inclusion as a DAC.

This is particularly concerning for communities of color and low-income communities with low scores for *Environmental Burdens and Climate Change Risk*. Most census tracts in Southeast Queens are not designated as DACs because they do not have a score that meets the selection threshold in the *Environmental Burdens and Climate Change Risks*

NYS DAC Criteria Methodology



NYS DAC Criteria Methodology: Factors and Components



component, despite having a high score in the *Population and Health Vulnerabilities* component.

This methodology has other limitations that reflect the difficulties in capturing how environmental justice is experienced locally using quantitative data available statewide. First, environmental justice issues that are not uniformly measured at the state level are excluded from the DAC criteria. Second, there are always differences between actual experiences and the conditions that can be recorded through spatial data.

POTENTIAL IMPROVEMENTS TO THE CURRENT METHODOLOGY

Modifying the DAC ranking system

The DAC methodology provides an understanding of burden and vulnerability relative to the rest of the state. It uses a multi-step ranking system (consisting of both statewide and regional ranking) to adjust for New York City's much higher rates of burden and vulnerability relative to the rest of the state. The regional ranking is done to ensure that census tracts from a greater variety of areas across the state ultimately receive DAC designation. Based on the current methodology, 44 percent of New York City census tracts and 29 percent of census tracts in the rest of the state are designated as DACs. However, this ranking system has the effect of excluding hundreds of New York City census tracts that would otherwise be classified as DACs if census tracts were only ranked statewide.

If a statewide ranking were used only, 55 percent of New York City tracts and 20 percent of tracts in the rest of the state would be designated as DACs. This would more accurately reflect the distribution of environmental burden and vulnerability across the state and would more equitably position New York City census tracts for Climate Act funding, commensurate with the relative burdens and vulnerabilities experienced by these communities.

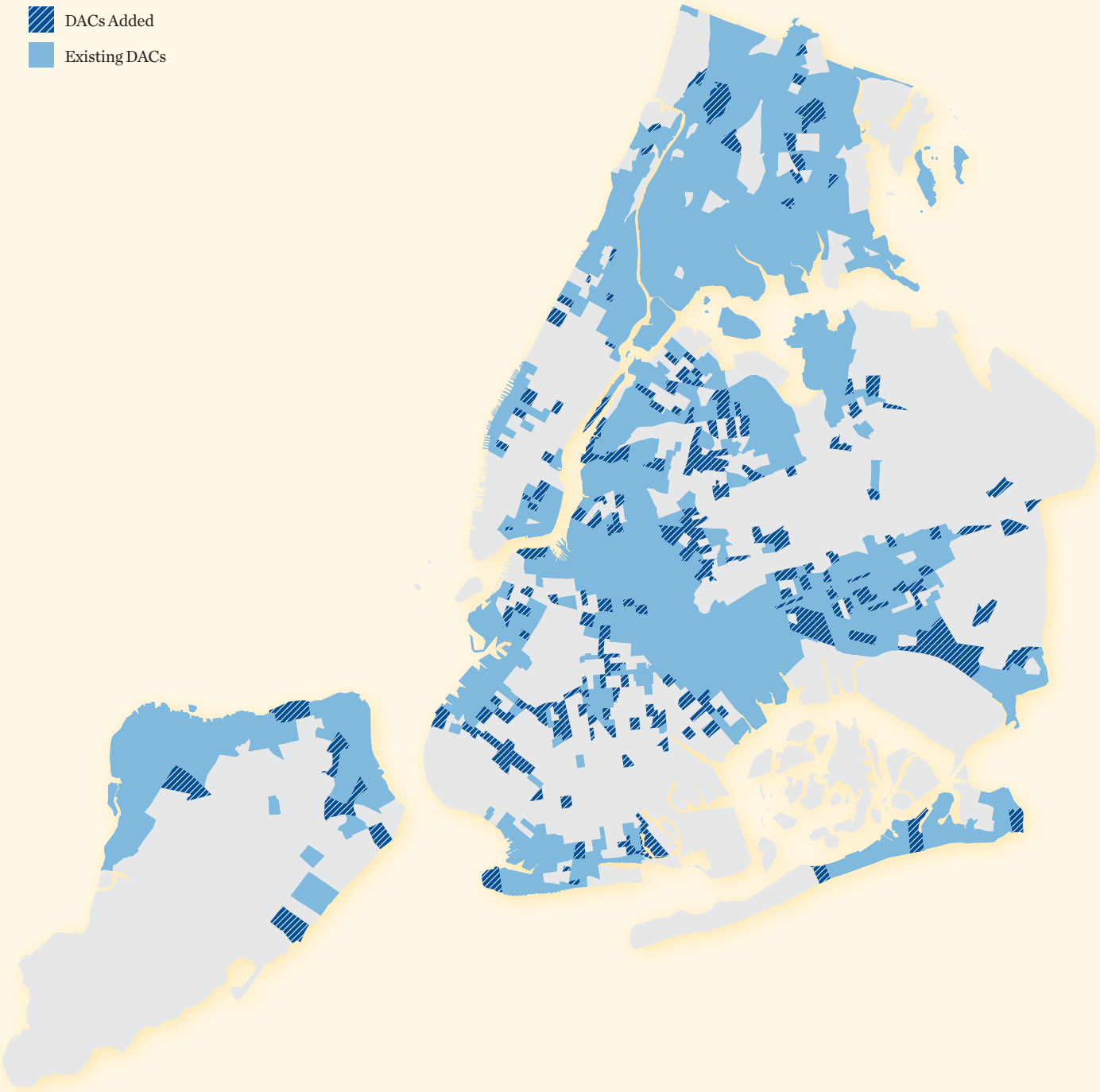
Modifying the DAC indicators

This analysis also identified several indicators, listed below, that should be considered for inclusion or exclusion in future revisions to the DAC criteria. Additional information on these potential updates can be found in the *Technical Supplement: Potential Improvements to the NYS Disadvantaged Communities Criteria* (p. 192) in the *Appendix*.

Pluvial Flooding The DAC indicator related to inland flooding excludes pluvial flooding, which occurs when extreme rainfall creates a flood (independent of an overflowing water body). Pluvial flooding is a significant issue for many New York

Census Tracts That Would Be Added as DACs Using Statewide Ranking

This map displays changes to DAC census tracts that would result from using a statewide ranking method only, instead of also separately considering rankings among tracts outside of New York City.



SOURCE: NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023. NYC Department of City Planning, 2010 Census Tracts, 2010.

City neighborhoods, where this type of flooding is more prevalent due to a greater proportion of impervious surfaces compared to other areas in the state. The NYC Stormwater Flood Map – Extreme Flood with 2080 Sea Level Rise dataset, provided by the City of New York, provides a more complete understanding of inland flooding as it incorporates pluvial flooding. Statewide analysis of stormwater flooding should be conducted so that this significant measure of climate change risk can be included for communities across New York State.

Noise Pollution When the DAC criteria were initially drafted, a comprehensive dataset that measured noise pollution statewide did not exist. In November 2022, the U.S. Bureau of Transportation Statistics (BTS) published the National Transportation Noise map, which represents the intensity of transportation-related noise pollution based on 24-hour equivalent sound levels for aviation, road, and rail-based transportation. This dataset provides insight into the geography of noise pollution across New York State and is suggested for inclusion in future DAC criteria.

Proximity to Wastewater Discharge
This measure accounts for proximity to toxicity-weighted concentrations of pollutants with potential negative health effects. As currently used, this proximity-based measure does not account for several factors that make proximity to wastewater discharges on their own, at least in New York City, unlikely to result in exposure to pollution. Therefore, it should be excluded from future DAC criteria.

Housing Vacancy Rates The DAC methodology states that this indicator was included to measure community disinvestment. In New York City, however, the highest rates of housing vacancy occur among high-cost and luxury housing.[141] This indicator may favor advantaged areas where market-rate buildings have lower occupancy rates due to high rent prices. In actual areas of disinvestment where there may be large amounts of affordable housing, housing vacancy rates will typically be extremely low. While this trend may not be the case for other areas in the state, the inclusion of this variable for New York City does not capture the intended trends. It is highlighted for consideration for exclusion from the DAC criteria in the future.

Combining the potential modifications to the DAC criteria methodology

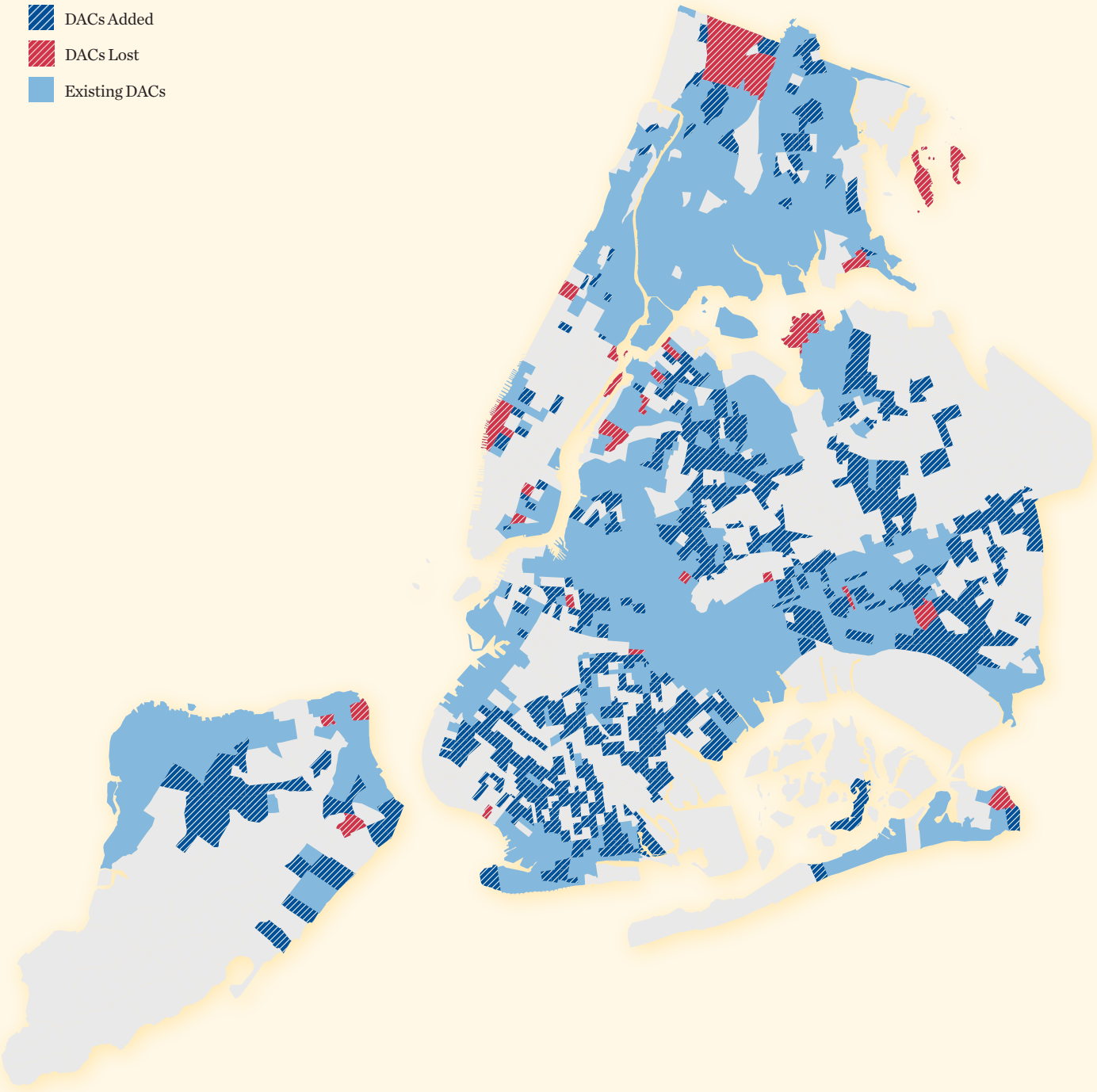
If the modifications outlined in this analysis were incorporated, it would increase the number of DACs designated within New York City and increase the city's allocation of state funding under the Climate Act. The following map shows the result of modifying the current DAC criteria methodology to use statewide ranking only, include indicators for stormwater and noise, and exclude indicators for wastewater and housing vacancy.

Together, these adjustments would add 485 DAC census tracts in New York City and redistribute 15 tracts within the city. Based on this revised methodology, 65 percent of census tracts in the city would be DACs, compared with 12 percent of state census tracts outside of the city.

Frontline communities most impacted by present and historical environmental burdens should benefit from Climate Act funding first. Across a variety of indicators, New York City is disproportionately burdened by and vulnerable to environmental and climate hazards relative to the rest of the state. As illustrated in this analysis, several aspects of the current DAC criteria methodology result in deprioritizing certain New York City census tracts from receiving a DAC designation. The exclusion of these communities risks exacerbating existing disparities and perpetuating longstanding patterns of disinvestment. The City is strongly committed to advocating for New York City's fair share of state investment to deliver the environmental justice that New Yorkers deserve.

Census Tracts Added as DACs Using Statewide Ranking and Revised Indicators

This map displays changes to DAC census tracts that would result from using revised methodology that uses a statewide ranking, adds indicators for stormwater flooding and noise, and removes current indicators for wastewater discharge and housing vacancy.



SOURCE: NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023. NYC Department of City Planning, 2010 Census Tracts, 2010. NYC Department of Environmental Protection, NYC Stormwater Flood Map - Extreme Flood with 2080 Sea Level Rise, 2022. US Department of Transportation Bureau of Transportation Statistics, Continental U.S. road, freight and passenger rail, and aviation noise, 2020.

ACCESS TO RESOURCES

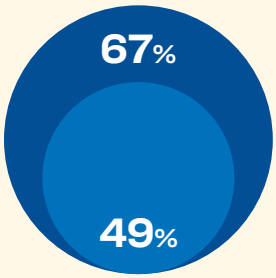
This section focuses on access to resources across six issues and indicators: redlining, capital planning, land use planning and zoning, transit and alternative transportation access, open space and natural resources, and food and nutrition. The findings point to opportunities for the City to invest in EJ communities and coordinate with permitting and regulatory authorities to embed equity and environmental justice in the siting and permitting of infrastructure.

Providing fair access to resources for all New Yorkers, regardless of socioeconomic identity, is a critical step towards environmental justice. Neighborhoods with ample parks and open space provide refuge from heat and spaces for community building. Safe, reliable transit options improve mobility and expand educational and economic opportunities beyond neighborhood boundaries. Affordable fresh food options provide the nutrition necessary to live an active life. These resources are social determinants of health: the conditions in the environments where people live, work, learn, and play that affect health, functioning, and quality-of-life outcomes and risks.[142]

These resources are not distributed equitably across New York City neighborhoods. Within neighborhoods, additional demographic factors can further impact access to resources, such as age, race and ethnicity, income, gender, sexual orientation, disability, language, and immigration status. Those who are most negatively impacted by a lack of resources are low-income communities and communities of color. Systemic racism entrenched in policies, institutions, programs, and processes creates disadvantages for people of color and advantages for white people.

KEY FINDINGS

The impact of redlining persists today: **historically redlined areas have a higher proportion of Black and Hispanic or Latino residents compared to the city overall.**



67% of the population living in historically redlined area fall within EJ areas

49% of the total NYC population lives in EJ areas

Residents in the Bronx experience both the highest rates of food insecurity and the highest rates of diet-related diseases, such as diabetes and high blood pressure.

Hispanic or Latino and Black residents report the highest rates of transit hardship, or inability to afford transit fares, across racial groups. Bronx residents report the highest rates of transit hardship across the five boroughs.

New York City has made great progress towards its goals of increasing access to parks and open space, however, **there remain disparities in park space between neighborhoods.**

Average amount of accessible park space per 1,000 residents:

EJ AREAS	NON-EJ AREAS
9 acres	11 acres

19% less park space for residents in EJ Areas

DATA ANALYSIS

REDLINING

Between 1935 and 1940, the Home Owners' Loan Corporation (HOLC) created residential security maps, assigning rankings to neighborhoods across the country from "A (Best)" in green to "D (Hazardous)" in red, which is how the term "redlining" came about.[143] Sixty-seven percent of the total population in historically redlined areas fall within EJ Areas, in comparison to the 48 percent of the total New York City population that lives in EJ Areas. Additionally, historically redlined areas have a higher proportion of Black and Hispanic or Latino residents compared to the city overall.

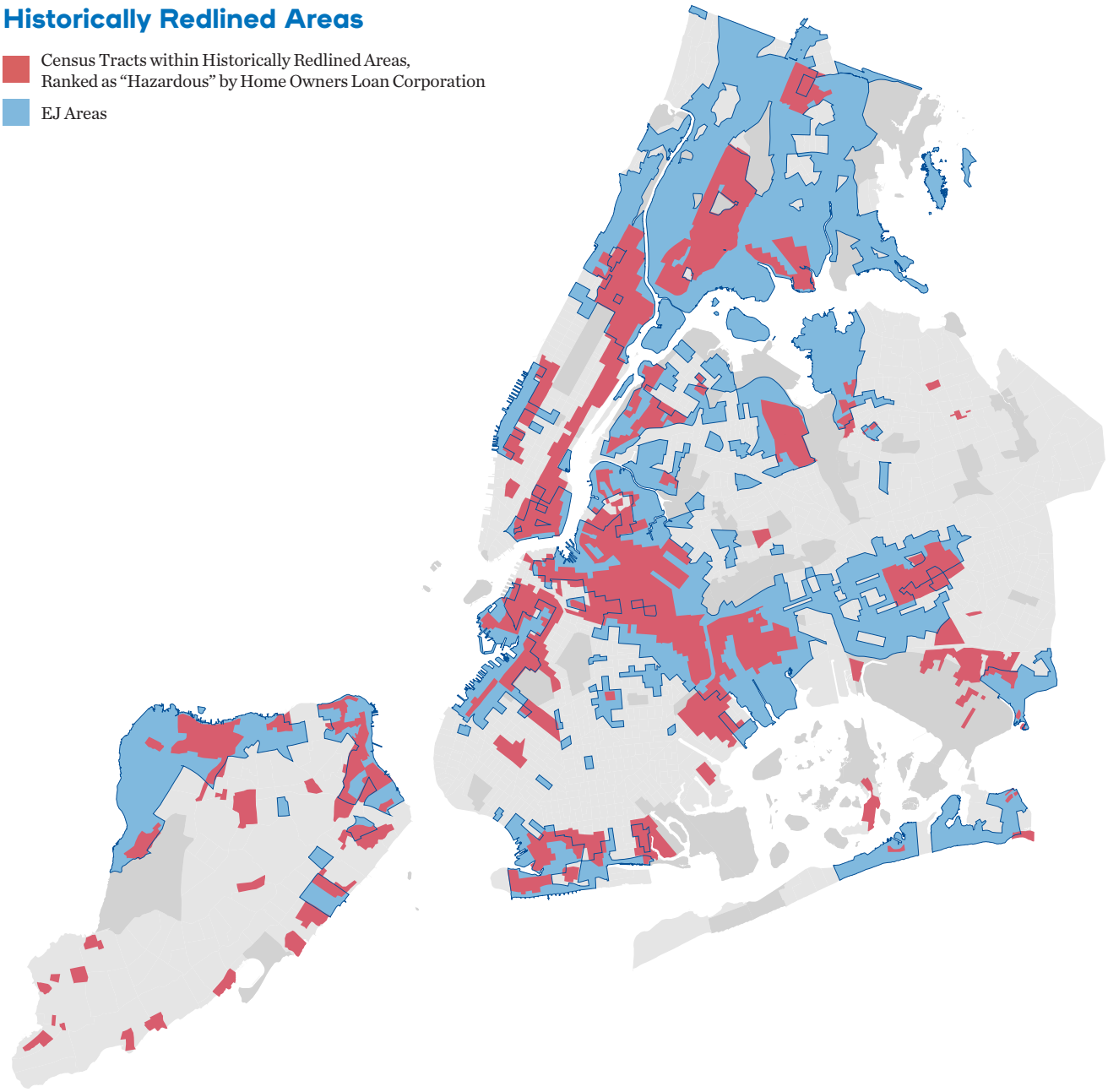
Historical redlining can be an indicator of present-day environmental and health outcomes. Historically redlined neighborhoods are more likely to lack green space in comparison to other neighborhoods.[144] In addition to its physical and mental health benefits, urban green space mitigates the impacts of climate hazards such as flooding and extreme heat.[145] Historically redlined neighborhoods often experience higher heat vulnerability compared to non-redlined areas.[146] Additionally, babies born in historically redlined neighborhoods in New York City between 2013 and 2017 were 46 percent more likely to be born pre-term than babies in neighborhoods previously rated "A."[147] Increased risk of preterm birth is linked to environmental hazards such as prolonged exposure to extreme heat and poor air quality.[148]

Racial disparities are prominent in homeownership. White and Hispanic or Latino New Yorkers

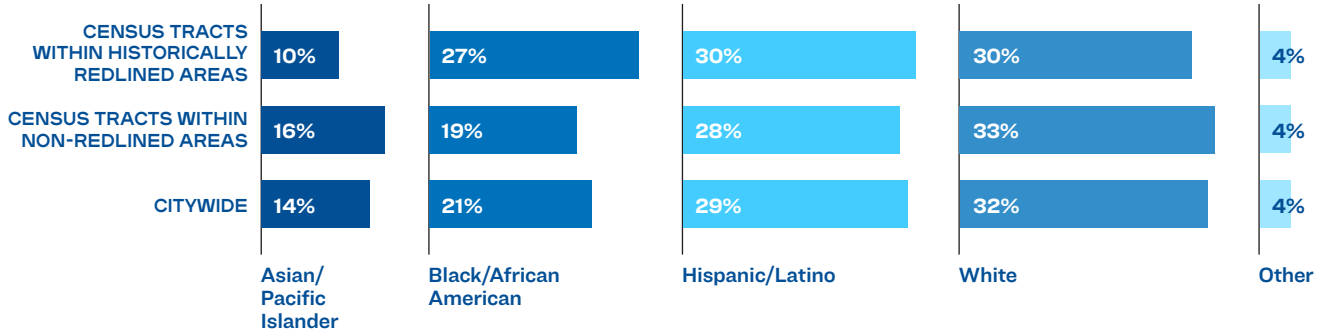
Historically Redlined Areas

Census Tracts within Historically Redlined Areas, Ranked as "Hazardous" by Home Owners Loan Corporation

EJ Areas



Demographics of Historically Redlined Areas



SOURCE: Robert K. Nelson, LaDale Winling, Richard Marciano, Nathan Connolly, et al., "Mapping Inequality," American Panorama, ed. Robert K. Nelson and Edward L. Ayers. U.S. Census Bureau, American Community Survey, 2017-2021 Five-Year Estimates. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

GET STUFF BUILT: A REPORT OF THE BUILDING AND LAND USE APPROVAL STREAMLINING TASKFORCE (BLAST)

LEAD AGENCY: Multi-agency Coordination

Released in December 2022, the "Get Stuff Built" report outlines the BLAST's recommendations for streamlining City processes related to environmental review, special permits and land use approval, and building permitting, with the aim of "providing affordable housing, supporting small businesses and delivering capital projects." The report, developed by a multi-agency taskforce of over two dozen City agencies, makes 111 recommendations, with 45 related to CEQR, 19 to ULURP, and 47 to the Department of Building's (DOB) permitting process.[149]

The "Get Stuff Built" report recommends changes to CEQR that are aimed at streamlining environmental impact analyses, increasing collaboration among City agencies and building their capacity to participate in the review process. In addition to process improvements, the report presents potential updates to the CEQR Technical Manual. For instance, the plan proposes to update the methodology for assessing socioeconomic impacts, which include potential displacement. Any such changes could address criticism that the current methodology underestimates displacement impacts.[150]

The report recommends the creation of a CEQR Handbook to provide the public and Community Boards with guidance on CEQR methodologies and ways to participate in the public comment process. The handbook is intended to support community-based organizations and EJ communities in navigating the review process and advocating for their needs. Additionally, the report recommends process changes that make applications available for public review earlier in the ULURP process, and changes to

Repairs at NYCHA's Betances Houses in the Bronx.

diversify public communication and outreach formats, such as creating a notification system that alerts resident subscribers to zoning applications in their neighborhoods. The report also proposes the exemption of certain actions from the environmental quality review and land use approval process. Such actions include the development of some homeless shelters and housing projects, battery storage facilities and other energy projects, and land acquisitions of flood-prone properties for the creation of Bluebelts, cloudburst interventions, and new parks. The new approach to acquisitions is intended to facilitate ongoing efforts to meet the City's affordable housing, carbon neutrality, and climate resilience goals.

By modifying the framework for completing rezoning projects, this ambitious plan should facilitate faster housing construction and necessary infrastructure development and help the City in its aim to prioritize equity in the siting of infrastructure.

represent similar population sizes, comprising 31 percent and 28 percent of the city, but have stark disparities in homeownership, representing 49 percent and 14 percent of homeowners, respectively.[151] Black homeowners are also slightly underrepresented: they comprise 19 percent of the homeowners despite making up 20 percent of the city's population. Home equity makes up nearly two-thirds of wealth for the median American family.[152] At the national level, Asian households have the highest median net worth ($264,800), followed by white households ($217,500), Hispanic or Latino households ($39,800), and Black households ($18,430).[153] Lower rates of home ownership and devalued land in communities of color has led to lower generational wealth, which in turn negatively affects access to resources such as adequate healthcare, education, and transportation.

CAPITAL PLANNING

New York City funds larger, long-term investments in facilities and infrastructure through its Capital Budget. Specifically, capital projects are defined as the construction, reconstruction, acquisition, or installation of a physical public improvement with a value of $50,000 or more and a useful life of at least five years.[154] This includes bridge reconstruction, water and sewer system upgrades, and parks improvements.

While the City Council adopts a Capital Budget each year, the planning and actual expenditure of funds for capital projects generally occurs over a period of years in accordance with City Charter provisions. Every November in even-numbered years, the Mayor's Office of Management and Budget (OMB) and the Department of City Planning (DCP) jointly prepare a draft Ten-Year Capital Strategy that outlines the goals, policy constraints, assumptions, and criteria for assessing the City's capital needs over the next 10 years. The document also includes reflections on the economic, social, and environmental implications of the proposed strategy. This provides a comprehensive framework for prioritizing, funding, and efficiently managing capital projects to meet the city's evolving infrastructure and service needs.

The preparation of the Capital Budget is a lengthy process designed to consider neighborhood, borough, and citywide needs. The borough presidents collectively receive 5 percent of the discretionary portion of the Capital Budget, which is allocated based on each borough's population and total geographic area. In the Fall, each of the city's community boards hosts public hearings for residents, community organizations, and other stakeholders to voice their opinions and concerns regarding potential capital projects. This input is integrated into a statement of capital priorities that is submitted to the mayor and relevant borough president for consideration. Similarly, City agencies submit their own estimates of their capital needs. Once the mayor presents the Preliminary Capital Budget in January, the community boards and borough presidents once again hold public hearings to assess whether the proposed budget addresses their capital priorities. Each borough president issues recommendations to revise the budget before the final version is approved by the mayor and City Council.

LAND USE PLANNING AND ZONING

Zoning organizes how land may be used, establishing an orderly pattern of development across neighborhoods and the city by identifying what may be built on a piece of property. It defines what land uses are allowed to occur on a piece of property (considering compatibility with nearby uses) as well as the shape of buildings that may be constructed.[155] Zoning regulations set limits on how a property owner may use land rather than requiring them to use it in a particular way.

Community groups and local elected officials representing environmental justice communities frequently share concerns about the role zoning changes play in displacement and cultural erasure. Historically, some rezonings have contributed

CITY OF YES FOR CARBON NEUTRALITY

The DCP's City of Yes for Carbon Neutrality was adopted by City Council in December 2023. This citywide zoning text amendment will facilitate climate action, clean energy, and resiliency by removing barriers to greener and more efficient energy systems, buildings, transportation, and water and waste systems. The updates to zoning will help reduce New York City's operational carbon emissions 80 percent by 2050, in accordance with the Paris Climate Accords. The initiative updates outdated regulations that created major roadblocks for New Yorkers who hoped to retrofit their homes for energy-efficiency or resiliency, install heat pumps or solar panels, switch to electric vehicles, or compost and recycle—all critical steps for New York City to reach its ambitious environmental goals.

Among other changes, this initiative removes zoning obstacles that limit how much rooftop space can be covered by solar panels and would facilitate standalone, grid-supporting solar and community microgrids—particularly in low-income communities—that are currently banned in residential areas; more than doubles commercially-zoned land where electric-vehicle charging facilities can be located; and expands the use of permeable pavement and rain gardens. This initiative is the first of three "City of Yes" proposals to update New York's zoning for the 21st century and foster a more sustainable, prosperous, and equitable city.

to these outcomes, largely by reducing the city's housing supply. As outlined in *Where We Live NYC*, high housing costs, segregation, gentrification and displacement pressure, overcrowding, and even homelessness emerge from New York City's severe and longstanding housing shortage. With a growing population and economy, the lack of housing means that historically affordable neighborhoods see an influx of newcomers able to pay higher rents than residents who have been there for decades or even generations. This dynamic was intensified by the 1961 Zoning Resolution, which decreased housing capacity throughout much of the city. More recently, the low-density downzonings prevalent in the 2000s closed off many whiter, higher-demand neighborhoods to more housing.[156]

The New York City Zoning Resolution is intended to address multiple planning objectives such as affordable housing, walkability, and climate resiliency. Changes to zoning require a legislative action that is either citywide or specific to one area. It may be needed to allow a development at a location or in a configuration that is not currently permitted. Anyone, including an individual or the City, may propose a change to zoning. Changes to zoning may be adopted only after a formal public review process, where they must ultimately be approved by the City Planning Commission (CPC) and adopted by the City Council, as set forth in the City Charter. This public review process is called the Uniform Land Use Review Procedure (ULURP) and sets time frames for formal public participation in the review of land use actions. The role of the CPC and the City Council is to hear and understand the views of the public as one consideration of many when looking to meet the City's broader needs for more housing, infrastructure capacity, and climate considerations.

Changes to zoning must also be assessed for environmental impacts in accordance with the State Environmental Quality Act (SEQRA) and City Environmental Quality Review (CEQR). CEQR is a disclosure process by which City agencies determine what effect, if any, a discretionary action (such as rezoning, issuing special permits, or approving

public funding for construction projects) may have on the environment, and mitigate to the greatest extent practicable the significant environmental impacts of such project's environment, and mitigate to the greatest extent practicable. The New York State Cumulative Impacts Law is set to expand environmental justice considerations under CEQR. Under the new law, agencies must consider a proposed action's potential to "cause or increase disproportionate or inequitable or both disproportionate and inequitable burden on a disadvantaged community."

See "Program/Policy Spotlight: Get Stuff Built: A Report of the Building and Land Use Approval Streamlining Taskforce" for more information about the City's efforts to increase transparency and access to information related to proposed changes to zoning and speed up the creation of affordable housing, drive economic growth, and build stronger communities.

TRANSIT AND ALTERNATIVE TRANSPORTATION ACCESS

Reliable, accessible transportation is critical for accessing jobs, educational opportunities, and essential services like healthcare. In this analysis, transportation includes public mass transit—such as the subway and bus systems, and alternative transportation to support shorter trips—such as bikes and e-scooters. On average, residents in EJ Areas have greater proximity to subway stations and bus stops overall than residents in non-EJ Areas: 78 percent of residents in EJ Areas are within a half-mile of a Metropolitan Transportation Authority (MTA) subway station, compared to 64 percent of residents in non-EJ Areas; and 98 percent of residents in EJ Areas are within a quarter-mile of a bus stop, compared to 96 percent of residents in non-EJ Areas. Residents in EJ Areas have slightly less proximity to Select Bus Service (SBS) stops than residents in non-EJ Areas. SBS is New York City's version of Bus Rapid Transit: an improved bus service that offers fast, frequent, and reliable service on high-ridership bus routes. 19 percent of residents in EJ Areas live within a quarter-mile of an SBS bus stop, compared to 22 percent of residents in non-EJ Areas. Transit reliability and accessibility can vary between neighborhoods due to myriad factors, and it is challenging to quantify potential disparities. However, measuring transit access to opportunity is one way of evaluating transit equity.[157]

TransitCenter's Transit Equity Dashboard, which assesses the number of jobs a resident in New York City can reach within a 45-minute transit commute, shows that resident commute times vary widely by racial and ethnic groups. The average white resident can access 991,688 jobs within a 45-minute transit commute.[158] Within a 45-minute transit commute, Asian, Hispanic or Latino, and Black residents have access to 14 percent, 22 percent, and 44 percent fewer jobs, respectively, than their white counterparts. There is likely no single cause behind the observed racial differences in job access but instead, a combination of potential contributing factors such as high housing costs in job-dense areas and legacies of residential segregation.[159]

The Community Service Society of New York's survey of low-income communities found that a quarter of New Yorkers living in poverty said they struggled to afford subway or bus fares.[160] Hispanic or Latino and Black residents report the highest rates of transit hardship across racial groups; Bronx residents report the highest rates of transit hardship across the five boroughs. The MTA's Fair Fares program offers discounted fares to New Yorkers whose income falls below the poverty line, but many qualifying residents are not aware of the program.[161] Transit fares can still be a financial burden for those living above the poverty line: a 30-day unlimited MetroCard amounts to 3 percent of median monthly income for public transit commuters.[162]

Historically, over-policing and anti-fare evasion policies have disproportionately affected Black and Hispanic or Latino riders. From 2010 to 2018, Black transit riders were 10 times more likely than white transit riders to be arrested for fare evasion.[163] Hispanic or Latino transit riders were 5 times more

PROGRAM/POLICY SPOTLIGHT

VISION ZERO

LEAD AGENCY: Multi-agency Coordination

Each year, there are more than 200 fatalities due to traffic crashes in New York City. Traffic safety is a quality of life and environmental justice concern with health, social, and economic consequences.[164] In view of this, New York City adopted the Vision Zero framework in 2014 to implement multiple data-driven strategies to reduce serious traffic crashes that result in fatalities and severe injuries.[165]

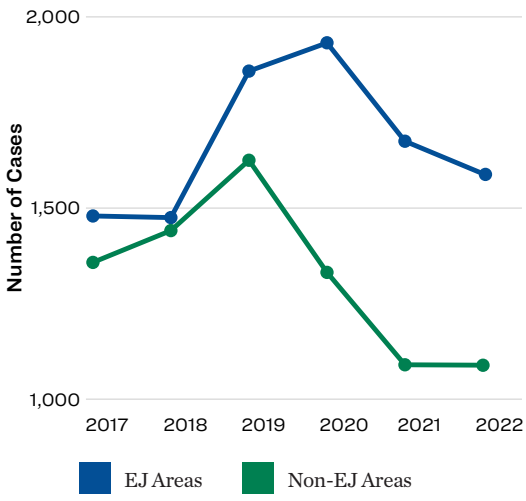
The Vision Zero Task Force was created to develop and implement engineering, enforcement, policy, and outreach strategies. The Task Force is an interagency group of staff from many government agencies including the Department of Transportation (DOT), Department of Citywide Administrative Services (DCAS), Department of Health and Mental Hygiene (DOHMH), the Police Department (NYPD), the Metropolitan Transportation Authority (MTA), and others.[166] Key strategies include street engineering improvements, rapid bike lane deployment, use of automated speed cameras, traffic violations enforcement, and safety education.

The city has experienced traffic safety improvements in the years since the program started. Between 2017 and 2022 (the most recent period for which data that can be analyzed continuously are available), there was a 6 percent reduction in the number of people killed or severely injured (KSI) in traffic crashes citywide. However, there was a notable disparity in traffic safety between EJ Areas and non-EJ Areas; over the same period, the number of people killed or severely injured increased by 8 percent in EJ Areas, but decreased 20 percent in non-EJ Areas.

In 2022, 59 percent of crash-related fatalities and severe injuries citywide occurred in EJ Areas, despite EJ Areas making up only 44 percent of New York City census tracts and 49 percent of the population. An analysis of crashes in the same year showed that the rate of KSI per mile of roadway in EJ Areas was 1.2 times the citywide average rate and 1.4 times the rate in non-EJ Areas. Furthermore, 16 of the 19 neighborhoods with the highest KSI per mile rate (the top 10 percent) were EJ Neighborhoods. The five neighborhoods with the highest KSI per mile rate in 2022 were Fordham South, Mott Haven-Port Morris and East Tremont in the Bronx, and Central Harlem South and Clinton in Manhattan.

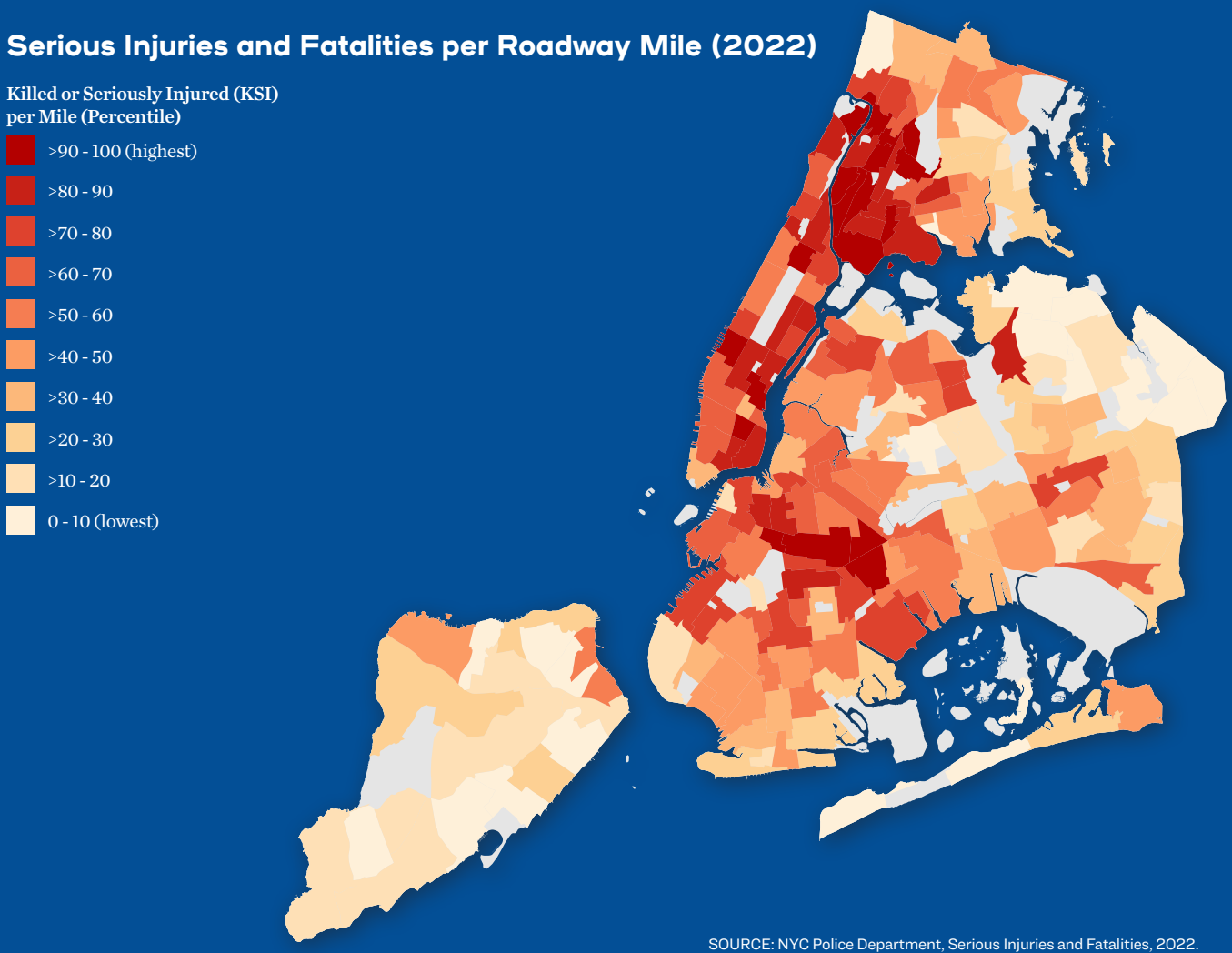
A key instrument in the Vision Zero toolkit, the Street Improvement Project (SIP) program,

Serious Traffic Injuries and Fatalities in NYC (2017-2022)



SOURCE: NYC Police Department, Serious Injuries and Fatalities, 2022. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

Serious Injuries and Fatalities per Roadway Mile (2022)



SOURCE: NYC Police Department, Serious Injuries and Fatalities, 2022.

makes physical changes to encourage safer travel behavior by reducing driving speeds, increasing roadway visibility, and/or separating transportation modes. SIP projects, or SIPs, are classified by their implementation zone: either along the roadway or at an intersection. The data-driven program is designed to prioritize SIPs in locations that have the greatest need for engineering improvements.[167] This is reflected by an analysis of SIP density, calculated as the number of improvement projects per mile of roadway, which showed that EJ Areas have received 4 percent more SIPs per mile of roadway than the citywide average and 7 percent more than in non-EJ Areas.[168]

Vision Zero's data-driven approach to reducing serious crashes has resulted in improvements to traffic safety citywide. However, despite these citywide and EJ Area improvements, EJ Areas remain disproportionately burdened by crash-related fatalities and severe injuries. In 2021, DOT established its first equity-focused Priority Investment Areas (PIAs) to drive interventions that advance safety, accessibility, and alternative modes of transportation.[169] These priority areas were selected based on the percentage of non-white and low-income populations, population and job density, and level of historic investment in each area. As such, the PIAs have the potential to drive future investment towards EJ communities and reduce the traffic safety disparities observed between EJ and non-EJ Areas. The program serves as a model of equity-driven investment to inspire change across other areas of the City's environmental decision-making.

Top 10 Neighborhoods with the Least Bike Network Coverage

NEIGHBORHOOD (NTA)	BIKE NETWORK COVERAGE[ii]	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Great Kills, SI	0.00%	0%
Richmond Hill, QN*	0.03%	71%
Pelham Bay-County Club-City Island, BX*	0.19%	57%
Arden Heights, SI	0.22%	0%
Soundview-Bruckner*	0.28%	100%
Douglas Manor-Douglaston-Little Neck, QN	0.32%	0%
Baisley Park, QN*	0.47%	54%
Springfield Gardens North, QN	0.60%	0%
Springfield Gardens South-Brookville, QN	0.61%	15%
South Ozone Park, QN*	0.66%	67%

* EJ Neighborhood

SOURCE: NYC Department of City Planning, LION Single Line Street Base Map, Release 22C, 2022.

ii Note: Greenway routes within parks and on designated park paths are included in this analysis.

likely to be arrested. The Bronx had a significantly greater proportion of fare evasion arrests than its share of transit ridership.

Achieving equitable transit access includes implementing proper accommodations and transit options for people with mobility impairments. Currently, about 30 percent of subway and Staten Island Railway stations are ADA accessible.[170] Within City limits, 68 percent of Metro-North stations and 86 percent of Long Island Rail Road stations are accessible. MTA buses are fully accessible to those in wheelchairs, and Access-A-Ride offers 24/7 paratransit service to those unable to use fixed bus stops to get to their destination. However, bus and paratransit services lack the flexibility, speed, and reliability of rapid transit service.

Citywide, the bicycle network covers a median of 15 percent of roadways across neighborhoods (meaning 15 percent of roadway miles and greenway routes include bike lanes). Within all EJ Areas, the protected bicycle network covers 4 percent of roadways (meaning 4 percent of roadway miles include protected bike lanes). This is compared to 5 percent in non-EJ Areas. However, there are neighborhoods with virtually no bike coverage. Five of the top 10 neighborhoods in New York City with the least bike network coverage are EJ Neighborhoods, and six are in Queens.

Additionally, while New York City's bike-share program Citi Bike has expanded access to bicycle transportation, over four million New Yorkers will still live outside of the Citi Bike service area after the Phase 3 expansion.[171] All of these neighborhoods are in the outer boroughs, including the East Bronx, most of Queens east of Flushing Meadows Corona Park, Southeast Brooklyn, and all of Staten Island. To fill this gap, DOT operates a shared e-scooter pilot in the Bronx and plans to expand the service area to Eastern Queens in 2024.[172]

OPEN SPACE AND NATURAL RESOURCES

In 2007, New York City set a long-term goal for all New Yorkers to be within walking distance of a

park, with an interim goal of reaching 85 percent of New Yorkers by 2030. As of July 2023, almost 85 percent of New Yorkers are within walking distance of a park; 35,000 people need to be served by new public open space to reach the goal. More than 1.3 million New York City residents are not within a walking distance of a park.[173]

Parks and open space can become overcrowded if there is insufficient park land for the size of the community. In non-EJ Areas, the average amount of accessible park space is 11 acres per 1,000 residents.[iii] In EJ Areas, that figure is nine acres per 1,000 residents.

The following map highlights neighborhoods that fall in the bottom quartile of park acres per 1,000 residents. These areas include Midtown Manhattan, Central Brooklyn, Southern Brooklyn, Northwest Queens, and Southeast Queens. The associated table shows the top 10 neighborhoods in New York City with the least park acreage per 1,000 residents. Four of these neighborhoods are EJ Neighborhoods. It is important to note that the analysis of park acreage completed for this report considers parks that are immediately adjacent to a neighborhood (for example, Central Park is adjacent to the Upper East Side). Other analyses aggregate green space within the boundaries of a community district or neighborhood. Therefore, existing City benchmarks for open space access (2.5 acres per 1,000 residents) may not be an appropriate point of comparison for this work.[174]

Funding is often used as a proxy metric for maintenance and quality. Parks such as the High Line, Central Park, Van Cortlandt Park, and Prospect Park operate with public-private partnerships in which conservancy groups build relationships with donors to raise funds for park management, maintenance, and operations.

Parks in other communities may be unable to leverage these additional resources and financial investments that supplement public funding. From

iii Defined as parks within an eighth of a mile of a census tract.

Top 10 Neighborhoods with the Least Accessible Park Acres per 1,000 Residents

NEIGHBORHOOD (NTA)[IV]	PARK ACRES PER 1,000 RESIDENTS	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Erasmus, BK*	0.12	72%
Kensington-Ocean Parkway, BK	0.13	10%
Midwood, BK	0.17	9%
Elmhurst, QN*	0.43	59%
Elmhurst-Maspeth, QN	0.44	0%
Queens Village, QN	0.46	0%
Parkchester, BX*	0.54	73%
Jackson Heights, QN	0.55	37%
Borough Park, BK	0.55	0%
Homecrest, BK	0.62	0%

*EJ Neighborhood

SOURCE: NYC Department of Parks and Recreation, Parks Properties, 2023.

iv This list includes the analysis of residential neighborhoods only.

COMMUNITY CASE STUDY

34TH AVE OPEN STREETS COALITION

LOCATION: Jackson Heights, Queens

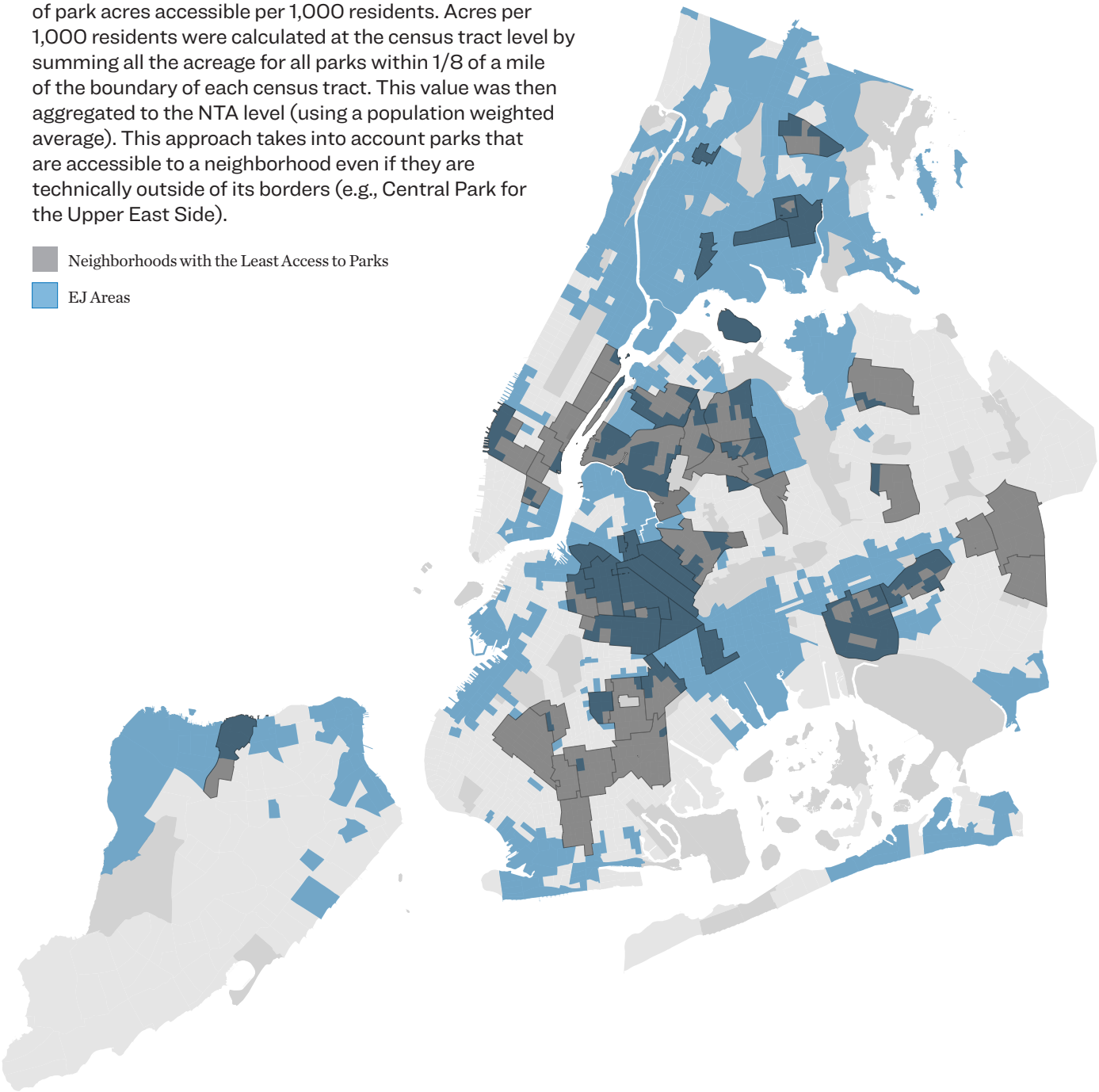
In May 2020, during the height of the COVID-19 pandemic, 34th Avenue in Jackson Heights quickly became one of the most lively and well-utilized Open Streets in the city. Closed to vehicle traffic, it served as an oasis of public space at a time when New Yorkers desperately needed safe, outdoor spaces to gather and recreate. Concerned that they would lose this space after stay-at-home orders ended, Jackson Heights residents formed the 34th Ave Open Streets Coalition to advocate for the street to remain open permanently for pedestrians and cyclists only. Thanks to their advocacy, 34th Avenue remains an Open Street today and has grown into a robust community space where kids play, neighbors gather, and events are held. The 34th Avenue Open Streets Coalition continues to make the street a success, promoting and hosting events such as salsa classes, English as a Second Language classes, and food distribution days.[175] DOT has added permanent infrastructure to 34th Avenue including landscaped planters, granite blocks, and upgraded bike facilities and continues to support Open Streets efforts across the city.

A majority Hispanic or Latino neighborhood with a substantial South Asian community, Jackson Heights has among the lowest proportions of open space of any neighborhood in the city, making 34th Avenue a sorely needed community resource.[176] Open Streets such as 34th Avenue provide recreation opportunities, increase community cohesion and organizing capacity, and serve as a respite from the hazards of vehicle traffic. Based on their success in Jackson Heights, the coalition has pushed to extend the Open Streets program into more neighborhoods such as Corona. In the words of Transportation Alternatives Queens organizer Juan Restrepo, "Jackson Heights is a much more politically active community [than Corona], but that shouldn't be a deterrent for why someone shouldn't have access to space like this."[177]

34th Ave Open Streets

Accessible Park Acres Per 1,000 Residents

"Least access to parks" is defined as the bottom 25 percent of neighborhood tabulation areas in terms of the total number of park acres accessible per 1,000 residents. Acres per 1,000 residents were calculated at the census tract level by summing all the acreage for all parks within 1/8 of a mile of the boundary of each census tract. This value was then aggregated to the NTA level (using a population weighted average). This approach takes into account parks that are accessible to a neighborhood even if they are technically outside of its borders (e.g., Central Park for the Upper East Side).



SOURCE: NYC Department of Parks and Recreation, Parks Properties, 2023. U.S. Census Bureau, American Community Survey, 2017-2021 Five-Year Estimates. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023. NYC Department of City Planning, 2010 Neighborhood Tabulation Areas, 2010.

Top 10 Neighborhoods with the Least Tree Canopy Coverage

NEIGHBORHOOD (NTA)[v]	PERCENTAGE OF TREE CANOPY COVERAGE	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Midtown-Midtown South, MN	3%	6%
Hunts Point, BX*	6%	100%
Sunset Park West, BK*	7%	100%
Hunters Point-Sunnyside-West Maspeth, QN	7%	47%
Hammels-Arverne-Edgemere, QN*	7%	84%
SoHo-TriBeCa-Civic Center-Little Italy, MN	8%	0%
Seagate-Coney Island, BK*	8%	84%
East Williamsburg, BK*	8%	67%
Greenpoint, BK*	10%	68%
Jamaica, QN*	10%	89%

*EJ Neighborhood

Source: University of Vermont Spatial Analysis Laboratory, NYC DoITT, AppGeo, Quantum Spatial, Land Cover Raster Data (2017) – 6in Resolution, 2017.

v This list includes the analysis of residential neighborhoods only.

1992 to 2013, 215 parks across the city received less than $250,000 in capital investment from NYC Parks.[178] NYC Parks estimates these 215 parks need $1 billion in cumulative future capital investment.[179] Underfunded areas tend to be geographically clustered.[180]

The distribution of urban tree canopy coverage is lower in areas with lower household incomes and higher percentages of people of color.[181] However, its distribution is improving across all boroughs. According to Forest for All NYC's analysis of the urban forest, New York City gained 1.7 percent tree canopy coverage between 2010 and 2017, with the largest absolute gain in the Bronx (2.2 percent) and the smallest in Queens (0.9 percent).[182] In April 2023 the City announce an initiative to achieve a 30 percent tree canopy cover in *PlaNYC: Getting Sustainability Done*. In November of 2023, the City passed Local Law 148 requiring the development of an Urban Forest Plan to help expand the city's tree canopy from the current 22 percent coverage to 30 percent coverage.[183]

The above table shows the 10 neighborhoods in New York City with the least tree canopy coverage. Of these, seven are EJ Neighborhoods.

FOOD AND NUTRITION

Before the COVID-19 pandemic, about 1.1 million New York City residents experienced food insecurity.[184] In 2020, business closures during the pandemic resulted in loss of income for many New Yorkers. The food-insecure population grew to about 1.6 million people, and the Bronx had the highest borough-wide food insecurity rate at 19.7 percent.[185] In the same year, 74 percent of food pantries and soup kitchens reported an increase in overall visitors from the previous year.[186] Food insecurity continues to be a major issue in New York City. According to data from the DOHMH, more than one third of New York City adults, approximately 2.2 million people, lived in a household at risk for food insecurity in 2021.[187]

Today, Black and Hispanic or Latino communities disproportionately bear the burden of food

insecurity and diet-related diseases such as high blood pressure and diabetes.[188, 189, 190] In particular, the South Bronx has the highest rate of high blood pressure (39 percent) citywide. Fordham-Bronx Park has the highest rate of diabetes (20.7 percent) citywide. Evidence suggests that food insecurity may exacerbate outcomes related to these diet-related chronic conditions.[191]

Poverty and food insecurity are connected, as limited household income can create barriers to accessing sufficient, healthy food. According to the New York City Government Poverty Measure, which accounts for the region's elevated cost of living, 19 percent of the city residents are living in poverty.[192] The Bronx experiences some of the city's highest rates of poverty, particularly in Hunts Point, Melrose, and Longwood.[193] Additionally, post-COVID inflation contributed to a 10 percent rise in at-home food prices in June 2022 from the year prior.[194] The Supplemental Nutrition Assistance Program (SNAP) can help close the gap for certain qualifying households; 19 percent of New York City households receive SNAP benefits with the plurality residing in East New York.[195]

For people with low incomes, cost remains one of the biggest barriers to shopping for and preparing foods that are part of a healthy diet. But disparities in food environments also contribute to inequities in access to healthy and unhealthy food. An analysis revealed that predominantly Black areas had higher densities of fast-food establishments than predominantly white areas in New York City.[196] This racial disparity was consistent across income levels: high-income Black areas and low-income Black areas had similar densities of fast food. Ubiquitous marketing and product availability disproportionately promote unhealthy foods and make them easily accessible for purchase. Marketing for unhealthy foods is targeted to certain communities, which contributes to disproportionate exposure to unhealthy food advertisements in communities of color.[197]

COMMUNITY CASE STUDY

CROWN HEIGHTS MUTUAL AID

LOCATION: Crown Heights, Brooklyn

Formed in March 2020 in response to the burgeoning COVID-19 pandemic, Crown Heights Mutual Aid (CHMA) is a network of neighbors caring for each other in Crown Heights, Brooklyn. Based on a model of mutual support rather than of charity, CHMA quickly mobilized during the pandemic to help people meet their daily needs in a time of crisis, delivering supplies such as food and masks. The group has since grown into a sustaining mutual aid network that promotes not only food justice but also housing justice and educational equity.[198]

Home to Black, Hasidic Jewish, and Hispanic or Latino communities, Crown Heights faces multiple environmental injustices, including higher-than-average heat vulnerability and elevated numbers of emergency department visits for asthma.[199,200] Over the decades, the neighborhood has shown great resilience in the face of adversity, including a bounce back from interracial violence in 1991 that erupted in response to a vehicle crash that killed a young Black boy.[201] Now, as Crown Heights emerges from the COVID-19 pandemic and continues to gentrify, CHMA and other community organizations build neighborhood strength and capacity to face these challenges together.

Crown Heights Mutual Aid

ACCESS TO GREEN ECONOMIC OPPORTUNITIES

Building an equitable green economy requires the fair distribution of opportunities and investment to EJ communities. The city's green economy represents sectors and workers that directly and intentionally contribute to achieving the city's climate goals. Historic federal, state, and local investment in sustainability and climate-driven work creates job opportunities across sectors including building decarbonization, renewable energy, transportation, resilience infrastructure, and green finance, among others. The City of Yes for Carbon Neutrality zoning text amendment supports the growth of this work locally by modernizing zoning regulations to accelerate grid infrastructure upgrades, energy storage installations, and climate resiliency improvements.

Notably, women and Black workers are typically underrepresented in the state's clean energy workforce.[202] City initiatives, like the New York City Economic Development Corporation (NYCEDC)'s ConstructNYC and the Offshore Wind Waterfront Pathways Programs, seek to foster greater diversity by helping Minority, Women-Owned, and Disadvantaged Business Enterprises (M/W/DBEs) access exclusive opportunities on NYCEDC projects.[203] NYCEDC is also investing $10 million across the City University of New York (CUNY) system to build the workforce training facilities, infrastructure, and the programming necessary to train the next generation of offshore wind talent.

Further building on these initiatives, NYCEDC, in partnership with the Mayor's Office of Talent and Workforce Development (NYC Talent), developed the *NYC Green Economy Action Plan* to guide future investment and workforce initiatives for the city's green sectors.

Reducing disparities in access to green economic opportunities will also require prioritized investment and engagement throughout the

Bronx River Alliance Environmental Enrichment and Leadership (EELS) students

education-to-employment pipeline including efforts to increase exposure to sustainability concepts in K-12 education, community college partnerships, robust paid internship and apprenticeship opportunities, and upskilling and certificate programs for mid-career professionals. Another such program is Environmental Enrichment and Leadership for Students (EELS), run by the Bronx River Alliance. The 14-month paid internship program provides a chance for youth from underrepresented communities to engage in hands-on environmental education using the Bronx River as a living lab, all while earning college credits.

The growth of the green economy provides an exciting opportunity to rethink standard models of ownership to democratize access to resources. In New York City, access to rooftop solar can often face technical and economic challenges due to limited roof space and high installation costs. Community solar projects, such as Solar Uptown Now (SUN), help address this issue by allowing multiple households to purchase local solar power as a group. The project came out of a partnership with WE ACT, Solar One, CUNY, and the Urban Homesteading Assistance Board. Over 1,000 Upper Manhattan residents benefit from the project, which brought $61,700 in energy bill savings during the first year.[204]

In 2008, DCP developed the Supermarket Needs Index (SNI) to identify neighborhoods underserved by fresh food stores. Contributing data points include walkability, concentration of stores, household vehicle access rates, and poverty rates. Bedford-Stuyvesant and Sunset Park in Brooklyn, East Elmhurst and North Corona in Queens, and Mott Haven and Hunts Point in the Bronx are all examples of high-need communities according to the 2018 index.[205] In 2021, DCP expanded the Food Retail Expansion to Support Health Program (FRESH), a zoning incentives program that supports grocery stores in underserved neighborhoods, based on the SNI.[206] NYCEDC manages a related tax incentive program to lower the costs of owning, leasing, developing, and renovating supermarkets in these areas.

Rising rents, narrow profit margins, and competition from online and specialty retailers have created difficulties for neighborhood-serving grocery store operators.[207] Between 2005 and 2015, the city lost around 8 percent of family-owned small grocery stores, placing additional strain on food access.[208] These small but critical food stores can be difficult to capture within fresh food access data sets that rely solely on store footprint or gross sales.

Poverty and food insecurity are inextricably connected, as limited household income can create barriers to accessing sufficient, healthy food.

STAKEHOLDER INPUT

The following collection of quotes from the focus groups and interviews conducted as part of the qualitative research for this report, speak to issues associated with fair access to resources.

TRANSIT AND ALTERNATIVE TRANSPORTATION ACCESS

"I see people speeding through residential streets. There are no protected bike lanes in Downtown Flushing, so that means there's no physical separation of bicyclists and car drivers, which creates problems."

"If you go to Southeast Queens, like Richmond Hill, it's a transportation desert, even though it is densely populated. People there need cars ... I have a car because as a person of color who grew up in the city, my family was only able to settle in places far away, in the boroughs, that were not close enough to subway transportation."

OPEN SPACE AND NATURAL RESOURCES

"There's one huge park, Springfield Gardens, that has only four trash cans. In other parks, we see invasive species growing out of control to the extent that people feel unsafe in the parks ... It is so important for there to be greater effort to provide park maintenance in the parks that people of color actually use in the city. It's really demoralizing when people visit Central Park and see how that park is maintained, and then they go back to their parks and they see what that looks like."

"We have a two-tiered parks system: Public/private partnerships exacerbate inequality, and challenges vary by organization and community."

FOOD AND NUTRITION

"A lot of people are dealing with unhealthy soils; they can't grow food there to eat, and therefore they cannot access healthy food. They are eating food that's been trucked from far and wide."

"Food sovereignty is also really important. We have a Latino community that is mostly Mexican, and I think it's Mexican children that are leading in childhood diabetes and obesity."

Parks and open space can become overcrowded if there is insufficient park land for the size of the community. In non-EJ Areas, the average amount of accessible park space is 11 acres per 1,000 residents. In EJ Areas, that figure is nine acres per 1,000 residents.

EXPOSURE TO POLLUTED AIR

This section focuses on exposure to polluted air across five issues and indicators: outdoor air pollution, stationary sources of pollution, mobile sources of pollution, solid waste facilities, and indoor air quality. The findings point to opportunities for the City to invest in environmental justice communities, improve accountability through increased data transparency, and coordinate with permitting and regulatory authorities to embed equity and environmental justice considerations in the siting and permitting of infrastructure.

In the middle of the 20th century, New York City had the most polluted air of any big city in the United States.[209] Pollution from coal-fired power plants, municipal and residential waste incinerators, motor vehicle and maritime traffic, highly polluting industries, commercial cooking, and oil-fired boilers in buildings resulted in two "killer smog" incidents in November of 1953 and 1966, causing an estimated 400 deaths.[210] Following the 1966 smog, City officials strengthened the New York City Air Pollution Control Codes. Shortly thereafter, national concerns about air pollution and other environmental justice issues led to the establishment of the United States Environmental Protection Agency (U.S. EPA) and the passage of the Clean Air Act in 1970.[211] In the decades since, EJ communities have pushed for reforms to improve New York City's air quality, resulting in the closing of all municipal waste incinerators in the city in 1994, the passing of legislation to phase out fossil fuels from new construction starting in 2024, and citywide planning to replace "peaker" power plants with renewable energy solutions.[212, 213, 214, 215, 216]

KEY FINDINGS

The New York City neighborhoods with the **greatest levels of pollution-attributable hospital emergency department visits are all EJ Neighborhoods.**

Nearly all neighborhoods with the highest pollution-attributable emergency department visits are within a mile of a large stationary source polluting facility, such as a power plant or manufacturing facility.

IN 2021

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"peaker" power plant facilities were located in an EJ area or less than a block from one.

Communities of color are disproportionately exposed to emissions from heavy-duty diesel vehicles, compared to communities that are mostly white, due to the location of arterial highways, commercial waste routes, delivery routes, and parking facilities for medium and heavy-duty fleets. These vehicles are major sources of NO_x and $PM_{2.5}$ emissions in New York City.[217]

Most of the city's waste is processed and transferred in a handful of EJ Areas, increasing heavy-duty vehicle traffic in those communities. **Many of these same neighborhoods suffer from the highest rates of pollution-attributable health impacts**, sometimes at over three times the citywide average rates.

New York City's regional air quality is vastly better than it was 60 years ago and continues to improve. Challenges remain, however, particularly with regards to the negative health impacts EJ communities experience because of polluted air.[218] The city also faces new obstacles in the face of a changing climate. Hotter summers and dryer conditions increase the frequency and intensity of wildfires, which can inundate New York City with dangerous levels of air pollution for days at a time, events that were experienced throughout June and July of 2023.[219]

DATA ANALYSIS

OUTDOOR AIR POLLUTION

The New York State Department of Environmental Conservation (DEC) measures outdoor air pollution through a series of federally-mandated and supplemental monitoring networks, reporting these measurements to the U.S. EPA's Air Quality System (AQS). Focused on measuring ambient air quality at the regional scale, there are 55 DEC air monitoring sites across the entire state, including 17 within New York City boundaries.[220] DEC's monitoring network uses high-quality, professionally calibrated monitoring equipment and quality control processes to produce reliable and repeatable data across almost 100 pollutants over several decades. DEC also carries out short-term localized monitoring efforts to address specific questions or in response to legislation such as the 2022-23 mobile monitoring campaign in disadvantaged communities required by the New York State Climate Act.

In an effort to understand and track neighborhood variation in air quality over time, better represent

human exposure, and address the sparseness of DEC monitoring network, the Department of Health and Mental Hygiene (DOHMH) operates the largest urban air monitoring program in the United States, in close collaboration with Queens College of the City University of New York (CUNY). Established in 2008, the New York City Community Air Survey (NYCCAS) collects air quality measurements of six pollutants: fine particulate matter ($PM_{2.5}$); black carbon (BC); nitrogen dioxide (NO_2) and nitric oxide (NO), which together are (NOx); wintertime sulfur dioxide (SO_2); and summertime ozone (O_3). Measurements are taken from 78 strategically-chosen locations to ensure representative coverage across the city, as well as near "high-emission locations" such as Times Square, the Port Authority Bus Terminal, and the entrance to the Holland Tunnel. An additional 15 monitors are sited in EJ Neighborhoods to better understand localized emissions in these communities (see *Program/Policy Spotlight: NYC Community Air Survey* on p. 80). DOHMH uses measurements at these locations to build statistical models that estimate average air pollution levels for each season across the city.[221, 222] These estimates cannot be compared to regulatory standards but can be used to track changes in air quality over time and help understand what factors drive differences across city neighborhoods. NYCCAS now has over 13 years of data at the neighborhood level to track changes over time.

The table on the following page provides an overview of the pollutants that DOHMH monitors through the NYCCAS program, the primary indicators that drive the disparities of each pollutant across the city, the associated health risks caused by each pollutant, and the neighborhoods which experience the greatest levels of each pollutant. While NYCCAS has historically measured SO_2, recent levels have been so low as to be considered undetectable. This is due in large part to Local Law 43 of 2010 and Local Law 38 of 2015, which phased out the most polluting heating oils from buildings.[223, 224]

New York City's regional air quality is vastly better than it was 60 years ago and continues to improve. Challenges remain, however, with regard to the negative health impacts EJ communities experience because of polluted air. The city also faces new obstacles in the face of a changing climate.

The factors that influence outdoor air quality in each neighborhood are complex. Geography, weather, and human activity play a role. While local emissions account for much of the city's pollution levels, weather patterns can carry O_3 and $PM_{2.5}$ from power plants as far away as the Midwest, and industrial pollution from New Jersey regularly blows across the Hudson River, Kill Van Kull, and Arthur Kill straits into New York City. A recent study estimated that approximately 30 percent of the fine particulate matter in New York City's air comes from regional, rather than local, sources.[225]

Pollutants Monitored through the NYCCAS Program

POLLUTANT	DESCRIPTION[226]	EMISSIONS INDICATORS[227]	HEALTH RISKS[228]	NEIGHBORHOODS IN NYC WITH GREATEST LEVELS OF POLLUTANT[229]
Fine Particles ($PM_{2.5}$)	Fine particles are airborne combustion particles, organic compounds, metals, or other materials less than 2.5 microns in diameter.	• Emissions from commercial cooking • Emissions from motor vehicle traffic • Emissions from trucks associated with industrial land use	$PM_{2.5}$ is the most harmful urban air pollutant. It can worsen asthma, lung diseases, heart conditions, and leads to more than 2,000 premature deaths and over 6,500 emergency department visits every year.[230]	Midtown-Midtown South, Gramercy, East Village, Hudson Yards-Chelsea-Flatiron-Union Square, Clinton, Murray Hill-Kips Bay, Chinatown, Turtle Bay-East Midtown, East Williamsburg, Hunters Point-Sunnyside-West Maspeth
Black Carbon	Black carbon is a type of fine particle emitted when fossil fuels are burned by cars, power plants, and other sources. Twenty percent of the $PM_{2.5}$ in the city is black carbon.	• Emissions from trucks associated with industrial land use • Emissions from motor vehicle traffic • Combustion of fossil fuels for building heating and hot water	Black carbon has been associated with respiratory and cardiovascular disease, cancer, and birth defects.	East Williamsburg, Midtown-Midtown South, Hunters Point-Sunnyside-West Maspeth, Hudson Yards-Chelsea-Flatiron-Union Square, Greenpoint, Gramercy, East Village, Clinton, Hunts Point, Chinatown
Nitrogen Oxides (NO_x)	Nitrogen dioxide (NO_2) and nitric oxide (NO), which together are referred as nitrogen oxides (NO_x) are produced by many mobile sources of pollution, such as cars, trucks, and marine vessels, and by oil-fueled boilers, power plants, and construction equipment.	• Emissions from trucks associated with industrial land use • Emissions from motor vehicle traffic • Emissions from buses • Combustion of oil-fueled boilers and other fossil gas combustion, such as power plants	Exposure to NO_x is associated with increased hospitalizations for asthma and other respiratory conditions.	**Nitrogen dioxide (NO_2):** East Williamsburg, Hunters Point-Sunnyside-West Maspeth, Greenpoint, Maspeth, Sunset Park West, Bushwick North, Midtown-Midtown South, Mott Haven-Port Morris, Hunts Point, Hudson Yards-Chelsea-Flatiron-Union Square **Nitric oxide (NO):** Midtown-Midtown South, Turtle Bay-East Midtown, Murray Hill-Kips Bay, Clinton, Hudson Yards-Chelsea-Flatiron-Union Square, Gramercy, Upper East Side-Carnegie Hill, Chinatown, East Village, Lenox Hill-Roosevelt Island

POLLUTANT	DESCRIPTION[226]	EMISSIONS INDICATORS[227]	HEALTH RISKS[228]	NEIGHBORHOODS IN NYC WITH GREATEST LEVELS OF POLLUTANT[229]
Ozone (O_3)	Ozone forms when NO_x combines with sunlight, heat and other pollutants, and is more prevalent during the summer and extreme heat events.	• Levels of NO_x • Lack of tree cover (which reduces ozone through a reaction with leaf surfaces)	Ozone is responsible for over 400 premature deaths, 850 hospitalizations for asthma, and 4,500 emergency department visits each year.[231]	Rikers Island, Pelham Bay-Country Club-City Island, Schuylerville-Throgs Neck-Edgewater Park, Soundview-Castle Hill-Clason Point-Harding Park, Whitestone, East Elmhurst, Seagate-Coney Island, Steinway, College Point, Ft. Totten-Bay Terrace-Clearview

Since the first year of monitoring in 2009, NYCCAS has recorded steep decreases in annual average levels of all measured pollutants, with the exception of O_3, which largely results from emissions outside of the city. Annual average levels of $PM_{2.5}$ have been reduced by 43 percent, NO_2 by 39 percent, NO by 56 percent, and SO_2 by 98 percent.[232, 233] These reductions are due in large part to Local Law 38 of 2015, which resulted in significant revisions to the New York City Air Pollution Control Code (Air Code) that regulated previously unregulated sources of emissions, required building owners to convert to cleaner heating oils, and regulated Tier IV sources.[234]

There are notable differences between the neighborhoods with the greatest levels of measured outdoor air pollutants and the neighborhoods with the greatest health impacts. Generally, the neighborhoods that experience the greatest levels of pollution are not the neighborhoods that suffer the most pollution-attributable health outcomes. Adverse health outcomes related to pollution are concentrated in low-income communities and communities of color, particularly Black and Hispanic or Latino communities. This is partly due to exposure to airborne pollutants, but also because neighborhoods with higher rates of poverty due to historic disinvestment tend to have higher baseline rates of health conditions, lower-quality housing, and less access to healthcare.[235]

The following tables show the top 10 areas of NYC with the greatest rate of emergency department visits attributable to $PM_{2.5}$ and O_3 for both adults and children. Almost all are EJ Neighborhoods, all have greater percentages of Black and/or Hispanic or Latino residents than the city overall, and most are home to a majority of Black and Hispanic or Latino residents.

Adverse health outcomes related to pollution are concentrated in low-income communities and communities of color, particularly Black and Hispanic or Latino communities.

Adult Emergency Department Visits Attributable to $PM_{2.5}$ per Year

NEIGHBORHOOD (UHF42)	ADULT EMERGENCY DEPARTMENT VISITS ATTRIBUTABLE TO $PM_{2.5}$ PER YEAR (PER 100,000 RESIDENTS)	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Citywide	34.6	44%
East Harlem, MN*	111.6	94%
Hunts Point – Mott Haven, BX*	104.6	100%
High Bridge – Morrisania, BX*	98.1	100%
Central Harlem – Morningside Heights, MN*	95.1	88%
Crotona – Tremont, BX*	87.1	100%
East New York, BK*	71.4	100%
Bedford Stuyvesant – Crown Heights, BK*	68.1	76%
Williamsburg – Bushwick, BK*	67.3	99%
Fordham – Bronx Park, BX*	64.1	97%
Northeast Bronx, BX*	48.4	72%

*EJ Neighborhood

SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, 2022.

Child Emergency Department Visits Attributable to $PM_{2.5}$ per Year

NEIGHBORHOOD (UHF42)	CHILD EMERGENCY DEPARTMENT VISITS ATTRIBUTABLE TO $PM_{2.5}$ PER YEAR (PER 100,000 RESIDENTS)	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Citywide	78.2	44%
East Harlem, MN*	215.5	94%
Hunts Point – Mott Haven, BX*	194.7	100%
Central Harlem – Morningside Heights, MN*	193.1	88%
High Bridge – Morrisania, BX*	188.6	100%
Crotona – Tremont, BX*	167.2	100%
Fordham – Bronx Park, BX*	153.6	97%
Bedford Stuyvesant – Crown Heights, BK*	124.6	76%
East New York, BK*	118.4	100%
Northeast Bronx, BX*	108.6	72%
Williamsburg – Bushwick, BK*	107.9	99%

*EJ Neighborhood

SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, 2022.

Adult Emergency Department Visits Attributable to O_3 per Year

NEIGHBORHOOD (UHF42)	ADULT EMERGENCY DEPARTMENT VISITS ATTRIBUTABLE TO O_3 PER YEAR (PER 100,000 RESIDENTS)	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Citywide	48.3	44%
East Harlem, MN*	141.5	94%
Hunts Point – Mott Haven, BX*	130.1	100%
High Bridge – Morrisania, BX*	124.9	100%
Central Harlem – Morningside Heights, MN*	121.4	88%
Crotona – Tremont, BX*	112	100%
East New York, BK*	107.8	100%
Bedford Stuyvesant – Crown Heights, BK*	100.2	76%
Williamsburg – Bushwick, BK*	96.7	99%
Fordham – Bronx Park, BX*	85.5	97%
Port Richmond, SI*	74.6	81%

*EJ Neighborhood

SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, 2022.

Child Emergency Department Visits Attributable to O_3 per Year

NEIGHBORHOOD (UHF42)	CHILD EMERGENCY DEPARTMENT VISITS ATTRIBUTABLE TO O_3 PER YEAR (PER 100,000 RESIDENTS)	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Citywide	101.9	44%
East Harlem, MN*	262.3	94%
Central Harlem – Morningside Heights, MN*	228.6	88%
Hunts Point – Mott Haven, BX*	225	100%
High Bridge – Morrisania, BX*	220.8	100%
Crotona – Tremont, BX*	199.6	100%
Fordham – Bronx Park, BX*	187.8	97%
Bedford Stuyvesant – Crown Heights, BK*	173.9	76%
East New York, BK*	163.6	100%
Williamsburg – Bushwick, BK*	145.3	99%
Northeast Bronx, BX*	143	72%

*EJ Neighborhood

SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, 2022.

PROGRAM/POLICY SPOTLIGHT

NYC COMMUNITY AIR SURVEY

LEAD AGENCY: NYC Department of Health and Mental Hygiene (DOHMH)

The New York City Community Air Survey began in 2008, becoming the largest ongoing urban air monitoring program in the United States. The program was developed to help inform the City's sustainability plans, evaluate poor air quality exposure for health research, and educate the public about relevant topics such as changes in the sources of air pollution, City efforts to improve air quality, and related health impacts across New York City neighborhoods.

Monitoring sites were originally selected at random to represent a range of environments: sidewalks, busy streets, parks, and quiet neighborhood roads. Additional sites were later included to evaluate air quality in potentially high-emissions locations such as Times Square, Port Authority Bus Terminal and the entrance to the Holland Tunnel. Starting in 2014, the program also began monitoring air quality at environmental justice sites that were defined as monitor locations in high-poverty neighborhoods that have below-average density of air quality monitors or are near important emissions sources.[236]

Across the city, concentrations of pollutants including $PM_{2.5}$, NO_x, NO, O_3 and sulfur oxides (SO_x) saw a decline between 2009 and 2021.[237] A comparison of $PM_{2.5}$ readings taken at the survey's environmental justice sites and estimates developed from data collected at routine sites showed that recorded values at the environmental justice sites were only 4 percent higher than the modeled estimates.[238] This points to the model's statistical accuracy amid calls for hyperlocal monitoring in EJ communities to better assess exposure to pollutants.[239]

While the results from a specific monitor do not provide conclusive evidence of the impact of a local pollution source, the analysis of the network as a whole alongside data on traffic, truck routes, buildings burning heating oil, restaurants, and warehouses allows DOHMH to confidently conclude what kinds of emissions sources are most important in causing poor air quality across city neighborhoods and report the results to the City Council.[240] This evidence is highlighted in data stories on the Environment and Health Data Portal that advocate for reduction in traffic, especially trucks, emissions controls in restaurants, and cleaner heating fuels.[241]

Monitoring itself does not address environmental justice concerns but can be used to inform decision-making and investments and policies that address such concerns. In this vein, NYCCAS data has helped drive targeted initiatives to improve air quality throughout the city. Most recently, neighborhood-level $PM_{2.5}$ data from NYCCAS was used in the selection of 200 schools for the mayor's "Leading the Charge" plan—a $4 billion effort to electrify New York City schools and end the use of highly polluting No. 4 heating oil at all schools, starting with communities most impacted by air pollution related health impacts.[242] This is a best-practice example of how transparent data collection by the City helps to equitably implement a plan, in this case prove air quality in communities disproportionately burdened by climate change and environmental injustice.

STATIONARY SOURCES OF POLLUTION

A stationary source of pollution refers to any facility that emits pollutants from a fixed position. When fuel oil and methane gas are burned to generate heat or produce power for New Yorkers' homes or when charbroilers create smoke from cooking food, byproducts such as NO_x, $PM_{2.5}$, SO_2, and other pollutants are emitted into the air. These local emitters are a major contributor to overall air pollution in the city. According to National Emissions Inventory (NEI) estimates from the EPA, stationary sources of pollution account for over 40 percent of annual NOx emissions in the city and over 80 percent of annual $PM_{2.5}$ emissions.[243] Residential fuel combustion is the single largest stationary source of NO_x emissions, accounting for nearly half of the nitrogen oxides from stationary sources. Likewise, commercial cooking is the largest stationary source of $PM_{2.5}$.

Individual stationary sources of pollution, such as power plants and industrial facilities, also pose environmental justice concerns despite not being the largest contributors to the city's overall air pollution. NEI data show that these large facilities overall account for around 6 percent of all $PM_{2.5}$ produced in the city and 14 percent of NO_x emissions. Power plants account for 4 percent and 5 percent of total $PM_{2.5}$ and NO_X emissions across New York City, respectively.[244]

The majority of the city's power generating stations and, as of 2021, 13 of the city's 19 "peaker" plant facilities, were located in a handful of EJ Areas. In the city, Title V facilities, sites where fuel combustion and other emissions are regulated by the federal government under Title V of the Clean Air Act, include large and small power stations, manufacturing facilities, wastewater resource recovery facilities (WRRF), and other facilities that, according to the U.S. EPA definition, have "actual or potential emissions at or above" a threshold of 100 tons of pollution per year, with lower thresholds for certain hazardous air pollutants.[245] To assess

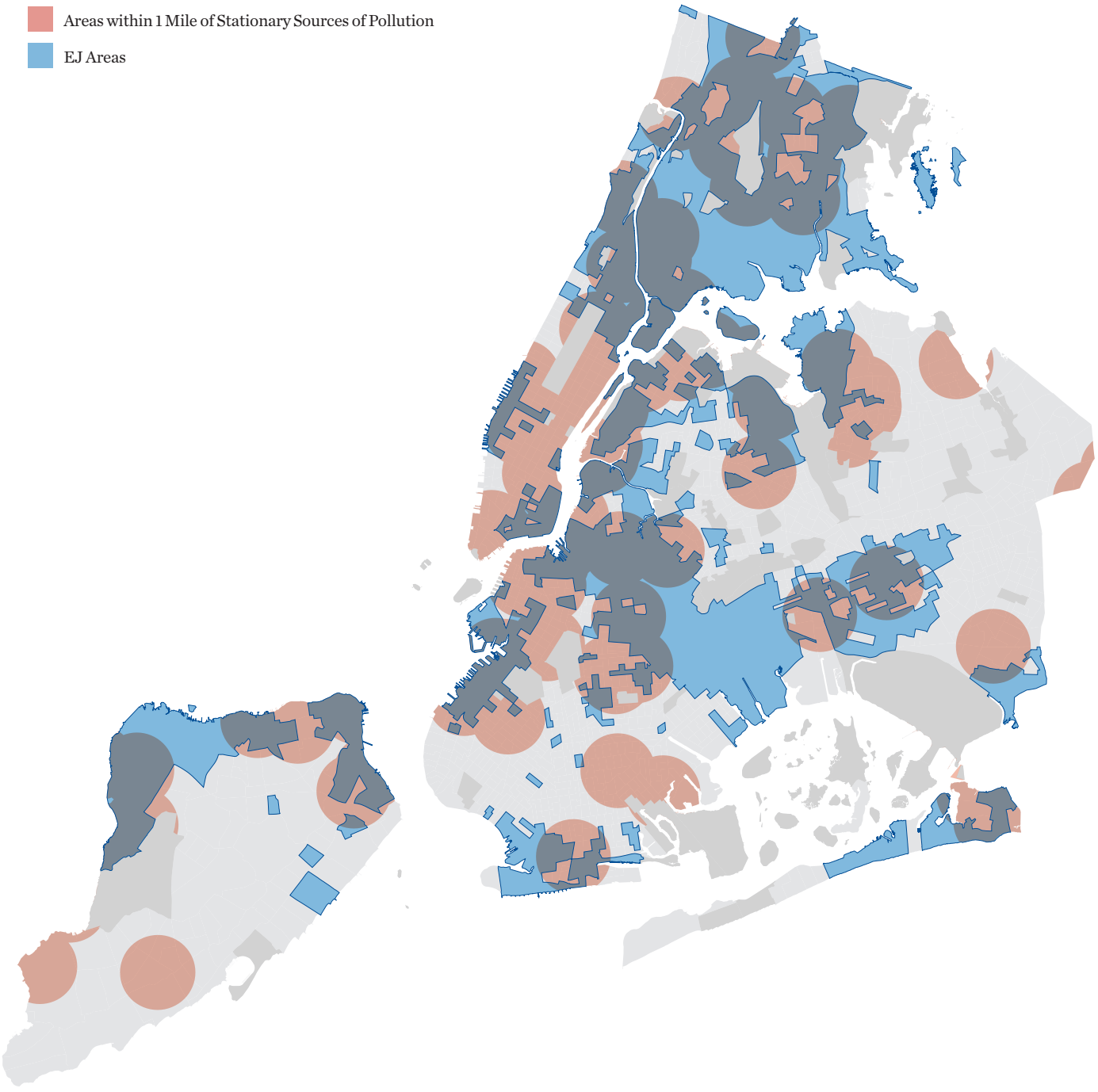
When fuel oil and methane gas are burned to generate heat or produce power for New Yorkers' homes or when charbroilers create smoke from cooking food, byproducts such as NO_x, $PM_{2.5}$, SO_2, and other pollutants are emitted into the air.

the impact of stationary sources of pollution in EJ Areas across the city, this report analyzed Title V facilities and the distribution of power plants with an output capacity greater than 1 megawatt (MW).

Polluting facilities impact New Yorkers across all five boroughs. As the following map shows, the neighborhoods with the greatest proximity to stationary polluting facilities include much of Manhattan and the Bronx, as well as much of the Brooklyn and Queens waterfronts, which historically shipped fuel and raw materials by barge. Power plants were often built along waterfronts to receive coal shipments and facilitate once-through cooling systems that expelled heat into adjacent water bodies. Across the city, these industrial waterfronts are home

Stationary Sources of Pollution

This analysis observes the areas within 1 mile of all facilities with Title V permits (2020) and power plants with greater than 1 MW operating capacity (in operation in 2021).



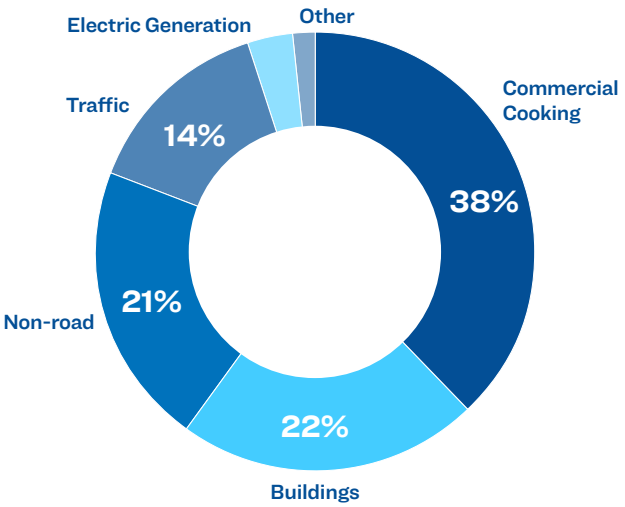
SOURCE: U.S. Energy Information Administration, Form EIA-860, 2021. NYS Department of Environmental Conservation, Title V Emissions Inventory, 2020 facilities. NYS DEC, Disadvantaged Communities Criteria, 2023

to numerous communities of color and include households with some of the lowest incomes in the city.[246] DEP operates 14 WWRFs along industrial waterfronts, 10 of which are located within an EJ Area, and all but one are located within 0.1 miles of an EJ Area. These facilities treat a combined 1.3 billion gallons of wastewater every data. DEP routinely receives reports through environmental review and other formal and informal processes of noxious odors from WWRFs. While DEP has committed to odor controls, WWRFs require continuous investment to mitigate odors disproportionately impacting EJ Areas.

However, because of the ubiquity of stationary sources of pollution across the city, there are no major demographic differences between the areas within one mile of a power plant or a Title V facility and the city overall. This is because large portions of Manhattan fall within one mile of at least one of these facilities. Notably, many of the neighborhoods with the highest rates of $PM_{2.5}$-attributable emergency department visits also fall within one mile of these facilities, including parts of Harlem, the South Bronx, and Central Brooklyn. These neighborhoods also have considerable exposure to mobile sources of pollution, as discussed in the following sub-section, and other environmental burdens that contribute to their higher rates of emergency department visits. Four neighborhoods fall entirely within one mile of at least one polluting facility: Williamsburg, Bedford Park-Fordham North, Norwood, and East Elmhurst, all of which are EJ Neighborhoods.

A noteworthy limitation of the preceding analysis is that it treats all polluting facilities analyzed as being equally polluting. However, emissions vary among facilities. A more precise accounting of the burdens created by these facilities would take into consideration the type of facility, type and quantity of pollutants emitted, height of smokestacks, exit velocity, wind direction and speed, pollution controls used, and topographic factors.[247]

Sources of $PM_{2.5}$ Pollution in New York City



SOURCE: U.S. Environmental Protection Agency, National Emissions Inventory (NEI) 2017 Report Dashboard, 2022

MOBILE SOURCES OF POLLUTION

Mobile sources of pollution refer to any emissions that result from the combustion of fossil fuels by cars, trucks, and other vehicles or equipment that release fine particulate matter and black carbon. Of particular concern is the pollution that results from heavy-duty vehicles, including diesel trucks, solid waste carting vehicles, and maritime traffic such as the New York City and Staten Island ferry fleets, responsible for a particular type of particulate matter (diesel PM) that can cause irritation of the airways, heart and lung disease, and lung cancer, and is especially dangerous for children and older adults.[248] Of similar concern are the industrial facilities that bring heavy truck traffic and other mobile sources of pollution into communities.

According to NEI estimates, mobile sources of pollution account for 59 percent of the NO_x emissions in New York City every year.[249] Mobile sources are responsible for 17 percent of the city's $PM_{2.5}$ emissions each year.[250] They are also the source of 70 percent of the city's black carbon, a particularly harmful component of $PM_{2.5}$.[251] Heavy-duty diesel vehicles are the greatest source of mobile NO_x emissions, amounting to 22 tons of

PROGRAM/POLICY SPOTLIGHT

NYC CLEAN TRUCKS PROGRAM

LEAD AGENCY: NYC Department of Transportation (DOT)

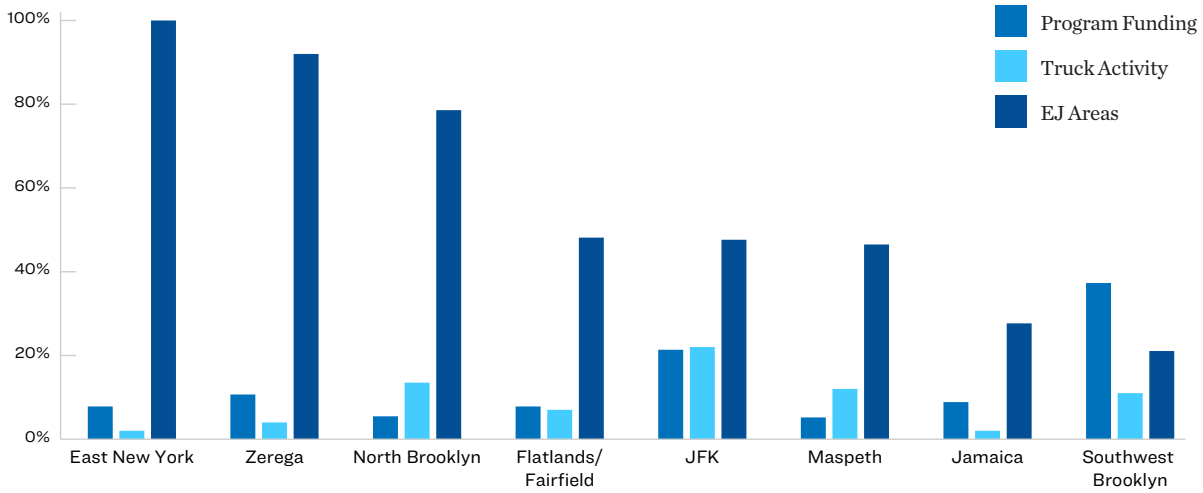
The Clean Trucks Program began in 2012 as a voluntary pilot initiative to replace, retrofit, and scrap polluting, heavy-duty diesel trucks within the Hunts Point and Port Morris business communities of the South Bronx. Beginning in 2020, the program expanded to other areas in the outer boroughs. The program makes available incentive funding of between $12,000 and $185,000 per truck for participating diesel truck owners to turn in older vehicles and purchase new, low-to-zero-emission vehicles.[252] By December 2022, the program had funded $20.6 million worth of truck replacements, with an additional $1.2 million in the approval pipeline.[253]

The program prioritizes zero-emission battery electric replacement trucks, while also offering incentives for the deployment of non-electric alternative fuel trucks and EPA-emission-compliant diesel trucks. Since the program's inception, 134 businesses have been funded and a total of about 680 trucks have been replaced, retrofitted, or scrapped.[254] Of the replacement trucks, 74 percent had new, lower-emission diesel engines, 14 percent had compressed natural gas (CNG) engines, 11 percent were hybrid electric vehicles, and 1 percent were battery electric vehicles.[255] As a result, $PM_{2.5}$ and NOx emissions from participating businesses have decreased by 97 percent and 89 percent over this period, respectively.[256] The Clean Trucks Program represents a small positive step towards addressing the larger issue of truck traffic emissions in New York City.

To be eligible for funding, qualifying trucks must operate within a half-mile of select Industrial

Distribution of Funding in Eligible Industrial Business Zones (IBZs)

(excluding Hunts Point)

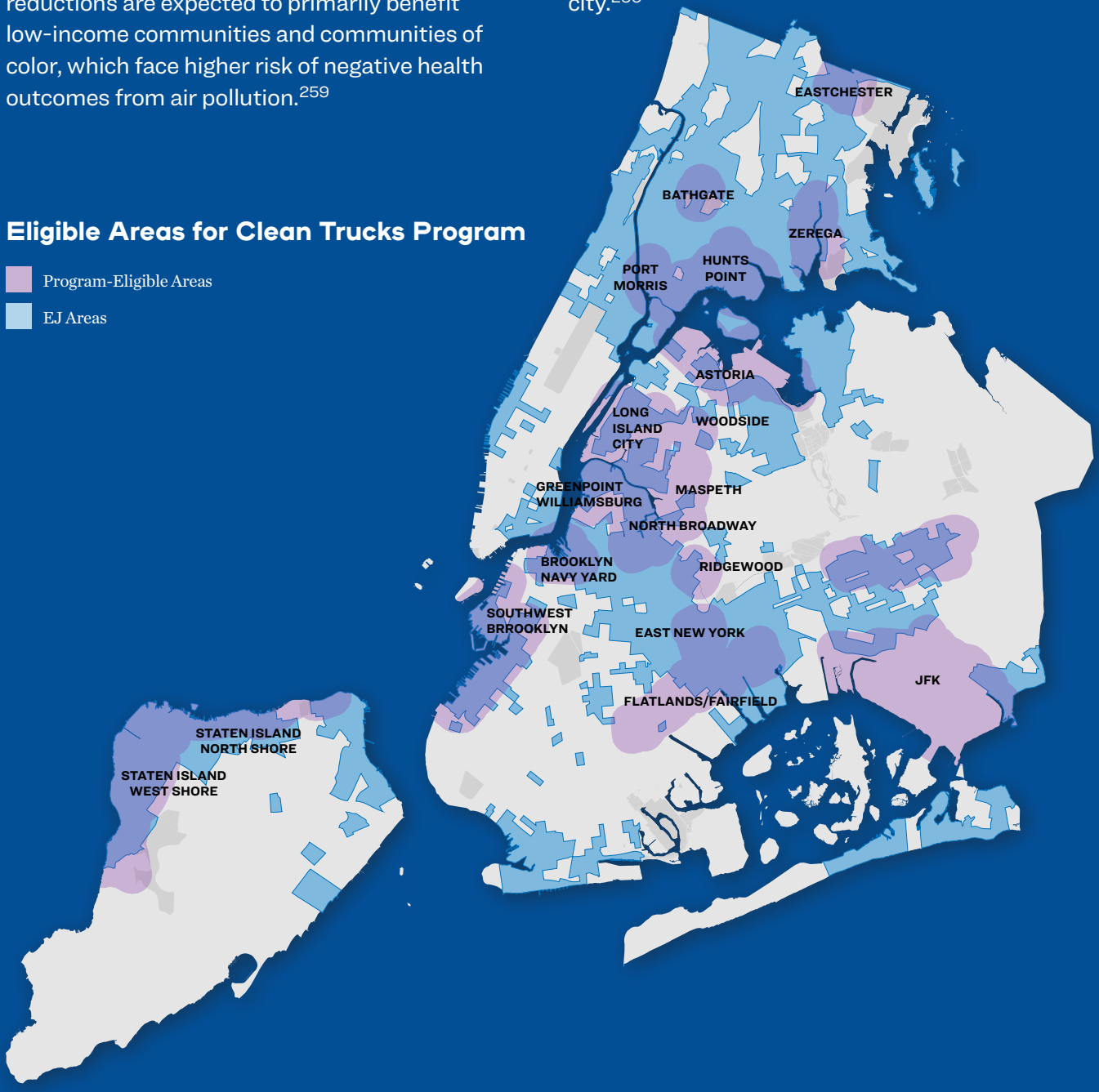


SOURCES: NYC Department of Transportation, NYC Clean Trucks Program: Draft Scorecard for January 2012 – December 2022, 2022; Delivering New York: A Smart Truck Management Plan, 2021. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023

Business Zones (IBZs) at least two times per week.[257] Despite heavy truck traffic in Midtown Manhattan and the Financial District, trucks operating primarily in these two areas are not eligible because these areas are not IBZs.[258] The eligible IBZs are all surrounded by EJ Areas; 62 percent of census tracts within the expanded program area are EJ Areas. As such, air quality improvements from the program's emissions reductions are expected to primarily benefit low-income communities and communities of color, which face higher risk of negative health outcomes from air pollution.[259]

The Clean Trucks Program has the potential to significantly reduce truck emissions and improve air quality, and exemplifies how the City aims to prioritize investments in environmental justice communities. The program could also complement other sustainable transportation plans such as the low-emission freight zones proposed in *PlaNYC*, which would allow only low- and zero-emission trucks in certain areas of the city.[260]

Eligible Areas for Clean Trucks Program



SOURCE: NYC Department of Transportation, Clean Trucks Program Eligibility Requirements. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023

NO_x per day, closely followed by light-duty vehicles, which emit around 20 tons of NO_x per day.[261] For $PM_{2.5}$, the single greatest source of mobile pollution is non-road diesel equipment, which includes construction equipment, aircraft, marine vessels, and trains.[262] These sources emit over one ton of fine particulate matter per day in the city.[263]

For example, Stuyvesant Town-Cooper Village is situated next to FDR Drive, Washington Heights is next to the George Washington Bridge, and residents of Highbridge live at the convergence of the George Washington Bridge and the Cross Bronx Expressway. Many of the areas with the greatest vehicle traffic have populations that are primarily Asian and Pacific Islander, Black, and Hispanic or Latino, and four of the neighborhoods that experience the highest traffic volumes are EJ Neighborhoods.

Note that this analysis offers only a partial picture of the ways in which EJ communities are impacted by mobile sources of pollution. A 2021 study that focused on pollution from heavy-duty trucks, a primary contributor to both $PM_{2.5}$ and NO_x emissions in the city, found that communities of color are subject to as much as 15 percent more $PM_{2.5}$ pollution from diesel trucks than communities that are mostly white.[264] These higher emission levels put EJ communities at greater risk of contracting respiratory illnesses and heart disease. Furthermore, communities along the city's industrial waterfront are exposed to an additional 19 tons of daily NO_x emissions from marine vessels like container ships and cruise ships.[265]

Transportation infrastructure, such as airports, bus depots, and last-mile warehouses, expose nearby communities to mobile sources of pollution. In East Elmhurst, Queens, for example, LaGuardia Airport exposes neighboring residents, who are predominantly Black and Hispanic or Latino, to emissions from aircraft and service vehicles. In recent years, last-mile warehouses have proliferated in the city, due in large part to the rapid growth of the e-commerce industry. Last-mile warehouses are used to store goods to be delivered quickly to end consumers, unlike traditional warehouses,

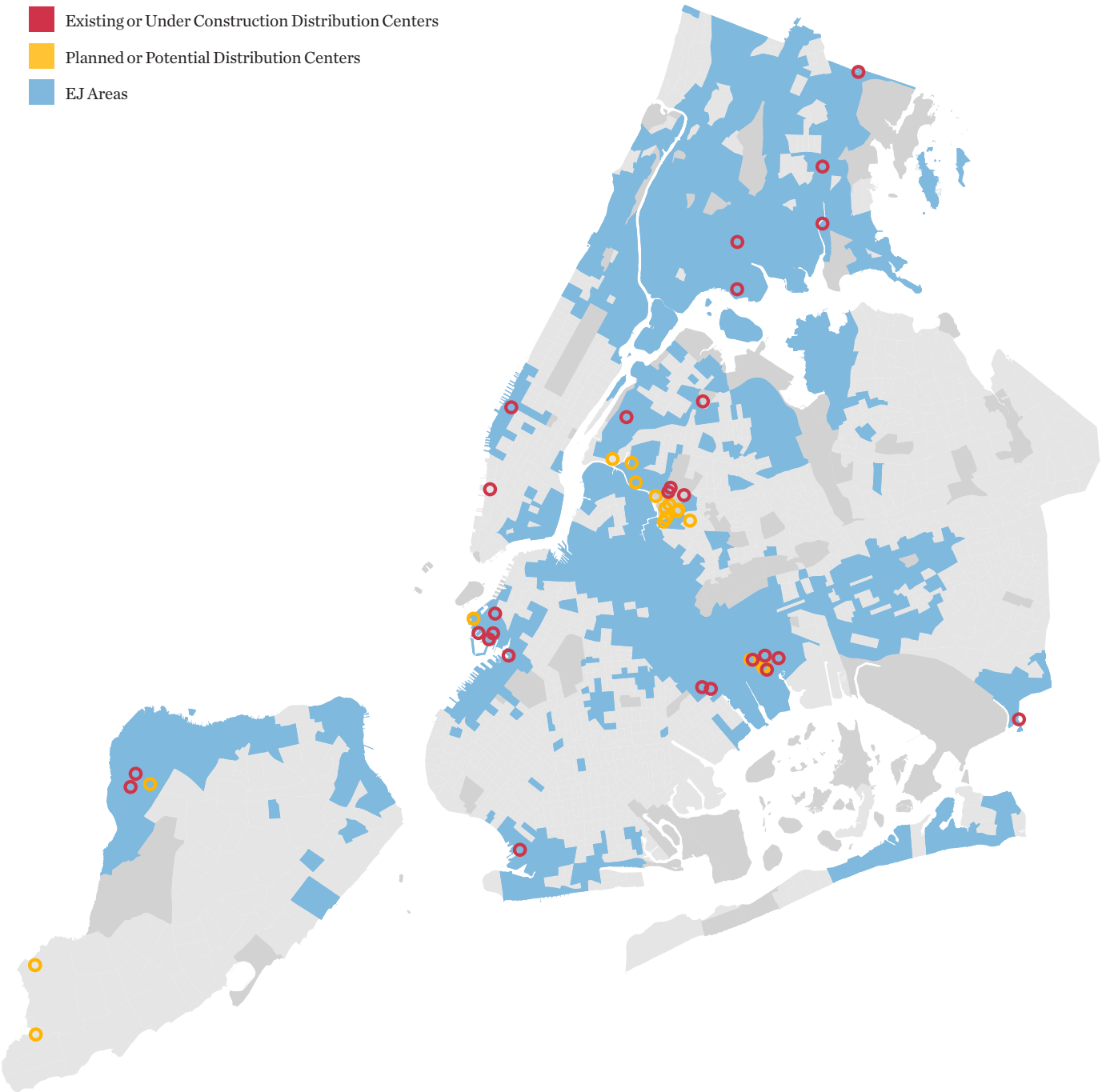
Top 10 Neighborhoods with the Highest Traffic Volume

NEIGHBORHOOD (NTA)	ANNUAL AVERAGE DAILY TRAFFIC VOLUME WEIGHTED BY POPULATION, HEAVY DUTY VEHICLES	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Stuyvesant Town-Cooper Village, MN	28,316	0%
Washington Heights South, MN*	27,918	100%
Highbridge, BX*	27,334	100%
Yorkville, MN	26,837	10%
East Elmhurst, QN*	22,561	100%
Jamaica Estates-Holliswood, QN	22,492	0%
Hamilton Heights, MN*	21,695	100%
Queensboro Hill, QN	21,421	0%
Upper West Side, MN	21,118	8%
Kew Gardens, QN	20,298	0%

*EJ Neighborhood.
SOURCE: NYS Department of Transportation, AADT Annual Volume of Vehicle Travel, 2019.

Distribution Centers

This map shows existing and planned or potential last-mile facilities in New York City. This is not an exhaustive map of all last-mile facilities in NYC.



SOURCE: City of New York, Distribution Centers, 2022. MWPVL International Inc., Amazon Global Supply Chain and Fulfillment Center Network, 2022. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

where goods are typically stored for longer periods of time. Last-mile facilities are therefore generally characterized by large inventory spaces, proximity to urban centers, and frequent truck traffic. In view of the proliferation of these facilities, the Last-Mile Coalition, a coalition of EJ and public health advocates, came together to raise awareness of the impact of last-mile facilities and the associated truck traffic on local air quality.[266] While a comprehensive list of all last-mile facilities does not currently exist, the following map shows the distribution of existing and planned or potential last-mile warehouses in New York City identified for this report using available City and industry data. Of the existing and planned last-mile distribution centers, 68 percent are located within an EJ Area and all but six are located within a quarter-mile of an EJ Area. Many of these facilities are clustered around Red Hook, East New York, and Newtown Creek. It should be noted that impacts to local outdoor air quality can vary significantly by facility.

SOLID WASTE FACILITIES

Solid waste facilities are places where solid waste collected from across the city is delivered, separated, processed, and/or exported to recycling facilities, landfills and incinerators. Solid waste management in New York City is split along municipal and commercial lines, with the Department of Sanitation (DSNY) responsible for collection and management of waste generated by residents, institutions (including schools), and City agencies, while private carters provide waste management services to commercial entities, including the construction sector.[267] Upon collection, non-recyclable waste is processed at transfer stations predominantly located in the outer boroughs and shipped on long-haul trucks, rail freight, and barges to out-of-city landfills or waste-to-energy facilities.[268, 269, 270] Solid waste facilities bring increased heavy-duty truck traffic to surrounding neighborhoods, which contributes to nitrogen oxide and particulate matter pollution.

Top 10 Neighborhoods with the Highest Waste Transfer Throughput

NEIGHBORHOOD (NTA)	TOTAL AVERAGE DAILY THROUGHPUT (TONS/DAY)[VI]	NUMBER OF WASTE TRANSFER STATIONS	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
East Williamsburg, BK*	4,854	10	67%
Mott Haven-Port Morris, BX*	3,344	2	99%
Sunset Park West, BK*	2,071	2	100%
Hunts Point, BX*	1,777	7	100%
Jamaica, QN*	1,345	5	100%
Hunters Point-Sunnyside-West Maspeth, QN	976	2	47%
Bensonhurst East, BK	852	1	17%
New Springville-Bloomfield-Travis, SI	762	1	13%
East Flatbush-Farragut, BK	693	1	6%
East New York, BK*	692	2	100%

*EJ Neighborhood

SOURCE: NYC Department of Sanitation, Annual Report on the Implementation of New York City's Waste Equity Law, 2022.

vi Includes solid waste and construction and demolition debris

Over 75 percent of the city's solid waste stream is processed in a handful of low-income communities of color in North Brooklyn, the South Bronx, Sunset Park, and Southeast Queens.

Additionally, dust and off-gassing from the waste itself pollutes the air and produces unpleasant odors, although this accounts for only a small fraction of air emissions across the city, according to NEI estimates.[271]

The siting of solid waste facilities has long been a focal point of public advocacy and mobilization. Shifts in the City's waste management strategy through the 1980s and 1990s resulted in an increased reliance on private waste transfer stations that receive waste for transport to disposal facilities outside of the city. Multiple reports have shown that these stations are disproportionately located within EJ communities compared to non-EJ communities; over 75 percent of the city's solid waste stream is processed in a handful of low-income communities of color in North Brooklyn, the South Bronx, Sunset Park, and Southeast Queens.[272, 273, 274] Over the last two decades, the City has taken steps to address these disparities. To learn more about DSNY's waste equity efforts including the 2006 Solid Waste Management Plan (SWMP), see page 36.

This report's analysis sums the average daily throughput of municipal solid waste (MSW) and construction and demolition debris (C&D) for transfer stations in the 13 communities targeted by Local Law 152 of 2018 (known as the "Waste Equity Law"), which required DSNY to reduce the capacity of transfer stations in community districts identified as unduly burdened by the city's waste infrastructure. The five additional high-capacity residential MSW transfer stations operated by DSNY outside of the target community districts were also included in the analysis.

This analysis shows that the city's solid waste is predominantly processed in EJ Neighborhoods. There is a greater proportion of Black, Hispanic or Latino, and Asian and Pacific Islander residents in these neighborhoods than the citywide average and a smaller proportion of white residents. The five neighborhoods with the greatest average daily throughput of solid waste are East Williamsburg, Mott Haven-Port Morris, Sunset Park, Hunts Point, and Jamaica, amounting to higher levels of heavy-duty sanitation vehicle traffic in these communities. Many of the neighborhoods with the greatest average daily solid waste throughput have the highest rates of pollution-attributable emergency department visits, namely Mott Haven-Port Morris and Hunts Point in the Bronx, East New York and East Williamsburg in Brooklyn, and Port Richmond on Staten Island's North Shore, where rates of hospital emergency department visits attributable to O_3 and $PM_{2.5}$ for adults and children can be as high as three times the citywide average.

INDOOR AIR QUALITY

The quality of the air in homes, schools, and workplaces also affects human health. Indoor air quality has myriad contributing factors. The use of fossil-fuel burning equipment and appliances, such as stoves, results in high concentrations of nitrogen dioxide, particulate matter, and other pollutants in the home and has been linked to increased risk of asthma in children.[275] While fossil fuel-burning

GreenFeen OrganiX

COMMUNITY CASE STUDY

MICROHAULERS: GREENFEEN ORGANIX

LOCATION: Multiple

Microhaulers are small organic waste haulers who collect food scraps using bicycles or clean air vehicles. While traditional waste haulers typically use diesel trucks, which are among the most intensive mobile sources of air pollution, microhaulers help keep the air clean while they connect New Yorkers to composting. Under the City's Commercial Waste Zones law, microhaulers under a certain size are exempt from commercial waste zone limitations because they do not produce air pollution, allowing them to expand their service areas without restrictions.[276]

GreenFeen OrganiX (GFO) is a woman-led, worker-owned cooperative compost service that provides microhauling and compost processing services in the Bronx and Upper Manhattan.[277] GFO serves the Northwest Bronx, Upper Manhattan, and Harlem, which include several neighborhoods home to low-income Black and Hispanic or Latino communities.[278] Many of these neighborhoods have above-average traffic density, which leads to elevated levels of mobile source air pollution.[279] Microhaulers play an especially vital role in improving air quality in environmental justice communities. GFO alleviates air pollution by replacing diesel-powered waste hauling, reducing pests attracted to organic waste placed out on the street for collection, providing green jobs, and educating community members about environmental and waste justice.[280] GreenFeen OrganiX helps us imagine a future for New York City's waste system centered on clean, safe hauling methods; green jobs; and sustainable waste processing methods such as composting.

equipment and appliances are prevalent in both EJ and non-EJ Areas throughout New York City, this is expected to change over time as local laws regulating building emissions and other policies take effect and wealthier buildings and households have greater resources to convert gas appliances to electric.[281]

Other contributors to poor indoor air quality include inadequate ventilation, which is more prevalent in the housing of low-income New Yorkers, inadequate housing maintenance, which can lead to home health hazards like pest infestation and mold growth, secondhand smoke, and dust from unsafe renovation or repair work, all of which are potential asthma triggers. In addition to asthma, poor indoor air quality is associated with other negative health impacts like eye, nose, and throat irritation, headaches, dizziness, fatigue, cancer, heart disease, and other respiratory diseases.[282] Poor ventilation, particularly, discussed at greater length in *Access to Safe and Healthy Housing* (p. 108), is common in low-income housing and can lead to a buildup of pollutants, as well as heat.[283]

Indoor air quality data collection is inherently challenging, as it requires access to residents' homes. It is impossible to measure the impact that indoor air pollutants have on New Yorkers' health without such data. This report's analysis of indoor air quality is constrained by these data limitations. Existing data sources, including indoor air quality complaints and/or repair data at NYCHA campuses, do not directly measure air quality, but could help identify where there are concerns about the issue. To address this data gap, local community organizations such as We Act for Environmental Justice (WE ACT) have conducted community monitoring programs, finding that appliances such as gas stoves contribute significantly to indoor NO_2 and carbon monoxide levels in NYCHA homes.[284] However, these issues are not limited to NYCHA homes, and much more data is needed to gain a more complete understanding of the impacts that indoor air quality has on New Yorkers.

COMMUNITY CASE STUDY

OUT OF GAS, IN WITH JUSTICE: WE ACT

LOCATION: Manhattan

Through the Out of Gas, In with Justice pilot project, the community-based organization WE ACT is investigating the impacts of transitioning from gas to induction cooking in affordable housing. In partnership with Columbia University's Mailman School of Public Health and Berkeley Air Monitoring, the pilot provided induction stoves to 10 households in NYCHA housing and measured subsequent effects on air quality. The study also compared those apartments' air quality readings with those in other apartments that did not receive stoves and assessed participants' reactions to induction stoves, as well as potential challenges relating to energy load in NYCHA buildings to understand how to implement these upgrades at a larger scale.[285]

The study found that over a 10-month monitoring period, households with induction stoves experienced a 35 percent reduction in daily NO_2 concentrations compared to those using gas stoves, when controlling for temperature and apartment-level factors.[286] None of the households that received an induction stove requested their gas stove back at the end of the study.[287]

Through this pilot, WE ACT hopes to illuminate the unique benefits and challenges of transitioning away from gas cooking in public housing. For example, transitioning to induction stoves reduces the likelihood of asthma in children. Citywide, 21 percent of public housing residents have asthma, compared to 11.5 percent of New York City residents that do not receive housing assistance.[288] As such, indoor air quality improvements are particularly important in public housing. The findings from the pilot study can inform efforts to help NYCHA residents access the health benefits of gas-free cooking at a larger scale.

Out of Gas, In with Justice pilot program

STAKEHOLDER INPUT

The following collection of quotes from the focus groups and interviews, conducted as part of the qualitative research for this report, speak to the myriad issues associated with air pollution.

AIR POLLUTION

"Air pollution is the original sin. We see this with highways through our communities, like in Sunset Park. We see this through the use of dirty fuels for heat, polluting the atmosphere and causing dirty air, leading to staggering rates of asthma. And we see this with the locating of power plants and sewage treatment plants."

MOBILE SOURCES OF POLLUTION

"I live between the George Washington Bridge and the Cross Bronx Expressway. There's a lot of pollution that comes from that, unfortunately. And when COVID hit me and my family, it was really bad for all of us. Especially when it came with the coughing. Because . . . we've been exposed to so much pollution, it damages our lungs. And now my family and I have asthma, which shouldn't be right. We've never had asthma and now our lungs are messed up."

"[In the outer boroughs, residents are] more reliant on car transportation due to the lack of reliable public transit. . . . As a result, there is more air pollution, smog, increased asthma, chronic respiratory issues, more noise, and less green space."

"It's incredible that we can have air quality alerts without any rapid efforts to protect air quality like restricting driving or other emitters."

"We're seeing these giant last-mile warehouses pop up in EJ communities . . . getting several truck and van trips a day, having a disproportionate impact on EJ communities around them."

SOLID WASTE FACILITIES

"North Brooklyn was the most overburdened with the most waste transfer facilities, truck traffic, and waste collection. This community has higher rates of heart disease and cancer from exposure to pollution from decades of diesel fleets."

"Waste is a problem. . . . Trucking produce from outside the city into the city, wasting a third of it and then trucking it back out of the city is a problem."

INDOOR AIR POLLUTION

"[We] need a data repository for data that relates to environmental and health conditions at NYCHA. . . . The more information we have, the more we can take action."

EXPOSURE TO HAZARDOUS MATERIALS

This section focuses on exposure to hazardous materials across three issues and indicators: hazardous waste generators and storage facilities, contaminated land, and hazardous material incidents. The findings point to opportunities for the City to improve accountability through increased data transparency and explore and develop new ways to collaborate with environmental justice communities.

Hazardous materials are any substances that are ignitable, corrosive, reactive or toxic.[289] Toxic materials refer to any substance that poses a threat to human health and the environment. They can cause cancer or other chronic human health effects, significant adverse health effects, and/or significant adverse environmental effects.[290] Exposure can occur through inhalation, ingestion, or absorption through the skin during the operation of polluting facilities or because of contact with the harmful pollutants left behind when such facilities are shut down or abandoned.

Hazardous materials have been a significant focus for the environmental justice movement. In the 1980s, environmental justice organizers across the nation mobilized in response to Black and Hispanic or Latino communities being disproportionately exposed to hazardous materials compared to white communities.[291] In the 1990s, delegates to the First National People of Color Environmental Leadership Summit identified the production and disposal of hazardous wastes and compounds in these communities as key concerns of environmental injustice.[292]

KEY FINDINGS

Hazardous waste generators and storage facilities, including large facilities and chemically-intensive small businesses such as auto shops, are predominantly located in EJ Areas. These facilities can emit hazardous materials that can pose adverse health effects to exposed populations.

In New York City and across the country, **there is no complete list of potentially contaminated sites** and **no widespread effort to characterize legacy industrial areas across the city for existing contamination**, as these investigations are typically managed on a site-specific basis. This makes it difficult to assess the true distribution of contaminated land in EJ Areas and its impact on residents.

Federal and state Superfund cleanup sites are established based on environmental and public health concerns. Brownfield cleanup projects are typically driven by the real estate market and area-wide rezonings. As a result, brownfields addressed under local and state government oversight tend to be concentrated in areas that have been rezoned and are undergoing large-scale redevelopment or are localized city-driven projects or infrastructure. **The locations of these cleanup sites therefore do not necessarily reflect the distribution of land contamination across the city. There is no public data on cleanup work done privately.**

In the 19th century, New York City's manufacturing sector grew to become one of the largest clusters of industrial activity in the United States. Raw materials that came through the city's ports drove the growth of manufacturing along the city's waterfronts.[293, 294] While sugar refining, textile production, and printing were the major industries of the era, a 1919 industrial map of New York City shows large swaths of Brooklyn, Queens, and the South Bronx producing metal products, chemicals, and paint.[295]

Many of these industries operated throughout the early- to mid-20th century, and the city remains home to many polluting facilities to this day. Technological improvements and more stringent environmental regulations have reduced some impacts of these industrial facilities, which are required to operate within strict guidelines and regulations and must regularly report on their management, storage, and emission of hazardous materials.

Attributing the presence of hazardous materials to community health outcomes and environmental burdens is a complex task that would require the measurement and modeling of multiple variables that are not readily available. Therefore, this report cannot make definitive assertions about the impact of hazardous materials on EJ communities, and instead analyzes available data that provides insight into the presence of hazardous materials in communities across New York City. This includes the locations of regulated hazardous waste generators and storage facilities, the locations of known brownfields, and the locations of occurrences of incidents involving hazardous materials like oil spills, gas leaks, and other accidents that may potentially lead to exposure to hazardous or toxic materials.

DATA ANALYSIS

HAZARDOUS WASTE GENERATORS AND STORAGE FACILITIES

Hazardous waste generators and storage facilities refer to any businesses that produce, use, or store substances that are considered hazardous. As of 2022, over 12,600 such facilities are systematically tracked and required to file reports with the New York City Department of Environmental Protection (DEP) under the 1988 Community Right-To-Know Law.[296] In addition, hazardous waste generators, storage facilities, and processors are required to register with the New York State Department of Environmental Conservation (DEC) under the Resource Conservation and Recovery Act (RCRA).[297] The types of facilities required to register under these laws include manufacturing facilities, warehouses, food production plants, repair shops, hospitals, science labs, and many more businesses.

Of these facilities, the largest point-source generators of hazardous pollution in the city are those that are required to report their emissions to the United States Environmental Protection Agency (U.S. EPA) under the Toxics Release Inventory (TRI) program.[298] These TRI facilities "manufacture, process or otherwise use" any of the 770 chemicals covered by the TRI program that are known to cause chronic and/or acute health impacts or adverse environmental effects. These facilities are subject to strict reporting requirements and must keep their emissions within acceptable limits. In 2022, just over half of the city's 35 TRI facilities were located in EJ neighborhoods, and 58 percent of TRI facilities that reported toxic chemical releases to the U.S. EPA in that year were located in EJ Neighborhoods. The table below lists the top 10 neighborhoods with TRI facilities that reported the greatest quantities of toxic chemical releases to the U.S. EPA in 2022.

Top 10 Neighborhoods with the Most Toxic Chemical Releases Reported by Toxics Release Inventory (TRI) Facilities to the U.S. EPA

NEIGHBORHOOD (NTA)[VII]	TOTAL RELEASES IN 2022 (LB)[VIII]	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Steinway, QN	88,192	44%
New Springville-Bloomfield-Travis, SI	73,853	13%
Stuyvesant Town-Cooper Village, MN	45,850	0%
Brooklyn Navy Yard, BK*	24,345	87%
Queensbridge-Ravenswood-Long Island City, QN*	20,156	100%
Far Rockaway-Bayswater, BK*	8,699	56%
Greenpoint, BK*	2,666	68%
East Williamsburg, BK*	1,930	67%
Mott Haven-Port Morris, BX*	662	99%
East New York (Pennsylvania Ave), BK*	128	100%

*EJ Neighborhood

SOURCE: U.S. Environmental Protection Agency, Toxics Release Inventory Basic Data Files, 2022

vii Excludes airports

viii Includes on and off-site releases.

COMMUNITY CASE STUDY

EL PUENTE & RADIAC

LOCATION: Williamsburg, Brooklyn

residents have long rallied for the cleanup of hazardous waste in their neighborhood. Since the late 1980s, advocates led by the community-based organization El Puente have been organizing against Radiac, a chemical waste facility in the low-income Hispanic or Latino and Hasidic Jewish neighborhood. Built in 1969, the Radiac facility has been a storage and transfer facility for chemical and low-level radioactive waste.[299]

For decades, advocates led by El Puente have worked to shutter the facility, arguing that Radiac poses a threat to their communities' health and safety because of the risk of an accident. Early on in its campaign, El Puente organized a youth advocacy group called Toxic Avengers, which went door to door raising awareness about the facility and led community mobilizations against it. In 2005, advocates lobbied the State of New York not to renew a permit Radiac needed in order to function as a storage facility. Radiac withdrew its application for the permit and transitioned from a storage facility to a medical and radioactive waste transfer station only. While many in the community viewed this as an important step forward, El Puente continued working to shutter the facility altogether, citing concerns regarding the potential risk of an accidental release of hazardous chemicals or the ignition of radioactive materials in the event of a fire or other emergency. In 2007, El Puente and the Toxic Avengers supported a bill that would have prohibited medical waste handling facilities within 1,500 feet of schools, prohibiting Radiac's operations.[300] The bill passed the legislature but was vetoed in 2010 by then-Governor David Paterson.[301] El Puente continues to fight for the closure of the Radiac facility, a fight that has galvanized community action and solidarity for decades through youth-led efforts like the Toxic Avengers.

El Puente protests Radiac

Most of the neighborhoods with the greatest quantity of toxic chemical releases reported by TRI facilities to the U.S. EPA are EJ Neighborhoods. These neighborhoods are largely located along the city's industrial waterfronts or in other heavily-industrialized areas (27 of the city's 35 TRI facilities are located within a Significant Maritime Industrial Area or Industrial Business Zone).

The concentration of TRI facilities in EJ Neighborhoods raises concerns from residents due to the uncertainty surrounding potential exposure to hazardous materials and the associated long-term health effects. DEP data on TRI releases in each community district show that the greatest single material emitted citywide is ammonia. In Queens CD-1, which includes Steinway and Queensbridge-Ravenswood-Long Island City, over 63,000 pounds of ammonia was released in 2021.[302] Other hazardous material emissions of note include hundreds of pounds of benzene, xylene, n-hexane, toluene, 1,2,4 trimethylbenzene, and benzo(g,h,i) perylene emitted in 2021 in both Queens CD-1 and Brooklyn CD-1, which includes Greenpoint and East Williamsburg. Trace amounts of lead and lead compounds were emitted into the air in Brooklyn CD-5, which includes East New York (Pennsylvania Avenue), and small amounts of other compounds such as polycyclic aromatic compounds, benzo(ghi) perylene, naphthalene, and ethylbenzene were emitted in other community districts.[303]

The hazard summary sheets for these various compounds show that some of them, such as benzene and xylene, pose reproductive and/or cancer hazards resulting from chronic exposure; however, in many cases the chronic health impacts of exposure are not fully understood.[304, 305, 306, 307, 308, 309] Importantly, residents in neighborhoods with high concentrations of industrial facilities perceive a connection between the chemical releases in their neighborhoods and the health issues they face, but it is nearly impossible to quantify the impact such releases have on communities.[310] As such, the term "slow violence" was coined to describe these kinds of environmental burdens that occur too slowly for causality and blame to be clearly ascribed.[311, 312]

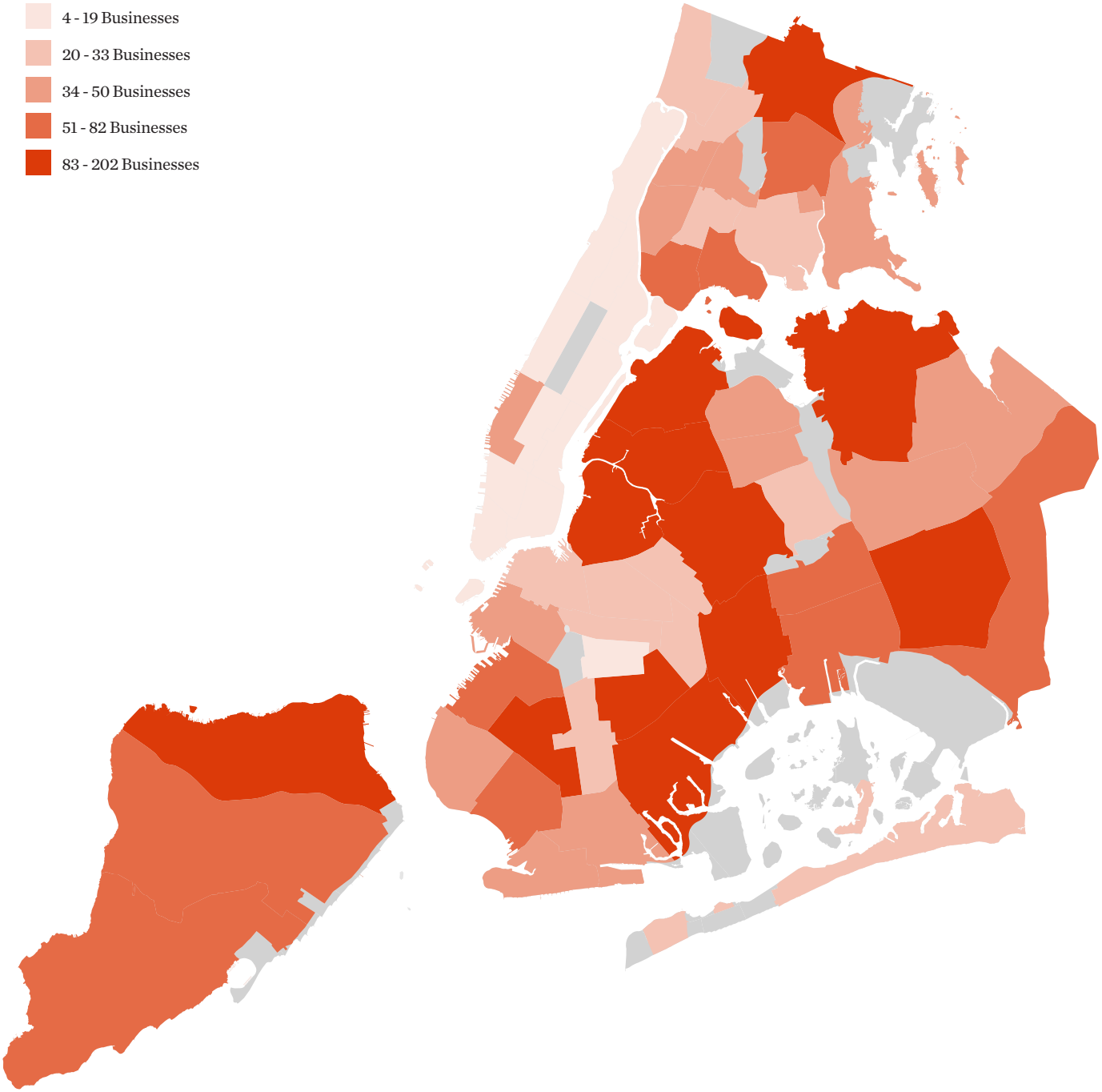
There are many other types of businesses that store, use, and handle hazardous substances and file disclosures under the Community-Right-to-Know Law. Among these are over 5,700 cellular and wireless telecommunications facilities that use lead-acid batteries for backup power systems. These batteries pose little risk of community exposure to hazardous materials through direct contact according to the DEP Hazardous Materials Management Annual Report.[313] There are also 2,070 automotive repair shops, 643 automotive body shops, and 452 dry cleaners that New Yorkers frequent regularly for their services. Many of these businesses hire locally and are important to local economies in EJ Areas. However, these facilities use hazardous chemicals such as perchloroethylene (PERC), exposure to which, through the air, water, or direct contact with skin can cause adverse health effects, such as damage to the nervous system, eyes, liver, and kidneys.[314]

New York State restricts the use of PERC in facilities that have at least one residence as of December 21, 2020. Furthermore, DEP rules require dry cleaners that use chemicals other than PERC to post a notice identifying the primary non-PERC chemical in use and information from the Material Data Sheets. These DEP regulations are important, as the U.S. EPA only recently updated its risk evaluation for PERC to consider additional pathways to exposure and concluded that it presents an unreasonable risk to workers, occupational non-users, consumers and bystanders.[315, 316, 317]

This report analyzed data provided by DEP to understand the distribution of these chemically-intensive small businesses and found that automotive businesses are distributed in a similar pattern as TRI facilities. The community districts with the greatest concentration of such facilities are comprised almost entirely of EJ Neighborhoods, many of which are in community districts that

Chemically-Intensive Small Businesses

Chemically-intensive small businesses include general automotive repair; automotive body, paint, and interior repair and maintenance; and dry cleaning services facilities.



SOURCE: NYC Department of Environmental Protection, Community Right-to-Know Program, 2022.

COMMUNITY CASE STUDY

NORTH SHORE WATERFRONT CONSERVANCY OF STATEN ISLAND

LOCATION: North Shore, Staten Island

Spanning Staten Island's North Shore, from St. George to Arlington, is one of New York City's largest industrial waterfronts and a Significant Maritime Industrial Area (SMIA). It is home to several communities of color and low-income communities who have been disproportionately exposed to the impacts of its industries. Staten Island's Community District 1 (CD 1), which includes this industrial area, is physically separated from the rest of borough by the Staten Island Expressway to its south. It is demographically distinct from the rest of the borough. Staten Island is majority white, but CD 1 is majority people of color, with substantial Hispanic or Latino and Black populations.[318]

The North Shore Waterfront Conservancy of Staten Island (NSWC) was a community-based organization founded in 2000 to promote safe and sustainable access to the waterfront.[319] NSWC advocated for the remediation of a string of industrial sites along Staten Island's North Shore, including former factories and publicly-owned facilities such as the Department of Sanitation (DSNY)'s Jersey Street Garage, now scheduled to be relocated in 2024. These facilities could pose the risk of exposure to hazardous waste such as asbestos, PCBs, and heavy metals in the event of an accidental release.[320] In addition, industrial sites can generate heavy truck traffic that introduces other hazards such as air pollution, contributing to the concentration of environmental hazards in low-income communities of color. Due to NSWC's advocacy efforts, the U.S. EPA designated the North Shore an "Environmental Justice Showcase Community" in 2009 and allocated $100,000 in funding to support projects that address the persistent environmental problems that impact waterfront neighborhoods.[321] NYC Parks has since made progress towards rehabilitating the four City-owned parks identified through NSWC's Gold Coast report: Van Pelt/Van Name Shoreline, Blissenbach Marina, Mariner's Marsh, and Arlington Marsh.[322] NSWC lives on through a new organization, Creating Livable Communities, which continues to advocate for the redress of environmental disparities for waterfront communities on and off Staten Island.

contain heavy industrial areas: in Jamaica and along the western waterfront in Queens, in East New York, East-Flatbush-Farragut, and Greenpoint and East Williamsburg near Newtown Creek in Brooklyn, along the North Shore of Staten Island, and in Eastchester in the North Bronx.

There are several limitations to this report's accounting of New Yorkers' potential exposure to hazardous or toxic materials. The preceding analysis considers the locations of currently-operating facilities that utilize hazardous materials and by extension may expose residents to them. However, all sites were considered as equal potential sources of exposure. In reality, the type and quantity of hazardous substances stored and emitted varies across facilities. Multiple additional variables would need to be measured or modeled to better understand the health and environmental burdens that these sites place on their surrounding communities. Data on workers' and residents' locations would need to be analyzed to determine any relationship between exposure to hazardous materials and adverse health outcomes, in addition to the complex task of attributing chemical exposure to health outcomes among many other individual health-related criteria.[323]

Furthermore, to provide a more comprehensive understanding of the presence of hazardous materials across the city, additional datasets, such as information about high-hazard buildings (where potentially explosive or highly combustible products or materials are stored, manufactured, and processed) could be made publicly available. Other relevant data, such as the historical locations of industrial facilities, dry cleaners, gas stations, and auto body shops have not been compiled. There are opportunities for the City to explore future data collection and mapping efforts to build community awareness of local hazards. (Some datasets, such as fuel terminal facility locations and fuel tank barge data, are not publicly available for security reasons.)

CONTAMINATED LAND

Contaminated land is any area that has been polluted by its past industrial use or by the disposal of wastes.[324] Contaminated lands can pose a variety of health and environmental hazards, such as exposing humans, plants, and animals to toxic and hazardous materials. Some contaminated sites pose little risk and others pose greater risk to human health and the environment.[325]

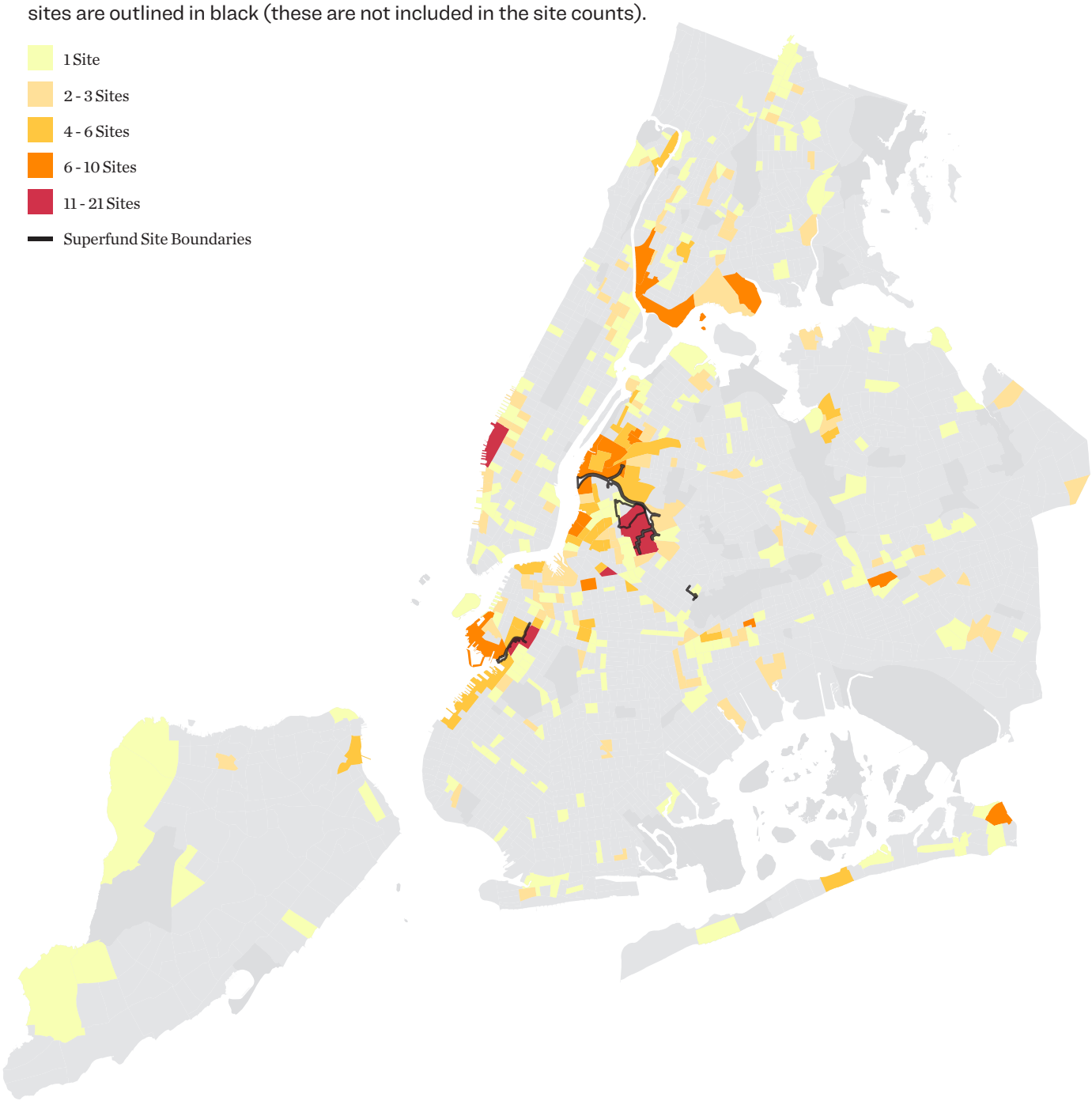
Relatedly, brownfields are properties, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.[326] There are thousands of vacant commercial and industrial sites in the city and thousands more properties designated by the City as subject to mandatory environmental study and management. In New York City and across the country, there is no complete list of potentially contaminated sites and no widespread effort to investigate legacy industrial areas across the city for existing contamination, as these investigations are typically undertaken on a site-specific basis. This makes it difficult to assess the true distribution of contaminated land in EJ Areas and its impact on residents.

However, various local, state, and federal cleanup programs have been developed to identify potentially contaminated sites and remediate them.[327] The cleanups carried out under these programs involve removing pollution or contaminants from water and soil to the benefit of the environment, human health, and the economy.

There are crucial distinctions between these programs; federal and state Superfund cleanup sites are established based on environmental and public health concerns due to the severity of contamination, whereas local and state brownfield cleanups are driven by economic development plans and the real estate market. As a result,

Environmental Remediation Sites

Sites depicted here include all active environmental remediation sites under the supervision of NYC Office of Environmental Remediation (OER) or NYS Department of Environmental Conservation (DEC) and sites on the National Priorities Lists per U.S. Environmental Protection Agency (U.S. EPA). For NYC OER sites, this includes all sites in the E-Designation program where cleanup is required as well as sites in the NYC Voluntary Cleanup Program. U.S. EPA Superfund (NPL) sites are outlined in black (these are not included in the site counts).



SOURCES: NYC Office of Environmental Remediation, OER Cleanup Sites, 2022. NYS Department of Environmental Conservation, Remediation Sites, 2022. U.S. Environmental Protection Agency, Superfund Site Boundaries.

PROGRAM/POLICY SPOTLIGHT

ENVIRONMENTAL REMEDIATION

LEAD AGENCY: Mayor's Office of Environmental Remediation (OER)

The Mayor's Office of Environmental Remediation (OER), established in 2009, manages two land cleanup programs, the E-Designation Program and the NYC Voluntary Clean-up Program (VCP). Through the E-Designation Program, OER oversees the environmental investigation, approval of cleanup plans, and remediation of rezoned property whose redevelopment may involve exposures to hazardous materials. Associated requirements of an E-Designation, but not related to hazardous materials, are concerned with air quality and noise. Projects on tax lots that are E-designated cannot receive building permits until OER approves their plans to address the environmental issues present and cannot receive a certificate of occupancy until OER determines that the remedial work has been completed. Sites with an E-designation for hazardous materials can satisfy their remedial obligations by and implementing an approved cleanup plan.

The VCP is an incentive-based cleanup program that allows landowners and developers to choose oversight and through successful completion of the program gain access to grants and liability protection for their remediation projects. Projects in the VCP are eligible for City grants for environmental investigation and clean-up of $25,000 to $50,000.[328] Additionally, projects in the VCP can receive and dispose of clean soil at the City's soil stockpile at no cost.

An analysis of VCP remediation projects across the city showed that about 92 percent of projects are on E-designated tax lots identified through rezoning applications.[329] Approximately 21,000 affordable housing units have been constructed on land remediated under OER oversight.[330] Other beneficial uses developed on VCP sites include schools, healthcare facilities, childcare services, and shelters.

OER also offers community-based organizations (CBOs) grants of up to $25,000 to conduct neighborhood planning studies and advance the redevelopment of vacant or underutilized land. In addition, OER provides real estate advisory services and pro bono environmental assistance by connecting community organizations with relevant professionals. This funding and technical support is a best practice example of CBO capacity-building that the City seeks to build on in the future.

Organizations that have received Community Brownfield Planning Grants work in the North Shore of Staten Island; Sunset Park, Greenpoint, and East Williamsburg in Brooklyn; Bradhurst in Manhattan; Jamaica in Queens; and Port Morris in the Bronx, among other neighborhoods. Notably, 90 percent of the benefiting census tracts are EJ Areas.[331] OER also supports CBO-run brownfield job training programs by writing letters in support of funding, serving on steering committees, and connecting potential employers with graduates of the programs. Furthermore, OER runs a clean soil delivery program that provides free clean soil and topsoil to school and community gardens in Brooklyn and Queens.

the latter tend to be concentrated in areas that have been rezoned and are undergoing large-scale redevelopment. This analysis is limited in that it cannot draw a direct comparison between the distribution of the city's brownfield cleanup sites and contaminated land, given the lack of comprehensive data for the latter.

In view of these data limitations, this report analyzes the distribution of local, state, and federal cleanup sites since they provide a partial indication of where contaminated land is known to exist. However, that most cleanups are undertaken by private parties without government oversight, and these are not reflected in city, state, or federal databases.

Across the five boroughs, there are hundreds of New York State and New York City cleanup sites, and four federal Superfund sites that are on the National Priorities List: the Gowanus Canal in Brooklyn, the four-mile-long Newtown Creek in Queens and Brooklyn, the former Wolff-Alport Chemical Company in Queens, and the Meeker Avenue Plume in Brooklyn.[332] There are many other remediation sites managed by federal agencies not included in this report's analysis including Superfund Alternative Approach sites, Formerly Utilized Sites Remedial Action Program (FUSRAP) sites, Cleanups at Federal Facilities sites, and more. However, the City is not aware of comprehensive list of all contaminated land managed by federal agencies.

As heavy industries departed New York City throughout the second half of the 20th century, they left behind thousands of acres of environmentally contaminated properties. These brownfields require remediation before they can be redeveloped for more sensitive land uses (such as office buildings, stores, or schools). Historically, developers, property owners, and community organizations lacked legal mechanisms for volunteering to remediate sites. Furthermore, lenders were wary of providing financial support to pursue remediation, and the companies responsible for polluting the sites often no longer existed or could not afford to pay for site cleanup.[333] Many of these areas have since undergone large, City-led rezonings and state and local brownfield cleanup programs are providing incentives to private entities to facilitate the cleanup and repurposing of these properties.[334, 335, 336]

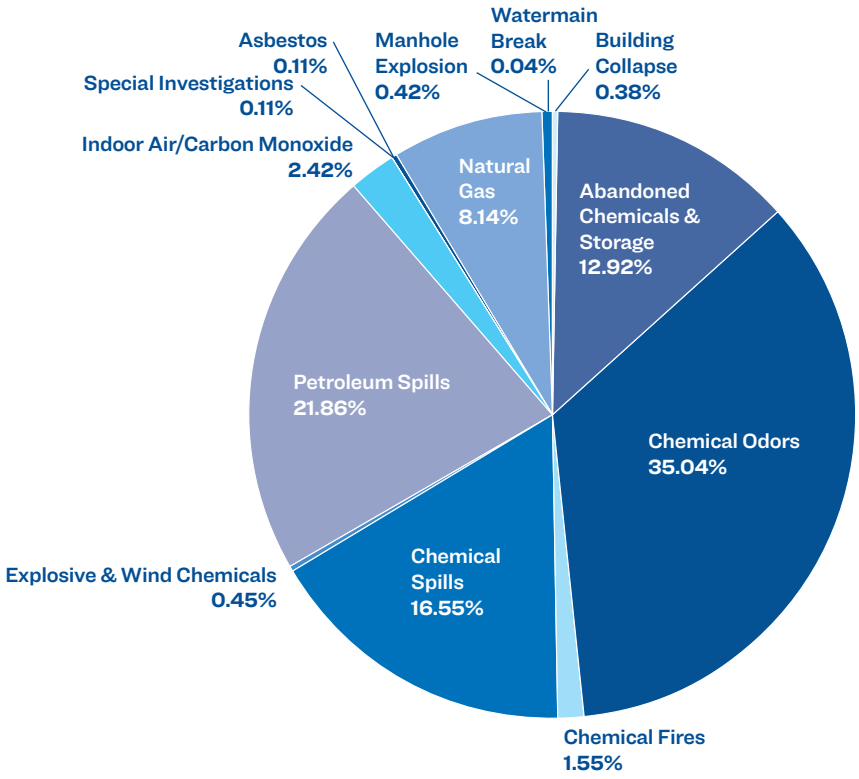
For these reasons, many neighborhoods with greater concentrations of cleanup sites lie along the city's waterfront, particularly in communities surrounding heavy industrial areas. Many of these same neighborhoods are EJ Areas. This analysis (p. 103) shows concentrations of local, state, and federal cleanup sites in areas in Manhattan such as East Harlem, Inwood, and Chelsea; in Brooklyn, such as the East River waterfront, and areas surrounding Newtown Creek and the Gowanus Canal; in Queens in Jamaica and Long Island City; and in the South Bronx. These areas were once home to heavily-polluting industries and experienced decades of disinvestment and neglect, in part due to complications resulting from legacy contamination.

HAZARDOUS MATERIAL INCIDENTS

Accidental releases are another way that workers, communities, and the environment can be exposed to hazardous materials. The DEP Bureau of Police and Security's Division of Emergency Response and Technical Assessment (DERTA) responded to 2,640 incidents in 2022. Over a third of these responses resulted from reports of chemical odors (35 percent). The next most common responses were due to petroleum spills (22 percent) and chemical spills (17 percent), followed by responses to abandoned chemicals and storage (13 percent) and methane gas leaks (8 percent).[337]

Location data is not available for all hazardous material incidents responded to by DERTA, but an analysis of complaint data provided by DEP showed that many of the neighborhoods with higher concentrations of hazardous material sites also had higher levels of hazardous material complaints in

DERTA Hazardous Materials Responses by Incident Type



SOURCE: NYC Department of Environmental Protection, Hazardous Materials Management in New York City 2022 Annual Report, 2022.

Top 10 Neighborhoods with the Most Hazardous Material Complaints

NEIGHBORHOOD (COMMUNITY DISTRICT)	TOTAL HAZARDOUS MATERIAL COMPLAINTS (2022)	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Flushing-Murray Hill-Whitestone (QN CD-1)	49	30%
Fresh Meadows-Hillcrest-Briarwood (QN CD-8)	35	8%
Astoria-Queensbridge (QN CD-1)*	26	58%
North Shore (SI CD-1)*	26	68%
Mid-Island (SI CD-2)	22	12%
Financial District-Tribeca (MN CD-1)	20	4%
East New York-Cypress Hills (BK CD-5)*	20	100%
Ridgewood-Maspeth-Middle Village (QN CD-5)	18	17%
Wakefield-Williamsbridge-Eastchester (BX CD-12)*	18	73%
Williamsburg-Greenpoint (BK CD-1)*	17	76%

*EJ Neighborhood

SOURCE: NYC Department of Environmental Protection, Community Right-to-Know Program, 2022.

2022. This is particularly true along the industrial waterfront in Queens and along the North Shore of Staten Island.

Half of the community districts where the most hazardous material complaints were recorded in 2022 are not EJ Neighborhoods, although this could be due to underreporting or other factors. Research indicates that low-income communities and communities of color may be underrepresented in some complaint data; this could be due to many factors, including that higher income levels are correlated with higher levels of civic engagement.[338] This presents an opportunity for the City to explore new outreach methods and partnerships to engage underrepresented communities.

It may be possible to utilize proxies to estimate where hazardous material incidents are more likely to occur. These proxies could include the location of underground storage tanks (which are usually associated with gas stations), major oil storage facilities, petroleum bulk storage facilities, and chemical bulk storage facilities. However, analyzing these indicators would entail the same limitations discussed in the section on *Hazardous Waste Generators and Storage Facilities* (p. 97). All facilities are subject to regulations intended to prevent accidental releases, and data regarding the risks or likelihood of an accidental release occurring at any site is not available.

While some datasets on hazardous material incidents do exist, such as DEC's Spill Incidents Database, this does not account for all types of hazardous material incidents that might occur.[339] Furthermore, even when data regarding the location of hazardous material incidents is available, it is difficult to attribute such incidents to the levels of exposure to residents, workers, or the environment, and adverse health or environmental impacts that might result from such exposure.

STAKEHOLDER INPUT

The following quotes from the focus groups and interviews, conducted as part of the qualitative research for this report, speak to the myriad issues associated with hazardous materials.

HAZARDOUS WASTE GENERATORS AND STORAGE FACILITIES

"I live . . . by a lot of factories. The new Gateway Houses were built on toxic waste, literally toxic waste. There's so many factories around that area in Starrett City. When you go over there, sometimes it smells like sewer . . . and it smells so bad. I live in NYCHA and statistics show that people who live in NYCHA have problems with mold and it builds to asthma. I was born with asthma."

CONTAMINATED LAND

"There are 24 contaminated sites along the Staten Island waterfront, with uranium, arsenic, and other chemicals left behind from companies. They just left the chemicals behind and none of it has been mitigated."

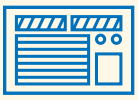
ACCESS TO SAFE AND HEALTHY HOUSING

This section focuses on access to safe and healthy housing across six issues and indicators: housing affordability, health-related housing maintenance issues, public housing, utility access and affordability, lead in housing plumbing, and noise. Given the unique housing quality challenges and enforcement mechanisms for residents of New York City Housing Authority (NYCHA) buildings, public housing is discussed discretely. The findings point to opportunities for the City to invest in environmental justice communities. To learn more about what the City is doing to increase access to housing, refer to *Recent Housing Initiatives to Address Affordability and Fair Housing* (p. 111).

A healthy home is fundamental to wellbeing, and disparities exist in housing quality indicators between EJ Areas and non-EJ Areas. Housing-related EJ issues must be contextualized within the affordability crisis, which is making it harder for New York City residents to find safe and affordable places to live. Generations of racist housing policies and lending practices impacted access to homeownership, affordable rental opportunities, and intergenerational wealth.[340, 341] As discussed in *Access to Resources* (p. 52), redlining and other historic policies and practices contributed to there being more housing for low-income households and people of color in areas with more environmental burdens. As such, outdoor air quality issues often translate into indoor air quality issues in the home.[342] Given the association between environmental burdens and older, poorly maintained housing, environmental improvements, and remediation are sometimes met with community concerns about "environmental gentrification."[343]

KEY FINDINGS

Neighborhoods reporting the **most housing maintenance deficiencies and lead paint violations tracked by HPD are disproportionately located in historically redlined, EJ Neighborhoods** in the Bronx, Central Brooklyn, and Upper Manhattan compared to non-EJ Neighborhoods.



Neighborhoods with the lowest rates of air conditioning at home are predominantly EJ Neighborhoods with high heat vulnerability.

Energy-efficient new construction and energy retrofits have significant potential to reduce energy burden for residents and improve housing quality and associated health outcomes.

9 out of 10 neighborhoods with the highest incidents of three or more maintenance deficiencies in renter households are EJ Neighborhoods.

Although most 311 noise complaints originate in Manhattan and North Brooklyn, frequent disruptive noise disproportionately impacts those living in poverty and is **most concentrated in Manhattan, South and Central Bronx, and Sunset Park and East New York in Brooklyn.**

While New York City's drinking water sources are lead-free, there are approximately 130,000 privately-owned lead service lines that connect water mains to customer buildings in the city. **The top 10 neighborhoods with the greatest proportion of potential lead service lines** (of the total number of service lines in each area) **are in Eastern Queens and the Bronx, and six of the top 10 neighborhoods are EJ Neighborhoods.**

A lack of available affordable housing options may lead to occupation of substandard and informal housing units, which present health and climate risks. Informal housing units are by definition not compliant with New York City's housing code and therefore present housing quality issues and risks. Informal basement apartments in particular face risks in the form of flooding, carbon monoxide poisoning, insufficient light and ventilation, and inadequate egress in the event of a fire.[344, 345]

Limited access to affordable housing can also lead to an increase in the population experiencing homelessness, as well as an increase in overcrowding in housing units. Overcrowding was an accelerant for the spread of COVID-19, leading to a higher rate of cases in neighborhoods with severe overcrowding.[346] Overcrowding may also increase mental stress in the form of psychological distress, drug and alcohol abuse, feeling depressed, and feeling unhappy about one's health.[347]

Many health-related housing maintenance issues are often associated with older and less energy-efficient buildings, while modern, energy-efficient buildings with mechanical ventilation tend to

offer better indoor air quality, including lower indoor concentrations of particulate matter, carbon dioxide, and volatile organic compounds, lower fluctuations in temperature and humidity year-round, and lower risk of allergic symptoms in children.[348] Energy-efficiency retrofits can improve ventilation and incorporate building envelope upgrades that reduce noise (in addition to their thermal insulative qualities). Energy-efficient buildings also have lower utility bills when compared to poorly insulated and ventilated buildings.[349] As multi-family buildings undergo these upgrades, it is important that tenants are protected from cost-shifting that leads to rent increases that further displacing low- and middle-income residents.

It is also important to design and retrofit housing with consideration of the needs of residents with disabilities. Residents with disabilities, particularly those with mobility impairments, may have limited options in finding affordable housing that is accessible to their needs. Housing designed for accessibility allows differently abled residents to stay in their units longer and reduces the chance of in-home injury.[350]

Neither the city's drinking water nor distribution pipes contain lead. However, some privately-owned water pipes connecting buildings to city distribution pipes and within private buildings still contain lead. Exposure to lead from these sources varies across New York City neighborhoods.

New York City's drinking water supply comes from portions of the Hudson Valley and Catskill Mountains through a system of reservoirs and controlled lakes as far as 125 miles north of the city. New York City operates the largest unfiltered water system in the nation. The Department of Environmental Protection (DEP) manages efforts to protect the city's source waters upstate

RECENT HOUSING INITIATIVES TO ADDRESS AFFORDABILITY AND FAIR HOUSING

In 2023, Mayor Adams announced a suite of housing policy proposals under the umbrella *City of Yes for Housing Opportunity* to address the affordable housing crisis. With a goal of creating an additional 100,000 homes over 15 years, *City of Yes* includes measures to increase the overall supply of housing units citywide. These measures include eliminating parking mandates for new housing and bans on apartment buildings in certain areas, creating more affordable and supportive housing, enabling conversions of empty office buildings into housing units, allowing the construction of accessory dwelling units, and more. If adopted, *City of Yes* intends to ease the affordability crisis by providing more homes for New York City residents.

In 2020, the City released *Where We Live NYC*, the City's first comprehensive fair housing plan, to confront segregation and take action to advance opportunity for all New Yorkers. Based on the findings from data analysis and extensive engagement with housing insecure New Yorkers, *Where We Live NYC* advances policies and programs to combat housing discrimination against protected classes, provide down payment assistance for low-income homebuyers, fund home repairs for low- and moderate-income homeowners, provide more resources for tenants experiencing harassment and displacement, create the New York City Public Housing Preservation Trust to fund repairs for NYCHA apartments, and much more.

Taken together, these two major housing initiatives can ease the affordability crisis and help all residents find and maintain safe and healthy homes.

and make the system more sustainable and resilient in the face of climate change. Since 1997, an annual average of $100 million was spent to support DEP's watershed protection efforts.[351]

Environmental issues in the home need to be addressed with the same rigor as issues outside the home to ensure that New York City residents have a safe, healthy, and affordable place to call home. As climate change continues to threaten homes through increased temperatures and flood events, it is crucial to make resiliency and sustainability upgrades in new and existing buildings. The climate change risks that affect housing are discussed further in *Exposure to Climate Change* (p. 142).

DATA ANALYSIS

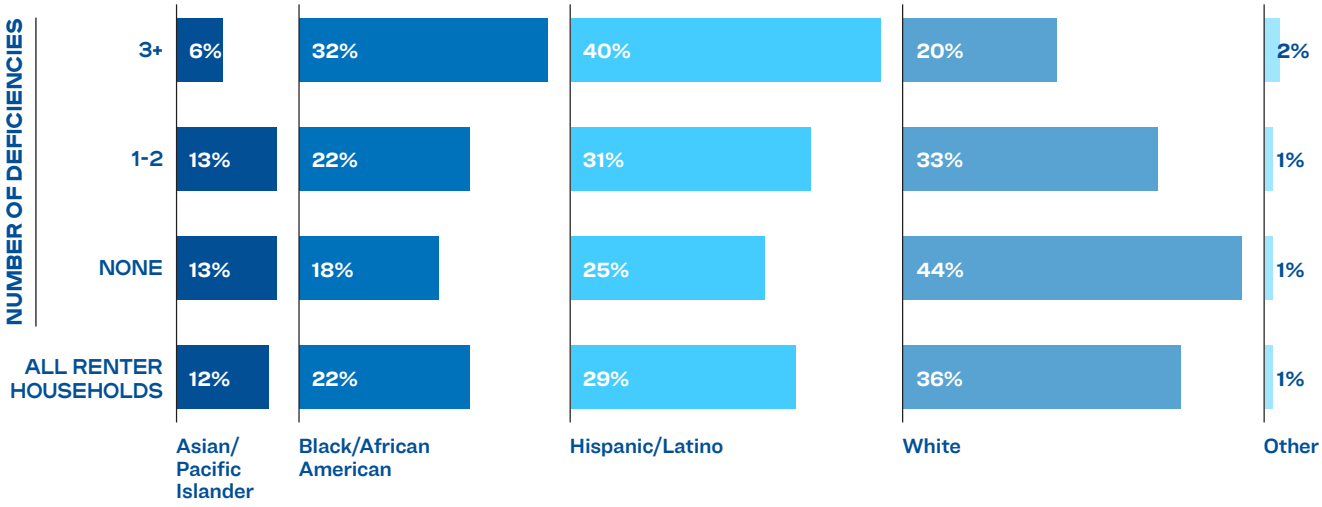
HOUSING AFFORDABILITY

The housing affordability crisis does not equally impact demographic groups in New York City. According to *Where We Live NYC*, the City's fair housing plan, Hispanic or Latino New Yorkers have the lowest rates of homeownership (17 percent), followed by Black New Yorkers (28 percent), compared to the city's overall homeownership rate of 32 percent.[352] Rent burden, calculated as households spending more than 30 percent of their income on housing, affects Asian and Pacific Islander populations the most in New York City (50 percent), followed by Hispanic or Latino renters (44 percent), white renters (41 percent) and Black renters (37 percent).[353] There is a comparatively low rate of rent burden for Black households, who comprise forty-five percent of public housing residents. Households living in public housing or utilizing housing vouchers benefit from public subsidies that limit rent burden. Immigrant renters are disproportionately rent burdened (50 percent) compared to non-immigrant renters (41 percent).[354]

A lack of sufficient affordable housing also creates conditions that lead to homelessness. In fiscal year 2023, the average daily population of homeless individuals in New York City Department of Homeless Services shelters was approximately 60,000, including 20,000 children.[355] Approximately 97 percent of the overall population of homeless individuals were people of color.[356]

Reported Maintenance Deficiencies in NYC Renter Households

This chart displays the number of reported maintenance deficiencies by race of householder from the 2017 New York City Housing and Vacancy Survey (HVS). Maintenance deficiencies include additional heating required in winter; heating breakdown; cracks or holes in interior walls, ceilings, or floors; presence of rodents; presence of broken plaster or peeling paint; toilet breakdown; and water leakage into unit.



SOURCE: NYC Department of Housing Preservation and Development, NYC Housing and Vacancy Survey, 2017.

HEALTH-RELATED HOUSING MAINTENANCE ISSUES

Homes with multiple maintenance issues such as mold, peeling paint, and inadequate heating during winter months can negatively impact health. These types of conditions are more likely to occur in high-poverty neighborhoods, and disproportionately impact Black and Hispanic or Latino families that rent their homes.[357]

Asthma is a primary health issue that may be caused or exacerbated by maintenance issues in the home and is often compounded by poor outdoor air quality. Data from the 2017 Housing Vacancy Survey indicates that Black and Hispanic or Latino households were overrepresented among renter households reporting three or more maintenance deficiencies in the home. Thirty-two percent of households reporting three or more deficiencies were Black, and 40 percent were Hispanic or Latino, even though those populations comprise only 22 percent and 29 percent of the citywide renter population, respectively. The Department of Health and Mental Hygiene (DOHMH) found that even when controlling for income, Black and Hispanic or Latino people are still more likely to live in buildings with serious maintenance issues, further suggesting that systemic racism is behind these disparities.[358]

Geographically, the neighborhoods with the highest incidence of renter households reporting three or more maintenance deficiencies are in the Bronx, Central Brooklyn, and Upper Manhattan. Each of the top 10 neighborhoods is an EJ Neighborhood, except Riverdale-Kingsbridge, where 49 percent of census tracts are designated as EJ Areas. One data limitation is that housing maintenance issues may go unreported, especially when there are language barriers, undocumented residents, or fears of landlord retaliation.

Top 10 Neighborhoods with the Highest Incidence of Three or More Reported Maintenance Deficiences in Renter Households

NEIGHBORHOOD (SUB-BOROUGH AREA)	PERCENT OF RENTER HOUSEHOLDS REPORTING ≥3 MAINTENANCE DEFICIENCIES	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
University Heights-Fordham, BX*	32%	100%
Brownsville-Ocean Hill, BK*	29%	100%
Kingsbridge Heights-Mosholu, BX*	29%	98%
North Crown Heights-Prospect Heights, BK*	25%	69%
Riverdale-Kingsbridge, BX	24%	49%
Mott Haven-Hunts Point, BX*	24%	100%
Bedford-Stuyvesant, BK*	23%	92%
Morningside Heights-Hamilton Heights, MN*	22%	89%
Highbridge-South Concourse, BX*	22%	100%
Morrisania-Belmont, BX*	21%	98%

*EJ Neighborhood

SOURCE: NYC Department of Housing Preservation and Development, NYC Housing and Vacancy Survey, 2017.

PROGRAM/POLICY SPOTLIGHT

ALTERNATIVE ENFORCEMENT PROGRAM (AEP)

LEAD AGENCY: NYC Department of Housing Preservation and Development (HPD)

The Alternative Enforcement Program (AEP) is a compliance enforcement program for apartment buildings with many housing maintenance code violations. The program aims to improve housing conditions by performing frequent inspections to monitor reported violations, issue Orders to Correct if the owner fails to act and make repairs and replace building systems where necessary. Buildings not discharged within the first four months of initial notice from HPD are subject to fees and liable for the cost of any repairs undertaken by HPD. Established in 2007, the program has conducted 15 rounds of selection and enforcement, with 200 buildings selected annually in the first seven years. As of 2015, the program selects 250 of the worst-offending buildings for enforcement each year.[359]

The criteria for a building to be selected for the AEP are twofold. First, depending on the building size, it must meet a set ratio of housing violations per dwelling unit over a five-year lookback period. Buildings with 15 or more units must have a ratio of three or more open violations, while buildings with 3 - 15 units must have a ratio of five or more open violations. Second, the building must have incurred up to $2,500 (for buildings with 15 units or more) or $5,000 (for buildings under 15 units) in charges from HPD's Emergency Repair Program within the five-year lookback period.[360] Emergency Repair Program (ERP) fees are charged to a building when HPD is forced to take direct action to correct code violations related to heat, hot water, water leaks, mold and other hazardous

HPD inspectors work tirelessly to keep tenants safe and hold building owners accountable, performing over 500,000 inspections annually.

materials. Upon selection for the AEP, building owners are required to notify tenants by posting a conspicuous sign within 15 days of the notice and they have up to four months to correct the poor housing conditions before HPD steps in to perform the corrective measures itself.[361]

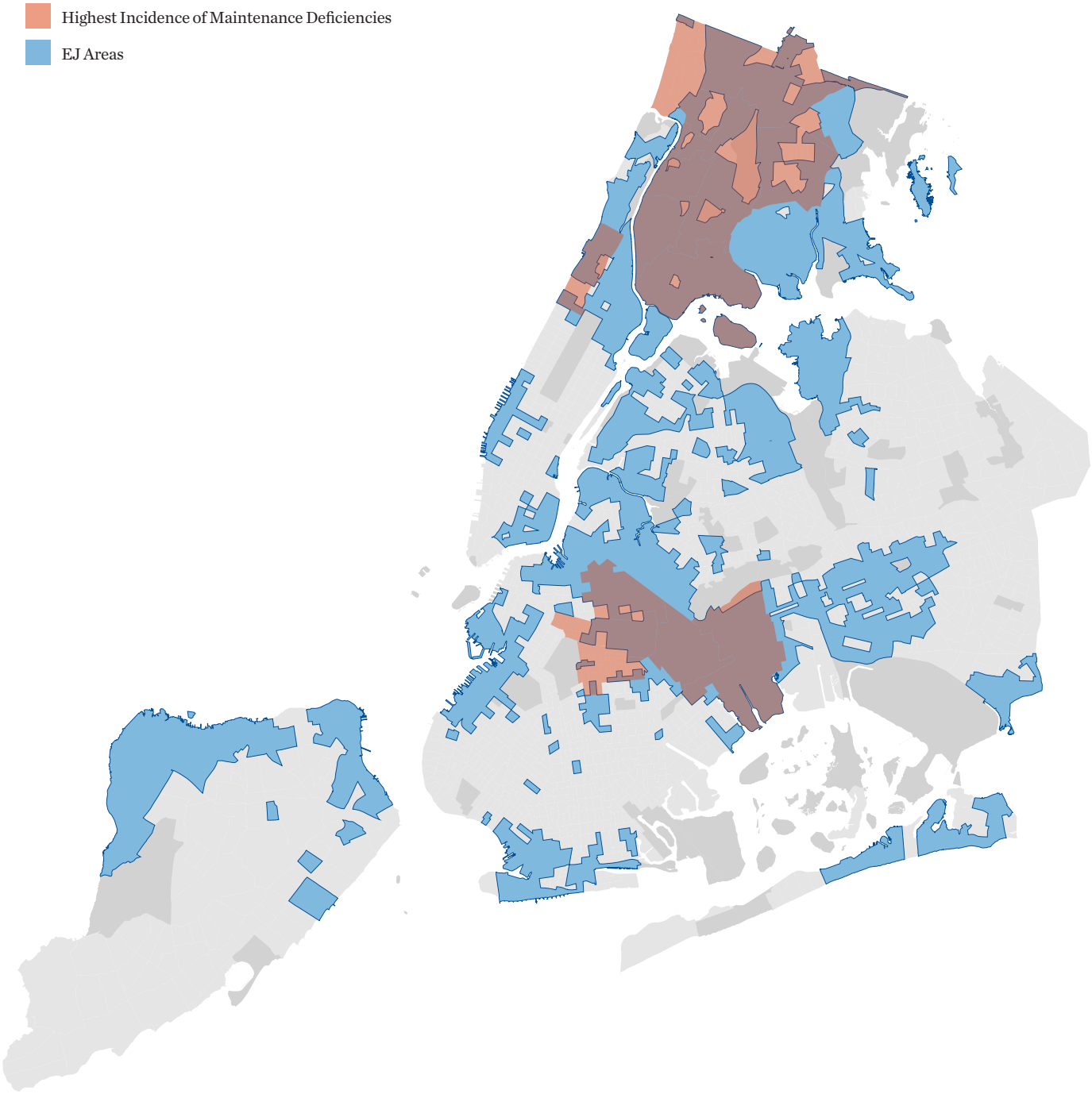
This building selection and enforcement framework has strengths and weaknesses. The five-year look back period allows the program to capture buildings with housing violations beyond the current year of review. The use of two violation indicators limits the number of buildings selected for the program and ensures the availability of program resources for enforcement and repairs in the worst-performing buildings.

The program limits the number of buildings with fewer than six units included in the annual selection to 25 buildings (10 percent of the selection list). This limit notwithstanding, a program report stated that 3-5 unit buildings made up 22 percent of the program's $4.1 million expenditure from 2016 to 2019.[362] Also, an analysis of the length of time it takes for selected buildings to correct necessary violations and be discharged from the program showed that from 2007 to 2019, an average of 62 percent of buildings with over 20 units were discharged within the first four months compared to 16 percent of 3-5 unit buildings.[363] These findings point to a significant need of assistance needs for small properties whose landlords often face greater financial challenges and lack the housing management resources needed to address violations and pay HPD fees. Analysis of small buildings (under 6 units) with violations showed that 55 percent are in EJ Areas.

Thus, while the inclusion limit on smaller properties leaves some landlords without incentives to address code violations, AEP is primarily punitive in nature and additional fines on small property owners may further push them into debt without achieving compliance. Furthermore, immediately hazardous conditions may be corrected through the ERP regardless of whether a building has been selected for AEP. Program reports have acknowledged limitations related to housing quality enforcement for smaller properties and have included recommendations to extend the initial compliance period for selected small buildings to avoid additional penalties.[364] Other HPD programs like HomeFix and the Homeowner Help Desk have also been promoted to help finance repairs and drive housing quality improvements in smaller residential properties.

Reported Maintenance Deficiencies in Renter Households

Areas with the highest incidence of maintenance deficiencies are defined as areas with the top 25 percent of renter households who report three or more maintenance deficiencies.



SOURCE: New York City Department of Housing Preservation and Development, NYC Housing and Vacancy Survey, 2017. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

Top 10 Neighborhoods with the Highest Incidence of Lead Paint Violations

NEIGHBORHOOD (NTA)	NUMBER OF LEAD PAINT VIOLATIONS	LEAD PAINT VIOLATIONS NORMALIZED BY POPULATION	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Erasmus, BK*	261	0.93%	72%
Kingsbridge Heights, BX*	324	0.93%	94%
Fordham South, BX*	227	0.78%	100%
Belmont, BX*	217	0.76%	87%
Mount Hope, BX*	420	0.75%	100%
West Concourse, BX*	299	0.72%	100%
Bedford Park-Fordham North, BX*	413	0.69%	100%
Crown Heights South, BK	273	0.67%	14%
Flatbush, BK	718	0.67%	18%
Prospect Lefferts Gardens-Wingate, BK	462	0.66%	21%

*EJ Neighborhood
SOURCE: NYC Department of Housing Preservation and Development, Code Violations, 2023.

Lead poisoning, particularly among young children and pregnant people, is a major health-related housing issue. Lead exposure can cause learning and behavior problems in children, high blood pressure and miscarriage in pregnant people, as well as brain, kidney and reproductive issues in adults.[365] Lead can also be present in tap water, which is discussed in *Exposure to Polluted Water* (p. 130). Homes built before the 1960 citywide lead paint ban are 69-87 percent more likely to contain lead paint or dust.[366]

Lead paint violations issued by HPD are disproportionately located in EJ Areas. In 2022, seven of the top 10 neighborhoods with lead paint violations normalized by population were EJ Neighborhoods located in the Bronx. Key data limitations indicate that lead paint violations focus only on multi-family private housing and complaints and inspections are not uniform across the city.

Maintenance of cooling towers in buildings is crucial to prevent the spread of Legionnaires' Disease, a type of pneumonia caused by bacteria growing in warm water. Legionnaires' is especially risky for older adults, smokers, and those with compromised immune systems or chronic lung disease.[367] From 2019-2022, the top 10 neighborhoods with the highest annual, age-adjusted rates of Legionnaires' Disease are all EJ Neighborhoods in the Bronx and Upper Manhattan.[368] During that period, outbreaks occurred in Highbridge and Central Harlem North-Polo Grounds.

PUBLIC HOUSING

Public housing in New York City is operated by the New York City Housing Authority (NYCHA). Due to decades of underinvestment at the state and federal level, conditions at many NYCHA buildings have deteriorated and many NYCHA buildings have acute maintenance issues that affect human health. NYCHA developments, which house 1 in

Top 10 Neighborhoods with the Highest Incidence of Legionnaires' Disease

NEIGHBORHOOD (NTA)	AVERAGE LEGIONNAIRES' DISEASE ANNUAL COUNT, 2019-2022	AVERAGE ANNUAL LEGIONNAIRES' DISEASE AGE-ADJUSTED RATE PER 100,000 PEOPLE, 2019-2022	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Highbridge, BX*	8	21.5	100%
Van Cortlandt Village, BX*	8	14.0	86%
West Concourse, BX*	5	13.7	100%
Fordham South, BX*	3	13.7	100%
Central Harlem North-Polo Grounds, MN*	11	12.0	97%
Crotona Park East, BX*	3	11.2	100%
Norwood, BX*	4	11.0	100%
Kingsbridge Heights, BX*	4	10.9	94%
Bedford Park-Fordham North, BX*	6	10.8	100%
Longwood, BX*	3	10.8	100%

*EJ Neighborhood
SOURCE: NYC Department of Health and Mental Hygiene, 2022.

17 New Yorkers, have a backlog of major repairs approximated at $78 billion in 2023.[369] Seventy-four percent (or $57.8 billion) of the total physical needs consist of plumbing, building exteriors, heating systems, and apartment repairs. A range of grounds improvements as well as building systems and components constitute the other 26 percent.[370]

According to *Where We Live NYC*, public housing residents reported the highest prevalence of low-quality housing in 2017, with 37 percent of residents reporting three or more maintenance problems in their homes. [371] Since then, NYCHA has implemented several organizational changes such as Work Order Reform and the Neighborhood Model that have ramped up staffing, improved work order planning and scheduling, improved communication with residents through email and text notifications, and increased worker accountability and productivity through constant monitoring.

In 2019, NYCHA and the City signed an Agreement with the U.S. Department of Housing and Urban Development (HUD) with the goal of remedying the deficient physical conditions in NYCHA properties to benefit residents across the city. The Agreement sets objectives to make improvements in seven high-priority areas: lead-based paint, mold, heat, elevators, inspections, pests, and waste management. The HUD Agreement established a framework by which NYCHA will continue to evaluate and progress towards compliance with federal requirements. Information on the progress made to date towards compliance with the HUD Agreement's requirements is available online.[372] An independent monitor was appointed under the HUD Agreement with access to NYCHA information and personnel and the monitor has issued and will continue to issue quarterly reports on NYCHA's compliance with the HUD Agreement.[373]

PROGRAM/POLICY SPOTLIGHT

NYCHA CUSTOMER CONTACT

LEAD AGENCY: NYC Housing Authority (NYCHA)

NYCHA's Customer Contact Center (CCC) is the system used by NYCHA tenants to raise housing complaints, report emergencies, and schedule routine maintenance repairs. The CCC also assists members of the public who have applied for or are seeking information on the public housing application process, as well as Section 8 tenants, and voucher holders.

The CCC allows two modes of communication: in-person at the CCC Walk-In locations, and via phone through the Call Center. There are two CCC Walk-In locations that primarily serve Section 8 and public housing applicants and NYCHA's Section 8 voucher holders. In 2022, the Customer Contact Centers handled an average of 9,043 daily calls and 397 daily walk-ins. In addition to the Customer Contact Center, residents can create, schedule, and manage work tickets through MyNYCHA, a website and mobile app. They can also use it to subscribe to alerts for outages in their developments, view inspection appointments, view closed work tickets, and pay rent.

The Maintenance Unit of the CCC manages all aspects of public housing residents' concerns, focusing mainly on apartment repair complaints and public space concerns. Complaints are forwarded to the affected Development as Service Requests to generate work orders. The Maintenance Unit of the CCC focuses mainly on apartment repair complaints and public space concerns such as mold and mildew concerns, problems with heat and hot water, and major service outages. The complaint process also includes immediate escalation of emergency situations which present a danger to life or limb. Such emergency situations are called in to the Development staff.

In 2019, an independent monitor was appointed under the HUD Agreement with access to NYCHA information and personnel.[374] In the first quarterly report published by the independent monitor, it was stated that residents had to make repeated calls to development staff to get repairs done in a timely manner and sometimes, emergency work orders went unaddressed for weeks, with these lapses in property management tied to understaffing and a lack of staff training and supervision.[375] In response to these issues and the HUD Agreement to improve housing conditions, NYCHA has implemented operational changes to meet its performance targets. In the past year, the average time to complete emergency work orders was 22 hours, meeting the agency's target of less than 24 hours.[376] On average, 78 percent of emergency work orders were completed within 24 hours.[377] However, in 2022, the average time to complete non-emergency work orders was 49 days, compared to a target of 15 days.[378]

In 2022, NYCHA completed 70,930 apartment inspections with only three percent of scheduled inspections never attempted and an additional 5 percent attempted but not completed due to no access. This is a significant improvement from 2019 which had 14 percent of scheduled inspections never attempted and an additional 15 percent attempted but not completed.[379]

While these operational changes and service improvements are very welcome by NYCHA residents, there is still much work to be done. Qualitative stakeholder input gathered as part of this study highlighted that lack of real-time communication and unpaid labor required from tenants to meet housing quality needs are barriers to environmental justice in NYCHA campuses.

The vast majority of NYCHA buildings are located within EJ Areas. Many NYCHA buildings are also located within coastal flood zones and high-heat vulnerability areas, making them particularly at risk of climate change impacts and displacement. The homes of 60,000 NYCHA residents across 35 developments suffered significant storm damage during Superstorm Sandy, and eleven years after the storm over $2.8 billion has been invested.[380] As of Hurricane Season 2023, 21 developments with over 11,000 units are mitigated from storm surge damage and have full back-up power generators in place.

UTILITY ACCESS AND AFFORDABILITY

An environmental justice analysis of housing quality must include a discussion of utility access and utility affordability. Utility rate increases, extreme heat brought on by climate change, blackouts, and the digital divide are all related to access and affordability.

Energy burden, or utility burden, is the extent to which paying utility bills burdens a household. The New York Public Service Commission (PSC) has adopted a target of limiting energy costs for low-income New Yorkers to no more than 6 percent of their pre-tax income.[381] In New York City, a household is considered energy burdened if it spends more than six percent of its pre-tax income on utilities, including heat, hot water, and electricity.[382, 383] In New York City, responsibility for utility bills depends on tenure (rent vs. own) and many landlords pay for heat, water, or all utilities in master-metered buildings.

Internet is not included in standard energy burden calculations but is increasingly considered a standard utility. In New York City, the population average percent of households without access to the internet (home or cellular) in EJ Areas is 24 percent.[384] In non-EJ Areas only 13 percent of households do not have access to internet. Disparities in internet access create a "digital

Top 10 Neighborhoods with the Most Utility Burdened Households

NEIGHBORHOOD (PUMA EXPRESSED AS CD)	PERCENT OF UTILITY BURDENED HOUSEHOLDS	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Bedford Park-Fordham North-Norwood (BX CD-7)*	38%	98%
Belmont-Crotona Park East-East Tremont (BX CD-3 and BX CD-6)*	37%	98%
Hunts Point-Longwood-Melrose (BX CD-1 and BX CD-2)*	37%	100%
Morris Heights-Fordham South-Mount Hope (BX CD-5)*	37%	100%
Concourse-Highbridge-Mount Eden (BX CD-4)*	36%	100%
Brownsville-Ocean Hill (BK CD-16)*	34%	100%
Wakefield-Williamsbridge-Woodlawn (BX CD-12)*	34%	71%
East Flatbush-Farragut-Rugby (BK CD-17)	32%	42%
Borough Park-Kensington-Ocean Parkway (BK CD-12)	31%	2%
Jamaica-Hollis-St. Albans (QN CD-12)	30%	44%

*EJ Neighborhood

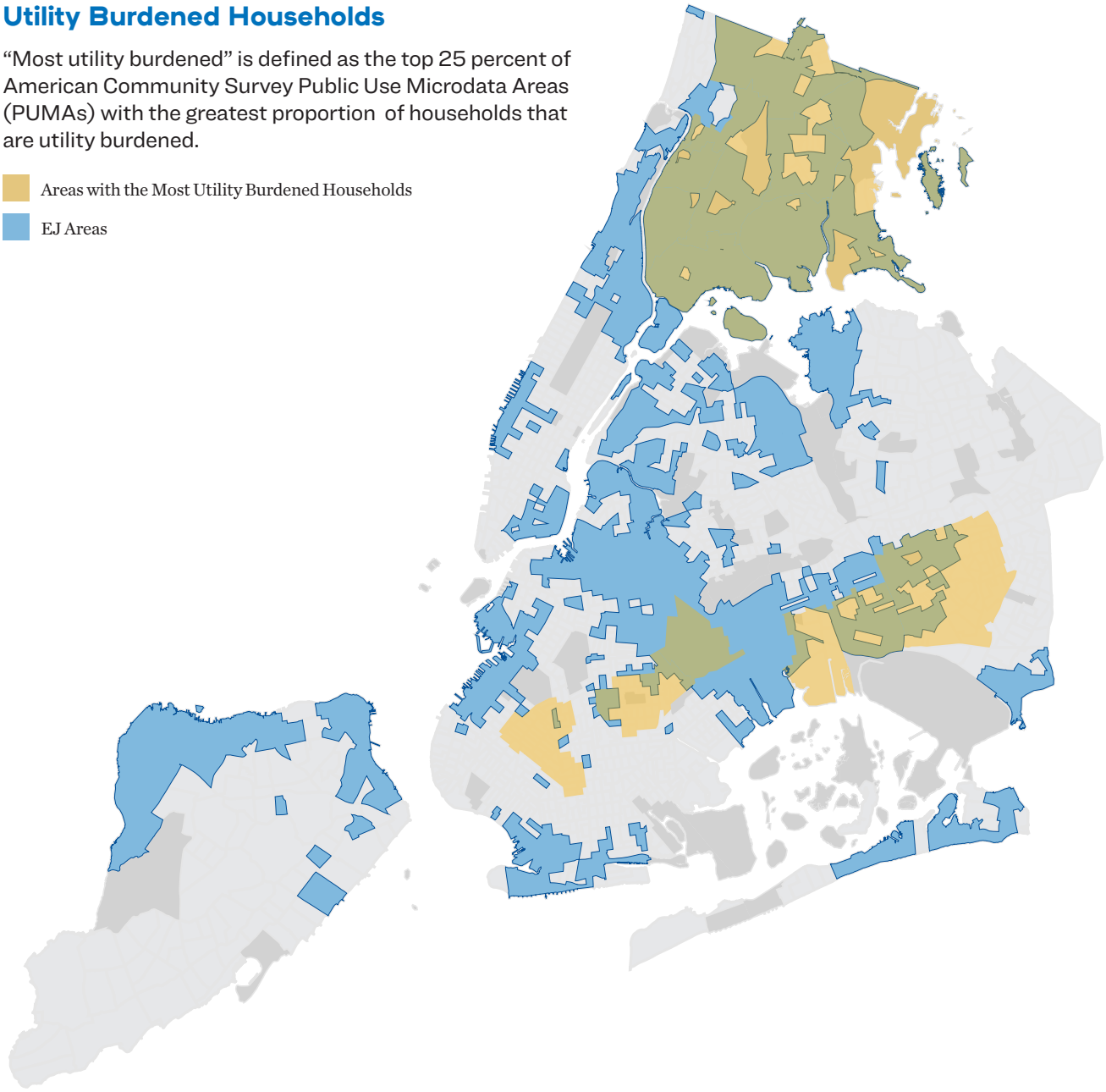
SOURCE: U.S. Census Bureau, American Community Survey, 2017-2021 Five-Year Estimates. NYC Mayor's Office of Economic Opportunity.

Utility Burdened Households

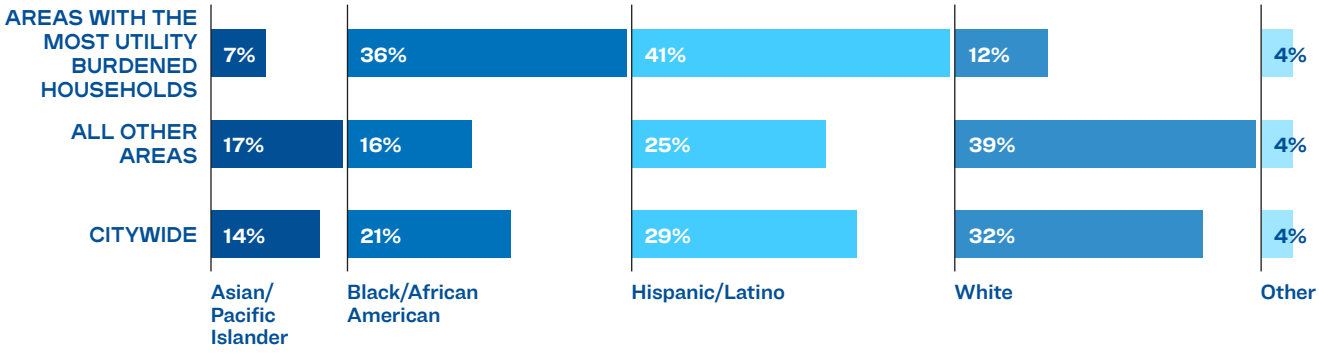
"Most utility burdened" is defined as the top 25 percent of American Community Survey Public Use Microdata Areas (PUMAs) with the greatest proportion of households that are utility burdened.

Areas with the Most Utility Burdened Households

EJ Areas



Demographics of Neighborhoods with the Most Utility Burdened Households



SOURCE: U.S. Census Bureau, American Community Survey, 2017-2021 5 Year Estimates. NYC Mayor's Office of Economic Opportunity.

COMMUNITY CASE STUDY

SUNSET PARK SOLAR

LOCATION: Sunset Park, Brooklyn

Sunset Park Solar is a community-led solar project that is owned and operated by a partnership between local justice organization UPROSE and its partners. Scheduled to launch in 2024, the project will manage an approximately 685-kilowatt (kW) solar array on the roof of the Brooklyn Army Terminal in collaboration with the New York City Economic Development Corporation (NYCEDC). Sunset Park Solar will allow renters, homeowners, and businesses in Sunset Park to participate in bringing more renewable generation into the New York City grid. Subscribers will be allocated a portion of the solar power generation to offset their energy bill. The energy billing process is coordinated with Con Edison, and subscribers can anticipate a discount of up to 25 percent on their electricity costs. Beyond its environmental benefits in reducing greenhouse gas emissions, Sunset Park Solar also alleviates energy burdens and shields low-income households from energy price fluctuations. The project partners plan to enter into a lease agreement and commence the array installation in 2024.

Brooklyn Army Terminal, location of the Sunset Park Solar comunity-led solar project.

divide," making it more difficult for residents without internet to access resources that are increasingly online.

Energy burden is highest in the Bronx, Southern/Central Brooklyn, and Southeast Queens. Seven of the top 10 neighborhoods with the highest proportion of households that are utility burdened are EJ Neighborhoods in the Bronx and Brooklyn. The accompanying demographic chart shows that a higher proportion of Black and Hispanic or Latino residents compared with New York City overall, and a lower proportion of white residents are the most utility-burdened households.

High energy burden for heating or cooling can have multiple, compounding effects on the health of low-income households. When residents are unable to properly regulate the temperature in their homes, it can exacerbate pre-existing health conditions such as asthma and cause mental health issues such as stress and depression.[385] The inability to afford energy costs or the need to forgo other basic necessities to pay utility bills contributes to energy insecurity: the inability to adequately meet basic household energy needs.[386]

In the hotter months, heat related illness and mortality are of particular concern. The neighborhoods with the highest vulnerability to heat, as determined by DOHMH's Heat Vulnerability Index (HVI), are found in historically redlined neighborhoods including the Central and South Bronx; Harlem, Manhattan; Central and Eastern Brooklyn; and Jamaica and Hollis, Queens.[387] Many of these high heat neighborhoods have the lowest rates of air conditioning at home. In 2017, the neighborhoods with the lowest access to air conditioning at home were all located in areas with high HVI scores, and nine out of the top 10 neighborhoods are EJ Neighborhoods.[388, 389, 390] In addition, 15 percent of New York City adults with air conditioning rarely or never use it, most often because of cost concerns.[391] Extreme heat and heat exposure is discussed further in *Exposure to Climate Change* (p. 142).

Top 10 Neighborhoods with the Most Households without Air Conditioning

NEIGHBORHOOD (PUMA)	PERCENT OF HOUSEHOLDS WITHOUT AIR CONDITIONING	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Morrisania-East Tremont, BX*	24%	98%
University Heights-Fordham, BX*	20%	100%
Brownsville-Ocean Hill, BK*	18%	100%
Central Harlem, MN*	18%	92%
Williamsbridge-Baychester, BX*	17%	71%
Rockaways, QN*	17%	60%
Jamaica, QN	16%	44%
Mott Haven-Hunts Point, BX*	16%	100%
Highbridge-South Concourse, BX*	15%	100%
East Harlem, MN*	15%	94%

*EJ Neighborhood
SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, 2017.

Lack of access to heat in colder months also presents health risks including asthma and stress.[392] Landlords who do not provide proper heating in colder months may cause residents to resort to heating their homes with their ovens or supplemental heaters. These practices increase the risk for fire, as evidenced by the 2022 Twin Parks apartment fire in the Bronx that killed 17 people and displaced more than 100 households.[393] Consistent and affordable access to utilities is critical to ensure a safe and healthy home.

LEAD IN HOUSING PLUMBING

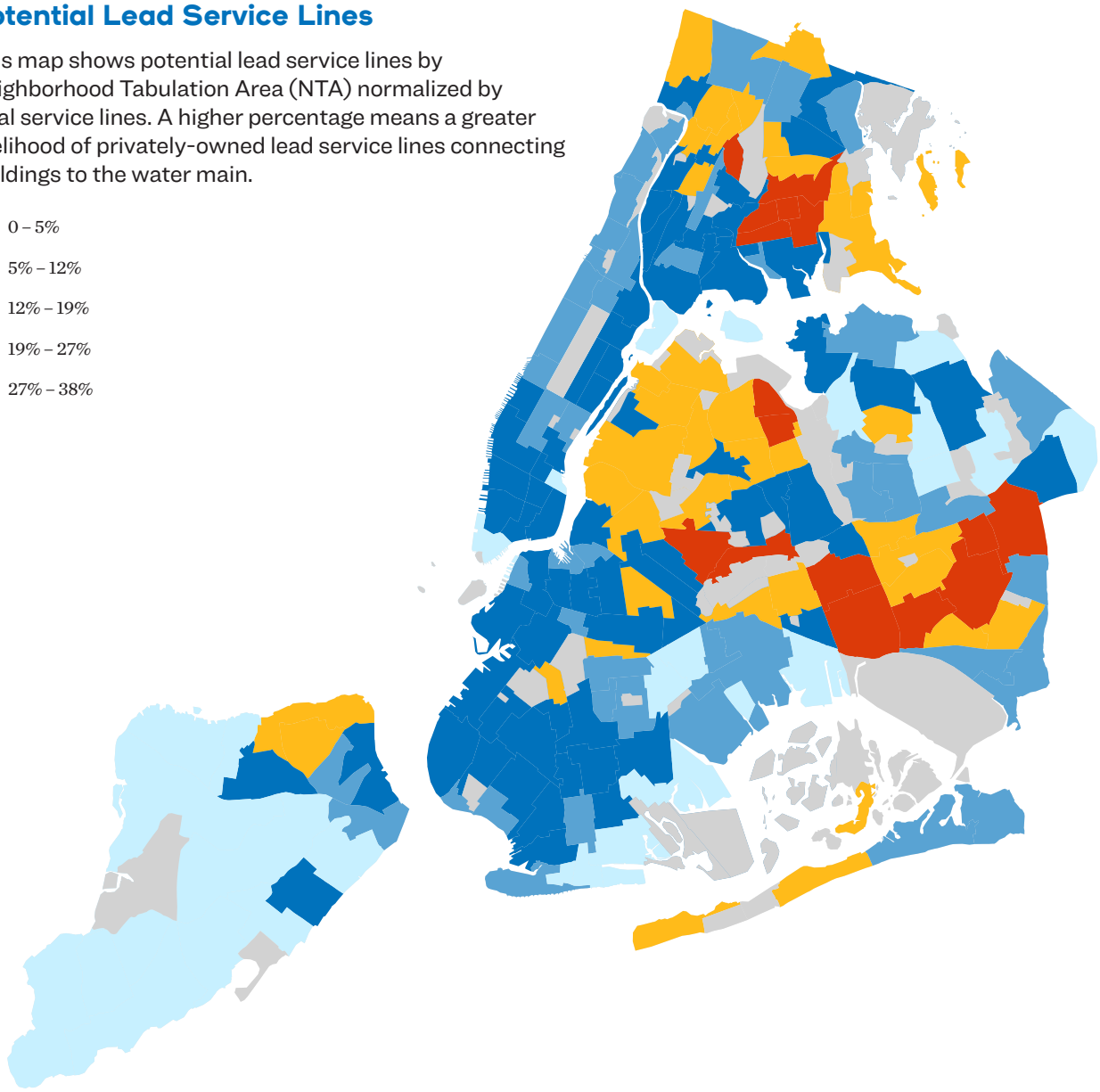
New York City tap water is celebrated for its high quality and continues to meet federal and state regulations. While the City-operated water mains do not contain lead, DEP estimates that there are up to 130,000 privately-owned lead service lines that connect water mains to customer buildings in the city.[394] DEP distributes residential drinking water testing kits for free to New Yorkers who request them to enable residents to determine their level of exposure to lead from lead service lines, lead solder or lead containing fixtures and whether simply flushing their water can reduce or eliminate exposure.

Seven of the top 10 neighborhoods with the greatest proportion of potential lead service lines (of the total number of service lines in each area) are in Eastern Queens. Three of those Queens neighborhoods are EJ Neighborhoods (South Ozone Park, East Elmhurst, and Baisley Park). The three other neighborhoods with the highest number of lead service lines are EJ Neighborhoods in the Bronx (Parkchester, West Farms-Bronx River, Van Nest-Morris Park-Westchester Square). Black residents are strongly overrepresented in the top 10 neighborhoods containing potential lead service lines (37 percent in the top 10 neighborhoods compared to 21 percent of the population citywide).

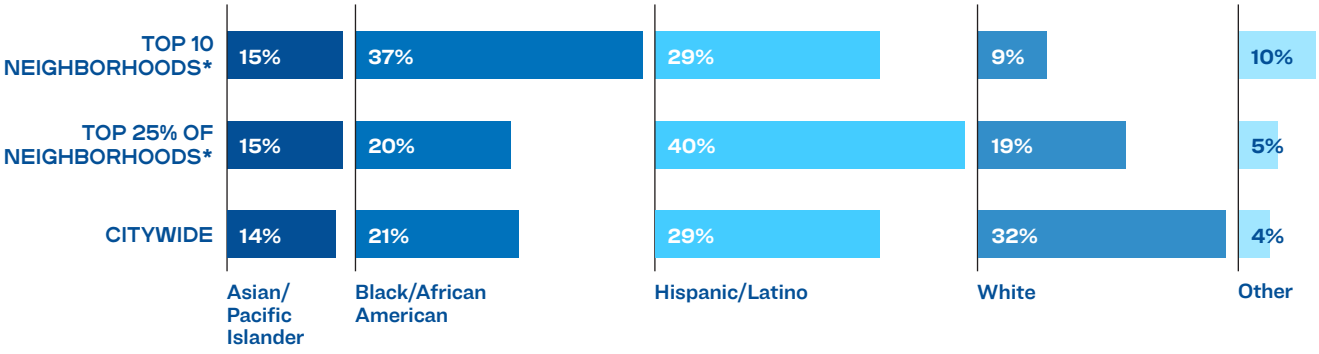
Potential Lead Service Lines

This map shows potential lead service lines by Neighborhood Tabulation Area (NTA) normalized by total service lines. A higher percentage means a greater likelihood of privately-owned lead service lines connecting buildings to the water main.

- 0 – 5%
- 5% – 12%
- 12% – 19%
- 19% – 27%
- 27% – 38%



Demographics of Neighborhoods with the Highest Density of Potential Lead Service Lines



*By density of potential lead service lines

SOURCE: U.S. Census Bureau, American Community Survey, 2017-2021 Five-Year Estimates. NYC Department of Environmental Protection, Lead Service Line Coordinates, 2022.

Top 10 Neighborhoods with the Highest Density of Potential Lead Service Lines

NEIGHBORHOOD (NTA)	POTENTIAL LEAD SERVICE LINES	POTENTIAL LEAD SERVICE LINES NORMALIZED BY NUMBER OF SERVICE LINES	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Parkchester, BX*	146	38%	73%
Hollis, QN	1,411	38%	0%
Queens Village, QN	4,461	37%	0%
West Farms-Bronx River, BX*	805	36%	100%
Van Nest-Morris Park-Westchester Square, BX*	1,474	36%	89%
Glendale, QN	2,256	34%	22%
St. Albans, QN	4,200	34%	0%
South Ozone Park, QN*	4,922	33%	67%
East Elmhurst, QN*	1,118	32%	100%
Baisley Park, QN*	2,474	31%	54%

*EJ Neighborhood
SOURCE: NYC Department of Environmental Protection, Lead Service Line Location Coordinates, 2022.

Key data limitations include gaps in the private lead service line data, which is based on historical data and observations collected by plumbers and City workers. Lead can also be introduced into a home's drinking water when it comes into contact with internal lead plumbing.

NOISE

The effects of urban noise in the home can disrupt quality of life and result in and exacerbate long-term physical and mental health conditions, including sleep disturbance, increased stress, high blood pressure, cardiovascular disease, and impaired cognitive performance in children.[395, 396] Defined as unwanted or disturbing sound, noise pollution is linked to transportation infrastructure and high-traffic land uses, often located in or adjacent to EJ Areas, such as highways, airports, elevated trains, and land uses such as waste transfer stations, warehousing, and industry. As such, noise levels are often higher in communities with low-income populations. Queens community groups repeatedly voice concerns to the Port Authority of New York and New Jersey over noise from the borough's two airports: JFK and LaGuardia. In 2012, residents observed a noticeable increase in noise pollution when the Federal Aviation Administration approved a new takeoff trajectory that concentrated low-flying planes over the northeastern section of the borough.[397]

A 2014 report from DOHMH found that for New York residents the highest rates of frequent disruptive noise exposure (FDNE), defined as three or more noise disruptions per week, were found among those who were unable to work or unemployed and those in the poorest households (income less than 400 percent of the Federal Poverty Level).[398] The borough with the highest prevalence of reported noise disruption was Manhattan (43 percent reporting), followed by Brooklyn (40 percent) and the Bronx (39 percent).

PROGRAM/POLICY SPOTLIGHT

LEAD SERVICE LINE REPLACEMENT PROGRAM

LEAD AGENCY: NYC Department of Environmental Protection (DEP)

New York City's water supply is virtually lead-free when it is delivered from the City's upstate reservoir system. However, water can absorb lead from solder, fixtures, and pipes found in the plumbing of some buildings. Across the city, lead has been detected in the drinking water of some homes with lead service lines, which are characteristic of homes (especially 1-4 family homes) built before 1961, or lead-soldered internal plumbing, which was in use until 1987.

About 16 percent of the water service lines in New York City are potentially composed of lead, 58 percent are confirmed to be lead-free, and the material composition of the remaining 26 percent is unknown.[399]

Accordingly, DEP has implemented treatment to minimize lead exposure, such as adjusting the pH levels of water entering the City's pipes and adding phosphoric acid, which forms a protective film on household plumbing to minimize corrosion and prevent lead from leaching out of pipes. In addition, the agency received a $5.3 million grant from New York State and developed a pilot program to replace lead service lines across the city.[400] The pilot reached out to about 3,500 homeowners, received responses from about 1,000 addresses, and ultimately just under 600 service lines were replaced.

The pilot was targeted at the lowest income homeowners, with eligibility limited to those who already qualified for financial support through the Home Energy Assistance and the Home Water Assistance Programs. By using such narrow eligibility criteria, the agency sought to make the best use of the available funding. Still, the agency had to supplement the state grant with about $3 million of its own funds to complete the service line replacements. This demonstrates the enormous financial implications of completing citywide replacements, given that the pilot addressed less than 0.4 percent of the lead service lines in the city.

To this end, DEP has already begun applying for funding for the next phase of the program, which will expand the eligibility criteria beyond beneficiaries of home assistance programs. In line with the City's efforts to prioritize investment in EJ communities, the new criteria prioritize neighborhoods with median household incomes under $47,000. To date, DEP has secured $48 million in funding that New York State made available through the Bipartisan Infrastructure Law through two rounds of funding applications—the maximum allowable under the State's annual $10 million cap on grants and $14 million in loans for each municipality.[401]

In the future, the program also plans to engage residents in multiple formats through mailers and neighborhood town halls and will limit project contracts to smaller geographies to attract more diverse contractors and increase replacement efficiency. With the right amount of funding, these changes could improve an already beneficial environmental justice program and drastically reduce the incidence of lead in New Yorkers' drinking water.

Upper and Lower Manhattan, the South and Central Bronx, Sunset Park, and East New York were the neighborhoods with the highest rates of FDNE. Children, older adults, and those with pre-existing cardiovascular conditions are particularly at risk.[402]

Key limitations of research on urban noise include difficulty measuring hyper-local and temporary noise interruption and difficulty in disaggregating observed noise levels with high-contributing sources. Workplaces are a significant contributing factor to noise exposure, and those who work in industrial, manufacturing, transportation, and construction jobs are affected the most. Time spent outdoors and the sound insulation quality of buildings can impact an individual's exposure. The City does not systematically monitor ambient noise or the prevalence of noise disturbance but does track noise complaints through 311 and enforces the New York City Noise Code. Noise complaints specific to restaurants and bars are tracked by the NYPD and were not available for this analysis.

As of 2022, DEP is conducting a small pilot program to improve noise monitoring and enforcement efforts. The pilot uses a roadside sound meter and camera to capture evidence of vehicles emitting noise in violation of New York State's Vehicle and Traffic Law and the City's Noise Code. Owners in violation of the law are subsequently sent a notice and encouraged to bring the vehicle into a DEP facility for compliance or face risk of fines.

Many health-related housing maintenance issues are associated with older and less energy-efficient buildings, while modern, energy-efficient buildings tend to offer better indoor air quality, including lower indoor concentrations of particulate matter, carbon dioxide, and volatile organic compounds, lower fluctuations in temperature and humidity year-round, and lower risk of allergic symptoms in children.

STAKEHOLDER INPUT

The following collection of quotes from the focus groups and interviews, conducted as part of the qualitative research for this report, speak to the myriad issues associated with housing quality and environmental justice.

HEALTH-RELATED HOUSING MAINTENANCE ISSUES

"Safe, sanitary housing—that is the cornerstone of addressing EJ issues."

"The apartment building is cut up into four, five, or six small rooms. . . . They created these mini apartments within the apartments because rent's so high. . . . So a lot of immigrants would end up renting these spaces. . . . It's in an appalling state and you have three or four families there."

"There were a lot of kids that came into our organization who had high levels of lead and they didn't know where we're coming from. And what we found out through the Department of Buildings was that the landlords—the slum lords—were painting over the lead paint . . . and the kids were taking pieces of the paint that was peeling off and eating it. And we called the Department of Buildings. At times we even held a protest. And the only reason they came out was that we got the media involved."

UTILITY ACCESS AND AFFORDABILITY

"In the summer, if you want an A/C, you have to pay extra money on top of your rent. . . It's getting really hard and difficult. The same thing with the heat. . . . We sometimes don't have hot water and heat and it gets frustrating. . . . We have to make sure there are no gaps in the window, because . . . it's just becoming difficult to live here."

"New clean energy programs are inaccessible. They are not translated into the languages my communities speak. It is difficult to access program information, and it is unclear how to get financing."

PUBLIC HOUSING

"I know the whole complex is having issue with [heat]. We have to turn the oven on, open the oven so that it can produce some type of heat because it's so cold. We have to boil water and take showers like that, because sometimes we don't have hot water in the winter and it's really, really cold."

"Lack of funding to keep NYCHA apartments in a state of good repair is an environmental injustice. . . . NYCHA residents face exposure to indoor air contaminants, including mold, lead, asbestos; and vendors hired to remediate these conditions often do not provide the same quality of work for NYCHA households."

NOISE

"[There's a lot of] airport-related noise and air quality [issues]. . . . Planes fly low to accommodate two airports in similar air space."

EXPOSURE TO POLLUTED WATER

This section focuses on exposure to polluted water across two issues and indicators: polluted water bodies and stormwater management. Drinking water is discussed in *Access to Safe and Healthy Housing (p. 108)*. The findings point to opportunities for the City to invest in environmental justice communities and improve accountability through increased data transparency.

Water quality can be impacted by upstream contamination, stormwater and other runoff, legally permitted discharges, illegal sewer connections and dumping, combined sewer overflows, and both historical and present-day industrial pollution. Furthermore, many of New York City's water bodies have been significantly altered (e.g., bulkheaded canals, loss of surrounding wetlands) and have no source of fresh water to flush out contamination.

Continuing to improve water quality in our coastal waters will benefit New York City's EJ communities, and the city overall, by reducing risk of exposure to contaminants. Water quality improvements will also increase access to water recreation activities and swimming. The NYC Department of Environmental Protextion (DEP)'s CSO Long-Term Control Plan and green infrastructure investments will continue to make improvements in this area. Efforts to reintegrate species such as oysters, ribbed mussels, and eel grass into New York Harbor can also help clean and filter water, reconnecting New Yorkers to the biodiversity that once flourished.

KEY FINDINGS

NYC has

14

miles of swimming beaches that serve around

7 million

swimmers per year

Many of New York City's waterways are suitable for boating. However, **many of the waterways within and surrounding New York City are impaired or stressed** and limited for swimming due to a number of factors including water quality, current, and boat traffic.

New York City areas **most impacted by stormwater flooding include Southeast and Central Queens, North Staten Island, and the Southeast Bronx.**

Black residents are overrepresented among the census tracts with an above **average number of of confirmed sewer backup complaints.**

Construction of New York City's modern sewer system began in 1849 following a series of deadly cholera outbreaks, and it was largely built out by the beginning of the 20th century. Today, approximately 60 percent of New York City's sewer system combines the flow of stormwater (water originating as precipitation), domestic sewage, and industrial wastewater in the same conveyance system. Combined sewer systems were designed to discharge excess flow to the waterways during excessive rainfall to prevent sewage backing up to homes and streets, and to protect wastewater resource recovery facilities from process upsets. Those discharges are called combined sewer overflows (CSOs). The occurrence of CSOs can restrict uses of the city's water bodies such as fishing, swimming and recreation, and they can be harmful to anyone in direct contact with the discharge.

Other areas of the city are serviced by municipal separate storm sewer systems (MS4), which collect sanitary and stormwater flows in separate sewers; conveying sanitary flow to the wastewater treatment plant and conveying stormwater to discharge directly into New York Harbor and the other surface waters surrounding New York City.

While MS4s do not discharge untreated sewage into water bodies, they do collect pollutants as stormwater flows over streets and other impervious surfaces into storm sewers, and that polluted stormwater discharges directly into local waterways, which can negatively impact water quality.

Both types of systems have limitations, and system failure can prove catastrophic. A notable 2019 sewer collapse in South Jamaica, Queens, a neighborhood comprised of predominantly Black and Hispanic or Latino homeowners, inundated the basements of 127 homes with raw sewage, posing threats to both human health and home values.[403] Additionally, in a few low-lying areas that historically lacked access to the city's sewer infrastructure, residents rely on individual septic systems that require regular maintenance to prevent the release of untreated wastewater.

The compounding effects of climate change on New York City waterways and sewer infrastructure should not be underestimated. Coastal storm surge, high-tide flooding, and rising groundwater, all of which are predicted to increase with climate change, pose risks to the sewer system, namely

corrosion from saltwater exposure and erosion, as well as backflow issues caused by rising tides blocking sewer outfalls.[404]

Climate change impacts increase the risk of exposure to contaminated water and hazardous substances. During heavy rainfall and storm surge events, floodwaters may disturb contaminated sediments that leach pollutants and inundate areas where hazardous materials are stored. In response to concerns about hazardous chemical leaks during Hurricane Sandy, EJ organizers in Sunset Park produced a Business Resilience Toolkit with best practices to make auto shops and other industrial businesses more resilient to flooding. The toolkit outlines steps to reduce potential exposure by elevating and securing storage containers, managing rain and flood waters, and other tactics.[405] Additional impacts from climate change are discussed in *Exposure to Climate Change* (p. 142).

DATA ANALYSIS

POLLUTED WATER BODIES

While many waterfront neighborhoods are expensive places to live today, during the city's industrial peak they were some of the least desirable areas due to pollution. Communities of color were driven to live in close proximity to polluted water bodies, due to systemic housing discrimination previously described. Waterfront EJ communities include those in the South Bronx, Brooklyn Navy Yard, Red Hook, Gowanus, Sunset Park, Staten Island's West Shore, and the neighborhoods surrounding Newtown Creek and Kill Van Kull. The Gowanus Canal and Newtown Creek are home to United States Environmental Protection Agency (U.S. EPA) Superfund sites, where hazardous waste is concentrated and must undergo cleanup as required by the Comprehensive Environmental Response, Compensation and

A clogged sewer line sent raw sewage flooding into the basements of dozens of homes in Southeast Queens in December 2019.

COMMUNITY CASE STUDY

BRONX RIVER RESTORATION, BRONX RIVER ALLIANCE

LOCATION: Bronx

The Bronx River was once so clean that it was considered as a source for the City's drinking water. But like other New York City waterways, since the 19th century the river has been heavily polluted by industrial use and sewer outflows. Today, the river is polluted by combined sewer overflows, trash, microplastics, and other pollutants originating in Westchester and the Bronx. These pollutants threaten the river's ecology and hamper recreation opportunities. In partnership with the NYC Department of Parks and Recreation, the Bronx River Alliance works to advocate for, protect, restore, and engage with the community around the Bronx River in order to once again make it an ecologically healthy, publicly accessible space for communities in the Bronx and broader region.

As part of this work, the Bronx River Alliance uses citizen science to monitor, study, and restore the river's ecology. The Alliance employs volunteers to study water quality at locations along the length of the river, monitoring for pollutants such as microplastics and bacteria that indicate raw sewage contamination. The volunteers also actively work to restore the river's ecology; to date, they have removed over seven tons of trash from the river and are working to promote green infrastructure to alleviate stormwater and sewer runoff.[407] New York's waterways were once teeming with wildlife and safe to swim in. Thanks in part to the efforts of groups such as the Bronx River Alliance, both wildlife and recreational opportunities are returning to New York City's waterways. Healthy, clean rivers bring myriad health benefits such as the opportunity to cool off on hot days, which is becoming increasingly important as climate change brings more days of extreme heat.

Liability Act (CERCLA, also called Superfund). Note that both EJ and non-EJ areas are adjacent to these sites.

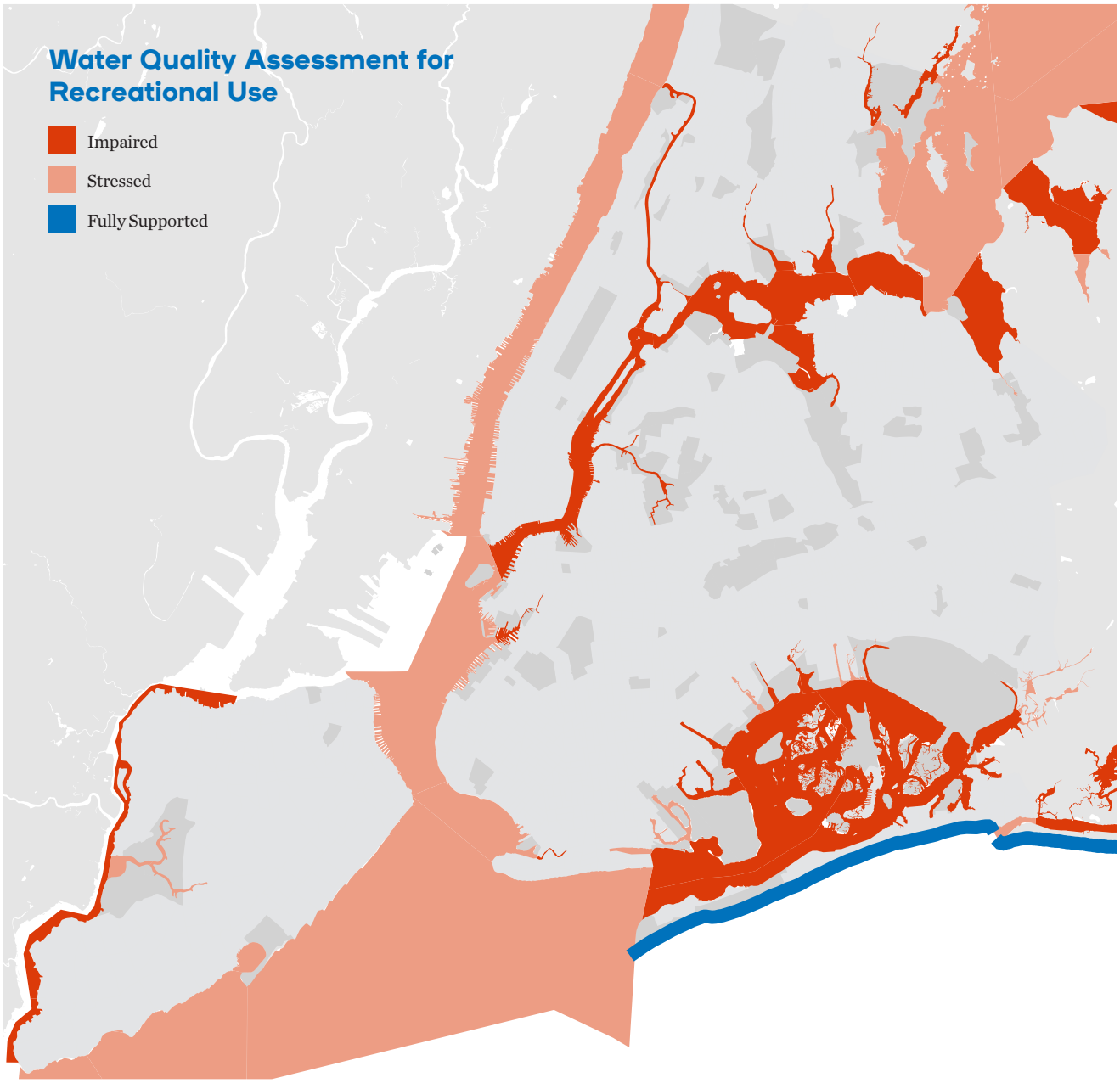
Human exposure to water contaminants can be harmful, particularly exposure to pathogens: disease-producing bacteria, viruses, and other microorganisms.[406] Poor water quality also degrades ecosystems, which affects human populations. For example, the deterioration of wetlands caused by new development and nutrient discharge reduces New York City's ability to naturally absorb storm surge, which can contribute to flooding in nearby neighborhoods.

The largest (Tier 1) CSO outfalls, which discharge over 50 percent of total combined sewer overflow volume into local waterways, are located in the Bronx, Brooklyn, and Queens—the boroughs with the highest populations of low-income households and people of color, with 455 million gallons per year (MGY) of raw combined sewage entering the Bronx River, and 1,226 MGY entering Newtown Creek annually.[408] DEP has invested over $10 billion since 2002 to improve water quality, including $2.7 billion for CSO control infrastructure to reduce CSO discharges into these water bodies. The agency is proposing additional $6.2 billion in capital funding for CSO controls as part of the CSO Long-term Control Plan and has committed $3.5 billion for construction of green infrastructure across the city.

DEP monitors and reports on polluted water bodies in accordance with state regulations. As such, DEP reports on the presence of pathogens, floatables (artificial and natural debris), and the nutrients nitrogen and phosphorus, which in excess can cause algae blooms and aquatic weed growth to the detriment of water quality and ecosystem health. According to a 2020 DEP report, Jamaica Bay and the adjacent water bodies Hendrix Creek and Bergen Basin contain high levels of three of the four indicators (pathogens, floatables and nitrogen).[409] Two of the three indicators exceeded acceptable

levels in the Bronx River, Coney Island Creek, Flushing Creek/Bay, and Spring Creek, which each abut EJ Areas.[410] Furthermore, DEP's Floatables Monitoring Program identified sites that were consistently rated "Poor" with respect to trash and debris from 2009 to 2018. They include the Gowanus Canal, Newtown Creek, and Coney Island Creek, which each abut EJ Areas, as well as Arthur Kill, Little Neck Bay, and Bergen Basin.[411]

The NYS Department of Environmental Conservation (DEC) defines stressed water bodies as those that may be unable to support their designated best use due to water quality conditions. Impaired water bodies are defined by DEC as those that do not meet applicable water quality standards. State monitoring of New York City's water bodies for recreational use, displayed in the map below, indicates that all water bodies surrounding the city are either impaired or stressed except the Atlantic



SOURCE: NYS Department of Environmental Conservation, Division of Water, Bureau of Water Assessment and Management, 2019.

PROGRAM/POLICY SPOTLIGHT

CSO LONG-TERM CONTROL PLAN

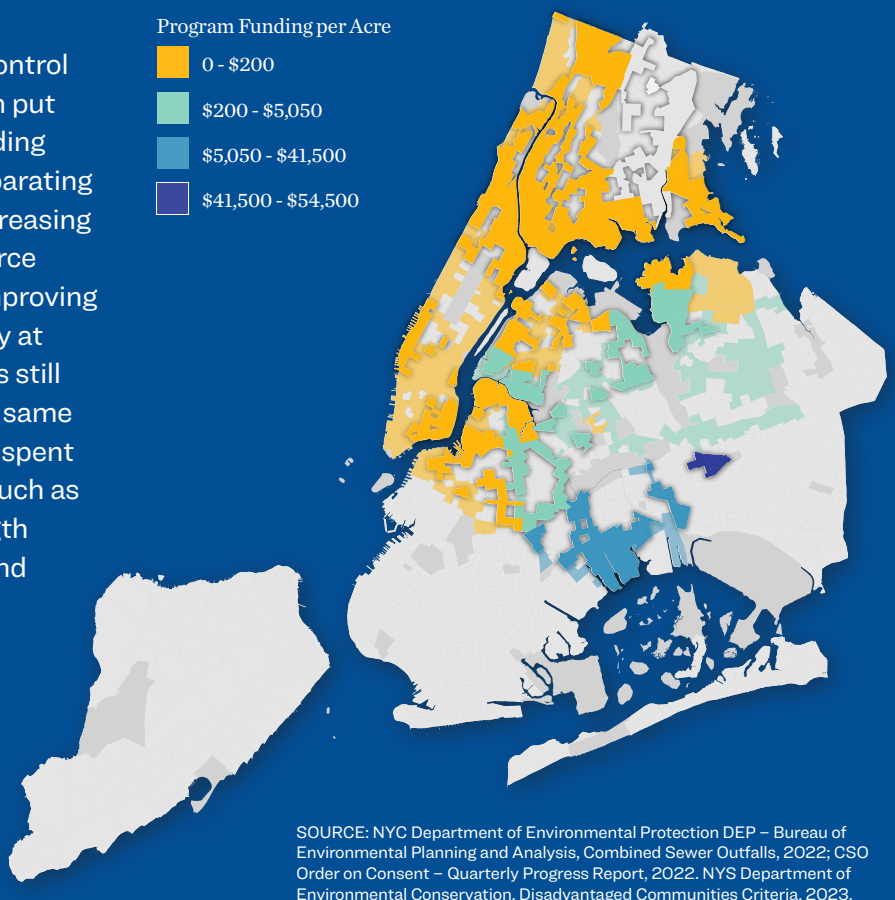
LEAD AGENCY: NYC Department of Environmental Protection (DEP)

In 2012, DEC and DEP agreed to amend the Combined Sewer Overflow Consent Order to reduce combined sewer overflows using a hybrid green and grey infrastructure approach. Green infrastructure refers to the use of nature-based solutions such as curbside rain gardens and detention ponds to reduce stormwater runoff before it enters the sewers. Grey infrastructure involves the use of traditionally constructed solutions such as sewer pipes and storage tanks to address runoff. In accordance with the Order, DEP has developed water-body-specific Long Term Control Plans (LTCPs) to identify the appropriate controls necessary to achieve water quality standards consistent with the federal CSO policy and the Clean Water Act.

In the 10 years since starting the development of the Long-Term Control Plans, over $600 million has been put towards grey infrastructure including installing new sewer lines and separating sanitary and stormwater flow, increasing the capacity at wastewater resource recovery facilities (WRRF) and improving treatment efficiency and reliability at these facilities, with more projects still in the design phase.[412] Within the same period, over $1.15 billion has been spent on green infrastructure projects such as curbside rain gardens, street-length bioswales, and park and playground infiltration practices.[413] DEP has committed $3.5 billion (including investments already made) toward green infrastructure across the city.

An analysis of census tracts with constructed or planned grey infrastructure projects under the LTCPs showed that 50 percent are EJ Areas. Similarly, for green infrastructure projects within the LTCP drainage areas, 52 percent are in EJ Areas; with the benefiting population made up of 16 percent Asian or Pacific Islander, 22 percent Black, 31 percent Hispanic or Latino, and 28 percent white residents. As such, EJ Areas receive an equitable share of the stormwater flood mitigation, air quality, and urban heat mitigation benefits provided by the grey and green infrastructure investments.[414]

Long Term Control Plan Investments per Acre



SOURCE: NYC Department of Environmental Protection DEP – Bureau of Environmental Planning and Analysis, Combined Sewer Outfalls, 2022; CSO Order on Consent – Quarterly Progress Report, 2022. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

side of the Rockaways. The impaired water bodies are more topographically restricted, shallow, and engineered—creating less free flowing water—than the Hudson River, Long Island Sound, and Atlantic Ocean. Major beaches and public access points are identified on the map.

STORMWATER MANAGEMENT

Consistent with state and federal guidelines, New York City's sewer system is largely designed to collect and convey water that falls as precipitation up to the level of a five-year storm (i.e., 1.75 inches of rainfall per hour for a one-hour storm; with a 20 percent chance of occurring in any year given historic rainfall data). When stormwater exceeds the capacity of sewers, particularly if the top of catch basins (i.e., the gratings) are covered with leaves or other debris, ponding and flooding of streets can occur. Building owners are responsible for keeping the top of catch basins clear. Chronic local flooding issues can impact quality of life, housing stability, and pose serious accessibility issues for residents with mobility impairments. Standing water can serve as a breeding ground for mosquitoes, which in turn can carry disease to nearby residents.

Stormwater flooding in New York City depends on hyperlocal conditions and can occur quickly. However, areas that are low lying and have less green space may be particularly at risk.[415, 416] Many factors make some areas vulnerable: local topography, historic stormwater flow paths (including historic streams that were covered or filled), subsurface conditions, land use, and impervious surfaces such as asphalt. Areas of New York City most impacted by stormwater flooding include Southeast and Central Queens, North Staten Island, and the Southeast Bronx.

The borough of Staten Island receives the most investment per capita in sewer and water infrastructure, partly due to its lower housing density as well as the need to maintain the novel Bluebelt system on the island. Bluebelts are

Areas of New York City most impacted by stormwater flooding include Southeast and Central Queens, North Staten Island, and the Southeast Bronx.

ecologically rich, cost-effective drainage systems that naturally handle runoff precipitation that falls on streets and sidewalks. The Bluebelt has proven to be beneficial to the sections of Staten Island it serves, but it does not include the EJ Areas on the island which contain fewer historic wetlands.

MOCEJ is developing a Climate Vulnerability, Impact, and Adaptation Analysis (VIA), which will bring together scientific and local information on social and economic vulnerability, public health, and climate change to inform policy and action for communities most vulnerable and at-risk, and to understand the opportunities and tradeoffs from various mitigation and adaptation strategies. This analysis will support the City's efforts to advance data transparency with the aim of improving accountability and community advocacy. *Exposure to Climate Change* (p. 142) contains more information on stormwater flooding and the associated climate change projections.

During severe wet weather events, combined sewers or sanitary sewers that have stormwater connections can exceed their design capacity and contribute to sewer backups. Wet weather events can exacerbate detrimental sewer conditions that lead to sewer backups. Such conditions include

improper disposal of wipes (wipes should never be flushed; all wipes should be tossed in the trash) and grease (grease should not be poured down the drain; it should be frozen and then placed in the trash, and paper towels should be used to wipe grease and oil of dishes before washing).

Seven of the top 10 neighborhoods with the most confirmed sewer backup complaints reported to 311 in 2022 are EJ Neighborhoods.[ix] Citywide, Black New Yorkers are overrepresented within areas that have a greater than average number of confirmed sewer backup complaints. As previously mentioned in *Hazardous Material Incidents* section (p. 105), complaint data is inherently biased and may underrepresent EJ communities and is used here as a proxy indicator.

Through its Green Infrastructure Program, DEP has introduced a wide range of practices across the city that use or mimic natural systems to manage stormwater runoff. Green infrastructure can improve local drainage and help reduce combined sewer overflow by capturing stormwater before it enters the sewer system. By increasing vegetation and tree cover, green infrastructure projects also have air quality benefits, and by helping to manage local stormwater conditions, can enhance climate resiliency.[417] Examples of green infrastrucutre practices include rain gardens, green and blue roofs, infiltration basins, and porous pavement. When normalized by land area, seven out of the top 10 neighborhoods receiving investments from DEP's Green Infrastructure Program are EJ Neighborhoods in Brooklyn and Queens.

ix This analysis accounts only for confirmed sewer backup complaints to 311. Sewer backup complaints can be confirmed upon investigation or unconfirmed. Of those confirmed, some are attributed to a defective sewer, rain intensity or volume, and others as potentially due to a building plumbing issue.

Top 10 Neighborhoods with the Most Confirmed Sewer Backup Complaints

NEIGHBORHOOD (NTA)	NUMBER OF 311 SEWER BACKUP COMPLAINTS IN 2022	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
Woodlawn-Wakefield, BX	67	44%
South Jamaica, QN*	53	76%
Jamaica, QN*	48	89%
Schuylerville-Throgs Neck-Edgewater Park, BX*	42	97%
Far Rockaway-Bayswater*	39	56%
Park Slope-Gowanus, BK	38	11%
Williamsbridge-Olinville, BX*	37	89%
Bay Ridge, BK	32	6%
Pelham Bay-Country Club-City Island, BX*	30	57%
Crown Heights North, BK*	30	83%

*EJ Neighborhood.

SOURCE: NYC Department of Environmental Protection, 2022.

Top 10 Neighborhoods with the Highest Density of Completed Green Infrastructure Projects

NEIGHBORHOOD (NTA)	COMPLETED GREEN INFRASTRUCTURE PROJECTS PER ACRE	PERCENTAGE OF CENSUS TRACTS CLASSIFIED AS AN EJ AREA
East Flatbush-Farragut, BK	1.22	6%
Rugby-Remsen Village, BK*	0.84	60%
Prospect Lefferts Gardens-Wingate, BK	0.71	21%
Brownsville, BK*	0.68	100%
Canarsie, BK	0.68	15%
Cypress Hills-City Line, BK*	0.66	100%
East New York, BK*	0.65	100%
Woodhaven, QN*	0.62	50%
South Ozone Park, QN*	0.49	67%
Ocean Hill, BK*	0.44	100%

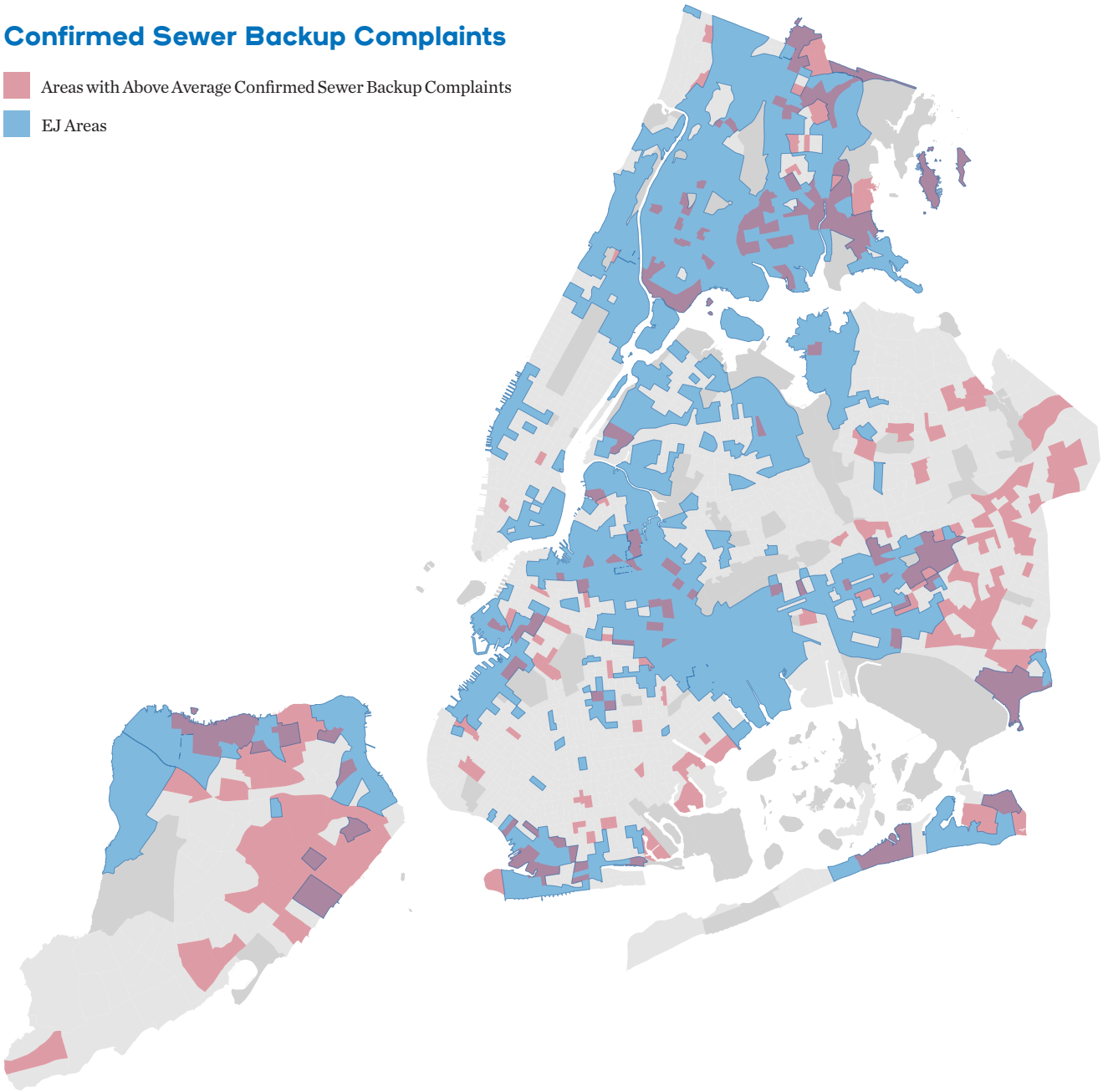
*EJ Neighborhood

SOURCE: NYC Department of Environmental Protection, 2022.

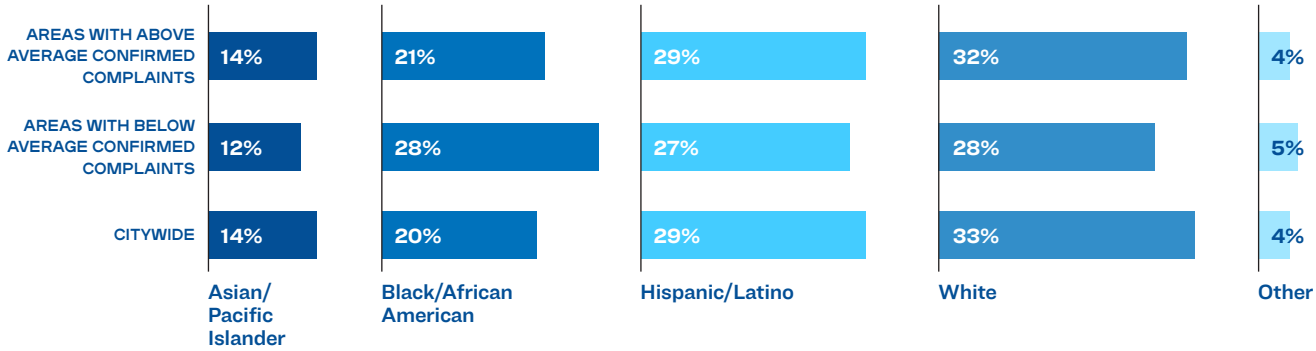
Confirmed Sewer Backup Complaints

Areas with Above Average Confirmed Sewer Backup Complaints

EJ Areas



Demographics of Neighborhoods with Sewer Backup Complaints



SOURCE: NYC Department of Environmental Protection, 2022. U.S. Census Bureau, American Community Survey, 2017-2021 Five-Year Estimates. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023

STAKEHOLDER INPUT

The following collection of quotes from the focus groups and interviews, conducted as part of the qualitative research for this report, speak to some of the water quality issues EJ communities face in New York City.

POLLUTED WATER BODIES

"Water quality for us includes floatable garbage in the river. One of the three major water quality impairments on the Bronx River is floatables."

STORMWATER MANAGEMENT

"There has been a dearth of attention [to] Southeast Queens. Over Thanksgiving weekend in 2019, there was a sewage backup and hundreds of households were affected. These homes had raw sewage in their basements due to a failure of the city's infrastructure, and their recovery process was really difficult."

EXPOSURE TO CLIMATE CHANGE

This section focuses on exposure to climate change across four hazards: extreme heat, coastal storm surge, chronic tidal flooding, and extreme rainfall. The findings point to opportunities for the City to invest in environmental justice communities, integrate environmental justice in agency decisions through climate budgeting, improve accountability through increased data transparency, and explore and develop new ways to collaborate with environmental justice communities.

Climate change has the potential to amplify the effects of environmental injustice. The 2019 report from the New York City Panel on Climate Change (NPCC) explains that preexisting social and economic challenges combined with the uneven distribution of climate change impacts can make certain communities more vulnerable than others.[418] Often, this means low-income communities and communities of color are affected first and worst by climate change. Disparities in access to essential services or environmental benefits can impact the ability of these same communities to withstand the shocks and stresses of climate hazards. Understanding the intersection of environmental justice issues and climate change is a necessary step toward building an equitable adaptation and resilience strategy. This chapter explores the exposure of New York City's EJ Areas to climate change with a focus on extreme heat, extreme rainfall, coastal storm surge, and chronic tidal flooding.

KEY FINDINGS

Black New Yorkers are

2x

more likely to die from heat stress as white New Yorkers

Black residents are also less likely to have access to functioning air conditioning, the most effective way to prevent heat-health impacts.

Most of the population living in neighborhoods with high heat vulnerability (HVI-5 and HVI-4) **live in EJ Areas**, particularly within Central Brooklyn, Upper Manhattan, Southeast Queens, and the Bronx.

The city's EJ Areas population is disproportionately exposed to flooding due to coastal storm surge, chronic tidal flooding, and extreme rainfall in the current decade. Currently, 57 percent of the population living within the 2020s 100-year coastal floodplain live within EJ Areas. So does 69 percent of the population living within the 90th percentile projection of chronic tidal flooding for 2020s and 54 percent of the population living within the flood zone subject to potential flooding under the 2020s Moderate Stormwater Flood with Current Sea Levels scenario.

If EJ Areas remain the same, current hazard forecasts for the 2080s suggest that this disproportionate exposure to coastal flooding and chronic tidal flooding could persist. EJ Area residents constitute:

58%

of the population living in the 2080 100-year coastal floodplain and

60%

of the population living within the 90th percentile projection of chronic tidal flooding for 2080s[i]

i Whereas the 2020s stormwater flooding scenario is for a Moderate Stormwater Flood, the 2080s scenario is for an Extreme Stormwater Flood. As such, a direct comparison cannot be drawn between these scenarios.

CLIMATE CHANGE OVERVIEW

Climate change is an ongoing and urgent challenge that is profoundly impacting the lives of New Yorkers, from extreme weather events to gradual environmental changes. This environmental shift includes rising average temperatures, more extreme heat events, more frequent and severe flooding due to coastal storms and rising sea levels, and intensified inland flooding caused by extreme rainfall. These climate transformations not only jeopardize health and safety, leading to adverse outcomes such as fatalities and illnesses, but also result in economic losses for homes and businesses, and inflict damage upon neighborhoods. Climate change disproportionately burdens and impacts communities of color and low-income residents, who have been made more vulnerable due to generations of systemic racism, disinvestment, and inequality.

DATA ANALYSIS

EXTREME HEAT

Extreme heat is the top extreme weather-related cause of death in New York City and nationwide.[419, 420] Extreme heat events are determined by the heat index, which is what the temperature feels like to the average person when relative humidity and air

temperature are combined. In New York City, an extreme heat event, or heat wave, is defined as two or more days with a heat index reaching 95 degrees Fahrenheit (°F), or one or more days reaching 100°F. From 2016 to 2020, there was an annual average of 17 days with temperatures over 90°F, and 11 extreme heat events.[421, 422] In an average year in the 2030s, there are projected to be up to three times as many days with temperatures over 90°F and up to nearly four times as many heat waves as there have been in the recent past.[423] New York City's vulnerability to extreme heat events is exacerbated by the Urban Heat Island Effect (UHIE), a phenomenon that can lead to cities being up to 22° F hotter than rural and suburban areas due to the relate amount of dark, impervious surfaces, limited vegetation, and dense human activity.[424]

Prolonged exposure to heat can cause heat rashes, heat stress, heat exhaustion, and heat stroke. Even moderate heat days can pose health risks; almost two-thirds of annual heat mortality in New York City is associated with moderate heat.[425] Populations most at risk of severe heat-related illness or death in the city include people who do not have or cannot afford to run air conditioning and have other vulnerability factor(s), such as a physical health condition (e.g., heart or kidney disease and diabetes); mental health conditions; dementia; take medications that affect thermoregulation; older adults; or those with conditions that affect their mobility.[426] People who are regularly exposed to the elements, such as outdoor workers and people experiencing homelessness, also face increased risk of heat-related illness. Recent studies have shown that heat exposure during pregnancy is associated with pre-term birth, reduced birth weight, and still birth.[427]

On average, there were 683 heat-related illness emergency room visits each year in New York City from 2017 to 2022.[428] These hospital visits can be costly, particularly for the over half million New Yorkers living without health insurance.[429] Extreme heat also can worsen symptoms of pre-existing chronic conditions that can lead to increases

KEY TERMS[430]

Exposure The presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected because they are exposed to a hazard.

Hazard The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.

Impact The effects of climate change on natural and human systems.

Risk The estimated impact that a hazard would have on people, services, facilities, and structures in a community. Risk measures the likelihood of a hazard occurring and resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low. Risk also can be expressed in terms of potential monetary losses associated with the intensity of likelihood of sustaining damage above a particular threshold due to occurrence of a specific type of the hazard.

Vulnerability The characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of physical events.

COMMUNITY CASE STUDY

COOL STREETS RED HOOK

LOCATION: Red Hook, Brooklyn

In the sweltering summer months of 2020, when COVID-19 was impacting New Yorkers and people had limited access to indoor cooling spaces, the Cool Streets initiative in Red Hook aimed to provide quick build solutions to cool people down. An initiative of Resilient Red Hook, the RETI (Resilience, Education, Training, and Innovation) Center, and Columbia University's Center for Resilient Cities, Cool Streets brought together volunteers to build shade structures, benches, misting stations, and other interventions to keep community members safe during summer heat waves.[431]

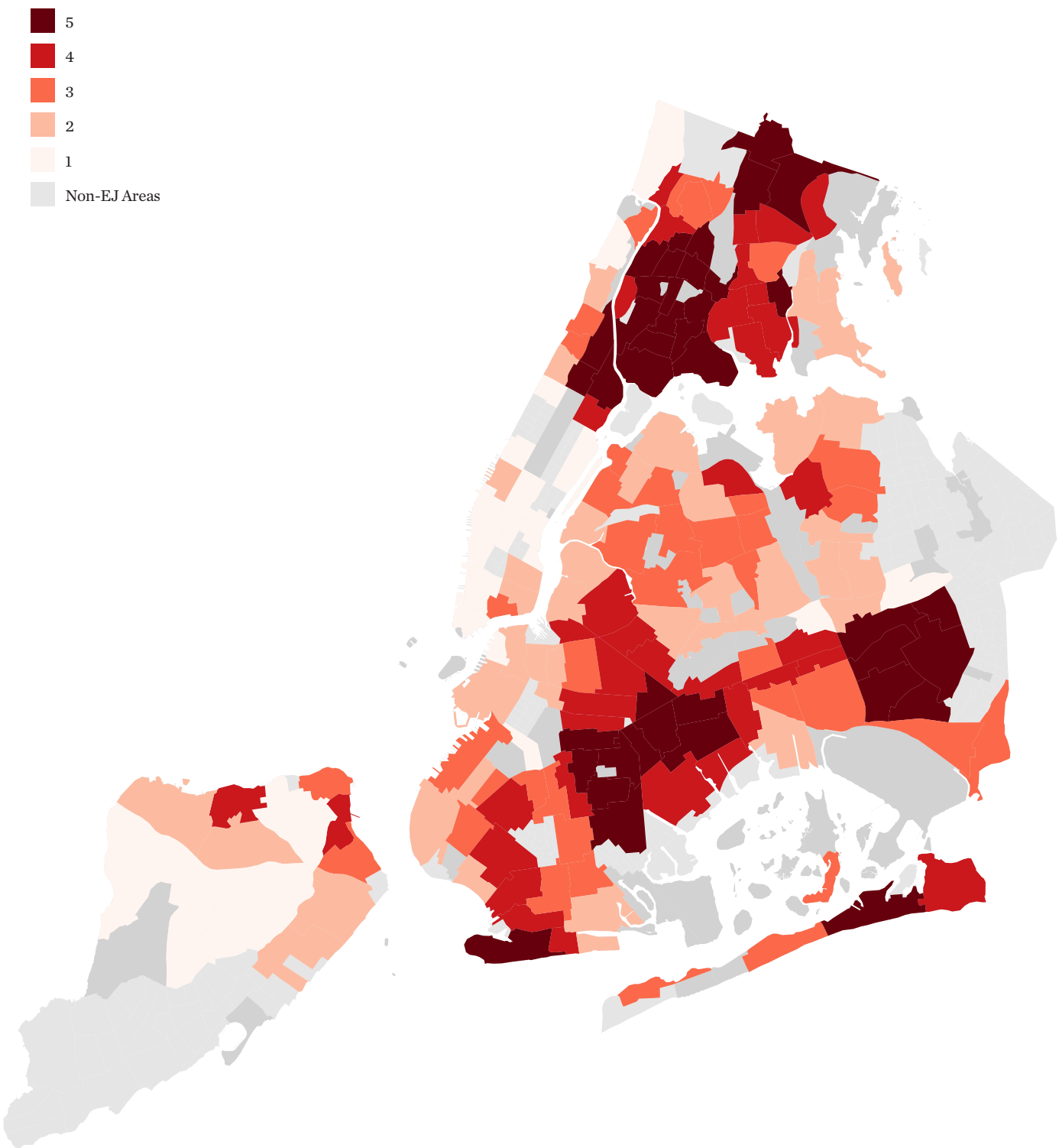
Heat-related deaths are disproportionately concentrated in Black neighborhoods and low-income neighborhoods. Many parts of Red Hook have higher-than-average temperatures, particularly the areas around the Gowanus Expressway, some of which are low-income Black and Hispanic or Latino communities. These sorts of communities were among the hardest hit by the COVID-19 pandemic and among the least likely to have access to air conditioning at home.[432] By providing COVID-safe, outdoor cooling infrastructure, initiatives such as Cool Streets Red Hook aimed to alleviate racial health disparities related to the compounding problems of extreme heat and COVID-19. As climate change increases the number of extreme heat days, these sorts of interventions will be all the more crucial to ensuring that New Yorkers are safe from the heat.

in hospital visits and even death, known as heat-exacerbated death. Using weather and natural cause death data from 2011 to 2020, the Department of Health and Mental Hygiene (DOHMH) estimates that more than 500 heat-related deaths occur each summer and that these deaths have been increasing in the most recent decade, likely as a result of climate change and a recent plateau in the levels of air conditioning ownership.[433]

Access to home air conditioning is the most effective way to prevent disease and death due to heat exposure. Indoor temperatures can be much higher than outdoor temperatures, even at night, without access to proper cooling.[434] Ninety-one percent of households citywide report having functioning air conditioning in the home.[435] However, access is lower in neighborhoods with a higher prevalence of poverty, and not all air conditioner owners can afford the increased energy costs of running the unit. A study of air conditioning access in New York City found that financial barriers contribute to lower access to home air conditioning amongst Black residents and individuals with a household income of less than $30,000 per year.[436] This is a contributing factor to inequities in heat-related health impacts: Black New Yorkers are twice as likely to die from heat stress than white New Yorkers.[437]

DOHMH and Columbia University's NYC Heat Vulnerability Index (HVI) shows neighborhoods whose residents are more at risk for dying during and immediately following extreme heat. It uses a statistical model to summarize the most important social and environmental factors that contribute to neighborhood heat risk. The factors included in the HVI are surface temperature, green space, access to home air conditioning, and the percentage of residents who are low-income or non-Latinx Black. [438] Differences in these risk factors across neighborhoods is rooted in past and present racism.[439] The majority of the population living in neighborhoods with high heat vulnerability (HVI-5 and HVI-4) live in EJ Areas, particularly within Central Brooklyn, Upper Manhattan, Southeast Queens, and the Bronx.

Heat Vulnerability of EJ Neighborhoods



SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, Heat Vulnerability Index (NTA), 2023. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

PROGRAM/POLICY SPOTLIGHT

COOL NEIGHBORHOODS NYC

LEAD AGENCIES: NYC Department of Parks and Recreation (NYC Parks), Department of Health and Mental Hygiene (DOHMH), and Mayor's Office of Climate & Environmental Justice (MOCEJ)

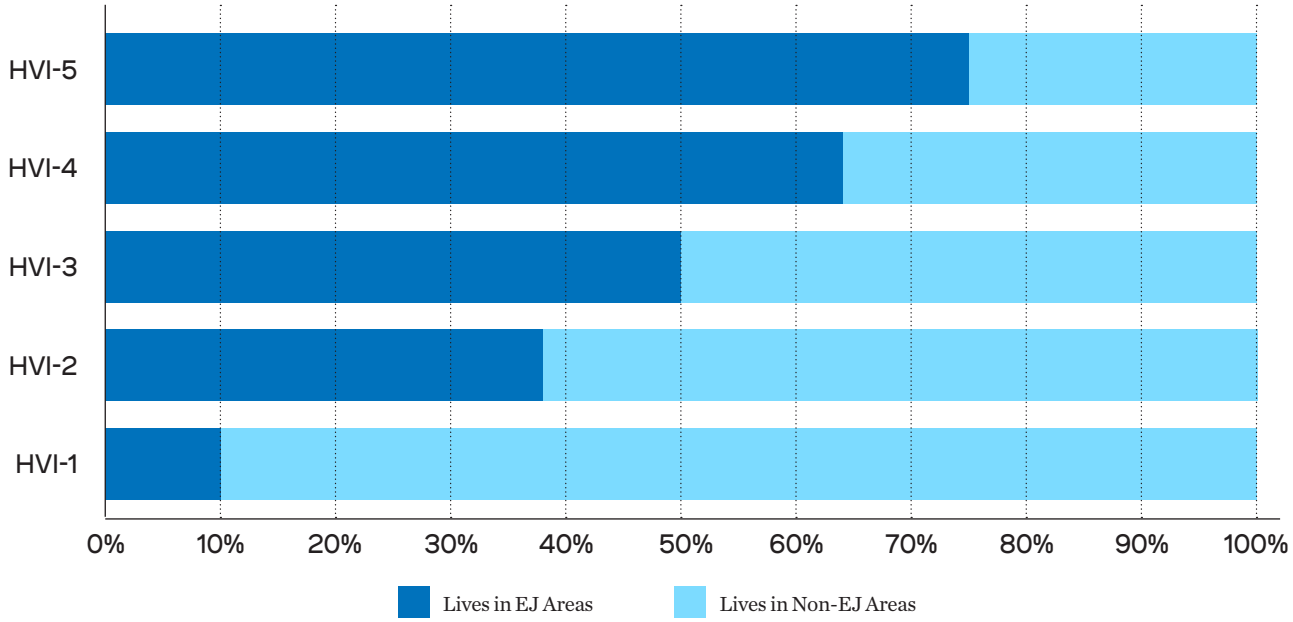
As climate change and the urban heat island effect cause increasingly frequent periods of extreme heat, the risk of adverse health impacts such as dehydration, heat exhaustion, heat stroke, and mortality increases. In response, Cool Neighborhoods NYC was launched in 2017 as a $106 million program aiming to address extreme heat concerns in New York City.[440] In fall 2022, Mayor Adams announced an additional $112 million allocation to further expand the City's tree canopy and support other strategies to address heat.[441] By 2027, the NYC Parks Department will fulfill all potential tree-planting opportunities in every neighborhood with a Heat Vulnerability Index score of four or higher.

A major initiative under Cool Neighborhoods NYC is the Be a Buddy model, which promotes social resilience through local volunteer networks. Participating community-based organizations identify heat-vulnerable residents and train local volunteers to perform wellness checks.[442] These networks were also activated at the height of the COVID-19 pandemic, with over 11,000 check-ins performed from March to August of 2020. By facilitating social cohesion within local communities, this program improves quality of life and advances environmental justice. Be a Buddy volunteers reported having an increased number of local relationships and feeling more supported and appreciated by their community upon participating in the program.

Cool Neighborhoods NYC also activated an interagency collaboration between NYC Parks, MOCEJ, and DOHMH, which initiated street-level temperature monitoring on a subset of city blocks. Targeted within some of the neighborhoods with the highest heat mortality risk, these agencies sought to obtain more accurate temperature data for mitigation and resilience planning.[443] Notably, there was no temperature monitoring in Staten Island. 75 percent of all monitored census tracts are EJ Areas, with Black residents making up majority of the population at 49 percent, followed by Hispanic or Latino residents at 29 percent. Additionally, 23 percent of residents in the monitored neighborhoods live below the federal poverty level.

In addition to these initiatives, the participating agencies have been advocating for the expansion of utility costs under the NYS Home Energy Assistance Program (HEAP) to include electricity costs for air conditioning during hot weather. In 2016, 65% of HEAP funding was allocated to heating assistance, while only 1% was directed towards cooling assistance (with the remainder going towards crisis assistance, weatherization, and administration costs). Cooling assistance funding could only be used for equipment purchases, with no support available to offset the prohibitive energy costs of running an air conditioner during hot weather.[444] Access to air conditioning during extreme heat events is a life-saving resource and a necessary tool for advancing environmental and climate equity.

Population by Neighborhood Heat Vulnerability Index (HVI) Score



SOURCE: NYC Department of Health and Mental Hygiene, Environment & Health Data Portal, Heat Vulnerability Index (NTA), 2023. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

COASTAL STORM SURGE

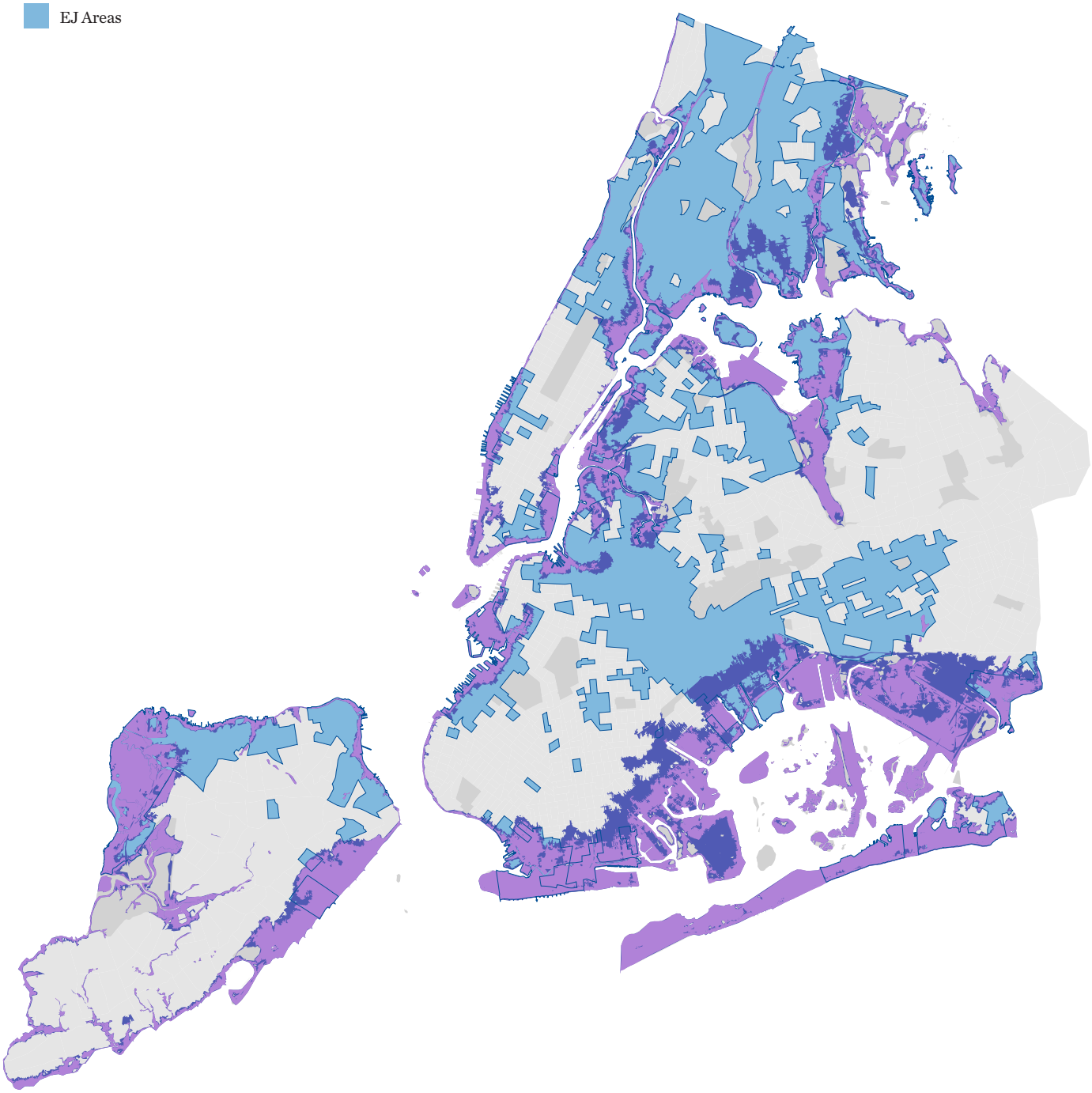
Coastal storm surge is an abnormal rise in sea level generated by a tropical or winter storm that causes water to rush onto land. Warming ocean temperatures due to climate change will increase the frequency and intensity of tropical storms in the Northeast.[445] Coastal storm surge combined with sea-level rise can produce devastating effects. Since 1900, sea levels in New York City have risen by a foot and are expected to increase by as much as 5.4 feet by 2100, leading to an increased frequency and intensity of coastal flooding.[446] Coastal communities are the most exposed to storm surge. 57 percent of the population living within the projected 2020s 100-year coastal floodplain live within EJ Areas, and 58 percent of residents living in the projected 2080s 100-year coastal floodplain live in EJ Areas.

CHRONIC TIDAL FLOODING

Sea level rise leads to higher tides, increasing the frequency of tidal flooding. Tidal flooding, also known as sunny-day or nuisance flooding, occurs when low-lying areas off the coast are inundated with water absent a storm event. While less severe than coastal storm surge, tidal flooding can still inflict significant property damage, disrupt mobility, and impact quality of life.

Some New Yorkers in coastal communities already experience regular tidal flooding, and it will increase in frequency and severity as sea level continues to rise. The average number of tidal flood days in New York City nearly doubled from 32 days from 1955–1984 to 63 days from 1985–2014.[447] By the 2080s, large portions of some coastal neighborhoods, such as communities around Jamaica Bay, could experience tidal flooding more than every other week on average.[448] Sixty-nine percent of the population living within the 90th percentile projection of chronic tidal flooding for the 2020s live in EJ areas, and 60 percent of the population living within the 90th percentile projection of chronic tidal flooding for the 2080s live in EJ areas.

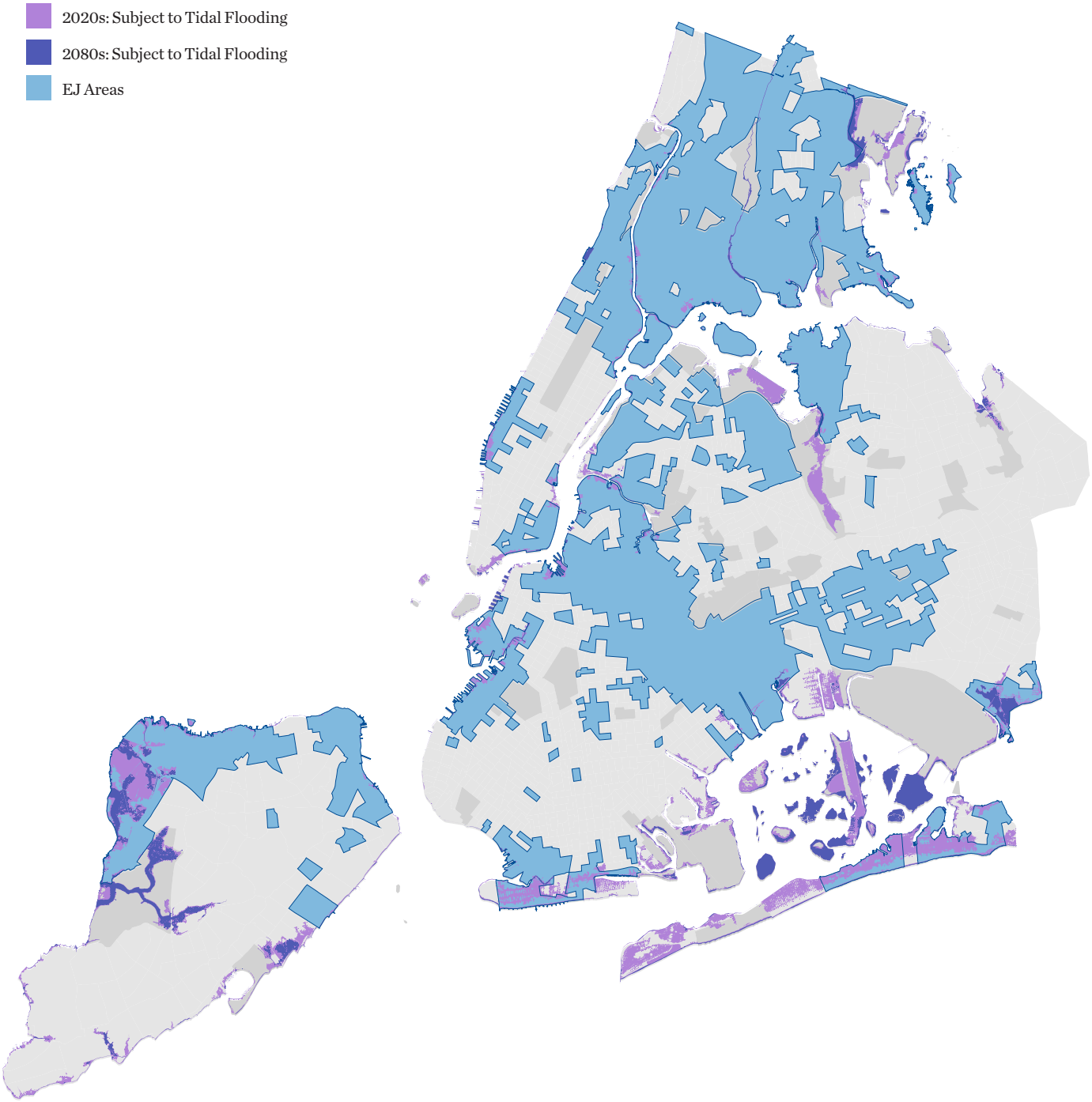
Projected Storm Surge Inundation (2020s and 2080s)



SOURCE: NYC Mayor's Office of Climate & Environmental Justice (formerly the Mayor's Office of Long-Term Planning and Sustainability), Sea Level Rise Maps (2020s 100-year Floodplain), 2021; Sea Level Rise Maps (2080s 100-year Floodplain), 2021. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

Chronic Tidal Flooding (2020s and 2080s)

Tidal flooding areas show tidal flooding expected with 90th percentile projections for sea level rise for the 2020s and 2080s.



SOURCES: New York City Panel on Climate Change, Future Tidal Flooding Due to Sea Level Rise, 2018. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

COMMUNITY CASE STUDY

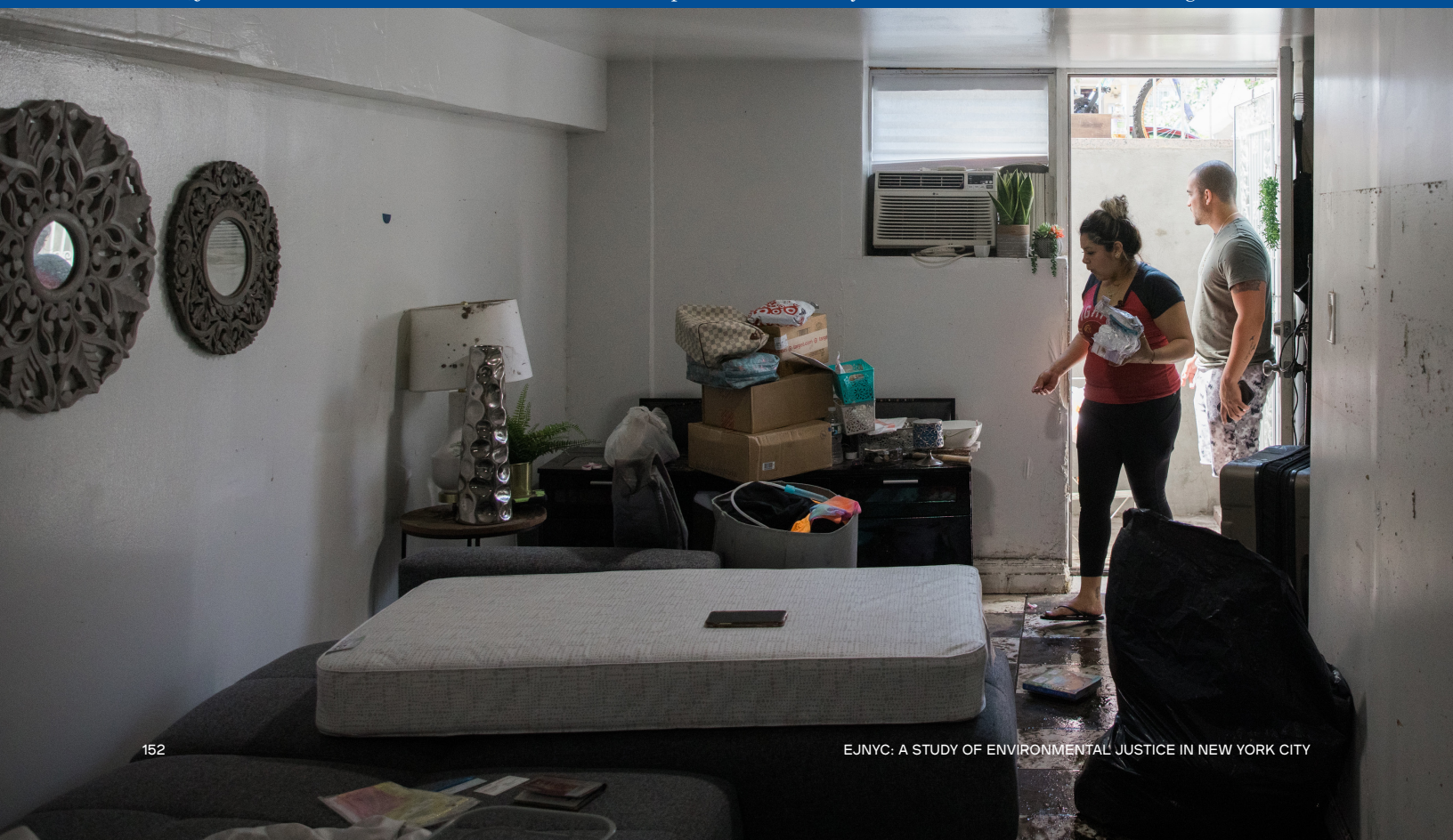
FLOODING, WATERBORNE DISEASE, AND BASEMENT APARTMENTS IN QUEENS

LOCATION: Queens

During and after Hurricane Ida, residents in Queens were exposed to waterborne diseases such as norovirus and E. coli after flood waters possibly contaminated with raw sewage rushed into their homes. At least one person had to be hospitalized, potentially due to waterborne disease.[449] Residents of basement apartments, mostly in Queens and Brooklyn, were among the hardest hit by flooding. In Woodside, Queens, a family of three, including a two-year-old child, was killed when their basement apartment flooded.[450] The compounding issues of flooding, unsafe housing, and sewage infrastructure in need of repair reached a crisis point during Hurricane Ida, at the expense of some of the city's most marginalized residents.

Basement apartments are one of the few types of unsubsidized affordable housing in many New York City neighborhoods, but not all of them are up to code. Chhaya Community Development Corporation's BASE (Basement Apartments Safe for Everyone) campaign aims to increase access to affordable, climate-safe, legally recognized basement apartments. The BASE campaign endeavors to find ways to formalize existing basement apartments so that they meet safety regulations and seeks to create pathways for unoccupied basements to be converted to safe accessory dwelling units. Chhaya envisions the potential for an additional 200,000 housing units from safe basement apartments, increasing both the affordability and resilience of the city's housing stock.[451]

Two Queens residents clean their flooded basement-level apartment after heavy rains from storm Ida caused flooding.



EXTREME RAINFALL

New York City is projected to experience more extreme rainfall in the mid- and late-century. Annual rainfall may increase more than 30 percent by the end of the century.[452] A short-term extreme rain event, also known as a cloudburst, can unleash intense volumes of water onto the city. This excess water can overwhelm the City's existing stormwater drainage system and result in severe flooding. Extreme rainfall can also trigger combined sewer overflows, which send sewage, industrial waste, and other pollutants into the city's waterways. Similar to flooding caused by coastal storm surge and tidal events, stormwater flooding can inflict significant damage on homes, businesses, and infrastructure.

As part of the 2021 Stormwater Resiliency Plan, the Department of Environmental Protection (DEP) created a series of Stormwater Flood Maps that identify communities exposed to moderate and extreme stormwater flooding. The Stormwater Flood Maps are a powerful resource that visualizes publicly accessible flooding data and projections to enable more informed decision-making by residents, property owners, and policy makers. Neighborhoods in low-lying areas are most impacted by extreme rainfall, such as those in Southeast Queens, North Brooklyn, and the East Shore of Staten Island. Fifty-four percent of the population living within areas subject to potential flooding under the 2020s Moderate Stormwater Flood with Current Sea Levels scenario live in EJ Areas. Forty-eight percent of the population living within areas subject to potential flooding under the Extreme Stormwater Flood with 2080 Sea Level Rise scenario live in EJ areas. (These scenarios represent different flood events and cannot be compared directly.)

The City's Stormwater Flood Maps are modeled data that rely on certain assumptions, including a uniform rainfall rate across the city, and assumptions that larger properties such as airports will manage drainage on site, and that the drainage network is free of debris or sediment and is functioning properly.[453]

VULNERABILITY, IMPACT, AND RISK

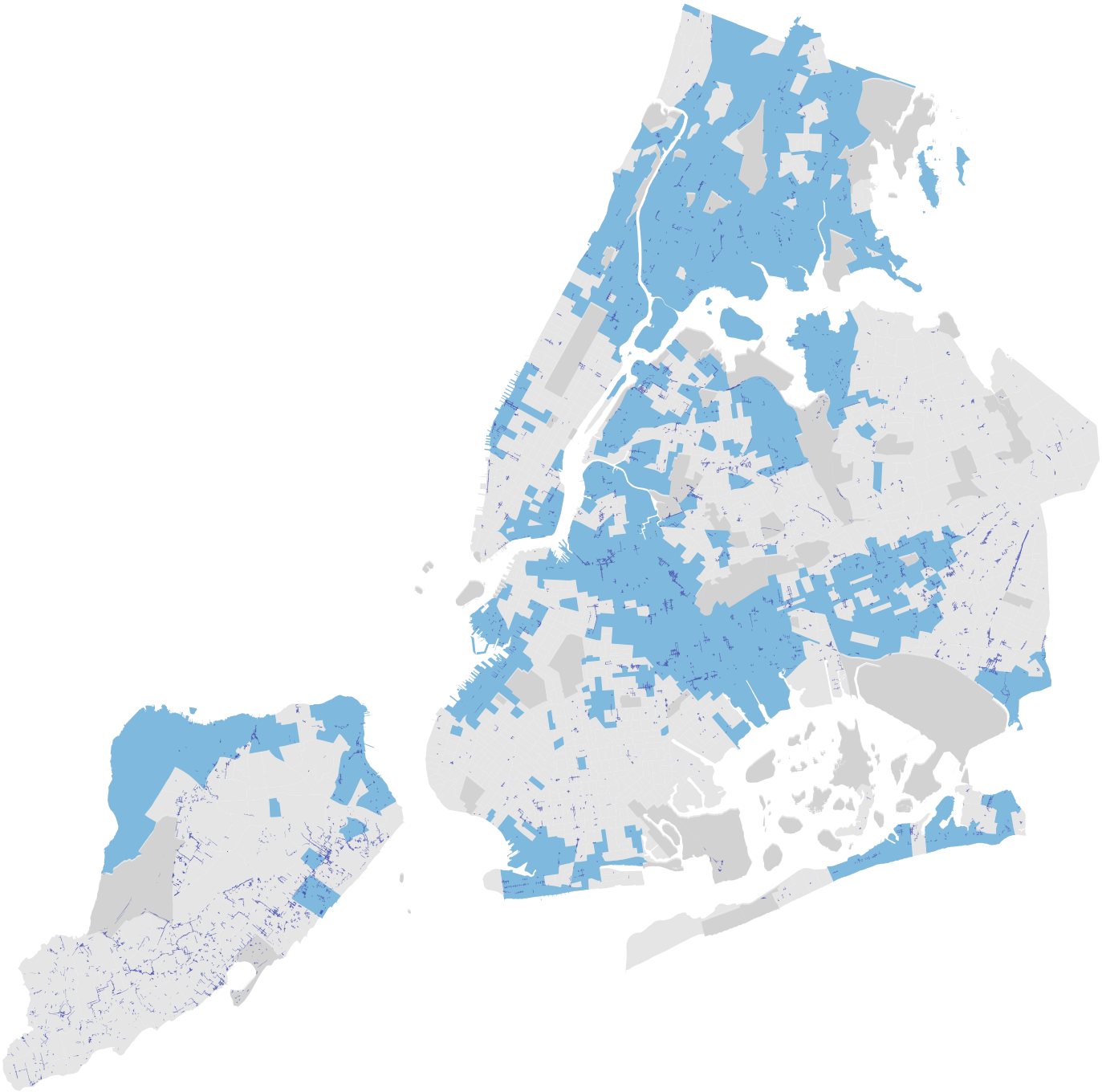
Measuring climate vulnerability, impact, and risks is complicated due to the interconnected nature of climate change. Current available research provides a general understanding of the potential impacts, such as property damage and disruptions to economic activity. However, the true extent of these impacts for any given event remains unclear due to the unpredictable nature of weather events, each with unique characteristics, including location and intensity. Consequently, outcomes may vary significantly for different households and businesses depending on the event. Moreover, the physical and mental health impacts resulting from such events have not been fully quantified, lacking specific literature tailored to New York City's context. For instance, Hurricane Sandy's economic impacts were estimated at $20 billion, but the full spectrum of consequences remains difficult to capture accurately.

In response to the mounting climate threats, the City has taken steps to enhance its understanding of coastal flood vulnerability through VIA (Vulnerability, Impact, and Adaptation) research. The initiative brings together scientific and qualitative information on social and economic vulnerability, public health, and climate change to inform policy and actions, and to understand the opportunities and tradeoffs of various mitigation and adaptation strategies for the most vulnerable and at-risk communities. This work includes the development of a brand-new Flood Vulnerability Index (FVI), which maps differential vulnerability to coastal flooding in the New York City context. Similar to the Heat Vulnerability Index (HVI), the FVI can help inform decision-making to more equitably build flood resilience and protect the city's social, economic, and environmental wellbeing. The FVI maps will be hosted within the EJNYC Mapping Tool.

Extreme Rainfall / Stormwater Flooding: Moderate Flood with Current Sea Levels

Stormwater Flooding >4 inches

EJ Areas



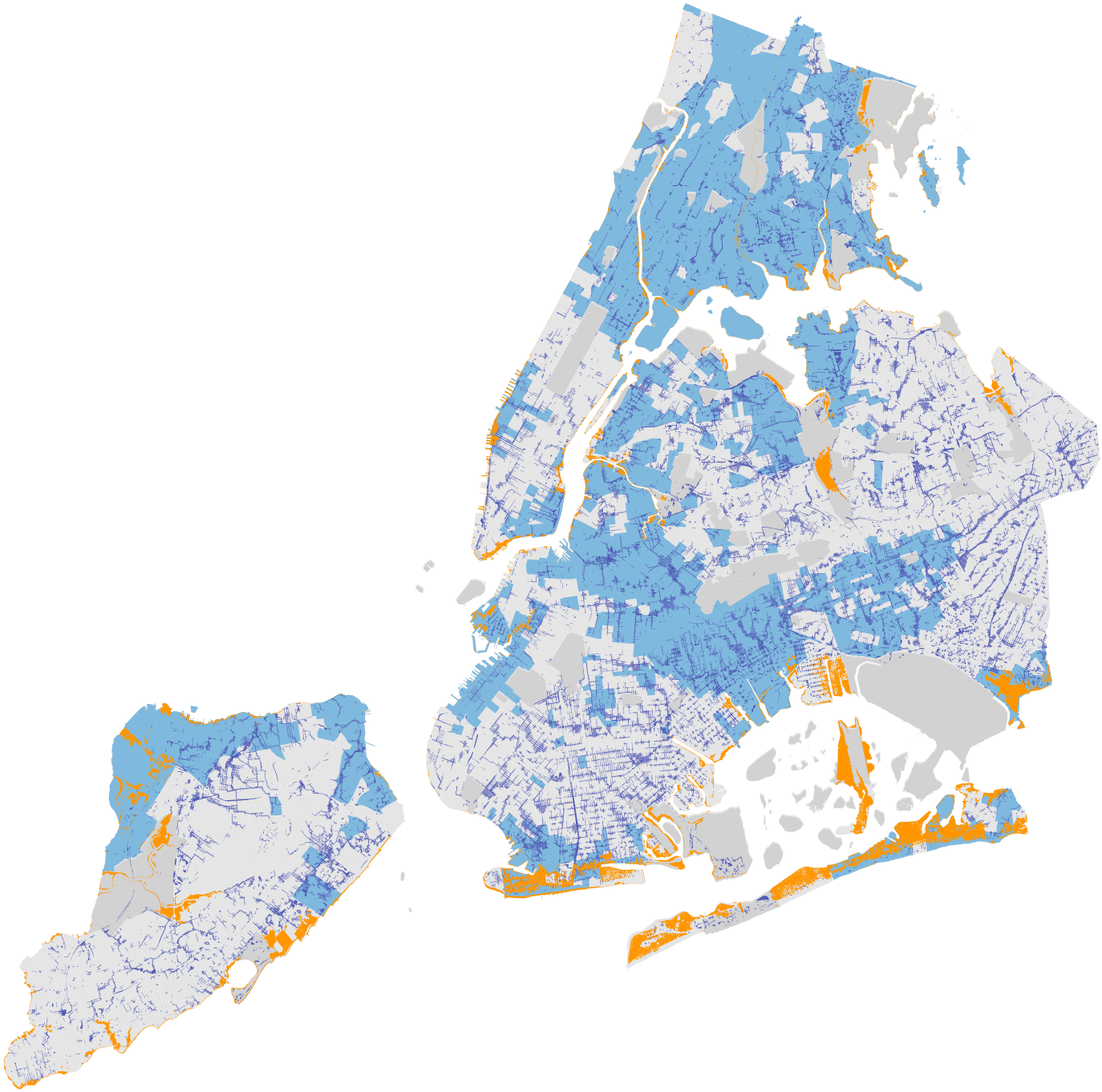
SOURCE: NYC Department of Environmental Protection, NYC Stormwater Flood Map - Moderate Flood with Current Sea Levels, 2022. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

Extreme Rainfall / Stormwater Flooding: Extreme Flood with 2080s Sea Level Rise

Stormwater Flooding >4 inches

Future High Tides 2080s

EJ Areas



SOURCE: NYC Department of Environmental Protection, NYC Stormwater Flood Map - Extreme Flood with 2080 Sea Level Rise, 2022. NYS Department of Environmental Conservation, Disadvantaged Communities Criteria, 2023.

PROGRAM/POLICY SPOTLIGHT

NYCHA CLIMATE ACTION GRANT PROGRAM

LEAD AGENCY: New York City Housing Authority (NYCHA)

In 2022, NYCHA and the Public Housing Community Fund launched a Climate Action Grant program for residents, following a series of climate action workshops conducted to solicit resident input into NYCHA's Sustainability Agenda and Climate Adaptation Plan prior to their release. The workshops also served to elevate awareness about energy and sustainability projects and initiatives and build a community around sustainability-related activism. Climate Action Grants are funded by private contributions including from ConEdison and Kinetic Communities, and are intended to provide support for small, resident-generated sustainability projects as a complement to the larger scale programs designed to address sustainability and resiliency issues at the building and development level. Eligible projects for the grant opportunity include community-building events, educational and recreational programming, urban gardening, recycling activities, and other resiliency or sustainability-related actions.[454]

In January 2023, NYCHA awarded a total of $27,500 to the first four winners of the program. The winning proposals include two community garden revitalization projects, an energy-efficiency workshop with free LED light bulbs provided to attendees, and a "One-Stop-Drop" recycling center for electronics, clothes, and composting.[455]

NYCHA's Sustainability Agenda represents NYCHA's commitment to advancing sustainability at NYCHA's buildings and neighborhoods. The grants program is one component of its efforts to prepare and support its residents to mitigate and adapt to climate change. The City seeks to use lessons learned from NYCHA's grant program to explore other opportunities to invest in resilience efforts for vulnerable populations.

Grantee winners include Inner City Green Team (left) and NeighborhoodStat.

FUNDING AND RESOURCE ALLOCATION

Federal, state, and local funding support climate resiliency efforts throughout New York City. The City has actively pursued federal funding opportunities, such as the Federal Emergency Management Agency's (FEMA) Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) grant programs, to help communities plan for and protect against climate hazards. However, there are limitations with the Benefit-Cost Analysis (BCA) formulas used to allocate FEMA funds, including a failure to explicitly consider "distributional factors" such as income, race, or geographic location.[456]

In the aftermath of climate hazard events like those experienced in New York City during Hurricane Sandy and Hurricane Ida, post-disaster funding is essential to facilitate recovery and reconstruction efforts, as well as climate adaptation. However, this funding is often tied to only those areas directly impacted by the disaster, leaving many other vulnerable communities without the necessary resources to protect against future events. Research into FEMA disaster response funding, as well as mitigation grant programs, suggests the program perpetuates existing inequities by funding more efforts in wealthier, whiter communities.[457, 458, 459]

Looking ahead, there is potential for significant support through federal initiatives such as the Infrastructure Investment Jobs Act (IIJA), Inflation Reduction Act (IRA), and the Justice40 Initiative. These initiatives aim to integrate environmental justice considerations into funding allocations, ensuring that resiliency projects benefit all communities, including those disproportionately impacted by climate change and environmental hazards.

In addition to federal funding, New York State also plays a crucial role in supporting climate resiliency efforts. The Clean Water, Clean Air, Green Jobs Bond Act, also known as "The Environmental Bond Act," will provide $4.2 billion in funding for projects that safeguard drinking water sources, reduce pollution, and protect communities and natural resources from climate change. It includes funding provisions for environmental justice communities, allocating at least 35 percent of funding for clean energy and energy-efficiency programs to disadvantaged communities significantly impacted by environmental changes.

The City has also attempted to embed equity and environmental justice considerations. One noteworthy example is the Cloudburst Management program, which constructs grey and green infrastructure projects to manage flooding from extreme rainfall. As part of the Cloudburst Management program, neighborhoods are selected through an equity-informed process that considers historic and future stormwater flooding hotspots, existing city projects, environmental justice areas, and social factors that may increase vulnerability to stormwater flooding. The City also launched Climate Strong Communities (CSC) in 2023, the next generation of equitable, multi-hazard, pro-active resiliency and sustainability projects, which maximizes unprecedented infrastructure and climate funding opportunities that are focused on the most at-risk and environmental justice neighborhoods in the city. This effort includes a collaborative planning process, bringing together City agencies and community stakeholders to ensure the projects reflect community priorities.

Despite the efforts made in securing climate resiliency funding, challenges remain in tracking and monitoring these investments. Historically, New York City lacked a centralized system to comprehensively record and assess resiliency projects. Through the Climate Budgeting initiative, the City will begin integrating climate considerations into budget decisions and track progress towards climate goals through annual progress reports. Similarly, MOCEJ will be working with OMB to determine a framework for defining and assessing EJ investments. Together, these efforts can increase transparency and accountability around climate and environmental decision-making.

STAKEHOLDER INPUT

The following collection of quotes from the focus groups and interviews, conducted as part of the qualitative research for this report, speak to the various issues associated with climate change and environmental justice.

EXTREME HEAT

"There is this tendency to focus on storm surges because that's sexy, it's violent, the media loves it. But the thing that concerns us, particularly because of the health profile of our community, is extreme heat."

"I think the extreme heat where our people live is a real problem, because those areas tend to be densely populated, without enough green spaces, and that has multiple impacts. It puts a lot of community members at risk, not just in terms of their health, but also economically."

COASTAL STORM SURGE

"We have the lowest lying floodplains in New York City on the eastern end of the Rockaways, in particular ... we have much more exacerbated issues with flooding. When you see which communities are the most vulnerable to flood and see what they look like demographically, it seems those most underrepresented are affected by flooding more than the rest of the peninsula."

"We have got zero help. My parents are both seniors. The insurance company has denied their claims from flooding because we're now living in a flood zone and they have been pretty much no help from nowhere."

"[A]ll the agencies need to work together. The problem I've discovered within the last year, it seems like you're going around a circle when they're dealing with these different agencies. It seems like there's no communication barrier."

EXTREME RAINFALL

"How many more deaths do we need? Nothing meaningful has changed over the last year. If another major storm comes tomorrow, we can wake up the next morning with devastating news. We know these are death traps—if I've fallen asleep, I may wake up to water coming over me, and I cannot escape. People who survived said they didn't expect it, and it had never happened before."

ENGAGING THE PUBLIC ON ENVIRONMENTAL JUSTICE

Meaningful involvement, a core principle of environmental justice, means the public has an opportunity to influence environmental decision-making that may affect their health and wellbeing. Understanding and participating in these complex and variable processes can be confusing, resource-intensive, time-consuming, and inaccessible for New Yorkers, thus limiting the perspectives represented. City agencies, as discussed in this section, have used online engagement tools and participatory planning workshops to overcome some of these barriers; however, there are opportunities to expand these efforts in the future.

Public comments are only one aspect of decision-making and must be weighed against other inputs such as technical analysis and citywide goals like addressing the housing crisis. Furthermore, in certain instances, public comments processes can become dominated by those with the time and resources to promote their desires, which may be at odds with equity and environmental justice priorities. While the concept of public engagement and consensus building means that some community members will inevitably be disappointed by the outcome, equitable public engagement processes seek to center the interests of those most impacted.

This chapter evaluates select City engagement processes to better understand the barriers to participation. While not fully exhaustive of the City's efforts, these case studies span different EJ issues and City agencies to give a snapshot of current engagement practices. This evaluation is supplemented by findings from a series of focus groups with New Yorkers in EJ communities, as well as stakeholder interviews with community leaders on the frontlines of the EJ movement. The conversations revealed both positive and negative experiences engaging with City agencies on EJ issues, highlighting critical concerns for the City to address in the forthcoming EJNYC Plan. The City seeks to expand successful engagement practices and explore new methods of partnership to ensure City efforts to advance environmental justice reflect community voices.

This section evaluates select examples of formal public engagement, public engagement that is not legally required, and environmental processes without public engagement, per the public scope. These evaluations are followed by high-level summaries of the key takeaways from the EJNYC focus groups and interviews.

FORMAL PUBLIC ENGAGEMENT

Specific City programs and processes include legally-mandated public engagement. This section evaluates some key examples; this list is not exhaustive.

CITY ADMINISTRATIVE PROCEDURE ACT (CAPA)

The City Administrative Procedure Act (CAPA) is the process by which a City agency may propose and adopt rules necessary to carry out its duties as dictated by federal, state, or local law. The rulemaking process generally takes a minimum of 60 days and requires the agency to solicit and consider public comments. The act states that each agency should conduct outreach to the relevant communities, collect written comments and conduct a public hearing. The agency may adopt a final rule "after consideration of the relevant comments presented," but there is no requirement for the agency to make public how it considered such comments.[460]

The rulemaking process is crucial to environmental justice as it is the vehicle for the creation of environmentally impactful rules such as the Department of Parks and Recreation (NYC Parks)'s requirement for planting of replacement trees destroyed during a construction project and the Department of Health and Mental Hygiene (DOHMH)'s eligibility criteria for the Grocery-to-Go program, which was created to address food insecurity in New York City.[461]

Although proposed rules must include a statement of basis and purpose, written comments on proposed rules have raised concerns around the difficulty in understanding the legal language in which the rules are typically drafted, stating that citizens are unable to weigh in on issues if they do not know what is being proposed. Similarly, while public hearings may provide the opportunity to ask clarifying questions, members of the public who are unable to attend hearings have no way of better understanding the propositions.

Another concern with these public engagement processes is the question of impact. Stakeholder feedback has called for the exploration and development of a clear and quantifiable requirement for incorporating public comments into decision-making. CAPA does not require the agency to make public how it considered such comments.

COMMUNITY DISTRICT (CD) NEEDS STATEMENT

Community Boards (CBs) are local representative bodies that act as the official liaisons between community residents and City agencies, and advocate for the residents and needs of their districts. Each Community Board comprises up to 50 non-salaried members and may employ other staff and consultants to fulfill its duties. Funds are allocated by the City to each board to cover staff salaries, rent, utilities and other administrative expenses. As part of each Community Board's responsibilities, the City Charter mandates the production of an annual Community District (CD) Needs Statement, which identifies the funding priorities in each district and informs the City's neighborhood and infrastructure planning.

The CD Needs Statement has three main components:

- "Top 3" Pressing Issues section, which highlights the most critical issues affecting the community district.
- Policy Issue Areas section, which identifies the most important issue within each of seven distinct policy areas: Healthcare and Human Services; Youth, Education and Child Welfare; Public Safety and Emergency Services; Core Infrastructure and City Services; Housing, Economic Development and Land Use; Transportation; and Parks, Cultural and other Community Facilities. The Policy Issue Areas section also includes agency-specific needs to help make the callouts more actionable.

» Needs Statement, which includes a prioritized capital budget request for City services and infrastructure investments that address local needs.[462]

The CD Needs Statement development entails an engagement process to collect input from CB members and the public through surveys and dialogues, budget consultations with City agencies, and a drafting process to synthesize findings. A 2021 report published by The Future of Community Boards Working Group (a coalition of Community Board district managers and staff across the five boroughs) indicated that CB members sometimes may not have the adequate skillset needed to conduct surveys or assess issues across the policy areas and must rely heavily on their staff. However, CBs have not had a significant baseline budget expansion since 2014, making it difficult to hire additional staff.[463] The report also expressed concerns about the working relationship between CBs and some City agencies, with some agencies limiting their participation in the budget consultation process.

However, the Department of City Planning (DCP) has made significant efforts to streamline the preparation of CD Needs Statements and support CBs throughout the process. Online materials including training videos, reference guides for developing budget requests, surveys for gathering input about CD Needs, and tips to strengthen submissions, are available on the DCP website. DCP has also invested in the development of the online CD Priorities platform to enable CBs to submit Needs Statements in a timely and consistent manner that can be easily integrated into City agency planning.[464] Responding to feedback from CB staff, the agency subsequently made changes to make the platform more user-friendly, conducted training sessions, and provides a step-by-step user manual to ensure successful adoption of the platform by CBs.

In some cases, the demographics of Community Board members do not reflect the diversity of the districts they are representing. This has resulted in instances where the interests of Community Boards and environmental justice advocates are not aligned and, in some instances, incongruous.

A different challenge to the success of the Community District Needs Assessment as a tool for advancing environmental justice is rooted in representation; in some cases, the demographics of CB members do not reflect the diversity of the districts they are representing. This has resulted in instances where the interests of CBs and environmental justice advocates are not aligned and, in some instances, incongruous. Efforts to address this issue led to the 2018 City Charter revision, which requires Borough Presidents to report on their diversity efforts to ensure that board members represent the demographics of their communities.[465]

UNIFORM LAND USE REVIEW PROCEDURE (ULURP)

New York City's Zoning Resolution establishes an orderly pattern of development across the city by identifying what may be built on any piece of property.[466] Most proposed developments are designed to comply with the Zoning Resolution. However, land use actions requiring changes to zoning designations, area-wide rezonings, site selection for capital projects led by City agencies, and the sale, lease or exchange of City-owned land, are subject to an approval process.[467] ULURP is the standardized procedure whereby such actions are publicly reviewed and decided on. It is a crucial decision-making process as it plays a role in the distribution of environmental burdens and benefits The establishment of ULURP in 1976 reflected two trends underway in the 1950s and 1960s: the increasing involvement of the city's CBs in the development of the city and a substantial increase in community participation in many aspects of government.[468]

DCP ensures that all land use applications for changes to zoning regulations, the City Map, siting of public facilities, and grants of site-specific actions are complete before they are reviewed by the public. Once complete, relevant CB(s) and borough president(s), City Planning Commission (CPC), City Council, and mayor weigh in on these land use applications. As part of the CB(s) and City Planning Commission reviews, public hearings must be held to receive community input that informs their recommendations and decisions.[469]

CBs are required by the City Charter and the City Administrative Code to conduct monthly public hearings except in July and August, provide adequate public notice ahead of such sessions, and maintain websites accessible for non-English speakers and persons with disabilities. The CPC public meetings are generally held at the same location twice monthly on Wednesdays. In response to the COVID-19 pandemic, CBs and the CPC have adopted virtual meetings, which have improved accessibility to public hearings. CPC shares information about upcoming public meetings with links to virtual meetings on NYC Engage, the city's central public engagement website. CBs maintain individual websites and sometimes post information about upcoming hearings. Public comments can be provided orally during hearings or as written submissions.

A 2021 report by The Future of Community Boards Working Group comprised of staff from CBs across the city stated that zoning rules and ULURP applications are often very complex and CB members may not have the necessary knowledge to navigate the process or support their residents in understanding matters under deliberation.[470] Stakeholder feedback from focus groups, interviews and informal conversations conducted as part of this evaluation shared similar sentiments that proposal documents and evaluations of environmental impacts prepared pursuant to the State Environmental Quality Review Act are often hundreds of pages long and written in technical language that makes public participation difficult.

The City has made efforts to support CBs in better engaging their residents and participating in ULURP through the Civic Engagement Commission (CEC), which provides support and training to CBs related to community engagement and parliamentary procedures.[471] Past CEC workshops for CB members have covered Land Use and Equity Planning, Public Engagement, and Fair Housing, among other topics.[472] DCP also makes filed land use application materials available online to increase transparency and public access.[473]

In addition, the "Get Stuff Built" report, released in 2022 to streamline and improve the City's land use and permitting approval processes, identified opportunities to improve public participation for ULURP. These include amending the application process to file materials earlier, providing advance notice, and providing additional time for CBs and the public to review the extensive proposal

documents. Other recommendations include allowing members of the public to subscribe to automatic notices for applications in a specific area and exploring the inclusion of SMS notifications in addition to email notifications. Subscribers would be notified when an application is filed in their subscribed CD.[474]

PUBLIC ENGAGEMENT THAT IS NOT LEGALLY REQUIRED

In addition to the formal public processes conducted under legal mandate, the City engages the public in many decision-making processes without being legally required to do so. Some illustrative examples are presented below; this list is not exhaustive.

PERMANENT AFFORDABILITY COMMITMENT TOGETHER (PACT)

Initiated in 2018, the Permanent Affordability Commitment Together (PACT) program allows public housing developments to be converted to Project-Based Section 8, by including developments in the federal Rental Assistance Demonstration (RAD). This allows the New York City Housing Authority (NYCHA), and partners selected by resident leaders, to unlock funding to complete comprehensive repairs, while also ensuring homes remain permanently affordable and residents have the same basic rights as they possess in the public housing program.[475]

The federal RAD program has minimum requirements for resident engagement set by HUD. NYCHA's engagement and planning process follows these requirements at a minimum but the agency has also created formal processes for resident input and partnership.[476] Residents share their priorities for areas of investment in their community and form official Resident Review Committees to review project proposals, interview potential partners and select the partner team.

As a baseline, the agency provides relevant information on resident rights and responsibilities, employment opportunities under PACT, and sample residential leases for the program in multiple languages including Spanish, Chinese, French, and Russian. In February 2022, the agency established a community-based Resource Team to facilitate resident involvement in the PACT conversion process. Partner organizations include Local Initiatives Support Corporation (LISC NYC), Public Works Partners, Public Policy Lab, and Pratt Institute. The PACT Resource Team's stated objective is to "provide NYCHA residents and resident leaders with invaluable support that helps inform, organize, and empower their involvement in the PACT planning process.[477]

NYC STREETS PLAN

In 2021, the Department of Transportation (DOT) published its latest planning document, which outlines the agency's framework for selecting and implementing solutions to improve New York City's streets, public realm, and transportation. Notably, the plan established an equity-focused model for prioritizing transportation investments. The model uses three indicators in its assessment of investment priority: proportion of non-white and low-income residents, job and population density, and level of prior investment, with the race and income indicators given a combined 50 percent weighting. It serves as a blueprint for other agencies seeking to prioritize EJ communities in investment decisions.

The Streets Plan was developed in part through a robust public engagement and input process that included online activities and surveys, public workshops and small group discussions, telephone polling, and accessibility focus groups. Over a six-month period, 12,500 people provided input through the online platform, 1,260 people participated in telephone polling, and over 600 New Yorkers attended the workshops.[478] This process was facilitated by the DOT Streets Ambassadors, who meet New Yorkers where they

New York City is home to an expansive network of knowledgeable, energetic, and dedicated community leaders who are improving their neighborhoods and organizing to address interconnected quality-of-life issues across the city.

are: on busy streets, in movie theaters, churches, and parks.[479] Neighborhoods with low participation in the online surveys were also engaged through telephone polling. By going beyond the traditional form of engagement and adopting a multichannel strategy, DOT reached a wide range of people and obtained input that is more representative of the needs of New Yorkers.

NEIGHBORHOOD PLANNING

In 2014, the City established the Housing New York Plan to outline strategies for preserving and creating affordable housing units and engage communities in a comprehensive planning process to strengthen neighborhoods and foster socio-economic development.[480] Multiple City agencies are involved in these efforts including DCP, the Department of Housing Preservation and Development (HPD), and Economic Development Corporation (EDC), among others. Since the adoption of Housing New York, these agencies have led interactive Community Visioning Workshops to bring residents, elected officials, community-based organizations, and other government agencies together to develop strategies for delivering affordable, quality housing, and has produced numerous site-specific predevelopment plans and almost a dozen neighborhood plans in mostly EJ Areas.[481] Two notable examples are the East New York Neighborhood Plan (Brooklyn) and the Resilient Edgemere Community Plan (Queens).

East New York is a low-income community with a predominantly Black and Hispanic or Latino population with 66 percent of renter households spending over 30 percent of their income on housing as of 2015.[482] Consequently, through an extensive community planning process involving visioning sessions, report-back events, and town halls, DCP developed the East New York Neighborhood Plan and rezoning proposal.[483] The plan's goals include preserving and creating affordable housing, promoting growth and economic development, and investing in community resources and infrastructure. A key outcome of the planning process was the identification of a city-owned parcel within the rezoning area that would be a suitable site for new affordable housing.

Following the approval of the Neighborhood Plan and rezoning in 2016, Community Visioning Workshops were held to identify community priorities and gather ideas for future development at the city-owned Dinsmore-Chestnut parcel in East New York. Findings from the community workshops included the need for different affordable housing types, cultural and active recreation facilities, and affordable commercial spaces. A report containing the workshop findings was included in the RFP released by the agency

Participants discuss future visions for Edgemere during the "Create" workshop.

for developers.[484] As a result, the now completed Chestnut Commons is a 275-unit affordable housing project with units reserved for individuals and households between 20 and 80 percent of the area median income (AMI) and 55 units designated for formerly homeless New Yorkers. The building also features a community center, solar roof, rooftop garden and an on-site composting system that generates fertilizer.[485]

Edgemere, a neighborhood on the Rockaway Peninsula that is largely comprised of Black and Hispanic or Latino residents, was devastated by Superstorm Sandy and continues to face extensive flooding due to frequent and intense storms and sea level rise. To address these issues and drive investment to the neighborhood, the HPD launched the Resilient Edgemere Community Planning Initiative in 2015 to define neighborhood climate resilience, urban development goals, and identify concrete strategies to meet these goals in collaboration with Edgemere residents. The result of the initiative was a Community Plan that outlined projects to help "protect the neighborhood from flooding" and "create resilient housing and maintain the low density feel."[486]

While many of the planned outcomes of the Resilient Edgemere planning process have been welcomed, some residents expressed concern over the portion of the rezoning effort that sought to facilitate the development of mid-rise buildings with affordable housing. Community Board (Queens CB-14) voted to reject the rezoning plan stating that "the plan would add too many apartments to a low-rise residential area and strain local roads and infrastructure." Conversely, the borough president recommended approval of the land use actions. In July 2022, the City Council approved the Resilient Edgemere Community Plan and rezoning application, which included a $14 million investment to raise the shoreline, $2.3 million toward sewer and drainage infrastructure upgrades, and the development of over 500 new affordable homes.[487]

The mixed response to the rezoning efforts in the Resilient Edgemere Community Plan demonstrates the complexity of building consensus for all aspects

of a neighborhood plan while supporting broader citywide needs such as the need to increase the supply of resilient and affordable housing. Still, neighborhood planning does not stop when land use actions are adopted. In the case of Edgemere, community planning will be part of the development of new HPD housing projects, including the pioneering of a Community Land Trust.

Since the creation of the East New York and Edgemere neighborhood plans, the City has sought to build on lessons learned to improve neighborhood planning efforts. In 2023, DCP announced the creation of a new Community Planning and Engagement division that is intended to center community voices in all planning work.[488]

QUALITATIVE RESEARCH FINDINGS

New York City is home to an expansive network of knowledgeable, energetic, and dedicated community leaders who are improving their neighborhoods and organizing to address interconnected quality-of-life issues across the city. This leadership in the EJ movement is found on the hyper-local, neighborhood scale and the citywide and regional scale, and is present in both formalized leadership roles (such as those at community-based and not-for-profit organizations, civic associations, and community boards), and informal roles (such as block leaders, classroom leaders, and local volunteers). Leaders range in age from high school students to retired adults and are as diverse as the city itself. Through their persistence, these leaders and their communities have achieved considerable success in improving EJ and quality-of-life issues.

Interviews and focus groups included 42 New Yorkers living or working in EJ communities from across the five boroughs about the challenges they face regarding environmental injustices, how they are managing these issues, and what their experiences have been in engaging with the City's related programs and decision-making processes. Furthermore, 992 New Yorkers responded to a survey developed by MOCEJ and the EJ Advisory Board, and distributed by six CBO partners, about their participation in local civic and environmental matters through a survey. Additional details on the scope and methodology of this research can be found in the *Qualitative Research Methodology* (p. 207) in the *Appendix*.

Throughout these conversations, the following themes emerged:

- EJ issues are interconnected, have cumulative and compounding effects, and are rooted in and exacerbated by social and economic disparities;
- Participating in decision-making processes in New York City today, a critical element in addressing EJ issues, requires an excessive amount of unpaid labor; and
- New York City government's past and current public engagement processes can feel disingenuous and perpetuate distrust in government.

KEY FINDINGS

EJ issues are interconnected.

EJ communities experience multiple interrelated issues at once, which are often rooted in and exacerbated by social and economic disparities. The most cited issues affecting participants of the focus groups and interviews include the following:

- Poor housing quality, including indoor air quality, pests, and general maintenance conditions
- Poor outdoor air quality, including pollution from nearby motor vehicles, power plants, and factories
- Climate change impacts, such as flooding and extreme heat
- Exposure to hazardous materials, including lead, oil spills, construction, and contaminated sites
- Trash, including litter and illegal dumping,

collection, and recycling access

- Lack of access to fresh food and nutrition
- Lack of access to parks, waterfront spaces, and other public spaces

For households in EJ communities, these issues are experienced simultaneously and can have compounding impacts. These impacts are connected to both physical and mental health, education outcomes, housing stability, financial security and economic opportunities, resilience to extreme weather events and other shocks, and overall quality of life. For example, one focus group participant living in Washington Heights had several members of their household develop asthma while facing regular exposure to air pollution from traffic on the adjacent George Washington Bridge. Members of this household also experienced severe cases of COVID-19, made worse by their underlying respiratory health conditions. This young participant also cited obstacles to safely reaching nearby green areas due to traffic and pedestrian safety issues, as well as drug use in public spaces preventing their safe enjoyment.

Addressing the issues raised by participants requires both immediate action (such as removal of lead paint indoors) and long-term, systemic investments (such as reducing polluting vehicular traffic citywide). Stakeholders noted that city government responses can be reactive to the immediate manifestation of the issue, uncoordinated across agencies, isolated, and/or not designed for long-term sustainable change. In other cases, stakeholders felt that city government responses are restricted to large-scale capital improvements, which require years of planning, design, and construction processes before their benefits are felt. One focus group participant in Coney Island, a NYCHA resident, shared, *"They do try to put programs in the community, but the construction going on all at one time with everything else out here is too much,"* in reference to Hurricane Sandy recovery and improvements. This resident also described multiple struggles in their home to maintain consistent access to utility gas and keep the home free of soot deposits from the area's worsened air quality.

Furthermore, both focus groups and interviews identified stark and visible disparities in City services and investments across New York City neighborhoods, which also represent pressing EJ issues.

Active public engagement involves uncompensated labor.

As stated in the previous section, people in EJ communities face an array of environmental, economic, and social issues at once, often related to basic quality-of-life needs. Each of these issues demands time and energy. Whether it is a household tackling disease due to the presence of lead paint, mold or pollution; trying to regain access to a safe and stable home after a storm; or voicing concerns over a neighborhood issue; resolving these matters requires extensive organizing acrobatics, all while coping with the issue itself. This uncompensated labor can involve:

- Participating in government programs and public engagement processes;
- Interpreting and navigating information that is written in inaccessible language;
- Coordinating across agency silos;
- Navigating local and hyperlocal politics (including elected officials, community boards, and influential Community Based Organizations or CBOs);
- Engaging with the media to amplify their issue and get the attention of City leadership;
- Organizing among community and neighbors; and
- Identifying and chasing down the right contacts and information that can help with an issue.

Stakeholders felt that even in formal public engagement processes, participation is time- and labor-intensive. First, it may be difficult to find information on these events. The places agencies advertise them are often unrelated to existing local networks where residents get their information, such as CBOs, Parent-Teacher Associations (PTAs), local colleges, faith-based institutions, and local elected officials. This finding was reinforced in our survey responses, in which a majority of respondents reported they learned about opportunities to participate in decision-making through traditional announcements and through neighbors and organizations to which they belong. Specifically, respondents shared that they learn about these opportunities primarily from: flyers posted in public places (14 percent); social media (14 percent); neighbors (13 percent), newsletters (13 percent); TV, newspaper, and advertisements (12 percent); and community groups (12 percent). Ten percent of respondents reported that they do not learn about opportunities to engage with the City about decisions being made in their neighborhood at all. More than one-third of respondents identified as belonging to one or more community groups, with 15 percent belonging to a religious organization, 11 percent belonging to volunteer organization, and 10 percent belonging to a tenant organization.

Relatedly, stakeholders noted that City agencies may hold stand-alone public engagement events, instead of integrating engagement into meetings that residents are already attending. This requires making arrangements to attend separate meetings, adding to the time burden.

A few interviewees and focus group participants mentioned feeling planning fatigue, as there are so many processes and meetings to attend: *"I get overwhelmed by them, you know, and it's kind of my job to participate in them. I do think for an average community person, it's just particularly overwhelming to keep track of what each meeting is about, especially since there's such huge gaps between meetings and it's not clear what's happening with them."* Stakeholders noted that it often felt as though agency staff had not reviewed previous inputs (or previous plans, website content, or reports) from CBO participants, requiring community attendees to start from scratch, sharing their issues and ideas multiple times to different agency staff.

"I get overwhelmed by them, you know, and it's kind of my job to participate in them. I do think for an average community person, it's just particularly overwhelming to keep track of what each meeting is about, especially since there's such huge gaps between meetings and it's not clear what's happening with them."

Community-based organizations in EJ Areas also provide extensive unpaid services to help fill the

A BRIGHT SPOT

Focus group and interview participants affirmed that resources to support capacity-building and leadership development are the most effective means of advancing environmental justice. Resources like grants and political trainings empower communities to self-organize and participate in decision-making, enabling them to advocate for neighborhood improvements more effectively. People appear able to self-organize and fill gaps in services when they can access financial resources (e.g., grants and other direct funding programs) and access political power (e.g., elected officials) most effectively.

Relatedly, WE ACT for Environmental Justice (WE ACT) will receive at least $10 million over the next five years to support capacity-building and training in EJ communities across United States Environmental Protection Agency (U.S. EPA) Region 2 (including New York and Jersey). The funding comes from the U.S. EPA's Environmental Justice Thriving Communities Technical Assistance Centers (EJ TCTAC) Program, granting funds to establish nationwide centers supporting communities with EJ concerns. The centers will focus on guiding communities in grant-proposal writing; navigating federal systems; managing grant funding; and conducting effective, inclusive community engagement.

Local leaders tend to be interested in holistic improvements to quality of life. Therefore, community EJ leadership and civic engagement can also be supported through non-environmental programs.

"...I received the grant and then that's what I did with the grant money. I bought cleaning things and got the Girl Scouts, Boy Scouts, and a lot of local people. And we just cleaned the buildings, wiped them down as much as we possibly could 'cause it's overwhelming, to get rid of the soot that we're inhaling every single day."

—FOCUS GROUP INTERVIEWEE LIVING IN A NYCHA DEVELOPMENT WHO EARNED A GRANT THROUGH THE CITY'S LOVE YOUR BLOCK PROGRAM

"A program that I participated in was a teen art collective within the Bronx Museum. . . . And I feel like that experience was pivotal in shaping who I am today. It allowed me to be expressive and be open about my cultural background without fear of judgment, because we were able to run our own collective and display our art based on our cultures and identity."

— FOCUS GROUP INTERVIEWEE WORKING AT GREEN CITY FORCE, A CITYWIDE ORGANIZATION FOCUSED ON TRAINING YOUNG LEADERS TO POWER A GREEN AND INCLUSIVE ECONOMY

gaps in providing information when City staff and contractors are not fully meeting community needs. This work is often unfunded, even as other organizations are paid to provide these services in certain areas through City contracts. This includes services related to outreach and education around City initiatives such as composting, and social services, to name just a few.

Funding from the City to provide these services would allow these organizations to hire people in their communities, build upon existing relationships and trust, and make use of and develop the local expertise that could best meet their communities' needs. However, the administrative bar to compete for these contracts is often too high for local organizations to meet. City procurement can be complicated and expensive, with processes and requirements geared for larger, higher-resourced citywide organizations or private-sector firms, resulting in missed opportunities for community investment, local capacity building, and efficient, on-the-ground impact. Instead, according to the interviewees, these contracts tend to go to *"white-led, highly funded organizations that often have government connections."*

One interviewee noted that smaller firms with community connections face similar challenges to those of CBOs, especially Minority and Women-owned Business Enterprises (M/WBEs). M/WBEs tend to lack capacity to lead or sometimes even bid on large City Requests for Proposal (RFPs), with onerous application processes, inconsistent payment schedules, and time-consuming administrative requirements such as regular reporting to the City.

Interviewees mentioned the need to create new procurement models through which community organizations can partner with agencies to facilitate higher services levels, such as helping to clean up *"blighted"* land or educate residents on City initiatives. This would help to build capacity at the community level, while compensating and valuing CBOs for their critical work.

Public engagement processes can feel disingenuous and cause distrust in government.

Stakeholders feel that City public engagement processes are not consistently designed or implemented to meaningfully capture and act upon community input. The effect, stakeholders believe, can perpetuate an existing lack of trust of government. Many of the interviewees and focus group participants noted that engagement processes often seem designed to "check the box", leaving the impression that the City already knows what it plans to do and does not intend to incorporate community input in a meaningful way, especially if it differs from the predetermined outcome. Many respondents to the survey shared these sentiments, with a majority (52 percent) of respondents disagreeing with "The City asks me about what matters most to me and my community," and nearly half (49 percent) disagreeing with "Input is welcomed and encouraged by the City." To many participants, the City's engagement efforts feel performative and disrespectful of participants' limited time and energy. Relatedly, interviewees noted that the right people are often not at the table, partly due to ineffective outreach and inconvenient meeting logistics. When community members do show up, they experience project presentations that use too much jargon and leave too little time for meaningful input. Finally, those who invested their time in attending and participating in these planning processes are not seeing their input show up in final plans and decisions. As a result, they do not feel the City is valuing their input. This can reduce the motivation to participate in future planning processes.

Both the EJ leaders and community members who participated in the interviews and focus group sessions provided suggestions to improve these processes. They suggest designing engagement processes with community leaders who can help

identify existing meetings and opportunities to engage with individuals where they are (as opposed to scheduling separate meetings that require additional investments in time) and to help translate the content to be accessible, emphasizing what is relevant to residents. They also would like to see greater transparency and accountability; for example, information on how their feedback is going to be used, how decisions are being made, and how local expertise is being valued during the process. Many also mentioned the need to *"put the thumb on the scale"* to give greater weight to the voices from overburdened and often ignored communities during decision-making processes. Participants note that this would help to address the history of, and continued belief that, "the loudest and most well-resourced voices get accommodated as they have the ability to participate so heavily in the process."

A BRIGHT SPOT

Through these challenges, residents of EJ communities are encouraged to remain engaged in City decision-making processes when they see action taken on their issues, including neighborhood improvements (such as parks and green spaces), and greater diversity amongst City staff who are more representative of their communities.

Further examples of City action which have given participants encouragement to remain involved include:

- Agencies such as DOHMH, DOT, and the Department of Cultural Affairs have directly connected with CBO staff for partnership in engagement and have contracted with them for community organizing. This showed effort of collaboration, recognizing the value of CBOs, and incorporation of input from the community.
- The Mayor's Office of Environmental Remediation (OER) has a long history of working with CBOs such as UPROSE, who have provided trainings to educate OER staff on how to effectively work with communities. OER staff have responded by making it easy for CBOs to access resources and tools, and they have been effective partners.
- Many participants noted the accelerated electrification of the municipal fleet as a win for environmental justice.
- New CBO partnerships have been forged with the New York City Economic Development Corporation (NYCEDC) around community-based solar and task forces for the reactivation of South Brooklyn Marine Terminal and neighboring Sunset Park properties. For example, the Executive Director of UPROSE, Elizabeth Yeampierre, serves as co-chair of the NYCEDC's inaugural Offshore Wind Advisory Council.

The City hopes to build upon these successes in the future through the development of the EJNYC Plan.

"... what's propelling me to get back involved. . . . I will say, I have noticed a difference in outreach, how the City is sending different people out that is more representative of the community. And I think that helps a great deal. And I think even with our current elected official, our Councilwoman, she's from the community."

—FOCUS GROUP PARTICIPANT AFTER SHARING A BRUISING EXPERIENCE PARTICIPATING IN A LONG-TERM COMMUNITY PLANNING AND LAND USE PROCESS STEMMING FROM HURRICANE SANDY RECOVERY

ADVANCING ENVIRONMENTAL JUSTICE

ADVANCING ENVIRONMENTAL JUSTICE

The findings from this EJNYC Report will inform the forthcoming EJNYC Plan. The Plan will identify citywide and neighborhood-scale initiatives for promoting environmental justice, and it will outline recommendations for embedding equity into the City's decision-making processes. As the City develops the EJNYC Plan, establishing an overarching set of guiding principles will be necessary to coordinate implementation across City agencies.

This chapter discusses challenges and opportunities in existing environmental decision-making processes, key principles of the EJ movement, and case studies of EJ actions from other local and state governments. The topics addressed in this chapter will inform the development of strategies and actions in the subsequent EJNYC Plan. In addition, City agencies can use this section to improve engagement efforts that seek to meaningfully involve impacted New Yorkers and inform environmental decision-making.

The key findings summarized in this chapter incorporate several types of community engagement and analysis. MOCEJ facilitated work sessions with members of the EJ Advisory Board and EJ Study Contributors to identify opportunities to align existing processes and policies with widely accepted EJ principles, and to facilitate better participation by populations living in EJ Areas. The EJ Advisory Board is a panel of external EJ leaders appointed by the mayor and City Council to help guide the implementation of Local Law 60. The EJ Study Contributors are representatives from local community-based organizations selected by MOCEJ to provide feedback on EJNYC outputs. In addition, the chapter was informed by a citywide survey developed by MOCEJ and the EJ Advisory Board to better understand New Yorkers' experiences engaging with New York City. Detailed summaries of these inputs may be found in the Qualitative Research Methodology (p. 207) in the Appendix."

CHALLENGES AND OPPORTUNITIES

MOCEJ worked with the EJ Advisory Board and EJ Study Contributors to identify opportunities and challenges with existing processes and policies related to environmental decision-making. The following summary reflects opportunities and challenges identified through facilitated working sessions.

CHALLENGES

Top-Down Planning & Engagement

Engagement participants want to be involved in planning processes from the start, informing the vision and goals of the project. Current engagement processes that seek community input once a project is well-established come across as transactional and inauthentic, limiting residents' ability to impact projects in a meaningful way. Additionally, this top-down approach underutilizes valuable community knowledge that can help identify key issues or prioritize resources while overemphasizing the perspectives of outside consultants.

Cross-agency Coordination

Planning siloed by City agencies prevents coordination of land use and budgeting decisions, both of which greatly impact environmental injustice. Workshop attendees note that future proposals should clearly articulate how the project will advance equity and undo historic disparities.

Priority-Setting

Capacity and resource constraints limit agencies' ability to address all resident concerns. However, workshop attendees note that the priorities that guide agency operations come from City Hall and often lack community perspectives. This perpetuates the frustration that community feedback does not meaningfully inform government action.

OPPORTUNITIES

Transparency

Clear communication regarding the decisions made thus far and the role of community input and its impact on the project outcomes is essential.

Accessibility

Diverse engagement methods, such as online surveys, canvassing, multi-media advertisement, and partnering with local nonprofits, can help meet community members where they are. This can expand the number of residents engaged and ground projects in a strong understanding of community perspectives. Thoughtful consideration of meeting times, simplifying complex technical and legal documents, and providing translation and interpretation services, on-site child-care, and refreshments can also go a long way.

Capacity-Building

Community organizations, advocates, and advisory board members often contribute unpaid labor to EJ work. The City can foster reciprocal relationships with community leaders by investing in EJ advocacy work through dedicated, ongoing support to CBOs; advocacy training programs for emerging leaders; paid liaison positions on Community Boards; and in-house navigators within City agencies.

Decentralization

Innovative public engagement processes can be explored for future City environmental decision-making. Participatory budgeting, a City Council-led process in which community members directly decide how to spend part of a public budget, for example starts with ideas generated by the community, advances to technical experts for further analysis, and then returns to the community for final review. Additionally, empowering the city's existing network of CBOs to conduct outreach by providing the proper resources and investment can be a model for success.

KEY EJ PRINCIPLES

In recognition of the decades of work from the communities, organizers, and leaders that built the EJ movement, MOCEJ examined key principles and values from the EJ movement and summarized them below. This section will inform the City's development of the EJNYC Plan.

PRINCIPLES OF EJ

One of the most influential and recognizable documents of the EJ movement, the *Principles of Environmental Justice*, was drafted and

adopted by delegates of the First National People of Color Environmental Leadership Summit held on October 24-27, 1991, in Washington DC. the *Principles of Environmental Justice* represent a multi-cultural, multi-national, and grassroots-defined perspective on the meaning of environmental justice. It re-defined and re-affirmed what the EJ movement meant going into the 21st century.

These principles are 17 concise statements covering a wide range of topics and values, including protection from nuclear testing and hazardous waste disposal, accountability for past and current polluters, the right to environmental self-determination and participation at every level of decision-making, Indigenous rights and treaties, informed consent, the destructive operations of corporations, ethical and responsible use of land and renewable resources, and more. The legacy of these principles is particularly significant; New York City's own EJ legislation, Local Laws 60 & 64 of 2017, was shaped by several of these principles and the leaders who developed them.

JEMEZ PRINCIPLES FOR DEMOCRATIC ORGANIZING

Between December 6-8, 1996, not long after the adoption of the *Principles of Environmental Justice*, the Southwest Network for Economic and Environmental Justice (SNEEJ) convened a "Working Group Meeting on Globalization and Trade" in Jemez, New Mexico. This diverse group met with the goal of establishing common understandings amongst themselves and, from that, developed and adopted the Jemez Principles of Democratic Organizing.

The Jemez Principles emphasized bottom-up organizing and the need for the EJ movement to support local organizations best positioned to address environmental injustice. The principles acknowledge that the strongest movements are not built by individual leaders, but by a community base. One of the most important Jemez Principles is "Let People Speak for Themselves." This means creating and protecting avenues for those experiencing harm to make their voices heard.

JEMEZ PRINCIPLES OF DEMOCRATIC ORGANIZING

- **#1** Be Inclusive
- **#2** Emphasis on Bottom-up Organizing
- **#3** Let People Speak for Themselves
- **#4** Work Together in Solidarity and Mutuality
- **#5** Build Just Relationships Among Ourselves
- **#6** Commit to Self-Transformation

SPECTRUM OF COMMUNITY ENGAGEMENT TO OWNERSHIP

The Spectrum of Community Engagement to Ownership is a tool designed for organizations, such as local governments or CBOs, "to facilitate community participation in solutions development and decision-making." The Spectrum tool outlines five "phases" of engagement: "Inform," "Consult," "Involve," "Collaborate," and "Defer To." Each subsequent phase facilitates increasingly strong local democracy and community participation in decision making.

The spectrum tool acknowledges Marginalization as the first phase, representing the status quo of systems which have historically denied low-income communities and communities of color any access to the decision-making process. Beyond Marginalization are "Inform" and "Consult," that keep communities in the role of absorbing information and providing input to

plans or decisions which have largely already been developed and have little room for change. Further along the Spectrum, "Involve" and "Collaborate," are where power begins to shift towards communities through true decision-making involvement and cross-sector collaboration. By advancing through the Spectrum phases, local governments can achieve the goal of delegating power to community leaders, thereby ensuring that communities inform all stages of decision-making, from planning through implementation.

The final phase of the Spectrum, "Defer To," describes true community ownership and democratic participation through community-driven decision-making. It bridges the divide between community and governance by ensuring that residents have direct say over how vital resources like housing, food, water, and energy are managed.

BLACKSPACE MANIFESTO

BlackSpace is an urbanist collective of Black urban planners, architects, artists, activists, designers and leaders working to protect and create Black spaces. The Manifesto's values are a useful guide to creating and expanding an organization's connections and leading work through thoughtful strategies that will keep these connections strong.

The Manifesto emphasizes de-prioritizing hierarchal structures in favor of inclusion and empowerment. It values the development of authentic and high-priority connections over sheer quantity, and highlights seeking connections with marginalized people and communities. Once connections are made, the manifesto advocates for allowing trust to build at whatever speed is necessary, by listening deeply and approaching work with an attitude towards learning and centering the critical expertise of lived experiences.

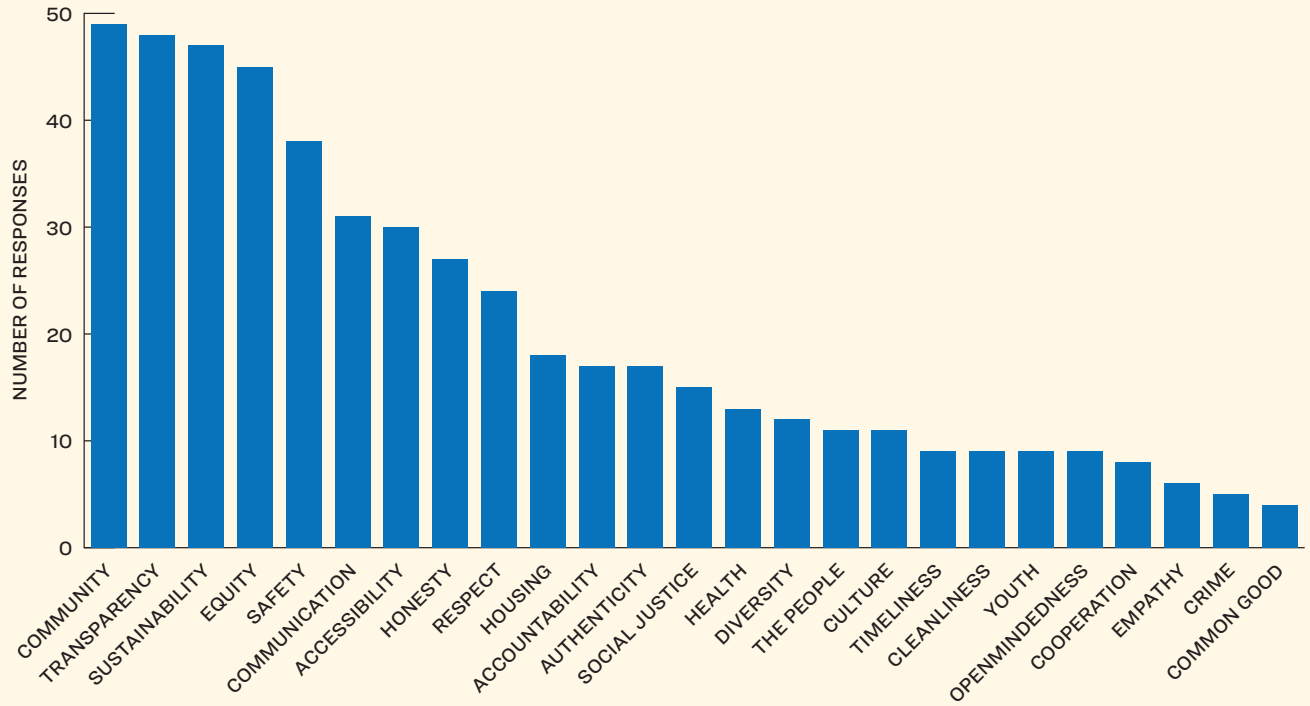
Before carrying out work, the manifesto reminds organizations to acknowledge relevant histories of both injustice and victories to deepen understandings. It calls for the protection and strengthening of culture, and for the expansion of leadership and capacity-building opportunities. It tells us to imagine and design the future into existence now, center lived experience as an important expertise, and to amplify exceptional and innovative work.

Spectrum of Community Engagement to Ownership

Adapted from the Movement Strategy Center (MSC)

Citywide Survey

MOCEJ conducted a citywide survey to better understand New Yorkers' experiences engaging with the City, asking respondents to identify values that should be incorporated into public engagement and environmental decision-making processes. A detailed summary of the survey findings may be found in the Qualitative Research Methodology (p. 207) in the Appendix. Notably, respondents provided the following answers when asked about which values should guide the City's environmental justice actions:



This graph shows the frequency analysis of responses from EJNYC Survey in response to the question: What values should guide City government when asking for the opinions of New Yorkers and making decisions that affect your neighborhoods and communities?

STAKEHOLDER PERSPECTIVES

Several members of the EJ Advisory Board and EJ Study Contributors met with MOCEJ to review and discuss the EJ principles and values identified through existing literature and the citywide survey. Several priorities and gaps were identified:

PRIORITIES

» Members reaffirmed several of the values from the survey, specifically transparency, responsiveness, and communication. Members indicated that continued evaluation of the city's ability to uphold these values is critical.

» Members strongly resonated with the consistent theme of "letting people speak for themselves." Self-determination is built on true community involvement in decision-making rather than outreach once plans are well-established. As one member noted, the City cannot "center lived experiences" in environmental decision-making if this involvement does not occur.

» Additional values highlighted from existing EJ frameworks include "policy based on mutual

respect and free from bias" and "compensation and reparations for EJ victims."

- Several members spoke positively of the emphasis on process in the BlackSpace Manifesto and the Spectrum of Community Engagement to Ownership.

GAPS

- Members identified a strong need to accompany EJ initiatives and meaningful engagement efforts with sufficient funding to meet their stated goals. As reflected in the Spectrum of Community Engagement to Ownership, investment in community organizing and capacity building is necessary to move toward more effective engagement.
- Members highlighted the importance of City agencies in committing to effective enforcement measures to curb environmental hazards, such as commercial truck idling.
- Other missing values discussed include self-assessment, prioritizing interagency coordination, and open access to information and data.

HIGHLIGHTS OF EJ ACTIONS BY STATE AND LOCAL GOVERNMENTS

To understand the landscape of EJ action nationally, and to gain knowledge on best practices, considerations, and approaches to environmental justice, MOCEJ reviewed EJ policies and legislation in state and municipal governments outside of New York City. A more detailed summary of this review may be found in the appendix. Notable actions include the following:

Washington Healthy Environment for All (HEAL) Act (2009)

Requires that state agencies incorporate an EJ implementation plan into their broader strategic plans, including agency-specific goals to reduce environmental health disparities, and performance metrics to measure progress.

Newark Environmental Justice and Cumulative Impacts Ordinance (2009)

Seeks to measure cumulative impacts of proposed developments through a National Resources Index (NRI) which uses existing geospatial, environmental, and health data to understand site conditions.

SB 535 & CalEnviroScreen (2012)

Requires that 25% of monies from the Greenhouse Gas Reduction Fund and the state's cap-and-trade program go toward projects benefiting disadvantaged communities. The CalEnviroScreen tool was developed to identify disadvantaged communities that are most affected by multiple sources of pollution, and where people are often especially vulnerable to pollution's effects.

New Jersey Environmental Justice Law (2020)

Mandates the state deny permits for new facilities that, as proposed, cause or contribute to adverse cumulative environmental stressors in overburdened communities.

New York State Cumulative Impacts Laws (2022)

Regulates the equitable siting of environmental facilities and requires environmental impact statements to state whether the siting of a facility will cause or increase a disproportionate burden on disadvantaged communities.

NYSERDA Disadvantaged Communities Stakeholder Services Pool (2022)

Establishes a group of qualified community-based organizations that are representative of the state's DACs to conduct paid work with NYSERDA staff, including consultation, program and policy input, engagement facilitation, and working group participation.

HIGHLIGHTS OF EQUITABLE ENGAGEMENT FROM CITY AGENCIES AND CITY COUNCIL

The City has taken steps to meaningfully engage New Yorkers in environmental decision-making. These successes can provide inspiration for future practices that advance environmental justice. Notable examples include:

Community Engagement Framework and Framework Guide

Department of Health and Mental Hygiene, 2017

Developed as part of an internal reform effort to advance health equity goals called "Race to Justice," this engagement framework can be a useful resource for engagement and strategy development in all City agencies and offices.

Community Planning and Civic Engagement Division

Department of City Planning, 2023 - Present

The new division will support all policy and neighborhood planning proposals, as well as discussions on the city's civic infrastructure to increase and diversify participation in decisions about the future of neighborhoods and the city at large.

Inclusive Engagement Guide

Mayor's Office for People with Disabilities, 2019

The Inclusive Engagement Guide provides information and resources on how to increase accessibility for New Yorkers with disabilities at public events and meetings. This includes accessibility guidance for the location, written and audio communication materials, digital media materials, and advertising.

NYC Speaks

Deputy Mayor's Office of Strategic Initiatives, 2021-2022

A public-private partnership between the Deputy Mayor's Office of Strategic Initiatives, a consortium of philanthropic partners, and a network of community leaders and civic institutions to engage everyday New Yorkers in informing the policies and actions of the Adams administration.

Participatory Budgeting in New York City (PBNYC)

City Council, 2011 - Present

PBNYC gives communities the ability to directly impact the capital budgeting process. The program has grown to include 29 City Council districts, totaling $30 million in capital funding for local improvements to schools, parks, libraries and other public spaces.

The People's Money

Civic Engagement Commission, 2022 - Present

The People's Money, the first citywide participatory budgeting exercise, allows New Yorkers to decide how to spend $5 million of mayoral expense funding to address local community needs. Using criteria developed to ensure equity, need, and feasibility, Borough Advisory Committees will work together to determine which projects meet the criteria and will be further developed into proposals that can be implemented.

Place-Based Community Brownfield Planning Areas

Office of Environmental Remediation, 2005 - Present

Place-Based Community Brownfield Planning offers $10,000-$25,000 grants to CBOs to conduct brownfield planning at the neighborhood level and to undertake design work or other studies that advance a vacant site toward development. The grants are flexible and can pay for a wide range of services at any stage of a development project prior to construction, including the design of community spaces or evaluating sustainable design interventions.

Language Services Team

Mayor's Office of Immigrant Affairs, 2016 - Present

The team provides centralized coordination and delivery of language services for Mayoral Offices including translation, virtual and on-site interpretation, and telephonic interpretation.

Love Your Block Program

Mayor's Fund to Advance New York City, 2009 - Present

The program provides mini-grants to New York City resident-led groups to transform their neighborhood through a block beautification project while leveraging City services.

CONCLUSION

WHAT COMES NEXT?

EJNYC PLAN

This report's accounting of the challenges and opportunities for environmental justice in New York City will inform the next stage in the City's process of evaluating and addressing EJ issues. The findings are also intended to support continued mobilization across the city for community-led action on EJ issues, providing information and tools for community-based organizations and advocates to continue to advance their work. As such, the public will be invited to participate in the development of the EJNYC Plan that was legislated to be created as required by Local Law 64 of 2017 and will build off the findings in this report and identify actionable steps that City government can take to meaningfully address environmental concerns in EJ Areas. The EJNYC Plan will detail recommendations on how City agencies can design and administer their initiatives to support the ability of communities to thrive.

To lay the foundation for this process, the City identified policy opportunities to advance environmental justice based on the findings of this study. These opportunities and others will be explored further in the forthcoming EJNYC Plan. This will be a collaborative effort to develop initiatives in a holistic manner. These opportunities are to:

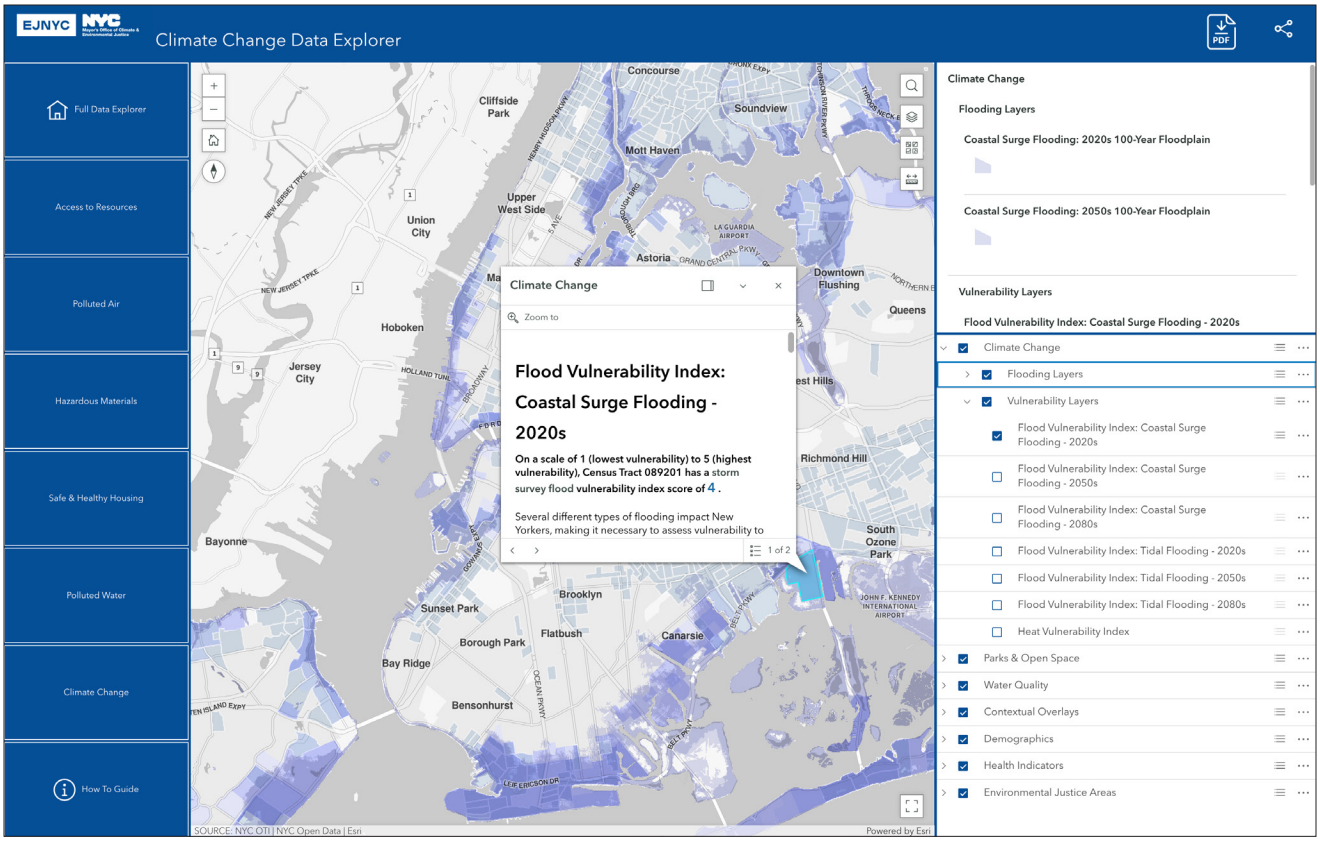
- Invest in environmental justice communities;
- Integrate environmental justice in agency decisions through climate budgeting;
- Improve accountability through increased data transparency and communication;
- Coordinate with permitting authorities to embed equity and environmental justice considerations in the siting and permitting of infrastructure; and
- Explore and develop new ways to collaborate with EJ communities.

Get Involved

Visit climate.cityofnewyork.us and follow @NYClimate or @GreeNYC to find out about future opportunities to get involved.

ENVIRONMENTAL JUSTICE MAPPING TOOL

The EJNYC Mapping Tool is an online repository of information that includes an interactive mapping and data tool, providing New York City-specific EJ data to members of the public, community-based organizations, and City agencies. The tool includes demographic information, environmental data, health data, political boundaries, and other layers



that paint a picture of the state of environmental justice and the impacts of EJ disparities in communities across the city.

Who is the EJNYC Mapping Tool for?

The EJNYC Mapping Tool is a tool developed for use by three primary groups: NYC residents, community-based organizations (CBOs), and City agencies. The EJNYC Mapping Tool can inform residents of New York City about the EJ issues impacting their neighborhoods, and further direct them to resources that might help them address those issues. Community-based organizations can also use the EJNYC Mapping Tool to access and analyze data that describes the EJ concerns in their communities. The mapping tool provides CBOs with tools to visualize data and demonstrate the cumulative impacts of multiple, overlapping EJ issues in their communities. Most importantly, the mapping tool publishes new data that was previously unavailable to the public, broadening the scope and understanding of EJ in New York City. Finally, for City agencies, the mapping tool provides an EJ lens to inform policy-making. The mapping tool is designed to shift the City's decision-making processes by ensuring that EJ remains a primary consideration in agency decisions.

How can the EJNYC Mapping Tool be used?

The EJNYC Mapping Tool is designed to be used as an educational resource and research tool, and a leverage point to drive action. EJ issues are complex and multi-faceted, so the mapping tool provides educational guidance as users explore the many aspects of environmental justice. The mapping tool is designed to be approachable and accessible to all users, whether they're EJ experts, or exploring these issues for the first time. The mapping tool also provides links to additional resources where users can learn more about the issues they're exploring. Additionally, as a research tool, users have the ability to develop queries, and assess cumulative impacts within various political

boundaries. And since the mapping tool acts as a centralized location for key EJ data for the city, it allows for users to draw connections between disparate datasets, which are often siloed.

The EJNYC Mapping Tool also includes various ways for New York City residents, CBOs, and City agencies to drive action. For residents impacted by EJ issues and the CBOs working to combat those issues, the mapping tool provides links to access additional information and resources about City programs that address environmental injustice, so they can seek support and advocate for change. For those working within City agencies, the mapping tool provides pertinent data from other agencies, and draws connections between EJ indicators that can drive more thoughtful, inclusive decision-making, which deeply considers the interrelated impacts of City government decisions on EJ communities.

APPENDIX

SPATIAL ANALYSIS METHODOLOGY

OVERARCHING ANALYSES

Percent of NTA population living in an EJ area

Data sources: NYS Department of Environmental Conservation (DEC), Disadvantaged Communities Criteria, 2023.

Methodology notes: To estimate the percent of the NTA population living within an EJ area the total NTA population was calculated and divided by the total population living in census tracts designated as disadvantaged communities by NYS Department of Environmental Conservation.

Cross walk of 2020 ACS to 2010 census tract geographies

Data sources: B03002 & C17002, ACS 2021 5 Year Estimates; IPUMS NHGIS, University of Minnesota, www.nhgis.org.

Methodology notes: The DEC Disadvantaged Communities Criteria uses 2010 census tract geographies. To use the latest American Community Survey (ACS) estimates for population and demographics within these older geographies, a geographic crosswalk was used.

National Historic GIS (NHGIS) 2020 Census Blocks to 2010 Census Tracts geographic crosswalk files were used to estimate 2021 ACS 5 Year estimates within 2010 Census Tract geographies. These crosswalks provide interpolated population-based weights to estimate the populations within non overlapping geographies between years. For the greatest accuracy of these adjustments census block estimates for 2021 ACS data were tabulated within 2010 census tracts.

ACCESS TO RESOURCES

Population weighted average density of parks per NTA (accessible acreage per 1000 residents)

Source: NYC Department of Parks and Recreation (NYC Parks), Parks Properties, 2023. American Community Survey, 2017-2021 5 Year Estimates. DEC, Disadvantaged Communities Criteria, 2023. NYC Department of City Planning (DCP), 2010 Neighborhood Tabulation Areas, 2010.

Methodology notes: The population-weighted average number of accessible park acres per 1000 residents were calculated at the census tract level by summing all the acreage for all parks within 1/8 of a mile of the boundary of each census tract. This value was then aggregated to the NTA level (using a population weighted average). This approach takes into account parks that are accessible to a neighborhood even if they are technically outside of its borders (eg. Central Park for the Upper East Side). To estimate accessible park acreage per 1000 residents at the NTA level the population weighted average of accessible acres for each census tract within the NTA was taken.

Tree canopy coverage

Source: University of Vermont Spatial Analysis Laboratory, NYC Department of Information Technology and Telecommunications (DoITT), Applied Geographics (AppGeo), Quantum Spatial, Land Cover Raster Data (2017) – 6in Resolution.

Methodology notes: Tree canopy coverage per NTA was calculated by determining the percent of the NTAs total area occupied by areas categorized as 'tree canopy' in the latest high resolution public remote sensing scan of NYC (LiDAR).

Historically redlined neighborhoods (D – Hazardous) and EJ Areas

Source: DEC, Disadvantaged Communities Criteria, 2023. Robert K. Nelson, LaDale Winling, Richard Marciano, Nathan Connolly, et al., "Mapping Inequality," American Panorama, ed. Robert K. Nelson and Edward L. Ayers.

Methodology notes: Areas that were historically redlined were mapped based on digitized historical Home Owner's Load corporation maps, 'D' or 'hazardous' ratings areas were considered for inclusion. Redlined areas were intersected with census tracts to estimate demographics for residents within these areas. For census tracts that did not fall entirely within the historically red lined area populations and demographics were estimated based on the proportion of the census tract area within the redlined zone.

Alcohol and tobacco vendors by NTA

Source: NYS Liquor Authority, Liquor Authority Current List of Active Licenses, 12/01/2022 snapshot, and NYS Department of Health, Active Tobacco Retailer Map, 12/01/2022 snapshot.

Methodology notes: Records for tobacco and liquor licenses were geocoded based on their recorded address within state license records. Records were then aggregated to the census tract and NTA level based on their location.

Transit access

Source: Metropolitan Transportation Authority (MTA) Subway Stations, 2022, and Newman Library of Baruch College GIS Lab, NYC Bus Stops, 2020.

Methodology notes: To estimate the population with limited access to subway transit, half-mile buffers were calculated around each MTA subway station. These zones were intersected with census tracts and populations and demographics were estimated based on the proportion of the census tract area falling outside of these transit access zones. The same process was used for access to bus stops, with a quarter-mile buffer distance used.

SBS network coverage

Source: MTA, NYC Bus Stops September 2023, 2023.

Methodology notes: Bus stop data was gathered using the original methodology used by Newman Library of Baruch College GIS Lab and August 2023 bus data from the Data Feeds from the Metropolitan Transportation Authority (MTA). To estimate the population with limited access to SBS stops, quarter-mile buffers were calculated around each MTA SBS stop. These zones were intersected with census tracts and populations and demographics were estimated based on the proportion of the census tract area falling outside of these transit access zones.

Bike network coverage

Source: DCP, LION Single Line Street Base Map, Release 22C, 2022.

Methodology notes: Bike network coverage was calculated as the total distance of bike lanes within each NTA divided by the total roadway distance (excluding highways).

Source: NYC Department of Transportation (DOT), New York City Bike Routes, 2022.

Methodology notes: Protected bike network coverage was calculated as the total distance of protected bike lanes within each NTA divided by the total roadway distance (excluding highways).

EXPOSURE TO POLLUTED AIR

Air pollution levels by NTA (Ozone, $PM_{2.5}$, Nitric Oxide, Black Carbon)

Source: NYC Department of Health and Mental Hygiene (DOHMH), New York City Community Air Survey (NYCCAS) Air Pollution Raster, Black Carbon, 2022.

Methodology notes: Uses the latest available year as input (December 2019 - December 2020) for annual average predicted levels of $PM_{2.5}$, ozone, nitric oxide and black carbon. In order to summarize at the census tract level, raw raster data source was converted to points. In cases where multiple points intersect a census tract, an average of the values was taken; in cases where no points intersect a tract, the values of the nearest point was assigned to the tract. To evaluate NTA-level values for pollution population-weighted averages were taken for census tracts within each NTA.

Areas within 1 mile of power plants and facilities with Title V permits

Data Sources: Energy Information Administration, Form EIA-860, 2021. DEC, Title V Emissions Inventory, 2020 facilities.

Methodology notes: This analysis highlights all areas within 1 mile of all facilities with Title V permits (2020) and power plants with greater than 1 MW operating capacity (in operation in 2021). Buffers of 1 mile were created and intersected with census tracts to estimate demographics for residents within these areas. For census tracts that did not fall entirely within the 1 mile area surrounding polluting facilities population was estimated based on the proportion of the census tract area within the buffer.

Neighborhoods with the greatest vehicle traffic density

Data sources: NYS Department of Transportation (NYSDOT), AADT Annual Volume of Vehicle Travel, 2019.

Methodology notes: The population-weighted average of AADT for all road segments intersecting each NTA was taken to obtain neighborhood level estimates for the level of vehicle traffic density.

Neighborhoods with the greatest volume of indoor environmental air complaints

Data sources: DoITT, 311 Service Requests "Indoor Air Quality" complaints for 2022.

Methodology notes: The total number of 311 requests from 2022 of the type "Indoor Air Quality" were geocoded based on latitude and longitude and summed by NTA. Values are expressed in complaints per 1000 residents based on ACS population estimates for each NTA.

EXPOSURE TO HAZARDOUS MATERIALS

Toxic Release Inventory facilities

Source: United States Environmental Protection Agency (U.S. EPA), TRI Basic Data Files, 2022.

Method notes: The total number of Toxic Release Inventory facilities and quantity of total releases were calculated at the NTA level.

Automotive body, paint and interior repair and maintenance, and dry cleaning services facilities

Source: NYC Department of Environmental Protection (DEP), "Right-to-Know (RTK) Program," 2022

Method notes: The total number of facilities categorized as automotive repair, automotive body, paint and interior repair and maintenance, and dry cleaning services were calculated at the community district level.

Cleanup sites

Source: NYC Office of Environmental Remediation, OER Cleanup Sites, 2022. DEC, Remediation Sites, 2022. Environmental Protection Agency, Superfund Site Boundaries.

Methodology notes: To obtain a count of cleanup sites per census tract, all NYS Remediation sites were included and the counts of NYC OER sites, includes all sites in the E-Designation program where cleanup is required. This includes Voluntary Cleanup Program sites if the site also is subject to the E-Designation program.

Solid waste management – average daily throughput

Source: NYC Department of Sanitation (DSNY), Annual Report on the Implementation of New York City's Waste Equity Law, 2022.

Methodology notes: This analysis sums the average daily throughput of municipal solid waste (MSW) and construction and demolition debris (C&D) for material transfer stations subject to LL152 and the MSW transfer stations operated by DSNY. It does not include fill material transfer stations permitted by DSNY and other transfer stations that are not covered by LL152.

ACCESS TO SAFE AND HEALTHY HOUSING

Utility access and affordability

Source: American Community Survey, 2017-2021 5 Year Estimates. Mayor's Office of Economic Opportunity.

Methodology notes: Top 25 percent of PUMAs in terms of the percent of households who are utility burdened were calculated based on summarized microdata analyzed by the Mayor's Office of Economic Opportunity.

Health-related design and maintenance issues

Source: NYC Department of Housing Preservation and Development (HPD), New York City Housing and Vacancy Survey, 2017.

Methodology notes: This map shows the percent of renter households who report three or more maintenance deficiencies by subboro area with DAC areas overlaid. Maintenance deficiencies include: 1) additional heating required in winter; 2) heating breakdown; 3) cracks or holes in interior walls, ceilings, or floors; 4) presence of rodents; 5) presence of broken plaster or peeling paint; 6) toilet breakdown; 7) water leakage into unit.

Lead paint violations

Source: HPD, Code Violations, 2023.

Methodology notes: The number of lead paint-related housing maintenance code violations were summed across NTAs to calculate both the highest total incident count per area as well as the highest population normalized count per area.

Rates of internet access in EJ and non-EJ areas

Source: ACS 2021 five-year estimates

Methodology notes: The population-weighted average percent of households without access to the internet (home or cellular) was calculated for EJ census tracts and non-EJ census tracts based on ACS estimates of population and rates of internet access at the census tract level.

NTAs with the highest number of lead service lines

Source: DEP, Lead Service Line Location Coordinates, 2023.

Methodology notes: To calculate the service line-normalized number of lead service lines, service line records (available at the parcel record level) were filtered based on the material type listed. Lead service

line records were joined to census tracts based on the centroid of the service line geometry, census tract totals were then aggregated to NTAs. Records categorized as 'potential lead' were considered to be possible lead service lines. This value was divided by the total number of service line records with either 'not lead' or 'unknown' material types for each census tract.

Noise complaints

Source: DoITT, 311 Service Requests "Noise" complaints, 2022.

Methodology notes: The total number of 311 requests from 2022 of the type "Noise" were geocoded based on latitude and longitude and summed by NTA

EXPOSURE TO POLLUTED WATER

Confirmed backup sewer complaints

Source: DEP, 2022.

Methodology notes: The total number of 311 complaints in 2022 of the type "Sewer Backup" and "confirmed" were geocoded based on latitude and longitude and summed by NTA.

Water quality assessment for recreational use and NYC Parks "Waterfront Facilities"

Source: DEC, Division of Water, Bureau of Water Assessment and Management," 2019. NYC Parks, "Parks Properties," 2022.

Methodology notes: Waterbodies are mapped according to their water quality assessment for recreational use. NYC Parks properties with a type category field equal to "Waterfront Facilities" are mapped.

EXPOSURE TO CLIMATE CHANGE

Extreme heat

Source: DOHMH, Environment & Health Data Portal. Climate data. Heat vulnerability index (NTA), 2023.

Methodology notes: Percents of population within EJ areas for each HVI value were calculated by intersecting the census tracts with the HVI NTAs. Populations were estimated based on the proportion of the census tract area falling within or outside each NTA.

Coastal storm surge

Source: Mayor's Office of Climate & Environmental Justice (MOCEJ),[x] Sea Level Rise Maps (2080s 100-year Floodplain), 2021. American Community Survey, 2017-2021 5 Year Estimates.

Methodology notes: Population and demographics of residents within the floodplain were calculated by intersecting the coastal flood plain with census tracts. Populations and demographics were estimated based on the proportion of the census tract area falling within or outside of the floodplain.

x Formerly the Mayor's Office of Long-Term Planning and Sustainability (OLTPS).

Source: MOCEJ, Sea Level Rise Maps (2020s 100-year Floodplain), 2021. American Community Survey, 2017-2021 5 Year Estimates.

Methodology notes: Population and demographics of residents within the floodplain were calculated by intersecting the coastal flood plain with census tracts. Populations and demographics were estimated based on the proportion of the census tract area falling within or outside of the floodplain.

Chronic tidal flooding

Source: New York City Panel on Climate Change (NPCC), Future Tidal Flooding Due to Sea Level Rise, 2018. American Community Survey, 2017-2021 5 Year Estimates.

Methodology notes: Population and demographics of residents within the sea level rise were calculated by intersecting the future high tides with census tracts. Populations and demographics were estimated based on the proportion of the census tract area falling within or outside of the sea level rise.

Extreme rainfall

Source: DEP, NYC Stormwater Flood Map—Moderate Flood with Current Sea Levels, 2022. American Community Survey, 2017-2021 5 Year Estimates.

Methodology notes: Population and demographics of residents within the stormwater flood zones were calculated by intersecting the stormwater flood zones with census tracts. Populations and demographics were estimated based on the proportion of the census tract area falling within or outside of the stormwater flood zones.

Source: DEP, NYC Stormwater Flood Map—Extreme Flood with 2080 Sea Level Rise, 2022. American Community Survey, 2017-2021 5 Year Estimates.

Methodology notes: Population and demographics of residents within the stormwater flood zones were calculated by intersecting the stormwater flood zones with census tracts. Populations and demographics were estimated based on the proportion of the census tract area falling within or outside of the stormwater flood zones.

POTENTIAL IMPROVEMENTS TO THE NYS DISADVANTAGED COMMUNITIES CRITERIA

In 2019, New York State ratified the Climate Leadership and Community Protection Act, which set forth ambitious climate-focused goals, including GHG reduction requirements, as well as the need to identify the disadvantaged communities that bear the brunt of negative public health effects, existing and historical environmental pollution, and risk of future climate change impacts. As a result of this legislation, the State convened the Climate Justice Working Group, and along with subject matter experts, created and published a methodology for identifying disadvantaged communities (DACs).

The DAC identification methodology considers 45 indicators which describe various socio-demographic and environmental conditions across New York State's census tracts. These indicators were selected from a larger body of available data comprised of over 100 variables based on data availability, fidelity, and relevance to describing climate justice at the census tract level.

The distillation of over 100 variables to 45 underscores some of the difficulties in capturing how environmental justice is experienced using quantitative data available at the state level. The indicators can only describe phenomena insofar as they are measured, and only at the intervals and scales at which data is collected and released. Facets of environmental justice that are not uniformly measured at the state level are not included in the DAC criteria. There are always differences between lived experience and the conditions that can be recorded through spatial data; datasets do not reflect real time changes nor do they generally capture the nuance and compounding conditions known by communities who have experienced environmental injustices.

Responsive to some of these inherent limitations, the DAC criteria methodology is designed to be updated over time: the State has mandated that the criteria shall be reviewed at least annually in order to improve the methodology where possible. The following analysis of the current criteria aims to contribute to this ongoing refinement and discourse.

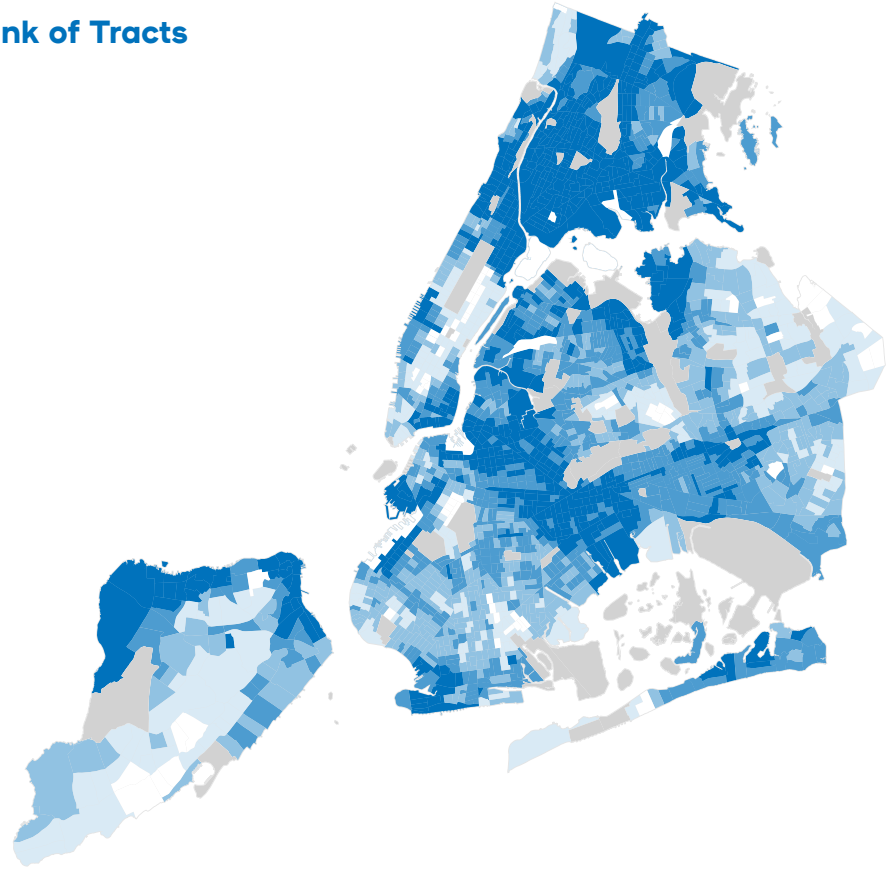
DACS IN NEW YORK CITY

The Climate Justice Working Group determined a target of 35 percent of census tracts in New York State to be designated as DACs. Of the 4,918 census tracts in New York State, 1,736 (35.3 percent) are designated as DACs. Of these, 958 are in New York City, which represent 44 percent of the NYC census tracts and 55 percent of all DACs statewide.

An additional 29 census tracts in New York City are within one percentage point of the threshold used to determine which census tracts are designated as DACs, illustrating that small changes to the selection criteria can have notable impacts on DAC designation. This is significant, as DAC designation will determine in part where state spending through the Climate Leadership and Community Protection Act is directed, with a target of 35 percent of this funding going towards DAC areas.

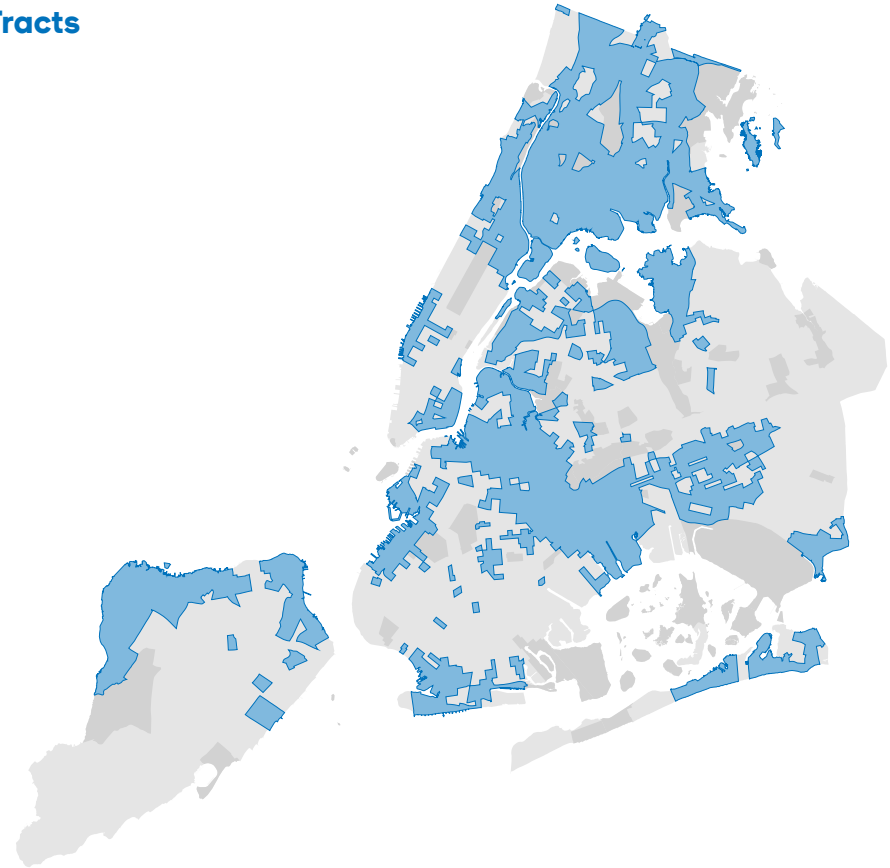
DAC Criteria Percentile Rank of Tracts

- 0% - 20%
- 20% - 40%
- 40% - 60%
- 60% - 80%
- 80% - 100%



DAC Designated Census Tracts

- EJ Areas
- Parks, Airports, etc.



DACs and parks

The current DAC methodology does not distinguish parklands and other non-residential open spaces from residential areas. This lack of separation has led to notable inconsistencies in the designation of park spaces as either DACs or non-DACs.

The majority of parks in New York City are small to moderate in size and are located within census tract boundaries. Since these parks are not distinguished from the rest of the neighborhood, they receive the same DAC designation as the census tract as a whole. However, several parks in New York City are large enough to be designated as their own census tract, and thus are not eligible for a DAC designation even if they are adjacent to or even entirely surrounded by DACs. Large parks – including those directly serving DACs like Crotona Park in The Bronx – provide several environmental benefits and invaluable community assets.

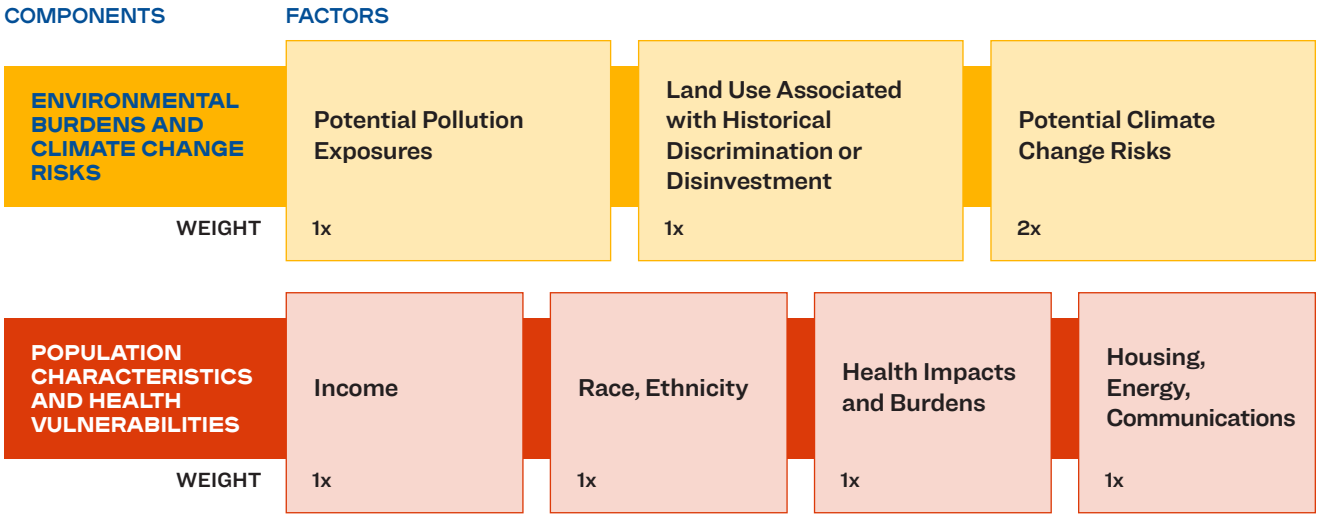
Without comprehensive guidance from New York State on how funding across state agencies and programs will consider DACs in their decision-making criteria, the lack of precision in the DAC designations of parklands raises concerns that certain parks serving DACs will not be able to leverage sufficient state funding opportunities.

Overview of the current methodology

The DAC designation methodology was developed by identifying over 100 potential input datasets and ultimately choosing 45 indicators which were deemed of the appropriate spatial and temporal scale; were based on observations and not proxy or modeled results where possible; and that were available across all of New York State.[xi]

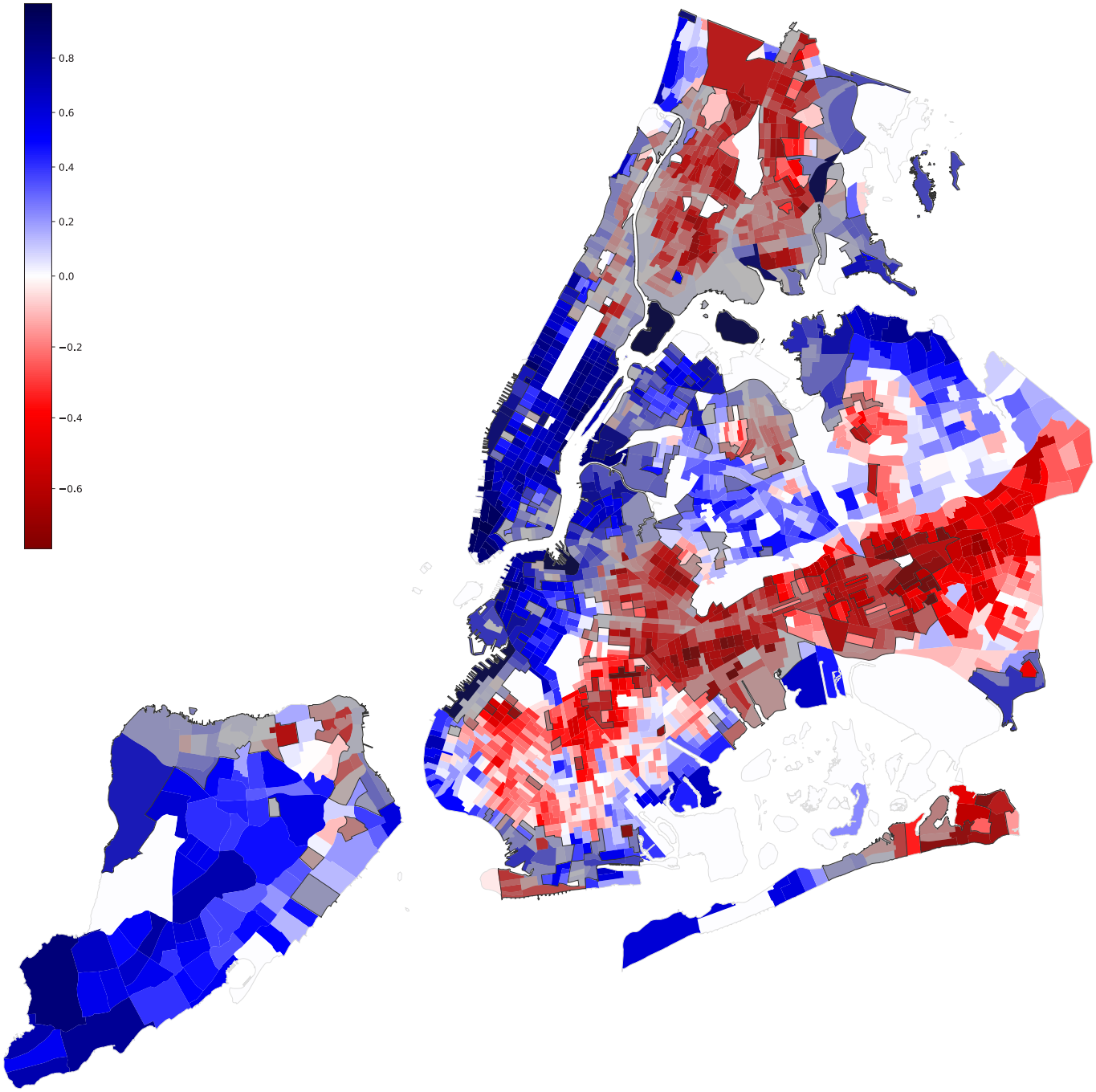
Individual indicators were grouped thematically and combined into seven factors. Weighted averages are taken within each factor to provide two component scores which are then summed to inform the final combined score.

Identification Factors and Components Used for the New York State DAC Criteria Metholodogy



xi For a full list of all 45 indicators included in the current DAC criteria please see https://climate.ny.gov/resources/disadvantaged-communities-criteria/

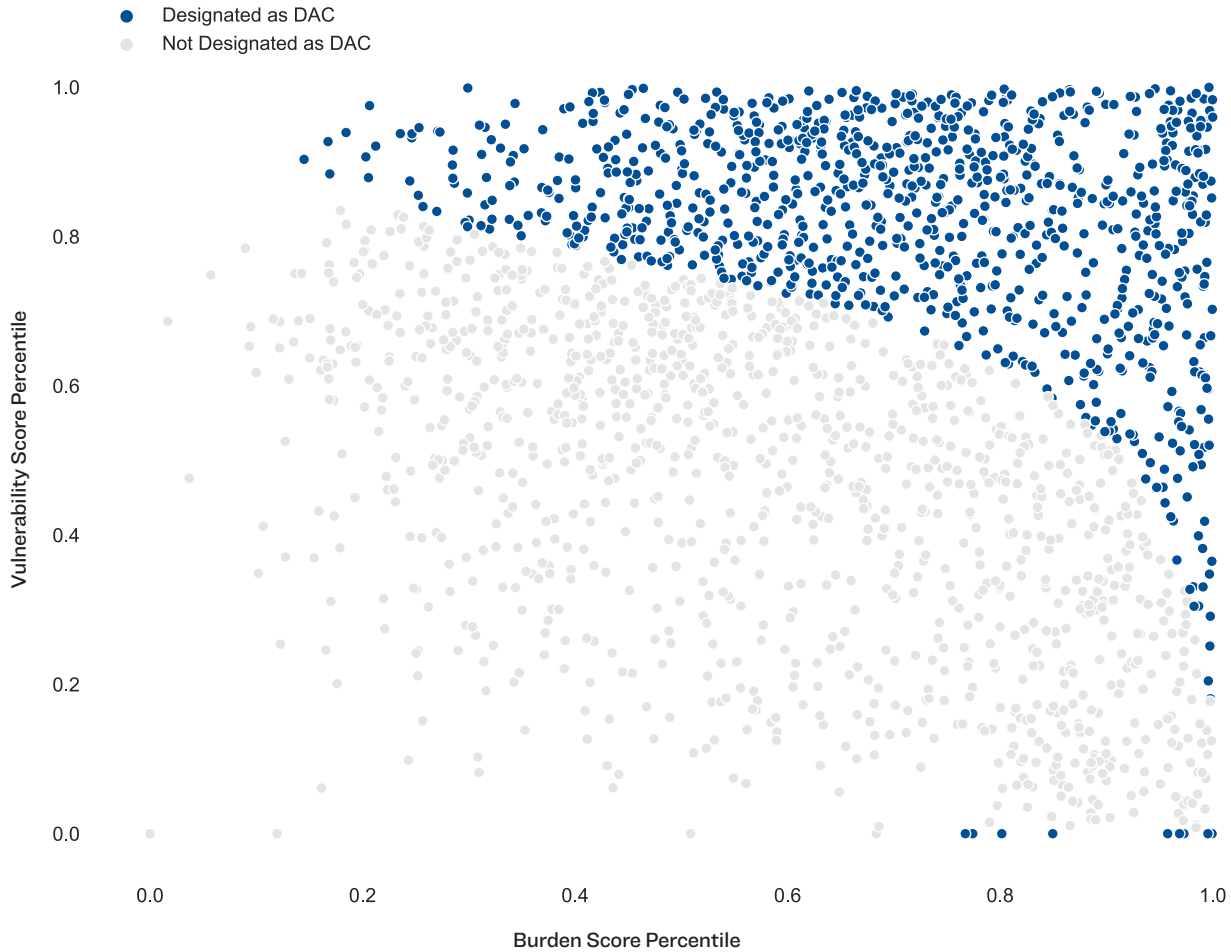
This map displays the difference between Environmental Burdens and Climate Change Risk Score and Population Characteristics and Health Vulnerabilities Score. Deeper blue values denote areas with much higher environmental burden scores than population characteristics scores, and deeper red areas highlight the opposite condition.



This methodology strives to identify areas that exhibit high scores across both components (*Environmental Burdens and Climate Change Risks* as well as *Population Characteristics and Health Vulnerabilities*). However, as a result, there are certain areas in New York State that are not classified as DACs because they score highly in one of the individual components but not both. The following map below shows the geography of these component score disparities across the city in relation to areas that meet the DAC inclusion threshold.

This ultimately results in certain tracts with very high scores in one or the other category being excluded from DAC designation. As a result, certain areas that are deserving of attention, either from an environmental burden or public health perspective, do not meet the criteria for inclusion in the DAC. Of particular concern for this report are minority and low-income communities that may have experienced historical disinvestment and detrimental land uses and may experience environmental risks and burdens that are not captured by the current indicators in the criteria, but currently have low scores for Environmental Burdens and Climate Change Risk. Most census tracts in Southeast Queens, for example, are not designated DACs because they do not have a high score in the Environmental Burdens and Climate Change Risks component despite having a high score in the Population and Health Vulnerabilities component.

Comparison between Environmental Burdens and Climate Change Risk Score Percentile and Population Characteristics and Health Vulnerabilities Score Percentile for each tract in New York City. DAC-designated tracts with vulnerability scores of 0 are census tracts with fewer than 500 residents or 300 households which according to the DAC methodology are scored based solely on their burden scores.



POTENTIAL IMPROVEMENTS TO THE STATE DAC CRITERIA METHODOLOGY

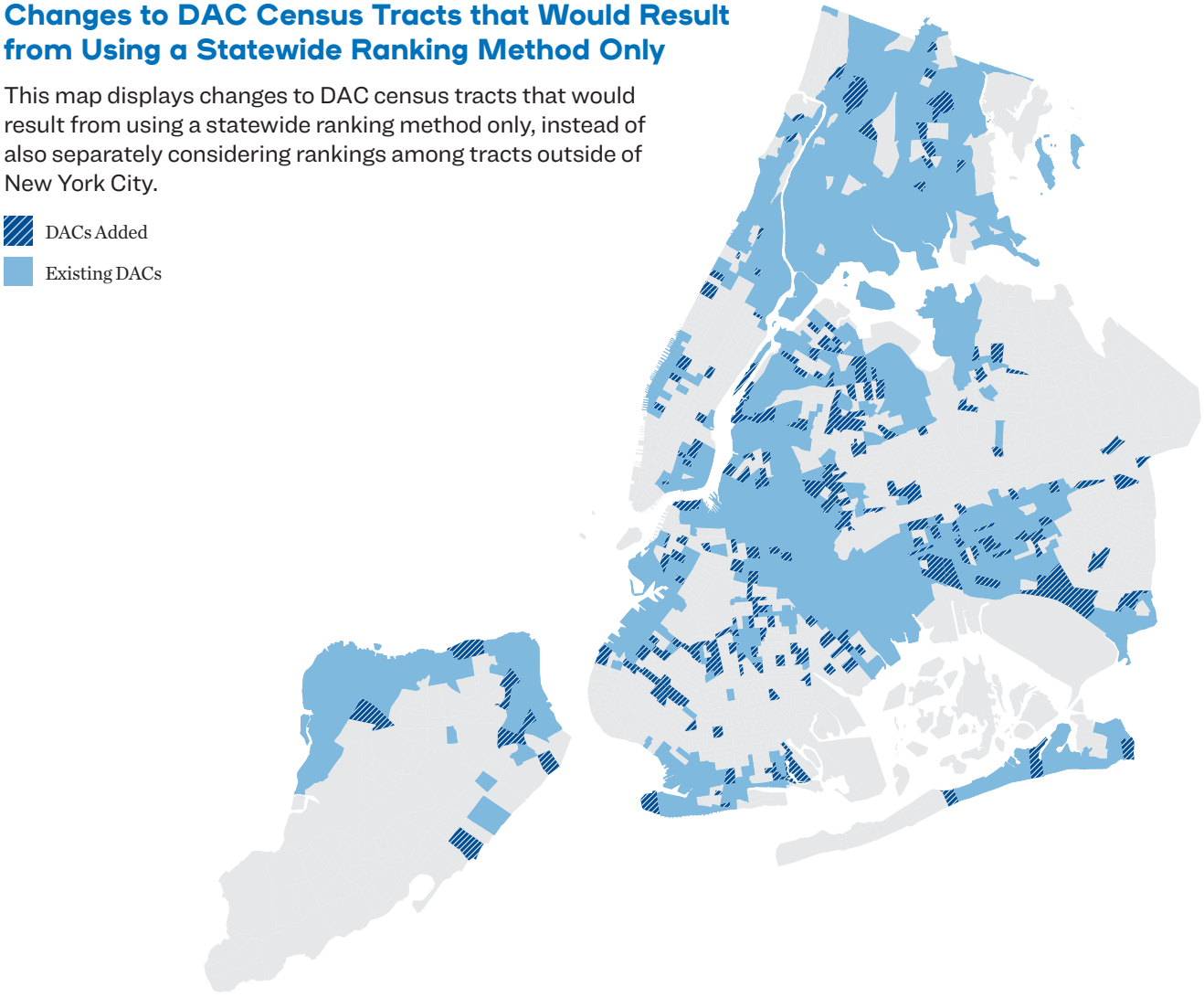
Modifying the DAC ranking system

A fundamental element of the DAC methodology is that it provides an understanding of burden relative to the rest of the state. A key step in determining this relative burden is to adjust for the extreme indicator and factor scores observed in New York City relative to the rest of the state. This adjustment is made using a multi-step ranking system that ensures that tracts from across New York State are included in the ultimate classification. However, it has the effect of excluding New York City census tracts that would otherwise be classified DACs.

As currently constructed, tracts in New York City are eligible to be included as DACs if they are within the top 29.8 percent of tracts statewide, or in the top 29.8 percent of tracts in the rest of New York State (excluding New York City). The secondary filter (adding tracts if they are within the top of the rest of New York State ranking) is designed to add to the share of DACs that are outside of New York City. In total, 44 percent of New York City tracts and 29 percent are tracts in the rest of the state are DACs based on the current methodology. If only the statewide ranking were used, 55 percent of New York City tracts would be included, and 20 percent of tracts in the rest of the state would be included.

Changes to DAC Census Tracts that Would Result from Using a Statewide Ranking Method Only

This map displays changes to DAC census tracts that would result from using a statewide ranking method only, instead of also separately considering rankings among tracts outside of New York City.



Modifying the DAC indicators

Several indicators were identified that should be considered for inclusion or exclusion in future revisions to the DAC criteria.

Pluvial Flooding

The current DAC indicator related to inland flooding excludes pluvial flooding which occurs when extreme rainfall creates a flood independent of an overflowing water body. This is a major issue for New York City and other urban communities throughout the state, where this type of flooding is more prevalent due to a greater proportion of impervious surfaces. During Hurricane Ida, the confluence of stormwater flooding and housing insecurity caused devastating loss of life in below-grade apartments in New York City. The data currently employed in the DAC methodology to calculate this indicator were generated by projecting future flooding for streams in the United States under a future climate change scenario and quantifying increased risk within current FEMA FIRMs . This dataset provides an important baseline understanding of inland flood risk from overflowing water bodies (fluvial flooding); however, the NYC Stormwater Flood Map – Extreme Flood with 2080 Sea Level Rise dataset, provided by the City of New York, provides a more complete understanding of inland flooding, incorporating pluvial flooding. Statewide analysis of stormwater flooding should be conducted so that this significant measure of climate change risk can be included for communities statewide. Adding this indicator to the current methodology would add 112 DAC census tracts in New York City and would cause 114 additional DAC designations to be redistributed to other tracts within the city. More information on this updated measure can be found in the DAC Additional Indicator Methods call-out box.

Noise Pollution

Noise pollution was considered as an indicator in the drafting of the DAC criteria; however, no dataset existed at that time. In November 2022, the U.S. Bureau of Transportation Statistics (BTS) published the National Transportation Noise map, which represents the intensity of transportation-related noise pollution based on 24-hour equivalent sound levels for aviation, road, and rail-based transportation. While BTS outlines limitations of this dataset, it provides insight into the geography of noise pollution across New York State and is presented for consideration for inclusion in the DAC criteria in the future. Adding this indicator to the current methodology would add 129 DAC census tracts in the city and would cause 81 additional DAC designations to be redistributed to other tracts within the city. More information on this updated measure can be found in the DAC Additional Indicator Methods call-out box.

Proximity to Wastewater Discharge

This measure scores census tracts based on how close they are to polluted streams as measured by the EPA. The score is weighted by toxicity of the pollutants measured and includes all census tracts within 500 meters of streams for which there are data. This indicator identifies tracts along the East River and Long Island Sound in Manhattan, Queens, the Bronx, and Brooklyn, as well as tracts along Arthur Kill in Staten Island as tracts proximate to wastewater discharge. The current method used for this indicator allocates pronounced values in the above-mentioned areas, and no data values for most of Queens, Brooklyn, and Staten Island. In addition to the limited geography where this criterion is applied, proximity to wastewater discharge alone does not correspond with exposure to pollution for several reasons. The proximity-based measure does not distinguish between treated wastewater, which must meet effluent limits designed to ensure that water quality standards in the receiving water body are not exceeded, and untreated combined sewer overflow. Moreover, proximity does not necessarily lead to exposure. Independent of water quality, many of the waterbodies in and around the city are not suitable for swimming because of boat traffic or current, and the proximity metric does not take elevation or topography into account and includes large portions of

upland neighborhoods unlikely to be impacted by this potential pollutant. It is highlighted for consideration for exclusion from the DAC criteria in the future. Removing this indicator from the current methodology would add 115 New York City census tracts as DACs and would cause 90 additional DAC designations to be redistributed to other tracts within the city.

Housing Vacancy Rates

The rationale provided in the DAC criteria methodology states that this measure was included to measure disinvestment from a community; however, due to market dynamics and other factors, the highest rates of housing vacancy in New York City occur in high-cost and luxury housing.[489] While this trend may vary for other portions of the state, including this variable for New York City does not capture the intended trends and it is highlighted for consideration for exclusion from the DAC criteria in the future; removing this variable from the overall criteria calculation adds an additional 116 DAC tracts to New York City, and redistributes an additional 89 tracts within the city.

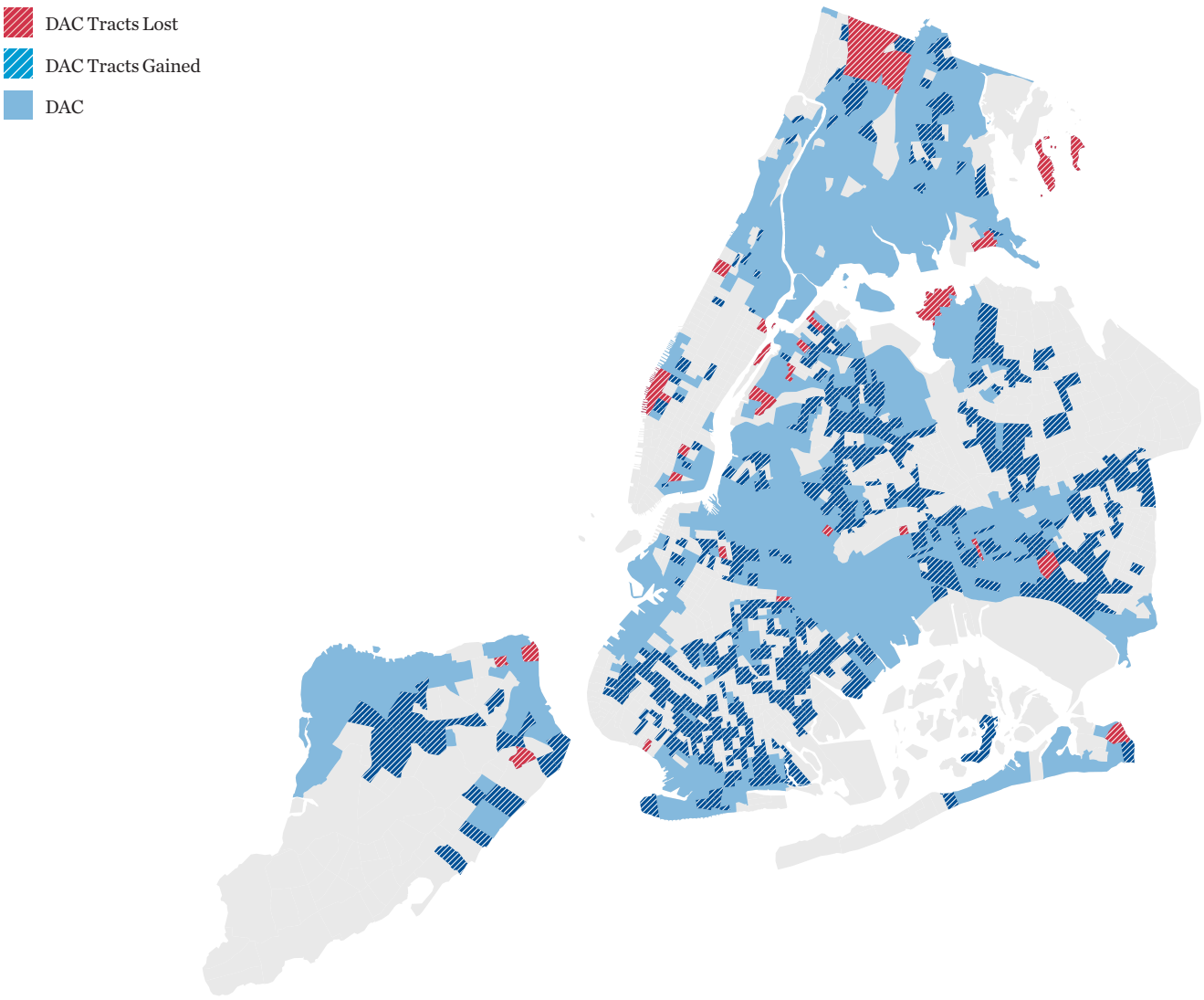
COMBINING THE POTENTIAL MODIFICATIONS TO THE DAC CRITERIA METHODOLOGY

To illustrate the potential impacts of the combined adjustments to the DAC criteria outlined above a composite revision to the criteria was computed. This potential update to the DAC methodology used a statewide ranking only, added indicators for stormwater and noise, and removed indicators for wastewater and housing vacancy. The combined impact of these adjustments to the criteria would add 485 DAC census tracts in the city and redistribute 15 tracts within the city. Using this method, 65 percent of census tracts in NYC would be DACs, compared with 12 percent of census tracts outside of NYC.

Map displaying changes to DAC census tracts that would result from using revised methodology that uses a statewide ranking, adds indicators for stormwater flooding and noise and removes current indicators for wastewater discharge and housing vacancy.

Taken together these convey considerations for the Climate Justice Working Group and NYS Department of Environmental Conservation in the next iteration of the DAC criteria methodology. This case-making analysis illustrates how the methods used impact which communities are considered DACs and which are not. The concerns outlined here should be considered as the Climate Justice Working Group and NYS Department of Environmental Conservation continue to refine the DAC criteria to best describe communities facing environmental and climate burdens in New York State.

Changes to DAC Status with Combined Updates to Method



DAC ADDITIONAL INDICATOR METHODOLOGY

Pluvial Flooding

For the pluvial flooding indicator, this analysis used data from the NY Stormwater Flood Map – Extreme Flood with 2080 Sea Level Rise.[490] This dataset was chosen because it is the publicly available stormwater flooding dataset that is most consistent with the flood risk and climate change projections used by the inland flooding indicator utilized in the original DAC Criteria in that it:

1. Represents flooding from a 100-year flood event (consistent with existing DAC inland flooding indicator)
2. Uses 2080 sea level rise anticipating 4.8 feet of sea level rise (existing DAC inland flooding indicator used 2100 projected sea level rise, but a lower estimate of 3 feet of sea level rise)
3. This dataset contains data for three levels of stormwater flooding severity:
4. Between 4 inches and 1 foot
5. Greater than 1 foot
6. Future high tides 2080

For each census tract, the percentage of each tract covered by flood zones of each severity was calculated. To account for these three levels of severity when combining the scores, they were then weighted accordingly: (1-3x the percentage calculated). These weighted percentages were then added together, and a percentile ranking was conducted to determine the final percentile ranking for each tract.

To develop a revised DAC score given the lack of equivalent stormwater flooding data for areas outside of New York City, the inland flooding indicator was used for the rest of the state and the new stormwater indicator was used for the city. Combined scores were calculated based on these different indicators for NYC vs the rest of the state.

Noise

For the noise indicator, this analysis used data from the DOT National Transportation Noise Map for aviation, road, and rail noise.[491] This is a raster dataset which records the distribution for all noise above 45dB(A) taking into account attenuation rate:

"Attenuation Rate: In this model, noise level attenuation is considered to be due only to ground effects and free-field divergence. Shielding is not considered (i.e. attenuation due to barriers and terrain are not considered). For this reason, noise levels may be over-predicted in areas near highway barriers or natural shielding features such as berms, hills, etc."[492]

For each census tract, the percentage of each tract's area with noise over 45dB(A) was calculated. The threshold of 45dB(A) is the minimum value available in this dataset and was chosen because it is the threshold defined by the Word Health Organization as a maximum dB level for healthy noise exposure. A percentile ranking was conducted to determine the relative presence of noise pollution within census tracts in New York State.[493]

PROGRAM/POLICY SPOTLIGHT METHODOLOGY

OVERVIEW

A program evaluation is a systematic method for collecting, analyzing, and using data to answer questions about the efficacy and efficiency of programs, and contribute to continuous improvement.[494] They are typically used to examine whether particular a program is producing its intended effect. For the EJNYC Report, the program evaluation approach differed from a typical program evaluation as the mandate was to assess whether multiple City programs and processes advanced or exacerbated environmental justice concerns, regardless of whether they were intended to do so or not. Additionally, the scope of this analysis was limited due to time limitations and data availability. For this reason, the outputs of these evaluations are called "Program/Policy Spotlights" in this Report.

This program/process evaluation was developed based on content requirements outlined in the EJ Report Scope. The EJ Report Scope is a formalized document chronicling input from a public scoping process that included thousands of comments from New Yorkers and determined the direction of the EJNYC Report. Per the Scope, the aim of the program/process evaluation is to examine existing city programs and processes that either advance environmental justice goals or exacerbate environmental justice concerns and examine processes may be used by the public to participate in City agency decision-making.

Key questions this evaluation set out to answer include:

- Which EJ concerns are impacted by the given program/process?
- Which groups and neighborhoods are most impacted? How closely does the program impact meet the scale and severity of the problem it is meant to address?
- How well-funded is the program and what is the distribution of investment throughout the city? Are funds and investments made equitably and proportional to the burden faced by different communities?
- Does the program pursue equity and environmental justice explicitly?
- What is the agency's outreach process for sourcing public comments? What barriers impact public participation in environmental decision-making?
- How well are the outcomes of this program being monitored?

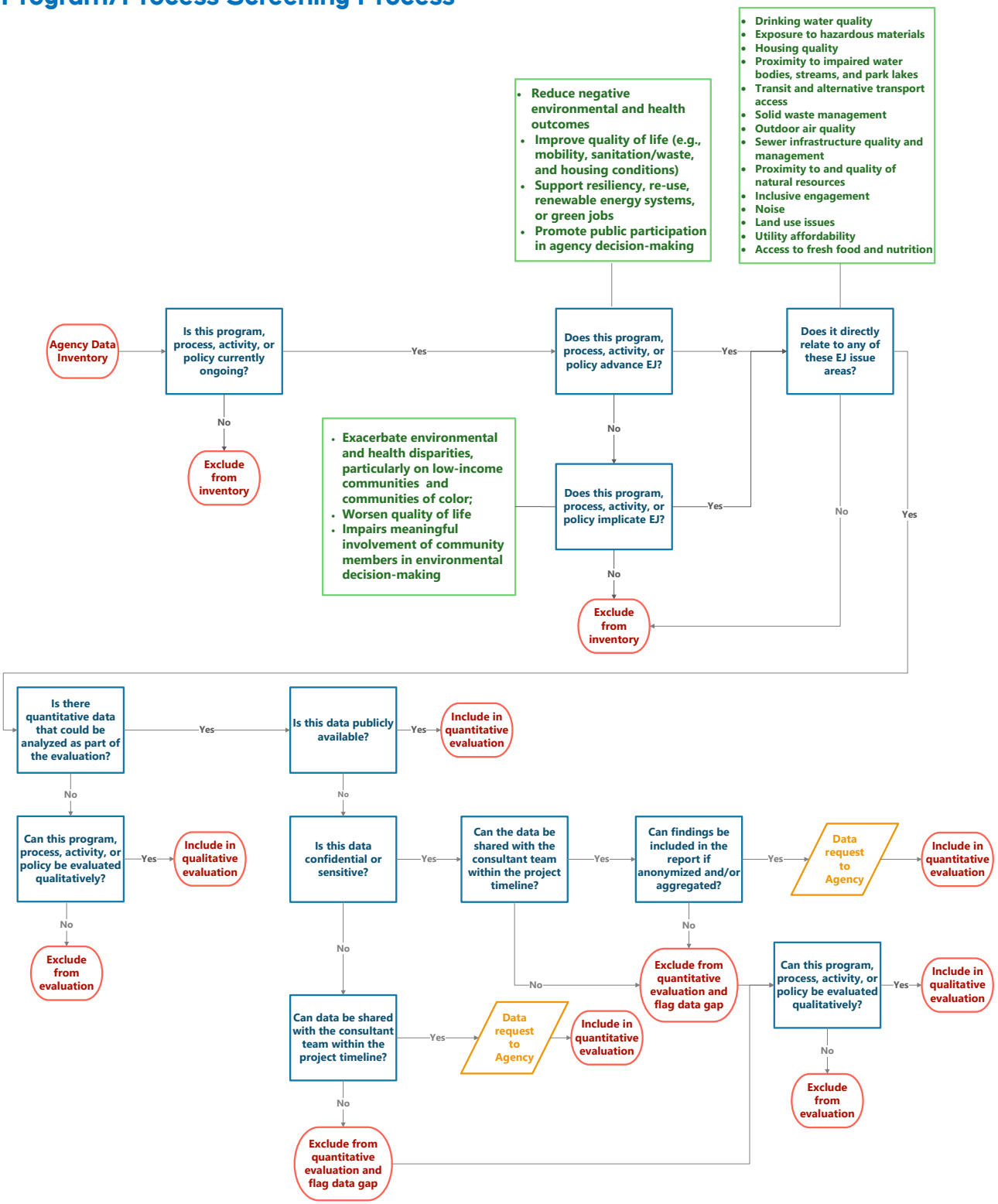
To conduct this assessment, a mix of quantitative and qualitative inputs were analyzed, including population data, program budgets, case studies, program monitoring reports, stakeholder conversations, and literature reviews of existing research. Due to data constraints, the depth of analysis varies and not every program, policy, and process could be evaluated against these questions.

DATA COLLECTION

Data collection for the program/process evaluation was a multi-phase process beginning with the curation of a comprehensive list of over 100 City programs and processes related to environmental justice concerns. This preliminary list was informed by a survey shared by the Mayor's Office of Climate & Environmental Justice (MOCEJ) to the EJ Interagency Working Group (EJ IWG) member agencies and inputs from the EJ Advisory Board (EJAB) on relevant initiatives, policies, and actions which either advance or implicate environmental justice and/or relate to public engagement in environmental decision-making.

Following the creation of the preliminary list, a screening framework was used to screen each entry on the list to ensure only the most relevant programs/processes—and those that could be readily evaluated qualitatively or quantitatively—were moved forward to analysis. This screening framework was developed through an iterative process with feedback from MOCEJ, EJ IWG, and EJAB. The framework, shown below,

Program/Process Screening Process



is made up of two main parts – the first raising topical questions on the program's suitability for the EJ evaluation, and the second addressing data quality and availability.

The EJ Report Scope required that each environmental concern listed in the Scope was represented at least once in the program/process evaluation. To satisfy this requirement, a second round of solicitation for relevant initiatives was conducted by MOCEJ. The logic model was applied to the additional initiatives. Ultimately, 33 programs/processes that either mitigate or exacerbate EJ concerns and 10 processes that facilitate public participation in environmental decision-making moved forward to the data sourcing phase.

Publicly available City data including geospatial layers, spreadsheets, press releases and program monitoring reports were obtained from NYC Open Data and agency websites. Additional research was conducted to source external data from research papers, articles, and books. In some instances where data gaps existed, non-published City data sources were identified through conversations between MOCEJ, EJ IWG member agencies, and the consultant team. However, much of these data could not be made available within the project timeline. This data gap led to a truncated selection of programs for evaluation and also limited the scope of analysis for some evaluated programs.

DATA ANALYSIS

Data analysis was conducted as appropriate for each program/process to answer the guiding questions outlined above. For the spatial and demographic analyses, 2010 census tracts were used alongside 2021 ACS five-year Estimates unless otherwise stated. 2010 census tracts were used to maintain consistency with the New York State Disadvantaged Communities criteria which have been used throughout this evaluation as the definition of "EJ Areas."

Get Stuff Built: Building and Land Use Approval Streamlining Taskforce (BLAST) Plan

Qualitative analysis of the 2022 Get Stuff Built Plan was developed following literature review of the plan itself, the CEQR Technical Manual, ULURP rules, and the Department of Buildings (DOB) permitting procedure alongside existing research around land use and environmental justice in New York City.[495] The proposed actions were examined for their potential impact on EJ considerations, such as environmental review and infrastructure siting especially in EJ communities.

Vision Zero

Qualitative and quantitative data were used for this program spotlight. For the qualitative analysis, program reports were reviewed. Quantitative data used includes 2017-2022 Serious Injuries and Fatalities (KSI) data from the New York City Police Department (NYPD) and Vision Zero Street Improvement Projects data on NYC Open Data. A spatial join using the "contain" predicate was computed in GIS software to combine census tracts and crash data. The result was used to determine trends in the occurrence of KSI crashes in EJ Areas and non-EJ Areas.

In addition to KSI trends in EJ Areas versus non-EJ Areas, the KSI per mile metric was computed to determine locations with the most and least prevalent traffic safety concerns. This KSI crash density was calculated by dividing the number of KSI in each NTA by the total length of roadway within the tract boundary. The NTAs were then ranked by percentile with 0-10 having the lowest KSIs per mile and 90-100 having the highest.

A spatial join of census tracts and Street Improvement Projects (SIPs) at intersections and along street corridors contained in the tracts boundaries was computed to identify where investments have been directed. To compare the incidence of serious crashes and fatalities to program interventions, the ratio of SIPs to KSI per mile was computed as follows:

$$\text{SIP to KSI per mile Ratio} = \frac{\text{Count of SIP Corridors + Count of SIP Intersections}}{\text{KSI per mile}}$$

Data gaps: This analysis only considers 2017-2022 and not the full program lifetime (beginning in 2013) because of data availability issues. An alternative New York State Department of Transportation (NYSDOT) dataset with 2013-2020 KSI crash data was explored but ultimately rejected in favor of the more recent NYPD 2017-2022 data.

NYC Community Air Survey

This program spotlight was developed through a review of program reports published by DOHMH alongside air quality studies conducted by community-based organizations.

NYC Clean Trucks Program

Qualitative and quantitative data from program reports, eligibility guidelines and citywide truck traffic studies were used to conduct this analysis. The program's impact towards reducing truck emissions was measured by the number of replaced trucks divided by the number of trucks making daily crossings in and out of the city. This estimate assumed that each truck enters and leaves the city once daily, thus the total number of intercity trucks is equal to half the number of daily crossings in and out of the city.

Analysis of program eligible areas was performed by creating a 0.5-mile buffer around participating IBZs and selecting census tracts that fell at least partially within the buffer areas.

Hunts Point was excluded from the analysis of funding distribution in eligible IBZs because the neighborhood had an eight-year head start and an outsized level of funding compared to the other IBZs. Funding to non-domiciled trucks was also excluded from the analysis as there was no data on their locations, eliminating the possibility of any spatial analysis.

Environmental Remediation

Inputs for this evaluation include program reports, site enrollment data from program inception through 2022, and existing research on environmental remediation in New York City. Spatial joins of census tracts and VCP sites, and community districts and VCP sites were computed to examine the incidence of clean-up projects across the city and in EJ Areas compared to non-EJ Areas.

Demographic analysis was conducted by comparing 2010 ACS five-year estimates to 2021 ACS five-year estimates results for census tracts with VCP sites.

Data gaps: Confirmed knowledge of contamination in NYC is largely limited to sites where testing has been conducted as part of environmental review for land use approvals and special permits. As such, environmental contamination in neighborhoods with low development demand is likely to go undetected and untreated.

Alternative Enforcement Program

Qualitative evaluation for this program was developed using program reports, housing code enforcement rules, and the NYC Housing and Vacancy Survey.

NYCHA Customer Contact

This program assessment mostly relies on qualitative inputs from the New York City Housing Authority (NYCHA) website, press releases and quarterly reports from HUD's independent monitor. Spatial analysis of distance between NYCHA developments and customer contact centers was conducted in GIS software.

Data gaps: This evaluation would have benefitted from access to NYCHA complaint, response, and resolution logs to assess the success of the Customer Contact program as well as other stakeholder criticisms around poor maintenance operations.

CSO Long-Term Control Plans

This spotlight focuses on the distribution of stormwater infrastructure and investment in EJ and non-EJ Areas. Program funding amounts for completed projects in each sewershed were sourced from 2022 Q4 reports.

Spatial intersection was computed between LTCP sewersheds and census tracts to determine program impacts in EJ Areas vs. non-EJ Areas.

Lead Service Line Replacement

Qualitative assessment of NYC Department of Environmental Protection (DEP)'s Lead Service Line Replacement pilot program program was developed using reports, insights obtained through conversations with DEP staff, and Drinking Water State Revolving Fund program documents.

Data gaps: The material composition of service lines in New York City is not fully known, with 16 percent of service lines potentially containing lead and 26 percent having unknown composition. As such, the scope of the challenge before DEP's Lead Service Line Replacement program is not fully represented.

Cool Neighborhoods

Qualitative assessment for this program was developed using published reports from the City. Spatial analysis of Hyperlocal Temperature Monitoring data involved a spatial join of census tracts and monitor locations. ACS data for each census tract with monitors were aggregated to give demographic characteristics of benefitting neighborhoods.

QUALITATIVE RESEARCH METHODOLOGY

New York City is home to an expansive network of competent, energetic and dedicated community leaders improving their neighborhoods and organizing to address the interconnected quality-of-life issues that comprise the environmental justice movement across the city. This leadership is found on the hyper-local, neighborhood scale and the citywide and regional scale, and is present in both formalized leadership roles (such as at community-based and not-for-profit organizations, civic associations, and community boards), and informal roles (like those on the block in our neighborhoods, in school classrooms, and in local volunteers). Leaders range in age from high school students to retired adults and are as diverse as the multitude of identities of the city itself. Through their persistent labors, these leaders and their communities have crafted visions, plans and achieved considerable successes and improvements in environmental justice and quality-of-life issues.

Through interviews and focus groups, the EJNYC Qualitative Research Team spoke with 42 New Yorkers living or working in environmental justice communities from across the five boroughs about the challenges they face with regards to the effects of environmental injustices, how they are managing these issues, and what their experiences have been in engaging with the City's related programs and decision-making processes.

QUALITATIVE APPROACH

The purpose of the qualitative assessment was to elevate the lived experiences of historically overburdened and underinvested communities in assessing the City's historic and current contributions to environmental justice, with a focus on relevant City policies, programs, decision-making processes, public engagement practices, and access to data and information. The assessment was two-pronged in its approach, including interviews with city environmental justice organizational leaders, as well as focus group sessions with everyday residents and community members on the ground in environmental justice communities, seeking a limited, yet representative sample of both community members and formal leaders. All participants were compensated for their time and contributions.

FOCUS GROUPS WITH EJ COMMUNITY RESIDENTS

The team held five focus groups virtually from late-August to early-October, reaching 22 New Yorkers across each of the five boroughs and throughout various neighborhoods identified as environmental justice communities. Participants represented a range of racial and ethnic identities, ages and gender identities, with 41 percent of participants identifying as Black or African American (followed by 23 percent identify as Asian, Native Hawaiian or Other Pacific Islander, Filipina) and 43 percent of participants identifying as of Hispanic, Latino or Spanish origin. The majority of participants (65 percent) identify as female, and nearly half of participants (47 percent) are between the ages of 25-44. One quarter (25 percent) of participants are New York City Housing Authority (NYCHA) residents.

In the focus group sessions, participants were engaged with questions and conversation prompts ranging from *"Share an experience where you were affected by an environmental issue. How did it affect you and how did you manage or resolve it?"* to *"What decision-making processes have you participated in (or not)? How was your experience? How should these processes change to lead to better outcomes for you and your community?"*.

INTERVIEWS WITH ENVIRONMENTAL JUSTICE ORGANIZATIONAL LEADERS

The team also held 16 interviews with environmental justice leaders, including two dozen executive directors of community-based and/or advocacy organizations, their staff, researchers who focus on NYC environmental justice and were recommended by community leaders, and NYCHA resident representatives. The Interviewees represented (or worked with) organizations that are based in communities across the five boroughs:

- 31 percent (5) in Brooklyn
- 13 percent (2) in the Bronx
- 19 percent (3) in Queens
- 13 percent (2) in Staten Island
- 25 percent (4) citywide, including two NYCHA representatives

Textual data from both the focus groups and interviews were reviewed, categorized, and interpreted through an iterative and inductive qualitative coding methodology, allowing insights and themes to emerge from the data and thus the voices of participants, rather than tested against a hypothesis. This assessment also included feedback and additional input from the NYC Environmental Justice Advisory Board, which includes representatives from across the city, including Manhattan-based organizations.

CITY PROGRAMS AND INITIATIVES

The following list is representative of City programs designed to address EJ issues. The list is not exhaustive but may serve as resource for individuals and organizations seeking programs and initiatives that address various EJ issues. The resources are organized by section from The State of Environmental Justice chapter and sorted chronologically, where applicable.

ACCESS TO RESOURCES

Equitable Development Data Explorer (DCP & HPD)
Developed out of advocacy by the Racial Impact Study Coalition (RISC) and Public Advocate Jumaane Williams, the explorer uses data on housing and demographics to indicate the level of displacement risk in different neighborhoods.

Local Law 78 of 2021 (City Council)
LL 78 requires the preparation of Racial Equity Reports for certain land use changes, including a community profile from the Equitable Development Data Explorer, a narrative statement on the how the project affirms the City's fair housing strategy, and the project's anticipated housing units and jobs.

Racial Justice Commission (Charter Revision Commission)
In 2021, the City convened a Racial Justice Commission to examine barriers faced by people of color, propose revisions to the City Charter, and draft ballot proposals that forward racial equity. All three of the Commission's final ballot measures, including the creation of Office of Racial Equity and a citywide Racial Equity Plan, were approved by a referendum of voters in November 2022.

Better Buses Action Plan (DOT & MTA)
DOT and MTA use equity metrics for prioritizing areas that can most benefit from speed and reliability improvements, including population of car-free households and low-income households.[496] Many completed routes are in EJ communities, including the Bx12 SBS in Upper Manhattan and the Northern Bronx, the B44 SBS and B46 SBS in Bedford-Stuyvesant, Crown Heights, and Flatbush in Brooklyn, and the Q44 SBS connecting the Northern Bronx with the Flushing and Jamaica neighborhoods in Queens.

OMNY Fare-Capping Program (MTA)
The fare capping program allows transit riders who take more than 12 trips per week to ride free for the remainder of the week. This flexibility allows low-income riders to achieve savings over single ride fares without having to prepurchase an unlimited pass.

Metro-North Railroad Expansion (MTA)
Access to rapid transit plays a critical role in expanding access to economic opportunities by reducing commute times. The four new stations in Hunts Point, Parkchester/Van Nest, Morris Park, and Co-Op City will bring rapid transit service within a mile of 500,000 residents.[497] The project, to be completed in 2027, will reduce travel time from the Bronx to Manhattan by as much as 50 minutes.[498]

NYC Ferry Forward Plan (NYCEDC)
Introduced in 2022, the plan aims to make the ferry system more equitable, accessible, and financially sustainable, including objectives to broaden outreach to NYCHA developments near the ferry landings and expand the discount program to offer $1.35 one-way tickets for seniors, people with disabilities, and other riders who participate in the Fair Fares NYC program.

Zoning for Accessibility (DCP, MTA, and MOPD)
To create a more accessible transit network, ZFA is a citywide zoning amendment that incentivizes private developers to build transit accessibility improvements in exchange for a density bonus.

Off-Peak Frequency Enhancements (MTA)
MTA introduced a plan to increase off-peak service by 2024, focusing enhancements on areas where subway ridership has recovered the highest from its pre-pandemic baseline. These enhancements can benefit workers in the outer boroughs with nontraditional work schedules that rely on off-peak transit service.

Free Fare Pilots (MTA)
Starting in September 2023, MTA began free fare pilots on five bus routes, one in each borough. The pilots will last 6-12 months on the following routes: Bx18 A/B, B60, M116, Q4 LCL/LTD, and S46/96. Routes were chosen based on a variety of factors, including ridership, equity for low-income and economically disadvantaged communities, and access to employment and commercial activity.

SAFEMicromobility (NYCHA)
Safe Access for Electric Micromobility (SAFEMicromobility) is NYCHA's plan to provide safe and secure outdoor charging stations for electric micromobility devices like e-bikes and e-scooters to its residents. NYCHA has partnered with Con Edison for a demonstration project at four developments, and in June 2023, was awarded a $25 million federal grant through the U.S. Department of Transportation's Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program for the installation of 173 outdoor charging stations at 53 developments. This program promotes safety and equitable access to e-micromobility charging to residents in environmental justice communities.

Priority Investment Areas (DOT)
Through the NYC Streets Plan, DOT established Priority Investment Areas to act as a tool to focus future investment to where it can have the greatest impact. Identification of PIAs is based on the NTA's percentage of non-white residents and low-income residents, job and population density, and previous DOT investment.

Fleet Safety Initiatives (DCAS)
DCAS has implemented a comprehensive set of road safety measures to bolster the overall safety of the City's vehicle fleet. This includes the installation of surround cameras and backup sensors, the integration of intelligent speed assistance (ISA) to enforce maximum speed restrictions, and the establishment of the Fleet Office of Real-Time Tracking (FORT). FORT efficiently utilizes telematics to monitor the usage patterns of the City's fleet. As a result of these proactive measures, along with other road safety initiatives, there has been a 23 percent decrease in preventable collisions involving City-owned vehicles (excluding NYPD) since 2019.

Community Parks Initiative (NYC Parks)
This initiative is designed to use future programming and park and playground rehabilitation efforts to address the historic disparities in park investment by identifying priority zones based on population growth, population density, and poverty rates. So far, the program has invested $285 million in 65 parks across the city, including in EJ communities in the South Bronx, Upper Manhattan, Central Brooklyn, and along the North Shore of Staten Island.

NYC Waterfront Public Access Study (DCP)
DCP conducted the Waterfront Public Access Study to better understand New Yorkers' access to open space along NYC's 520 miles of waterfront and to support the NYC Comprehensive Waterfront Plan released in December 2021. In addition to informing the Comprehensive Waterfront Plan's Waterfront Public Access goals, the study findings will be used by DCP and other City agencies to support forthcoming waterfront zoning studies to expand waterfront public access.

Food Retail Expansion to Support Health (FRESH) (NYCEDC & DCP)
To support the expansion of fresh food sources, the FRESH program provides zoning and tax incentives to supermarket operators and developers. To date, 30 projects, predominantly in Upper Manhattan, Brooklyn, and the Bronx, have been approved, securing 2,000 jobs for their local communities. In 2021, DCP amended the program to limit oversaturation and expand the zoning boundary to more neighborhoods in the outer boroughs.[499]

Mayor's Office of Urban Agriculture (MOUA)
In the absence of grocery stores and supermarkets in many EJ communities, residents have launched urban farms and community gardens. Through collaboration with other City agencies, MOUA will promote the growth of urban agriculture through research, policy development, advocacy, and community outreach.

Health Bucks (DOHMH)
Health Bucks are $2 coupons that can be used to purchase fresh fruit and vegetables at New York City farmers markets. For every $2 spent at a farmers market using an EDT card, SNAP recipients receive $2 in Health Bucks, up to $10 a day.

EXPOSURE TO POLLUTED AIR

Solar (DCAS, MOCEJ, NYCEDC, and NYCHA)
In *One City: Built to Last* the City has committed to achieve 100MW of solar energy generation on City-owned property by 2025 through multiple strategies which include large scale non-rooftop solar, and repair and replacement of high-priority rooftops. One City: Built to Last committed the City to assessing City building rooftops for solar readiness. The City is also working to support the installation of solar on privately-owned buildings, and facilitate community solar projects that can benefit New Yorkers who do not own buildings. In addition to the City's 100MW goal, NYCHA has committed to installing 30MW of rooftop solar by 2026. As of 2023, NYCHA has 19.7MW of solar in its pipeline via its ACCESSolar program and PACT developers: 6.7MW have been installed; 3MW are under construction; and a solicitation for another 10MW was released in April.

Offshore Wind NYC (NYCEDC)
NYC committed to $191 million in offshore wind investments over the next 15 years. Investments will focus on offshore wind sites and infrastructure, business and workforce development, and research and innovation to attract offshore wind development to the city.

Offshore Wind NYC Waterfront Pathways Program (NYCEDC)
Offshore wind development will bring good-paying clean energy jobs and contracting opportunities for NYC businesses. The Offshore Wind NYC Waterfront Pathways Program supports minority-owned, women-owned, and disadvantaged business enterprises in receiving contracts from NYCEDC to work on offshore wind opportunities.

Citizens Air Complaint Program (NYC DEP)
Allows citizens to participate in the enforcement of the idling laws by reporting an illegally idling vehicle. The Idling Complaint System enables citizens to file and track idling complaints and receive an award if the summons is upheld.

Clean Air (Port Authority of NY NJ)
The Port Authority of NY NJ has multiple environmental initiatives to address the air pollution impacts of ports and airports, including electrifying buses and other vehicles, adding electric vehicle charging stations for Port Authority customers, electrifying ground support equipment at airports, supporting the purchase of new, cleaner cargo handling equipment, incentivizing the use of clean maritime vessels, and supporting the use of sustainable aviation fuel.

Electrifying New York (NYC DOT)
Electrifying New York is an electric vehicle vision plan that lays out goals to support the adoption of electric vehicles over the next decade. The plan calls for expansion of fast charging networks, equipping parking lots and garages with chargers, advocating for additional funding, working with utilities to make it easier and cheaper to install electric vehicle chargers, engage with stakeholders and increase public awareness about electric vehicles.

NYC Clean Fleet Plan (DCAS and NYCHA)
NYC aims to be the most sustainable fleet in the country through the NYC Clean Fleet Plan, originally issued in 2015 and updated in 2021. NYC is working to reduce greenhouse gas emissions 50 percent by 2025 and will accelerate the transition of all light duty and medium duty on-road fleet vehicles, including law enforcement and emergency response models, and all non-emergency trucks to an all-electric on road fleet by 2035. Emergency and specialized trucks will be converted to electric models no later than 2040. In alignment, NYCHA released its own Clean Fleet Plan to reduce NYCHA's vehicle-related carbon emissions by 40% by 2028. Additionally, NYCHA has collaborated with DCAS to host solar car-port electric vehicle charging stations at its developments.

Electric Micromobility Action Plan (Mayor's Office)
The Mayor's Office convened an Interagency Electric Micromobility Task Force to develop a Micromobility Action Plan to support New Yorkers in transitioning to safe and legal e-micromobility, prevent fires, prevent crashes, support delivery workers, promote sustainability and access, improve emergency response and educate the public about the safe use of electric micromobility.

Freight NYC (NYCEDC)
Freight NYC outlines four goals to address the air quality impacts of the city's freight network. These goals include the creation of thousands of jobs in the freight sector, investing in maritime and rail infrastructure, modernizing and developing new distribution facilities, and building an environmentally sustainable and resilient supply chain.

Hunts Point Produce Market Redevelopment (NYCEDC)
In September 2022, Mayor Eric Adams announced that the Hunts Point Produce Market would receive $110 million in federal grant monies to upgrade its facilities. The grant will be used to strengthen critical freight movement and improve the environment, public health, and quality of life for the Hunts Point community. The redevelopment of the Hunts Point Produce Market will eliminate about 1,000 temporary refrigeration units on site that are diesel-powered and idling on site. The new site will have an updated traffic circulation plan that will significantly reduce emissions attributed to onsite congestion and idling. There will also be a projected increase in rail usage, and installation of conduit to support future freight EV charging.

Idling Regulations (NYC Business)
The New York Anti Idling Law updated the New York City Administrative Code to disallow engines of motor vehicles from idling for longer than three minutes. This regulation does not apply to emergency motor vehicles or vehicles whose engine is used to operate loading, unloading, or processing devices.

MTA 2020 – 2024 Capital Plan (MTA)
In its 2020-2024 Capital Plan, the MTA committed to transitioning to a 100 percent zero-emissions fleet, starting with the purchase of 500 new electric buses.

NYC Clean Trucks Program (NYC Business)
The Clean Trucks Program offers rebates between $12,000 and $185,000 to replace older, heavily-polluting diesel trucks with electric, hybrid, or newer vehicles.

Curbside Composting (DSNY)
The Department of Sanitation is rolling out Curbside Composting citywide throughout 2024 following the successful implementation of a curbside composting program in Queens. All New Yorkers will be required to separate leaf and yard waste, food scraps, and food soiled paper for collection at the curb per the Council's Zero Waste bills.

Drop-Off Composting Sites (DSNY)
Smart Composting Bins are available across the city for food scrap and plant waste drop-off, in addition to community-based drop off sites. New Yorkers need to download the NYC Compost app for iOS or Android in order to use the Smart bins.

Clean Curbs for All (NYCHA)
NYCHA's Clean Curbs for All pilot is a hoist-collected waste containerization and electric trucks at five developments in South Brooklyn. Clean Curbs for All aims to reduce the pests at NYCHA developments by removing non-containerized trash from sidewalks, while mitigating the cumbersome and dangerous physical lifting and handling by NYCHA caretakers; truck pollution and noise associated with garbage pick-ups; and large open sources of trash, leading to cleaner developments and grounds.

Local Law 152 of 2018 (City Legislation)
In 2018, the Department of Sanitation was required to reduce permitted capacity at private transfer stations in Brooklyn Community District 1 by 50 percent and in Queens Community District 12 and Bronx Community Districts 1 and 2 by 33 percent to comply with the Waste Equity Law. These communities, which are primarily home to EJ communities, saw a majority of the city's solid waste processed in their neighborhoods, an injustice which the Waste Equity Law addressed.

NYC Compost Project (DSNY)
The Department of Sanitation operates a citywide compost education and outreach program in partnership with botanical gardens and composting nonprofits in all five boroughs to provide workshops and technical assistance for home or community-based composting.

Solid Waste Management Plan (DSNY)
The Department of Sanitation's Solid Waste Management Plan outlines the agency's structure and strategies for managing the city's solid waste through 2026. Efforts are underway to develop the next Plan, which will prepare for 2026 through 2036, and beyond.

Commercial Waste Zones (DSNY)
Local Law 199 of 2019 required the establishment of Commercial Waste Zones. These 20 zones were created to reduce commercial waste disposal and incentivize recycling, reduce truck traffic, provide fair pricing, strengthen customer service, improve training, safety, and labor standards, invest in clean fleets, and build resiliency in the city's waste carting system.

Local Law 38 of 2015 (City Legislation)
Local Law 38 phased out the use of No. 6 and No. 4 fuel oils in multiple contexts, including backup power generation.

Local Law 43 of 2010 (City Legislation)
Local Law 43 phased out the use of No. 6 heating fuels in buildings by 2015, and No. 4 fuel oil by 2030.

Local Law 97 of 2019 (City Legislation)
Local Law 97 is one of the most ambitious plans to reduce building emissions in the nation. Most buildings over 25,000 square feet will be required to meet new energy-efficiency and greenhouse gas emissions targets by 2024, with stricter limits coming into effect in 2030. The goal is to reduce the emissions produced by the city's largest buildings by 40 percent by 2030 and 80 percent by 2050. The law also established the Local Law 97 Advisory Board and Climate Working Groups to advise the City on how best to meet these aggressive sustainability goals.

Local Law 154 of 2021 (City Legislation)
Local Law 154 phases out the use of fossil fuels in new construction starting in 2024, requiring that new buildings be all-electric. New York City is the largest city to require new buildings to be all-electric.

Local Law 32 of 2023 (City Legislation)
Accelerates the phase-out of No. 4 fuel oils by 2027 instead of 2030.

NYC Accelerator (MOCEJ)
Provides resources, training, and one-on-one expert guidance to help building owners and industry professionals improve energy-efficiency and reduce carbon emissions from buildings in NYC.

EXPOSURE TO HAZARDOUS MATERIALS

Local Law 26 of 1988 (City Legislation)
The Community Right-to-Know (RTK) Program requires that NYC regulate the storage, use, and handling of hazardous substances that pose a threat to public health and the environment. Under the law, businesses are required to file annual reports detailing the quantity, location, and type of every hazardous substance stored in their facilities, which are archived in the Citywide Facility Inventory Database (CFID). The NYC Department of Environmental Protection releases yearly reports analyzing data from the CFID.

E-Designation (OER)
E-Designations identify properties that have environmental requirements relating to air, noise, or hazardous materials that must be investigated or addressed before the property can be redeveloped. An E-designation may be placed on a tax lot by the Department of City Planning or other lead agency in the course of a rezoning or other land use action. Sites with hazardous materials E-designations must be investigated, and OER must approve a cleanup plan based on the investigation's results before a building permit can be issued.

Voluntary Cleanup Program (OER)
The release of *PlaNYC* in 2007 established New York City's brownfield remediation and redevelopment initiatives, and the City created the Mayor's Office of Environmental Remediation to promote cleanup and redevelopment of vacant contaminated land in NYC. The City signed into law the Brownfield Community and Revitalization Act to address light-to-moderately-contaminated lands that may not be eligible for the New York State Brownfield Cleanup Program and to streamline the cleanup process. In 2010, the City's Voluntary Cleanup Program began accepting applications. By enrolling in the City Voluntary Cleanup Program, developers can receive grants, fee exemptions, certifications, liability protections, and other incentives to support remediation of contaminated properties. The program also involves release of cleanup plans to the public for notification and comment.

SAFE Disposal Events (DSNY)
SAFE (Solvents, Automotive, Flammables, and Electronics) Disposal events are hosted by DSNY every spring and fall in all five boroughs to provide New Yorkers with an opportunity to safely dispose of chemical products, medical waste, electronics, and other hazardous materials.

Special Waste Drop-off Sites (DSNY)
DSNY also operates a Special-Waste drop-off site in each borough, open a few days each month.

ACCESS TO SAFE AND HEALTHY HOUSING

Home Energy Assistance Program (HRA)
The Home Energy Assistance Program (HEAP) is a federally-funded program that helps low-income homeowners and renters pay for utility and heating bills. In NYS, HEAP includes a Cooling Assistance benefit to help eligible households buy and install an air conditioner or fan.

NYC Accelerator (MOCEJ)
Provides resources, training, and one-on-one expert guidance to help building owners and industry professionals improve energy-efficiency and reduce carbon emissions from buildings in NYC.

Enterprise Green Communities Criteria NYC Overlay (HPD)
All new construction and substantial rehabilitation projects receiving funding from HPD must comply with sustainability and energy-efficiency criteria specific to the NYC context. As an alternative, the construction projects may pursue certification with LEED v4, gold or platinum.

Green Housing Preservation Program (HPD)
GHPP provides low- or no-interest loans to finance energy-efficiency and water conservation improvements, lead remediation, and moderate rehabilitation work. The program is designed to assist small- and mid-size building owners improve building conditions and lower operating expenses to ensure the long-term physical and financial health of their buildings and to preserve safe, affordable housing for low- and moderate-income New Yorkers.

Cool Neighborhoods NYC (MOCEJ, formerly ORR)
This 2017 report launched a series of projects to locate cooling interventions in the city's high-heat neighborhoods in order to mitigate the urban heat island effect. Strategies include targeted street tree planting and strategically installing green infrastructure and cool roofs.

ElectrifyNYC (MOCEJ, formerly MOS)
Launched in 2021 as part of an effort to help reduce greenhouse gas emissions from 1-4 family homes, ElectrifyNYC helps homeowners with green and efficient home upgrades so they can save money, make their homes more comfortable, and breathe cleaner air.

Induction Stove Challenge (NYCHA, NYSERDA, NYPA)
In December, NYCHA, in partnership with NYPA and NYSERDA, issued an RFP for the Induction Stove Challenge – a competitive innovation challenge that calls on appliance manufacturers to design and produce energy-efficient, electric cooking systems to replace existing fossil fuel stoves while avoiding costly electrical upgrades in NYCHA buildings. The Induction Stove Challenge complements an earlier partnership between NYCHA and the non-profit WE ACT for Environmental Justice. RFP responses are due by mid January.

City of Yes for Carbon Neutrality (DCP, DOB, FDNY, MOCEJ)
Citywide zoning text change that will clear the way for the many green investments needed in our buildings to support the City's climate goals.

EXPOSURE TO POLLUTED WATER

Green Infrastructure Program (DEP)
DEP has successfully built over 12,000 green infrastructure installations across the city and continues to do so through its Green Infrastructure Program. These installations capture stormwater before it enters the sewer system. The projects range from rain gardens and infiltration basins, to green roofs and playgrounds with underground detention systems.

CSO Long-Term Control Plans (DEP)
On March 8, 2012, the New York State Department of Environmental Conservation (DEC) and DEP signed a groundbreaking agreement to reduce CSOs using a hybrid green and gray infrastructure approach. Building on DEP's ongoing construction of CSO control infrastructure, under this agreement, DEP has developed 11 water-body-specific Long Term Control Plans (LTCP) to reduce CSOs and improve water quality in NYC's water bodies and waterways. As part of these 11 plans, DEP has committed at over $6 billion in water quality capital investments. The goal of each LTCP is to identify the appropriate CSO controls necessary to achieve water-body-specific water quality standards, consistent with the Federal CSO Policy and the water quality goals of the Clean Water Act. On June 20, 2023, DEC and DEP signed a modified agreement that includes a commitment by DEP to fund $3.5 billion in green infrastructure projects citywide.

Industrial and Commercial Stormwater Program (DEP)
In the city's municipal separate storm sewer system (MS4), DEP manages an Industrial and Commercial Stormwater Program to inspect permitted industrial and commercial facilities, enforce regulations, and assess unpermitted facilities to determine whether their stormwater contributions are regulated by the City's State Pollution Discharge Elimination System (SPDES) permit.

Lead Service Line Replacement Program (DEP)
DEP is working with low-income homeowners to replace privately-owned lead service lines at no cost to the homeowner through the Lead Service Line Replacement Program.

Wetlands Management Framework (NYC Parks)
The 2020 Wetlands Management Framework for New York City provides a 30-year roadmap for the preservation, restoration, and management of all wetlands and streams in New York City with particular focus on those under the care of NYC Parks.

NYC Stormwater Resiliency Plan (MOCEJ, formerly MOR)
This 2021 report outlines the City's strategies for managing vulnerabilities from extreme rain events, including strategies for improved flash flood response and the introduction of the City's first Stormwater Flood Maps.

The New Normal Combatting Storm-Related Extreme Weather in NYC (Mayor's Office)
Immediately after Ida in September 2021, the City released The New Normal, which accelerated much of the City's stormwater resiliency work and committed to $2.5B in capital projects as well as $25 million in programming.

Rainfall Ready (DEP)
Released in summer 2022, illustrating immediate actions the City and New Yorkers can take to prepare for extreme rainfall together.

Long Term Stormwater Resilience Vision (DEP)
Released on the one-year anniversary of Ida in 2022, outlining a green and grey multi-layered strategy to large rainfall events.

Cloudburst Management Program (DEP and Partners)
In January 2023, announced an additional $400 million of investment in cloudburst design, expanding this resilient design strategy for large rain events to 4 new neighborhoods (Corona, Kissena Park, East New York, Parkchester) with more to come

EXPOSURE TO CLIMATE CHANGE

Get Cool NYC (NYCEM)
During the COVID-19 pandemic, older adults faced an increased risk of indoor heat exposure due to social distancing. Get Cool NYC aimed to address this risk by distributing air conditioning units to low-income older adults, totaling 16,000 AC units in NYCHA homes and more than 56,000 in non-NYCHA homes. This one-time, emergency program helped sensitive populations stay home safely; program participants were three times more likely to report staying home during hot weather in summer 2020 compared to non-participants.[500]

Cool It NYC (NYC Parks)
Cool It! NYC is a Citywide plan to increase the amount of water features, drinking fountains, and tree coverage available to the public during heat emergencies, particularly in neighborhoods that face the dangers of high heat.

Cool Neighborhoods NYC (NYC Parks)
Through the Cool Neighborhoods NYC initiative, NYC Parks has planted 11,634 street and park trees in the most heat-vulnerable (HVI-5) neighborhoods, with an estimated 14,530 more trees to be planted through Spring 2024. The City committed an additional $112 million for the program to plant an estimated 36,000 additional trees per year in HVI-4 neighborhoods through 2026.

Cooling Centers (Multiple Agencies)
New York City opens cooling centers in air-conditioned, public facilities during extreme heat events to help prevent heat-related illnesses or deaths.

Clean Heat for All (NYCHA)
Through NYCHA's Clean Heat for All (CH4A) program, NYCHA and its partners, NYPA and NYSERDA, are installing new window heat pumps in NYCHA's residential apartments, which will provide reliable heating and cooling. This innovation challenge led to the award to two manufacturers, Gradient and Midea America, for the initial purchase of 30,000 units. This technology will not only provide residents with the autonomy to set their own heating and cooling, but it will decarbonize NYCHA's buildings via space heating/cooling electrification.

Build It Back (NYC Housing Recovery)
Using $2.2 billion in federal Community Development Block Grant Disaster Recovery (CDBG-DR) dollars, Build It Back assists homeowners, renters, and landlords to coordinate repairs, rebuilding, and improvements of homes.

Coastal Resiliency Projects (MOCEJ)
Through OneNYC, the City committed $20 billion in communities across all five boroughs to protect New Yorkers from coastal storm surge. This work includes strategic infrastructure investments in EJ neighborhoods such as Edgemere, Queens; Red Hook, Brooklyn; Hunts Point, Bronx; and East Harlem, Manhattan.

Cloudburst Management Program (DEP and Partners)
Cloudburst management implements a combination of methods that absorb, store, and transfer stormwater to minimize flooding from cloudburst events. The most recent expansion of the program allocates nearly $400 million in capital funds to support infrastructure projects that will protect residents and property in Corona and Kissena Park, Queens, Parkchester, Bronx, and East New York, Brooklyn from future extreme weather brought about by climate change. DEP is partnering with Parks and DOT on implementation of these community-level infrastructure improvements. NYCHA is also working to implement cloudburst management strategies at properties at risk of stormwater flooding and is currently funded via capital funding of over $100 million to design and build Cloudburst infrastructure at six NYCHA developments: South Jamaica, Woodside (Queens), Clinton (Manhattan), and Ingersoll, Nostrands, Breukelen (Brooklyn). NYCHA's Cloudburst infrastructure projects will integrate resident amenities on NYCHA grounds into stormwater infrastructure design, providing both improvements to quality of life and protections against the hazards of climate change.

FloodHelp (MOCEJ)
FloodHelp is a platform for engaging and informing New York City homeowners about how they can protect their home and finances from flooding that is expected to worsen with rising sea levels caused by climate change.

FloodNet (MOCEJ)
FloodNet is a cooperative between academic researchers, community stakeholders, and City agencies to better understand the severity and frequency of tidal flooding in New York City. Low-cost flood sensors were installed across Jamaica Bay and Gowanus neighborhoods to collect hyper-local data on flooding to inform future resilience investments.

Zoning for Coastal Flood Resiliency (DCP)
The zoning amendment adjusts and makes permanent the temporary emergency zoning rules that made it easier for New Yorkers to rebuild post-Hurricane Sandy.

Recovery and Resilience (NYCHA)
NYCHA's $3.2 billion Recovery and Resilience Program is the largest infusion of funds into public housing since NYCHA's inception. The investment supports capital projects including building reinforcements, storm surge protection, and infrastructure upgrades.

Resilient Neighborhoods (DCP)
A place-based planning initiative to identify neighborhood-specific strategies, including zoning and land use changes, to support the vitality and resiliency of communities in the floodplain and prepare them for future storms.

RISE : NYC (NYCEDC)

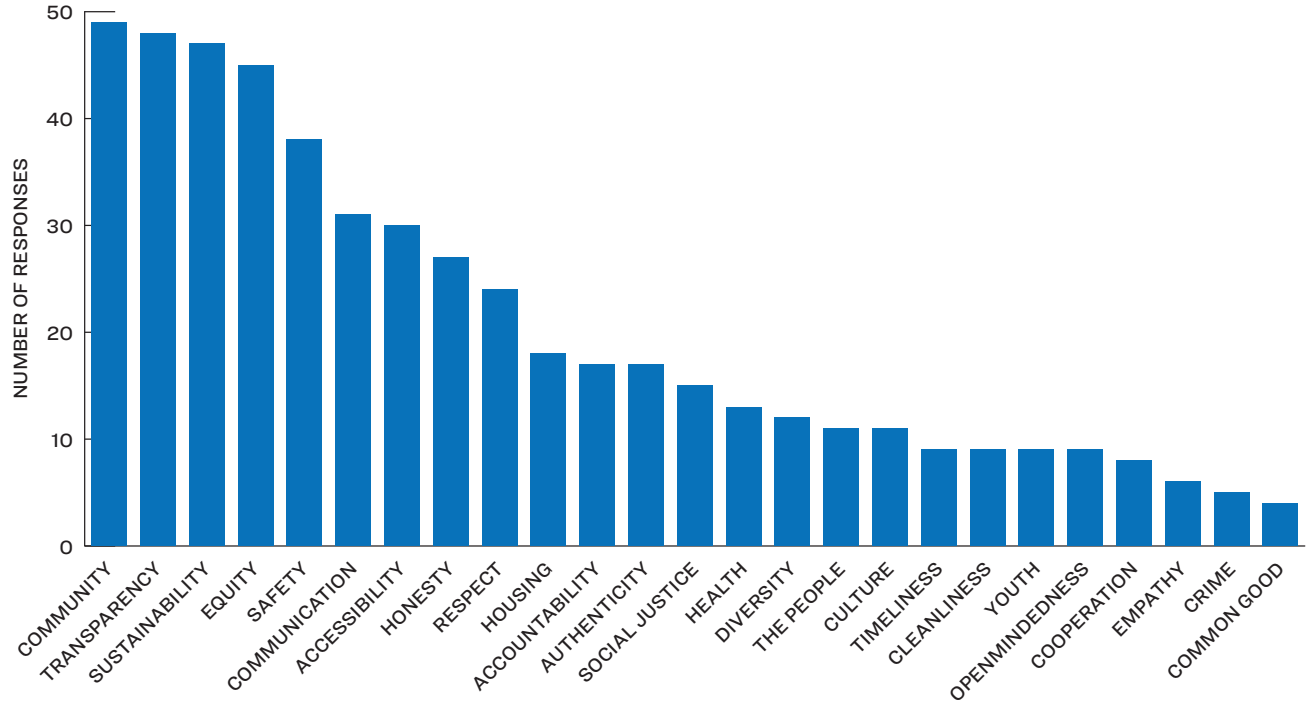
Through RISE : NYC, a CDBG-funded initiative, EDC is providing free resiliency technologies to small businesses affected by Superstorm Sandy to help them prepare for future storms and the impacts of climate change. EDC launched a competition in 2014 to identify market-ready technologies and selected 11 technology providers. The winning technologies include building systems solutions that improve the resiliency of critical building components during a storm, energy systems that provide clean resilient power to small businesses, and telecommunication networks that help businesses to stay connected. The first technology was installed in June 2017 by NYC Daylighting, a business located in Far Rockaway. RISE is deploying up to $28 million to install at 400+ Sandy-impacted small businesses across the 5 boroughs.

ADVANCING ENVIRONMENTAL JUSTICE

EJNYC SURVEYING INITIATIVE

If you have ever shared your input with the City, how would you describe your experience? Was it worthwhile? If not, what changes should be made?

- A total of approximately 800 responses for "values" were recorded. Responses ranged from one-word answers clearly identifiable as values to short sentences expressing both concrete suggestions and abstract ideas.
- The data from these responses was cleaned and coded with keywords in order to produce a frequency analysis shown in the graph below. From there, keywords were grouped into themes and values which establish the top four identified values. A second layer of coding was conducted to reveal themes within these top four values, to produce a more complete understanding of these values.
- The four most common values that respondents believed should inform City decision-making are: Community (49), Transparency (48), Sustainability (47), and Equity (45)
- Responses identified as representing the value of "Community" reflected themes including "Community Input," "Community Engagement," and the "Value to the Community" of City decision-making. Others focused on "Community Needs" or "Safety." One respondent emphasized that City decision-makers should "understand that the people who live in [EJ] areas know their environment," while another expressed a desire for more engagement within communities by calling for "more Christmas potluck events." Other related themes focused on: "The People" (as opposed to corporations or "corporate values"), "Diversity," and "Culture."
- Respondents also recommended "Transparency" as a value in environmental decision-making, relating to themes like "Honesty," "Communication," "Listening," "Accountability," "Accessibility," "Authenticity," and "Respect." Respondents sought for clear communication, asking the City to "advertise issues and decisions clearly and provide context to New Yorkers so that they understand the details and issues," and to "explain how/why decisions are made."
- Sustainability was another common value, with some respondents simply stating "sustainability" or "the environment" as their response. Others focused on "Environmental Justice" and "Climate Justice," while several made references to "Green Space," "Parks," "Pollution," and "Remediation of Pollution". Several also acknowledged links between sustainability and other areas, especially "Health."
- Finally, many respondents expressed values related to "Equity," which included themes like "Inclusion," "Social Justice," and "Antiracist Values." Many expressed concerns over "Income Disparities" or inequality with one respondent stating that "having money does not make one community's interests more important than another's." Other related responses focused on "Assistance" to communities with the most "Needs" and those that are the "Most Impacted" by climate change. Respondents also asked the city to "assist with day-to-day life" and in dealing with the problems that are "most common."



This graph shows the frequency analysis of responses from EJNYC Survey in response to the question: What values should guide City government when asking for the opinions of New Yorkers and making decisions that affect your neighborhoods and communities?

DISCUSSION

- Values are the basis of action, policy, and decision-making. How the City carries out processes to increase meaningful involvement in environmental decision-making is influenced by its values.
- What these values make clear is that environmental justice can only be achieved through the direct participation and involvement of impacted and marginalized communities in the identification, development, and implementation of policies decisions that directly impact them.
- Values described in this section should not be viewed independently from one another, many of them are related and can be connected to each other. Values gathered from everyday New Yorkers, who do not necessarily have the background knowledge of the EJ movement, are requesting the City to uphold values remarkably in line with the existing values of the movement.
- These values demand targeted efforts and investments in EJ communities to ensure residents are aware of when and how they can contribute to decision-making processes and for the City to effectively communicate how such involvement leads to City actions.
- The true goal of the environmental justice movement cannot be condensed into a legal definition. The vision of the movement is not to more equitably spread environmental harms, but to remove them entirely.

MUNICIPAL AND STATE EJ ACTION CASE STUDIES

Case studies of EJ actions by other state and municipal governments can provide helpful lessons for the future of EJ policies and initiatives in New York City. Many of these case studies document cumulative impacts and disproportionate burdens on communities of color and low-income communities and consider how siting and permitting decisions by government can work to address those issues. These actions have been regarded by legislators, advocates, and academics as essential to environmental justice. Some actions that are achieved in state contexts may be outside the City's jurisdiction but provide valuable insight, nonetheless. The following section includes a summary of this policy review.

MUNICIPAL ACTIONS

Chicago

Cumulative Impact Assessment (2023)

Chicago's Cumulative Impact Assessment is citywide study exploring how environmental burdens and other stressors vary across Chicago communities. The baseline Assessment includes community input summaries, proposed environmental and health indicators, maps identifying impacted communities, an Environmental Justice Action Plan, and draft language for policy reforms.[501] This Assessment is a crucial step toward promoting environmental justice in Chicago and aligns with the vision of the Healthy Chicago 2025 plan to address the root causes of health disparities.[502] The City's Environmental Equity Working Group (EEWG) provided guidance for the Assessment, and it serves as the accountability body throughout the process. Findings from the Assessment will inform future decision-making around policy initiatives and targeted investments.

Cincinnati

Environmental Justice Ordinance (2009)

With the passage of Ordinance No. 210-2009 (the "Environmental Justice Ordinance") on June 24, 2009, Cincinnati became one of the first and only municipalities in the United States to codify its authority to deny development project permits solely based on environmental justice concerns.[503] The Office of Environmental Quality would issue an "EJ permit" only if the project is not considered a "public nuisance," which the ordinance defined as presenting "an excess cancer risk, excess risk of acute health effects, or excess risk in the event of an accident" according to U.S. EPA guidelines. Despite its successful passage, the ordinance faced strong opposition, and funding challenges ultimately stymied its implementation. The Cincinnati Regional Chamber of Commerce claimed that the Ordinance would slow economic development and that the Cincinnati municipal government could not afford the administrative costs of enforcing it. Indeed, the Ordinance was never implemented due to municipal budget constraints. The ordinance serves as a cautionary tale of the complexities of passing EJ legislation without sufficient implementation resources.

Los Angeles

Green Zones Program (2022)

The Green Zones Program aims to improve community health and quality of life for communities that have historically borne a disproportionate burden of exposure to pollution. The County established 11 "Green Zone Districts," based on the high number of stationary sources of pollution near sensitive uses, like

schools and parks.[504] The selection of these neighborhoods was further informed by thorough community engagement and ground-truthing activities with local community organizations. Within Green Zone Districts, the County will prioritize enhancing residents' wellbeing by implementing impact mitigation mechanisms and adding design requirements to address land use incompatibility near industrial and manufacturing areas.

Building Standards Ordinance 184245 (2016)

The Building Standards Ordinance was established to implement building standards and requirements to address cumulative health impacts resulting from incompatible land use patterns within the City of Los Angeles. It sets restrictions on the source of outside or return air for heating and cooling systems and requires air filtration for mechanically ventilated buildings, with higher standards for buildings in within 1,000 feet of a highway.[505] These standards help reduce indoor exposure to air pollutants, improving indoor air quality for those in close proximity to stationary and mobile source of pollution.

Newark

Environmental Justice and Cumulative Impacts Ordinance (2016)

Newark's Environmental Justice and Cumulative Impacts Ordinance, passed in 2016, amended the City's zoning regulations to require all developers with county, state, or federal environmental permits seeking land use approvals or zoning variances to submit an Environmental Review Checklist for review by the City's Environmental Commission. Unlike the State of New Jersey's recent EJ law, the Newark ordinance does not require the City's planning or zoning board to deny an application solely based on a negative environmental justice review, but it does provide the boards with additional information about the proposed project's potential environmental impact in light of existing community conditions.[506] The Environmental Review Checklist is informed in part by the City's Natural Resources Index (NRI), which provides a baseline of environmental and socio-economic conditions against which the impacts of proposed projects can be considered. The index includes information on natural resources, physical infrastructure, numerous health indicators, existing pollution sources, locations of vulnerable populations and social infrastructure, and additional socio-economic data.[507]

San Francisco

Environmental Justice Framework (2023)

The City and County of San Francisco's Environmental Justice (EJ) Framework establishes a clear set of vision statements and policy priorities to guide its future efforts to advance health in communities of color and low-income communities. Under SB 1000, cities and counties across California are required to analyze data related to EJ communities and adopt policies in their General Plans to address the "unique or compounded health risks" experienced by these communities.[508] San Francisco's EJ focus areas, adapted from SB 1000, cover topics ranging from physical activity to climate resiliency to safe housing. The Healthy Food Access topic, for example, is driven by a vision of food security for all San Franciscans. Priorities for this topic include expanding programs that provide access to healthy and culturally appropriate food; leveraging the local food system to meet public health and workforce development goals; and fostering a more climate resilient and carbon-neutral food system. Similar to the goals of the forthcoming EJNYC Plan, San Francisco's EJ Framework aligns EJ actions across local agencies to deliver cross-cutting benefits to the city's most impacted residents.

Health Code Article 38 (2008/2014)

Adopted in 2008, San Francisco's Health Code Article 38 requires that residential construction projects located in areas with poor air quality install enhanced ventilation systems. The City developed an Air Pollutant Exposure Zone, based on emissions modelling from pollutant sources including regulated stationary sources and major roadways. Following amendments to the code in 2014, developers of residential projects located within the Zone must design a ventilation system "capable of removing >80 percent of ambient PM2.5 from habitable areas of dwelling units."[509] Article 38 grounds its requirements in conclusive scientific research that not only demonstrates the deleterious health consequences of living close to air pollution sources like highways, but also that proximity to air pollution sources is more common for lower-income communities and communities of color.[510]

Environmental Justice Program (2001)

The San Francisco Department of the Environment oversees an Environmental Justice Program, with a focus on addressing health disparities, improving air quality, and promoting energy justice. Collaborations through the program are wide-ranging, including working with the SF Housing Authority to minimize toxic pesticide use and EJ organizations to advocate for the closure of high-polluting power plants. The Department also administers its own Environmental Justice grant program, which has provided over $12 million in funds to non-profit groups to support community EJ projects.[511] The program concentrates its resources on the southeast area of the city, which has historically experienced greater exposure to environmental justice hazards.[512]

Santa Monica

Zero Emission Delivery Zone (2022)

Santa Monica collaborated with the Los Angeles Cleantech Incubator (LACI) to launch the first Zero Emission Delivery Zone (ZEDZ) Pilot in the country. The pilot, which ran until December 2022, encouraged the use of clean, electric delivery vehicles by providing priority curb space in a designated one-square mile test zone. It tested different types of zero-emission transportation technologies, charging infrastructure, curb access, and policy incentives. The goals of the ZEDZ were to establish a blueprint for other cities, provide learnings to delivery companies, benefit the community by reducing pollution and congestion, and offer economic opportunities to small businesses and individuals.[513] The program aimed to address the externalities from the overall increase in deliveries and contribute to Santa Monica's efforts to reduce pollution, congestion, and greenhouse gas emissions. *PlaNYC*, New York City's strategic climate plan, includes goals for zero-emissions freight zones.

Montgomery County, MD

Bill 24-19—Air Conditioning (2020)

In 2020, Montgomery County passed an ordinance enacting new standards for landlords' provision and maintenance of air conditioning.[514] Air conditioning is a critical adaptive measure for preventing heat stress during high heat days. Through the ordinance, landlords are responsible for maintaining an indoor air temperature of no more than 80 degrees in properties where tenants do not control air conditioning in their units. Where tenants are in control of cooling, landlords are responsible for providing an air conditioning system capable of maintaining a temperature of no more than 80 degrees. Through *PlaNYC*, New York City commits to develop its own maximum summer indoor temperature policy to protect all New Yorkers from extreme heat by 2030.

Dallas

Air Conditioning Requirement (2016)

Like Montgomery County, Dallas has its own air conditioning requirements within its minimum housing standards. Landlords are required to provide and maintain air conditioning equipment capable of maintaining a room temperature of at least 15 degrees cooler than the outside temperature, but in no event higher than 85°F in each habitable room.

Fulton County, GA

Fulton County Environmental Justice Initiative (2010)

In 2010, Fulton County's Board of Commissioners approved funding to implement an Environmental Justice Initiative (EJI). The initiative is driven by the idea that no demographic group is disproportionately affected by adverse environmental conditions, no matter race, income, or another social factors.[515] The initiative has resulted in several new policies and amendments to address countywide disparities, including zoning amendments to mandate minimum separation distances between environmentally adverse uses and environmentally-stressed communities. Additionally, environmental justice is embedded into the County's 2016 Comprehensive Plan, with its own chapter outlining strategies to create a brownfield inventory, developing EJ guiding principles, and integrating procedural equity into environmental planning processes.[516] The Fulton County initiative is a successful example of an environmental justice framework shaping local policy.

STATE ACTIONS

California

SB 535 and CalEnviroScreen (2012)

Through Senate Bill 535, California requires that 25 percent of all capital from its Greenhouse Gas Reduction Fund (GGRF) go towards projects benefiting disadvantaged communities.[517] The Fund primarily receives its revenue from the auction of allowances from the state's cap-and-trade program. Funding must support efforts that further reduce emissions of greenhouse gases, such as solar panel installation, weatherization programs, public transportation improvements, and green infrastructure projects.

The CalEnviroScreen tool, developed by CalEPA, is used guide the allocation of funds from the GGRF. CalEnviroScreen is designed to address environmental justice concerns by identifying communities that face a higher burden of environmental pollution and socio-economic challenges. The tool considers multiple indicators, such as air quality, exposure to toxics, socioeconomic factors, and health vulnerabilities, to create a composite score that reflects a community's relative vulnerability.[518] The tool informs other state and local planning efforts, as well as providing residents the ability to understand and identify environmental hazards in their own communities.

SB 1000 – EJ in Local Land Use Planning (2016)

The California legislature adopted SB 1000 to integrate environmental justice considerations into local planning processes and address the disproportionate burden of environmental harms experienced by marginalized communities. The bill mandates that jurisdictions with disadvantaged communities include an environmental justice element in their general plan or integrate environmental justice goals throughout other plan elements. Disadvantaged communities, in this case, refers to communities that experience compounding pollution burdens and population vulnerabilities according to the state's CalEnviroScreen

tool. Jurisdictions with disadvantaged communities must also establish policies to reduce health risks and promote civic engagement and prioritize improvements for disadvantaged communities.

New Jersey

Environmental Justice Law (2020)

New Jersey's Environmental Justice Law requires the state's Department of Environmental Protection (NJDEP) to incorporate evaluations of the environmental and public health impacts of certain facilities into the permitting process. While other states and municipalities have required applicants to prepare environmental justice impact statements or conduct public hearings, New Jersey's law was the first to require mandatory permit denials for facilities that contribute to cumulative environmental or public health stressors on EJ communities.[519] Acknowledging the disproportionate siting of polluters in the state's low-income communities and communities of color, the legislation seeks to correct this historical injustice by limiting the further concentration and expansion of certain facilities in overburdened communities, which the State defines as census block groups with at least 35 percent low-income households, 40 percent minority or tribal community residents, or 40 percent households with limited English proficiency.[520] The landmark legislation was the result of a decades-long effort by a diverse coalition of EJ advocates and served as a helpful precedent for subsequent legislation in other states such as New York and Maryland.

New York

S8830 – Cumulative Impacts Bill (2023)

New York State's 2023 Cumulative Impacts Bill aims to address the cumulative impacts experienced by EJ communities overburdened by pollution. Living in close proximity to mobile and stationary sources of pollution can have negative impacts on health and wellbeing. These negative consequences are exacerbated when multiple sources of solution are sited in the same neighborhood. This bill prevents the approval and re-issuing of permits for actions that would increase or perpetuate disproportionate pollution burdens on disadvantaged communities. Moving forward, City agencies will need to assess existing pollution conditions around future projects and incorporate EJ considerations into their planning decisions.

NYSERDA Disadvantaged Communities Stakeholder Services Pool (2022)

NYSERDA recognizes the disproportionate impact climate and environmental hazards have on historically marginalized communities. Thus, it seeks to center the experiences of frontline communities in the development of future energy policies and investments. To facilitate this, the agency is forming a Disadvantaged Communities Services Pool to work with NYSERDA staff in implementing initiatives that support the state's transition to a clean economy. The pool will consist of community leaders and advocates representative of the state's DACs, and the paid work will include consultation, program and policy input, engagement facilitation, and working group participation.[521] Notably, at least 35 percent of clean energy investments, as part of the state's Climate Leadership and Protection Act, are to be directed towards DACs.[522] Therefore, this close collaboration and advisory is essential for realizing the state's climate and equity goals.

Massachusetts

Environmental Justice Policy and Bill S.9 (2021)

In 2002, the Massachusetts Executive Office of Environmental Affairs (EOEA) adopted its first formal Environmental Justice Policy. The extensive list of measures included the development of criteria to identify the state's EJ populations, the establishment of an inter-agency EJ Working Group, and the requirement of "enhanced" public participation and impact analyses for certain projects undergoing state environmental

review, notably those within 1 mile of EJ populations.[523] Initially, the policy was not codified into state law, which meant that its implementation could vary across administrations. This eventually changed in 2021 with the passage of Bill S.9, "An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy." With the new climate law, Massachusetts codified the socio-economic criteria for EJ population identification, requirements for mandatory environmental impact reviews, and considerations for public participation. Notably, the new legislation added additional public participation measures for projects affecting EJ populations. The requirements include providing translation services, ensuring public meetings are accessible via public transit, providing information on project review, and establishing repositories of relevant documents.[524] Researchers suggest these new requirements could be pivotal in protecting communities from disproportionate impacts, ensuring transparency and language access, and even preventing inequitable project approvals.[525]

Maryland

HB 1200 (2022)

Maryland's HB 1200 serves as another statewide example of using policy and data to prevent the overburdening of EJ communities. The bill requires applicants for permits related to polluting infrastructure (i.e. hazardous substance facilities, nuclear waste facilities, landfills, etc.) include the Maryland EJ Score for the census tract where the applicant is seeking a permit. The EJ Score comes from the state's own EJ mapping tool, Maryland EJScreen. The tool borrows the scoring methodology from CalEnviroScreen, combining a pollution burden score and a population characteristics score to assess overall burden.[526] The Maryland Department of the Environment (MDE) takes this information into account in its review of the permit to reduce to cumulative impacts on impacted neighborhoods.

Washington

Environmental Justice Task Force (2019) and HEAL Act (2021)

The Washington State Environmental Justice Task Force (EJTF), comprised of diverse representatives across State government, community organizations, organized labor, and the private sector, was responsible for developing strategies to incorporate EJ principles into future State agency actions.[527] The final 25 policy recommendations became the basis for the Healthy Environment for All (HEAL) Act, signed into law in 2021.[528] The HEAL Act codifies the definition of environmental justice in state law and outlines its application within state agency operations. The law specifies that State agencies are to incorporate EJ principles into their budgeting decisions, with a goal of directing 40 percent of grants and expenditures that create environmental benefits to vulnerable populations and overburdened communities.[529] Additionally, agencies are required to incorporate an environmental justice implementation plan into their broader strategic plans, including performance metrics to track progress towards goals and actions. Noting the importance of community-based organizations in moving this work forward, the legislature subsequently passed a budget proviso establishing an "Environmental Justice Community Participation Fund" to provide grants to community-based organizations to enable access and participation in HEAL Act implementation.[530]

ABBREVIATIONS

"M"	Manufacturing zoning
"R"	Residential zoning
AADT	Average Annual Daily Traffic
ACS	American Community Survey
AEP	Alternative Enforcement Program
Air Code	Air Pollution Control Code
AMI	Area Median Income
AQS	Air Quality System
BC	Black Carbon
BCA	Benefit-Cost Analysis
BEPA	Bureau of Environmental Planning and Analysis
BK	Brooklyn
BLAST	Building and Land Approval Streamlining Taskforce
BRIC	Building Resilient Infrastructure and Communities
BTS	Bureau of Transportation Statistics
BX	Bronx
C&D	Construction and Demolition
CAPA	City Administrative Procedure Act
CB	Community Board
CBO	Community-Based Organizations
CCC	Customer Contact Center
CCHR	New York City Commission on Human Rights
CD	Community District
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant Disaster Recovery
CEC	Civic Engagement Commission
CEJST	Climate and Economic Justice Screening Tool
CEQR	City Environmental Quality Review
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFID	Citywide Facility Inventory Database
CH4A	Clean Heat for All
CHMA	Crown Heights Mutual Aid
CLCPA	New York State Climate Act or Climate Act
CNG	Compressed Natural Gas
CORE	Congress of Racial Equity

CPC	City Planning Commission
CRAT	Climate Risk Assessment Tool
CSC	Climate Strong Communities
CSO	Combined Sewer Overflows
CUNY	City University of New York
DAC	Disadvantaged Communities
DCAS	Department of Citywide Administrative Services
DCP	Department of City Planning
DEC	Department of Environmental Conservation
DEP	Department of Environmental Protection
DERTA	Division of Emergency Response and Technical Assessment
DOB	Department of Buildings
DOC	Department of Corrections
DOE	Department of Education
DOHMH	Department of Health and Mental Hygiene
DOT	Department of Transportation
DPR	Department of Parks and Recreation
DSNY	Department of Sanitation
ED	Emergency Department
EDC	Economic Development Corporation
EELS	Environmental Enrichment and Leadership for Students
EEWG	Environmental Equity Working Group
EJ	Environmental Justice
EJAB	Environmental Justice Advisory Board
EJG2G	Environmental Justice Government-to-Government program
EJI	Environmental Justice Initiative
EJNYC	Environmental Justice New York City
EJTF	Washington State Environmental Task Force
EOEA	Massachusetts Executive Office of Environmental Affairs
ERP	Emergency Repair Program
FDNE	Frequent Disruptive Noise Exposure
FEMA	Federal Emergency Management Agency
FHA	Federal Housing Administration
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FRESH	Food Retail Expansion to Support Health Program
FVI	Flood Vulnerability Index
GFO	GreenFeen OrganiX
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas

HEAL	Healthy Environment for All
HEAP	Home Energy Assistance Program
HOLC	Home Owners' Loan Corporation
HOLC D	a 'D' or 'hazardous' rating by the Home Owners Loan Corporation
HPD	Department of Housing Preservation and Development
HUD	U.S Department of Housing and Urban Development
HVI	Heat Vulnerability Index
HVS	Housing and Vacancy Survey
IBZ	Industrial Business Zones
IIJA	Infrastructure Investment Jobs Act
IRA	Inflation Reduction Act
IWG	Interagency Working Group
KSI	Killed or Severely Injured
kW	kilowatt
LACI	Los Angeles Cleantech Incubator
Law	New York City Law Department
LiDAR	Light Detection and Ranging
LISC	Local Initiatives Support Corporation
LTCP	Long Term Control Plan
M/W/DBE	Minority, Women-owned, and Disadvantaged Business Enterprise
MDE	Maryland Department of the Environment
mgy	million gallons per year
MN	Manhattan
MOCEJ	Mayor's Office of Climate & Environmental Justice
MODP	Mayor's Office for People with Disabilities
MOIA	Mayor's Office of Immigrant Affairs
MOUA	Mayor's Office of Urban Agriculture
MS4	Municipal Separate Storm Sewer Systems
MSC	Movement Strategy Center
MSW	Municipal Solid Waste
MTA	Metropolitan Transportation Authority
MW	Megawatt
NEI	National Emissions Inventory
NHGIS	National Historic Geographic Information System
NJDEP	New Jersey's Department of Environmental Protection
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NPCC	New York City Panel on Climate Change
NRI	National Resources Index

NSWC	North Shore Waterfront Conservancy of Staten Island
NTA	Neighborhood Tabulation Areas
NYC	New York City
NYC	New York City
NYC DEC	New York State Department of Environmental Conservation
NYC DoITT	New York City Department of Information Technology and Telecommunications
NYC- EJA	New York City Environmental Justice Alliance
NYC Opportunity	Mayor's Office of Economic Opportunity
NYCCAS	New York City Community Air Survey
NYCEDC	New York City Economic Development Corporation
NYCEM	New York City Office of Emergency Management
NYCHA	New York City Housing Authority
NYCIDA	New York City Industrial Development Agency
NYISO	New York Independent System Operator
NYPA	New York Power Authority
NYPD	New York Police Department
O3	Summertime Ozone
OATH	Office of Administrative Trials and Hearings
OEC	Mayor's Office of Environmental Coordination
OER	Mayor's Office of Environmental Remediation
OMB	Mayor's Office of Management and Budget
Ops	Mayor's Office of Operations
PACT	Permanent Affordability Commitment Together
PBNYC	Participatory Budgeting in New York City
PERC	perchloroethylene
PIA	Priority Investment Area
PM2.5	Fine Particulate Matter
PSC	Public Service Commission
PTA	Parent-Teacher Associations
PUMA	Public Use Microdata Area
QN	Queens
RAD	Rental Assistance Demonstration
RCRA	Resource Conservation and Recovery Act
RETI	Resilience, Education, Training, and Innovation
RFP	Request for Proposal
RISC	Racial Impact Study Coalition
RTK	Right-to-Know Program
SAFE	Solvents, Automotive, Flammables, and Electronics
SBS	Select Bus Service
SEQRA	State Environmental Quality Act

SI	Staten Island
SIP	Street Improvement Project
SMIA	Significant Maritime Industrial Area
SNAP	Supplemental Nutrition Assistance Programs
SNEEJ	Southwest Network for Economic and Environmental Justice
SNI	Supermarket Needs Index
SO2	Sulfer Dioxide
SOx	Sulfur Oxides
SPDES	State Pollution Discharge Elimination System
SUN	Solar Uptown Now
SWMP	Solid Waste Management Plan
TRI	Toxic Release Inventory
TSDF	Treatment, Storage, and Disposal Facility
UHF42	United Hospital Fund Neighborhoods
UHIE	Urban Heat Island Effect
ULURP	Uniform Land Use Review Procedure
U.S. EPA	United States Environmental Protection Agency
USACE	United States Army Corps of Engineers
VCP	Voluntary Clean-up Program
VIA	Vulnerability, Impact, and Adaptation
WRRF	Wastewater Resource Recovery Facilities
ZEDZ	Zero Emission Delivery Zone

ENVIRONMENTAL JUSTICE ADVISORY BOARD COMMENTS AND CITY RESPONSES

Comment 1	Land Use Planning and Zoning: This section does not acknowledge that potential negative impacts of rezoning (displacement and cultural erasure) and the inequities in neighborhood rezoning
Response 1	Thank you for your comment. Based on this feedback, we have included additional language on page 57 of the report to acknowledge the role some rezonings have played in exacerbating these negative impacts. Rezonings that enable more housing help to relieve the underlying pressures that can lead to displacement and cultural erasure. This is the impetus behind the City of Yes for Housing Opportunity proposals, which seek to enable a little more housing in every neighborhood across the city, especially high-demand areas that currently have exclusionary zoning. To learn more about what the City is doing to address housing affordability and fair housing issues, refer to Recent Housing Initiatives to Address Affordability and Fair Housing (p. 111). To help focus attention on these effects – positive or negative – of larger land use actions, the City has also implemented a system of Racial Equity Reporting pursuant to Local Law 78 of 2021. These reports draw on the Equitable Development Data Explorer, a companion effort that makes demographic, economic, and other data available at sub-borough geographies, and require applicants to evaluate covered land use actions in light of the goals enunciated in Where We Live. This means, for instance, that decision-makers can no longer approve a downzoning of a wealthy area ignorant of the likely implications for fair housing goals.
Comment 2	Land Use Planning and Zoning: Missed opportunity to mention City of Yes for Carbon Neutrality
Response 2	Thank you for your comment. Based on this feedback we have added a callout box on City of Yes for Carbon Neutrality on page 58.

Comment 3	Exposure to Polluted Water: Is there any data on basement apartment occupation by race and/or income? This would illustrate any disparities in who is at risk of exposure to stormwater flooding.
Response 3	Thank you for your comment. Improving safety for basement occupants, especially during flooding events, is a priority for the City. One way the Department of City Planning is supporting this effort is through its release of the Building Elevation and Subgrade Data Set. This data set is the most comprehensive data yet available on the elevations of New York City buildings and the presence of subgrade space, such as a basement or cellar. Available on NYC Open Data, this geospatial data set will allow the City to fine-tune its assessment of flood risk from extreme weather events, improving emergency management warnings and allowing local organizations to better access funding for local climate resilience efforts based on the risks they face. However, this data does not provide information on what the subgrade space is used for.
Comment 4	Land Use Planning and Zoning: Can NYC DCP re-evaluate Strip Malls for repurposing in particular Strip Malls that have been abandoned. Or that are being underutilized and have become an eyesore to the community?
Response 4	Thank you for your comment. The City has worked previously with community stakeholders to repurpose underutilized shopping centers and is continuing to explore new opportunities to do so in the future. For example, the City's 2018 Downtown Far Rockaway Plan sought to address decades of disinvestment, resulting in retail vacancies and a lack of community services, amenities, housing options, and quality open spaces in the area. The centerpiece of the plan was positioning the underutilized shopping center site at the heart of the downtown that is currently being redeveloped with mixed-income housing and commercial, community facility, and open space through zoning changes and other actions stemming from the 2018 plan. Additionally, the City of Yes proposals for Economic Opportunity and Housing Opportunity work together to facilitate mixed-use development with mutually reinforcing commercial and residential uses. Housing Opportunity, in particular, seeks to enable "Town Center" developments in low-density commercial districts that would re-legalize 2 to 4 stories of apartments above a commercial ground floor. The proposal also provides additional flexibility for irregularly shaped lots and lots with existing buildings that will remove obstacles to reuse underutilized sites, like strip malls with significant vacancy issues that are or threaten to become eyesores to the community.

Comment 5	Polluted Water Bodies: Is more data available to identify the primary contaminants of concern in the waterways surrounding NYC? How do these vary between impaired and stressed regions?
Response 5	Thank you for your comment. As required by section 303(d) of the Clean Water Act, DEC must review which waterbodies are "impaired" or not meeting the water quality standards. Those waterbodies are included on the "303(d) list". This list is updated every two years and approved by EPA. This data includes information on pollutants and their suspected sources. See link to DEC website https://dec.ny.gov/environmental-protection/water/water-quality/nys-section-303d-list-of-impaired-tmdl-waters.
Comment 6	Stormwater Management: "When normalized by land area, seven out of the top 10 neighborhoods receiving green infrastructure investments are EJ Neighborhoods in Brooklyn and Queens.": This is not the indicator that should be used to illustrate inequities in green infrastructure. Current maps of green infrastructure exist and should be used to illustrate disparities.
Response 6	Thank you for your comment. A large portion of green infrastructure assets are in EJ areas, though spatially, they are focused in Queens and Brooklyn in order to have the greatest reduction in combined sewer overflow (CSO). Investments in green infrastructure must be based on the ability to capture stormwater for CSO reduction or local flooding and not all areas of the city are conducive to GI. It is important to note that assets like parks, street trees, greenways, and blueways are not considered green infrastructure. Access to parks and natural resources is discussed in the report beginning on page 62. Based on this feedback, we have included additional language on page 138 to clarify what green infrastructure assets include.
Comment 7	CSO Long Term Control Plan: "...green infrastructure investments.." – what does this mean? The report does not spell out what projects are considered green infrastructure projects/investment are more detailed table would be useful
Response 7	Thank you for your comment. Within the context of stormwater management, the term green infrastructure includes a wide array of practices at multiple scales to manage and/or treat stormwater, maintain and restore natural hydrology (including restoration of historic stream beds and ravines associated with reconnecting previously existing stormwater hydrology) and ecological function by infiltration, evapotranspiration, capture and reuse of stormwater, filtration, and detention. Based on this feedback, we have included additional language on page 138 to clarify what green infrastructure assets include. Please see the Improving NYC Waterways Report that outlines strategies to reduce CSOs. https://www.nyc.gov/assets/dep/downloads/pdf/water/nyc-waterways/citywide-ltcp/improving-water-quality-by-reducing-the-impacts-of-csos-fall-2017.pdf
Comment 8	Extreme Rainfall: No mention of Cloudburst Resiliency and Planning Study? And this section could probably use some analysis on infrastructure issues and not just "low lying areas"
Response 8	Thank you for your comment. We have included the Cloudburst Management program under Funding and Resource Allocation in the Climate Change section and City Programs and Initiatives in the Appendix.

Comment 9	Lead in Housing Plumbing: What about Low Income Homeowners that have had their lead pipes replaced before this program was implemented? Can they be reimbursed?
Response 9	Thank you for your comment. DEP has partnered with American Water Resources (AWR) to offer a voluntary service line protection program, which can be used to cover the cost of a service line replacement in certain cases for enrolled property owners. Link: https://www.nyc.gov/site/dep/pay-my-bills/service-line-protection-program.page
Comment 10	Polluted Water Bodies: Request for clarification on NYS DEC's definition of Impaired versus stressed.
Response 10	Thank you for your comment. We have included definitions for stressed and impaired water bodies in the Exposure to Polluted Water section under Polluted Water Bodies. See link to DEC website https://dec.ny.gov/environmental-protection/water/water-quality/nys-section-303d-list-of-impaired-tmdl-waters
Comment 11	Polluted Water Bodies: So, are they saying that the Arthur Kill and Lower Newark Bay are Impaired? And that the Kill Van Kull from Mariners Harbor to Stapleton is stressed? Because people are using Fresh Kills creek and Saw Mill creek that run into the Arthur Kill for Kayaking too.
Response 11	Thank you for your comment. The Arthur Kill is impaired, and the Lower Newark Bay is stressed. The section of the Kill Van Kull that you referenced between Mariners Harbor and Stapleton was not included in the NY State Department of Environmental Conservation's (DEC) assessment used to identify the recreation status for waterbodies. Fresh Kills Creek and Saw Mill Creek are not on DEC's 303(d) List of Impaired Waterbodies. However, the tributaries you mentioned are on the 303(d) list. The State regularly revisits the appropriate uses for waterbodies, but people sometimes use waterbodies regardless of the State's designation.
Comment 12	CSO Long Term Control Plan: "Within the same period, over $1.15 billion has been spent on green infrastructure projects such as curbside rain gardens, street-length bioswales, and park and playground infiltration practices. DEP has committed $3.5 billion (including investments already made) toward green infrastructure across the city." - It appears that none of the $1.15 billion or $3.5 billion has made it to Staten Island's North Shore, so it's not exactly across the City in terms of distribution. New York City has 5 boroughs but this money and projects only went to 4.
Response 12	Thank you for your comment. In Staten Island, the City has made stormwater investments in Bluebelts, which are a series of best management practices (BMPs) which work with natural features to store, convey, and filter stormwater. To date there are 83 BMPs on Staten Island. DEP is currently evaluating two locations on the North Shore, in Cloves Lakes and Snug Harbor, to site additional bluebelts.

Comment 13	Potential Improvements to the NYS DAC Criteria: The first time we experienced Pluvial Flooding was with Hurricane Irene 2011. But no one paid us any attention and so therefore even though Upstate New York received assistance from the government, Staten Island's North Shore was ignored so all of the damages that we sustained had to be argued through with the insurance companies or we paid for repairs out of pocket.
Response 13	Thank you for your comment. This City has highlighted pluvial flooding as a potential improvement to the New York State Disadvantaged Communities criteria. See page 48.
Comment 14	Polluted Water Bodies: No discussion of annual pesticide sparing by DOHMH and potential impacts on water quality.
Response 14	Thank you for your comment. The DOHMH conducts various environmental assessments periodically. The most recent and comprehensive review took place in 2017 and is available at https://www.nyc.gov/assets/doh/downloads/pdf/wnv/wnv-environmental-impact-statement-2017.pdf. Additionally, the Health Department implements extensive measures to safeguard water quality during mosquito control operations, including maintaining a 300-foot distance from environmentally sensitive water bodies, conducting pre- and post-spraying water tests through the Westchester Water Testing Lab, and monitoring aquatic life mortality with vigilant oversight from the Parks Department. Notably, over the last two decades of West Nile spraying in NYC, no significant pollution nor related adverse impacts on aquatic life have been detected.
Comment 15	Outdoor Air Pollution: Does not discuss the spatial distribution of DEC monitors (very sparse, large gaps between sensors). There is also no mention of the mobile air monitoring conducted by DEC over the last year.
Response 15	Thank you for your comment. Based on this feedback, clarifications have been added to the text on page 74.
Comment 16	Indoor Air Quality: No discussion of NYC DOHMH programs that respond to indoor air quality complaints, and potential data available to highlight disparities.
Response 16	Thank you for your comment. As we discuss in the indoor air quality section on page 91, the report's analysis on indoor air quality was constrained due to data limitations. Data on indoor air quality is inherently difficult to collect as it would require access to residents' homes. We did not include data on indoor air quality complaints as these do not directly measure air quality.
Comment 17	NYC Community Air Survey: "A comparison of PM2.5 readings taken at the survey's environmental justice sites and estimates developed from data collected at routine sites showed that recorded values at the environmental justice sites were only 4 percent higher than the modeled estimates. This points to the model's statistical accuracy amid calls for hyperlocal monitoring in EJ communities to better assess exposure to pollutants.": This raises the question - how can the NYCCAS data actually be used for advocacy? How can it be used to identify specific sources of pollution that need to be remediated?
Response 17	Thank you for your comment. Based on these questions, clarifications have been added to the text on page 80.

Comment 18	Transit and Alternative Transportation Access: "Transit reliability and accessibility can vary between neighborhoods due to a myriad of factors and quantifying potential disparities is challenging." – Then how are disparities being evaluated if not quantitative?
Response 18	Thank you for your comment. Succinctly quantifying disparities in transit reliability and accessibility is challenging. As mentioned in the report, measuring transit access to opportunity may be a more suitable method of assessing transit equity. The report utilizes the TransitCenter's Transit Equity Dashboard for this purpose. Additionally, the Department of City Planning has developed a Transit Travelshed tool which measures access to jobs, the labor force, and population within a 60-minute commute on public transit in New York City.
Comment 19	Transit and Alternative Transportation Access: Interesting and does not reflect the typical narrative from advocates: "On average, residents in EJ Areas have greater proximity to subway stations and bus stops overall than residents in non-EJ Areas"
Response 19	Thank you for your comment.
Comment 20	NYC Clean Trucks Program: "Of the replacement trucks, 74 percent had new, lower-emission diesel engines, 14 percent had compressed natural gas (CNG) engines, 11 percent were hybrid electric vehicles, and 1 percent were battery electric vehicles.": How are clean trucks defined? Looking at the numbers, 74% of new vehicles still have diesel engines, which continue to emit pollution.
Response 20	Thank you for your comment. Clean Trucks are defined as new trucks that are either all-electric or, at a minimum, compliant with the latest Environmental Protection Agency (EPA) emission standards. Retiring a 2009 or older diesel vehicle and replacing it with a 2010 or newer vehicle will result in a significant emissions reduction benefit based on the new standard. As vehicles are replaced with new vehicles, the Clean Trucks Program uses the EPA Diesel Emission Quantifier (DEQ) to determine the difference in emission reduction profiles of the older versus the newer vehicles, including diesel to diesel replacements. As more zero emission vehicles enter the market for purchase, the program expects these reductions to trend closer to 100% reduction in tailpipe pollution. An analysis of the current emission reductions of the vehicles replaced using the DEQ can be found at https://www.nycctp.com/program-success/.
Comment 21	NYC Clean Trucks Program: Why is Hunts Point excluded? No explanation is provided.
Response 21	Thank you for your comment. Hunts Point was excluded from the analysis of funding distribution in eligible IBZs because the neighborhood had an eight-year head start and an outsized level of funding compared to the other IBZs. Funding to non-domiciled trucks was also excluded from the analysis as there was no data on their locations, eliminating the possibility of any spatial analysis.
Comment 22	Transit and Alternative Transportation Access: Great to see micro-mobility included: "In this analysis, transportation includes public mass transit, like the subway and bus systems, and alternative transportation to support shorter trips, like bikes and e-scooters."
Response 22	Thank you for your comment.

Comment 23	Access to Green Jobs and Technology: Relatively focused on training but does not say much about those who are trained and hiring practices in the "green jobs" space – it is great that we want to get people trained and develop skills but what happens afterward?
Response 23	Thank you for your comment. The City's Green Economy Action Plan (GEAP) speaks to the engagement of workforce training throughout Chapter 4 which details direct actions people looking to access training or be involved in the green economy can take. The GEAP will be accompanied by a webpage that details an exhaustive list of options for New Yorkers looking to be involved with the green economy on everything from training to job placement.
Comment 24	Access to Green Jobs and Technology: Missing analysis: There is a lack of official, universally accepted certifications and industry standards on emerging energy-efficiency technologies – as a result this creates additional barriers to finding jobs i.e those created by LL97 – many employers of these jobs are require advanced engineering degrees to do entry level work.
Response 24	Thank you for your comment.
Comment 25	Access to Green Jobs and Technology: Will considerations be taken for smaller EJ Grass Roots organizations that don't have the resources or staffing to handle both Environmental Justice issues that occur daily and the desire of others that don't have connection to the EJ communities for these Grass Roots organizations to handle Green Job placements too?
Response 25	Thank you for your comment. EDC encourages people and organizations from all communities and industry sectors to get involved in the green economy, whenever possible, and understands that grassroots organizations in EJ communities are often at capacity serving their communities in other ways.
Comment 26	Health-related Housing Maintenance Issues: Percent of renter households reporting 3+ maintenance deficiencies [table]. This data does not align with HPD violations data (2022).
Response 26	Thank you for your comment. The data used for the study is based on the 2017 Housing and Vacancy Survey (HVS). The HVS is the most authoritative source of information regarding the City's housing stock because it includes responses from tenants who may have not reported maintenance deficiencies to the City, which would not appear in the public violations data.
Comment 27	Health-related Housing Maintenance Issues: "Homes with multiple maintenance issues such as mold, peeling paint, and inadequate heating during winter months can negatively impact health.": Does not mention pests or leaky roofs.
Response 27	Thank you for your comment. The list of maintenance issues in the statement above is not fully inclusive of all maintenance issues regulated by the Housing and Maintenance Code (HMC). The HMC does regulate the presence of pests and holes in the roof, which are included in the data tracking the percentage of renter households reporting at least three maintenance deficiencies in their unit.

Comment 28	Polluted Water Bodies: There is no key to indicate what the red and blue areas of the map mean.
Response 28	Thank you for your comment. MOCEJ has included map keys in all final versions of the maps, including the NYC Stormwater Flood Maps.
Comment 29	Advancing Environmental Justice: 'There is no consistent definition across City agencies for "disadvantaged communities."': The City should refer to the State definition of disadvantaged communities, with special consideration for adding missing communities.
Response 29	Thank for your comment. We are using the State's DAC designation to define NYC's EJ Areas in this report. These EJ Areas will be used consistently across City agencies. We agree that special consideration for missing communities is necessary, which is why we have outlined potential modifications to the DAC Criteria that would better reflect EJ communities in NYC in the "Potential Improvements to the Current Methodology" section of the Report.
Comment 30	Polluted Water Bodies: Key Findings: No discussion of barriers to accessing waterfront spaces, especially for EJ communities.
Response 30	Thank you for your comment. We conducted an analysis of access to parks and open spaces, which did include publicly accessible waterfronts. However, waterfront access was not specifically analyzed. Throughout the report, lack of waterfront access is identified as a concern for EJ communities. Additionally, the Department of City Planning's NYC Comprehensive Waterfront Plan has studied access to waterfront open space. This study, which is included in the appendix, will help inform the development of the EJNYC Plan.
Comment 31	General Comment: This comment is meant to bring attention to something I consider vital to the importance of fostering fair treatment and meaningful involvement for all citizens in the development, implementation, and enforcement of environmental laws, regulations, and policies—a core principle of environmental justice. And a stated foundational focus of the information gathered in this report. In our pursuit of this goal, we have encountered foundational challenges in communication, leading to a lack of or inability to obtain adequate and proportionate feedback and engagement from citizens. This report aimed to comprehensively evaluate and connect with environmental justice communities; however, the existing communication channels highlighted a need to strengthen the City's capacity to engage with its citizens. We recommend expanding communication channels beyond translation services. To effectively address the challenges faced by New Yorkers in the 21st century, particularly in terms of sheltering in place, communication, and community organization, it is imperative to establish a structured local, neighborhood system that promotes information and engagement. This includes the development of a robust feedback loop that facilitates a strategic enhancement of actionable knowledge on the effectiveness of financial development, and spending to squeeze the most out of every dollar spent on the achievement of these goals. To create this loop there must be a significant investment in communication and a build-out beyond the current level of available services. To effectively address the challenges faced by New Yorkers in the 21st century, particularly in terms of sheltering

	in place, communication, and community organization, it is imperative for the city to establish a structured local, neighborhood, communication system that promotes and engages with citizens by providing and receiving information from citizens differently. This necessitates a strategic enhancement to communication services beyond the current level of translation services. Without being able to gather proportional feedback, relative to population size or through classification, the city will lose the ability to effectively squeeze the most out of every dollar being spent to make improvements in resilience and mitigation of injustice that understands climate does not know justice. And this situation will have some effect on us all. So by reducing carbon emissions, transitioning to grid electrification, and ensuring resilience in the face of more frequent extreme climate events, more advanced methods of communication and advancement in its structure must be developed beyond conventional approaches in favor of more modern and innovative strategies. In conclusion, communication is a critical factor that will influence the cohesion of neighborhoods and boroughs under anticipated pressures. Additionally, budgetary considerations are paramount in achieving these goals. New York City must judiciously allocate resources and extract double or triple duty from its investments. This can only be accomplished through the implementation of an expanded communication structure that incorporates a feedback loop to assess the value derived from these plans and expenditures.
Response 32	Thank you for highlighting these concerns regarding communication and engagement between the City and EJ communities. The City is committed to improving overall communication and collaboration with local residents and community-based organizations. Per local law, the EJNYC Plan must identify potential city-wide initiatives related to encouraging greater public engagement with and participation in decision-making that raises environmental justice concerns. We hope to continue working with yourself and other key stakeholders on the development of this plan.
Comment 33	Utility Access and Affordability: "PUMA" is never defined in the documents – Public Use Microdata Areas
Response 33	Thank you for your comment, PUMAs are defined in the caption of the Utility Burdens Household map which is the first time PUMA appears in the report. Additionally, a definition of PUMAs is included in the abbreviations section of the appendix.
Comment 34	General Comment: This report should be reviewed and revised by a single editor to create a more cohesive voice across sections. Currently, the report is disjointed and has several sections that are written in a way that would not be accessible to the general public.
Response 34	Thank you for your comment. Due to the report's large scope, there are a wide range of topics discussed throughout and report writing was adjusted based on what was most appropriate for a given topic. We worked to maintain a cohesive voice and tone throughout the report and mapping tool, while prioritizing accessible language as much as possible.

Comment 35	General Comment: For all figures in the document, they should have a caption that explains the figure in a way that the general public can understand. For the figures that have acronyms, the caption should also redefine the acronym so the reader does not need to refer back to the main text in order to understand the figure. Also, if the figure data is available somewhere, such as NYC's open data portal, that should also be mentioned in the caption.
Response 35	Thank you for your comment. All charts and figures have been updated with acronyms spelled out. The sidebar content within the mapping tool provides easy to understand information on all maps and datasets. All datasets are available for download on the mapping tool.
Comment 36	Identifying EJ Areas: "The DAC criteria are similar but not identical to the Climate and Economic Justice Screening Tool (CEJST) criteria, developed by the White House Council on Environmental Quality, which identifies 52 percent of New York City census tracts, containing 57 percent of the city's population, as disadvantaged communities." In this statement, it is important to note that the CEJST is not the only other screening tool.
Response 36	Thank you for your comment. Based on this feedback, we have included a mention of other EJ screening tools on page 41.
Comment 37	Advancing Environmental Justice: In the section on Advancing Environmental Justice, it would be important for the public to know what the process is for implementation of EJ policy proposals that result from the EJNYC plan. It is important to discuss whether there is currently accountability, such that the recommendations will be acted on. If there currently is not formal accountability in place, are there any resolutions or additional local laws needed to make sure EJNYC policies are implemented?
Response 37	Thank you for your comment. EJ policies, including recommendations and initiatives, will be developed alongside key stakeholders as part of the EJNYC Plan. The EJNYC Plan's development process will include engagement with key stakeholders and residents of EJ Areas. A public comment period will follow the release of a draft EJNYC Plan. As required by local law, the EJNYC Plan will include a description of any amendments to laws or rules that would facilitate implementation of any of the recommendations.
Comment 38	Extreme Heat: "Access to home air conditioning is the most effective way to prevent disease and death due to heat exposure." – There is no mention of cooling centers or the advantages of trees/urban tree canopy/greenspace
Response 38	Thank you for your comment. On pages 65-66 we describe the inequitable distribution of the urban tree canopy, as well as the cooling benefits it provides. Based on this feedback, we have included a description of Cooling Centers in the appendix.
Comment 39	Exposure to Climate Change: Key Findings – there needs to be a key finding on extreme rainfall given then increased importance on this issue
Response 39	Thank you for your comment. One of the key findings presented in the Exposure to Climate Change Sections is "NYC's EJ Areas population is disproportionately exposed to flooding due to coastal storm surge, chronic tidal flooding, and extreme rainfall in the current decade."

Comment 40	Transit and Alternative Transportation Access: "Historically, over-policing and anti-fare evasion policies have disproportionately affected Black and Hispanic or Latino riders." – Great addition! But did not thread the needle on how this (fare evasion arrests) further burdens on Black/Latino communities
Response 40	Thank you for your comment. Over-policing was not identified as an environmental justice concern in the public scoping process. Throughout the report we acknowledge the intersection of environmental justice and other social justice issues, including criminal justice.
Comment 41	Conclusion: How will this tool incorporate and/or replace the existing data portals/tools that exist at the city level? Who will be responsible for maintaining this tool over time?
Response 41	Thank you for your comment. The EJNYC Mapping Tool will consolidate data related to environmental justice concerns. It is meant to complement existing data tools and portals rather than replace any. MOCEJ will maintain the mapping tool over time.
Comment 42	Environmental Justice Today and Tomorrow: The statement "Climate change will further multiply the inequitable impacts from extreme heat and flooding in EJ areas" should be expanded, there is plenty of evidence that climate change is a vulnerability multiplier and will increase pre-existing vulnerabilities far beyond extreme heat and flooding, to include chronic stress, food insecurity, housing insecurity, forced displacement, etc.
Response 42	Thank you for your comment. This concept of climate change acting as a threat multiplier is discussed in greater detail in other sections of the report, including the "Interconnected EJ Issues" section and the "Exposure to Climate Change" section.
Comment 43	Potential Improvements to the NYS DAC Criteria: We get noise pollution from Newark Airport and we have to contact our Congressional and State Representatives to get the Newark Air Traffic Control to reroute the planes away from the North Shore EJ Communities. For the record and for the purposes of safety commercial airlines are supposed to fly over water and not residential communities. Staten Island's proximity to New Jersey and the negative impacts from New Jersey's airports, ports and industrial zones that affect Staten Island should not be dismissed simply because out of the 5 boroughs we are the only ones that are experiencing them. In terms of the shipping channels, the Kill Van Kull, Lower Newark Bay and the Arthur Kill every time the NY/NJ Port Authority wants to widen or deepen these channels the City and the State of New York have to sign off on the project, which often times they do regardless of the negative impacts to the Staten Island EJ community. There have been 3 Blasting and Dredging Projects in the Kill Van Kull and each has lasted for 7 years causing property damages to homes and businesses near the waterfront. They blast during the day and they dredge throughout the night 6 days a week.
Response 43	Thank you for your comment. We understand your concerns related to noise pollution. You have highlighted an important point and a challenge we have encountered many times throughout the development of this report which is that some EJ concerns are more difficult to study and address due to multi-jurisdictional challenges. At the time of developing this report, there was no available dataset for noise pollution to include in our analyses of EJ concerns.

Comment 44	Land Use Planning and Zoning: Good to see the mention of New York State Cumulative Impacts Law
Response 44	Thank you for your comment.
Comment 45	Utility Access and Affordability: "Internet is not included in standard energy burden calculations but is increasingly considered a standard utility." – Not sure how much we personally message on this but nice to see it included
Response 45	Thank you for your comment.
Comment 46	Utility Access and Affordability: Great connection to extreme heat and a/c use
Response 46	Thank you for your comment.
Comment 47	Exposure to Climate Change: "Understanding the intersection of environmental justice issues and climate change is a necessary step toward building an equitable adaptation resilience strategy [...] focus on extreme heat, extreme rainfall, coastal storm surge, and tidal flooding."
Response 47	Thank you for your comment.
Comment 48	Exposure to Climate Change: EJ vs. Non-EJ Population by Heat Vulnerability Index Score - this is a great chart/visual!
Comment 48	Thank you for your comment.
Comment 49	Advancing Environmental Justice: The Participatory Budgets that were given to City Council Members for community projects are usually not enough to solve any of the real problems in the EJ Communities. So they were looked at as niceties but not as anything to be taken seriously.
Response 49	Thank you for your comment. We chose to highlight two participatory budgeting initiatives led by the City only as examples of equitable engagement. These successes can provide examples for future practices that advance environmental justice.
Comment 50	Environmental Justice Today and Tomorrow: The New York State Cumulative Impact Law, has it begun yet?
Response 50	Thank you for your comment. The Cumulative Impacts Law is set to go into effect on January 1st 2025.
Comment 51	NYC Clean Trucks Program: How will the Low Emission Zones be enforced?
Response 51	Thank you for your comment. The low-emissions freight zone was introduced in PlaNYC: Getting Sustainability Done as a pilot program that will be launched by 2027. Specifics have not yet been developed.
Comment 52	Advancing Environmental Justice: Acronyms should also be included in the glossary so that readers can easily find the definitions and not have to search through the text to find the meaning of an acronym.
Response 52	Thank you for your comment. We have included a comprehensive list of abbreviations in the appendix.

Comment 53	Redlining: The conclusion – "Lower wealth in communities of color negatively affects access to resources." – is not really contextualized well and it is unclear how homeownership impacts EJ issues at the community level since it is framed as individual family wealth ("Home equity makes up nearly two-thirds of wealth for the median American family.")
Response 53	Thank you for your comment. Based on this feedback we have revised the language on page 57.
Comment 54	Access to Safe and Healthy Housing: "Energy-efficiency retrofits can improve ventilation and incorporate building envelope upgrades that reduce noise (in addition to their thermal insulative qualities).": There is insufficient evidence to know how building envelope upgrades will impact concentrations of all pollutants indoors. Another stated focus of building improvements must be pollution reduction (i.e. gas stoves and boiler switch outs reduce NOx)
Response 54	Thank you for your comment. Based on this feedback we have revised the language on page 111 to more clearly communicate that improvements to indoor air quality would require ventilation upgrades, not just building envelope upgrades. More details are provided in the "indoor air quality" section of this report on page 89.
Comment 55	Access to Safe and Healthy Housing: "As more multi-family residential buildings undergo energy retrofits to keep up with regulations, it is important that landlords balance the need to recoup investments with the imperative to share cost savings with tenants." This statement does not tell the whole story. As multi-family buildings undergo these upgrades, it is important that tenants are protected from cost-shifting leading to rent increases that further displaces low and middle-income residents.
Response 55	Thank you for your comment. Based on this feedback, we have revised the language on page 111.
Comment 56	Utility Access and Affordability: Does not mention the potential impact building electrification could have on utility affordability
Response 56	Thank you for your comment. The focus of this section was on research related to energy cost burden, and not on the potential utility affordability impacts of electrification which is unknown. As buildings electrify, heating systems may shift from building level to unit level controls. This shift must be carefully considered as to not increase energy cost burden on low- or middle-income residents. The City will publish guidelines on how utility bills should be allocated for electrified housing; and HPD's publication of Electric Heating Policy also provides guidance on owner-tenant utility billing strategies. Additional information on these owner-tenant cost implications and considerations for electrification can be found on Pages 63-64 of PowerUpNYC https://climate.cityofnewyork.us/wp-content/uploads/2023/09/PowerUpNYC.pdf Additional context can be found in PowerUp NYC.

Comment 57	Utility Access and Affordability: Section completely misses the importance of investing in energy-efficiency via state and utility funding for low-income households, and that we must use funding that utilities historically use to fix leaky pipes & invest in new fossil fuels, to instead be used for deep subsidies for low-income buildings to afford an energy transition. There needs to be a connection between energy insecurity, energy burden, and the bigger energy transition.
Response 58	Thank you for your comment. Recommendations like these were not the focus of this report. However, the City has appointed a Utility Consumer Advocate in compliance with LL80 of 2022 who will advocate for shifts in utility spending such as what is suggested here and provide guidance and transparent information to the public on this and other utility related topics. Additionally, the City continuously advocates for solutions that advance the City's decarbonization commitments in utility proceedings.
Comment 59	Exposure to Climate Change: There is no mention of the urban heat island effect, which is an important factor to NYC and extreme heat - there needs to be more acknowledgement of the built environment
Response 59	Thank you for your comment. Based on this feedback we have included language describing the urban heat island effect on page 145.
Comment 60	Advancing Environmental Justice: List the timeframe, e.g., year(s), that these efforts were launched/conducted to illustrate how recent/updated these resources are.
Response 60	Thank you for your comment. Based on this feedback we have added timeframes for the equitable engagement efforts highlighted in this section.
Comment 61	Appendix: Are there data sources that are not referenced in the Spatial Analysis Methodology that would be included in the Environmental Justice Mapping Tool?
Response 61	Thank you for your comment. Yes, there are data sources included in the Mapping Tool that are not included in the Spatial Analysis Methodology. While there is a lot of overlap, the data sources listed in the Spatial Analysis Methodology only reference data sources utilized for the Report's analysis.
Comment 62	Access to Resources: How many facilities, industrial businesses (M3 Zones) are going to be Grandfathered Uses under the NYS Cumulative Impact Laws? I.E Cement Plants, Auto body shops, Waste Transfer Stations, Dry Docks, Dredge Spoil Operations, Salvage Yards.
Response 62	Thank you for your comment. Implementation of the Cumulative Impacts Law is outside the scope of this report. The New York State Department of Environmental Conservation has yet to issue regulations or guidance interpreting the Cumulative Impacts Law.

Comment 63	Stationary Sources of Pollution: This section is underscored to draw attention to additional sources of pollution burdens disproportionately borne by Environmental Justice (EJ) communities. The current transitional measures inadequately address new strategies to mitigate and reduce this particular source of pollution, highlighting another urgent facet of EJ that demands immediate attention. It is imperative to address and alleviate these additional burdens, surpassing those previously established, that these populations endure during the transition. It is unacceptable for these communities to bear an extra burden associated with environmental justice initiatives designed to rectify imbalances. Therefore, the implementation of mitigation strategies is essential to ensure a fair and equitable distribution of impacts and benefits among all environmental justice communities and stakeholders. Furthermore, it is crucial to avoid isolating the effects of cumulative exposures and the additional burden of pollutants. Recognizing the interconnected nature of these challenges is vital for crafting comprehensive and effective environmental justice strategies that also pay attention to the expected gain from making mitigation investments in the first place. As mitigation strategies in one area may compound the lack of results in another area, ultimately effecting the ultimate success in positive change achieved for the health of EJ communities.
Response 63	Thank you for your comment. Implementation of the Cumulative Impacts Law is outside the scope of this report. The New York State Department of Environmental Conservation has yet to issue regulations or guidance interpreting the Cumulative Impacts Law.
Comment 64	Outdoor Air Pollution: As previously mentioned, climate and environmental factors do not discriminate based on justice; however, their impacts can disproportionately affect certain areas in predictable ways. For example, while congestion pricing and new transit development aim to mitigate air pollution, the remedy may impose an additional burden on frontline communities already strained by frequent visits to adult ER departments and a high percentage of census tracts classified as environmental justice (EJ) areas. To address this issue comprehensively, it may be prudent to establish a new evaluation category specifically focused on assessing the benefits of mitigation efforts. This category should explicitly outline the anticipated burdens on frontline communities, providing both qualitative and quantitative measures of the expected benefits over time. Furthermore, it is imperative to address and alleviate the additional burdens placed on these populations during the transition. It is unacceptable for these communities to bear an extra share of the burdens associated with environmental justice initiatives designed to address the injustice imbalances. Therefore, mitigation strategies must be implemented to ensure a fair and equitable distribution of the impacts and benefits among all environmental justice communities and stakeholders.

Response 64	Thank you for your comment. Your recommendations and concerns are very much in line with the scope of the Environmental Justice NYC Plan. While such recommendations were not the focus of this Report, they may be considered throughout the development of the EJNYC Plan. We hope to continue engaging with you and other stakeholders throughout the development of the plan in order to embed EJ concerns into City decision-making.
Comment 65	*General Comment:* The objectives of this report align not only with Environmental Justice (EJ) initiatives at both the state and federal levels but also recognize the potential for the EJ report to leverage emerging resources to benefit New York City's EJ community. This impact can be achieved through enhanced environmental benefits, reduced burdens on EJ areas, and addressing disparities in communities that have experienced undue environmental burdens. To achieve these goals, even in the face of impending budget cuts, no matter how minor, a linear approach won't suffice. Instead, the approach necessitates a growth-oriented experiment. I propose a novel perspective in addressing these issues. One that focuses on six general areas applicable to public housing communities. The EJ community of which I am a lifelong member of is NYCHA, the New York City Housing Authority. And as such it is a citywide EJ community, disproportionately represented within its a citywide footprint. The examples I will present are relevant to all EJ communities citywide, albeit any location specific community considerations. 1. *Composting:* Integrated pest management, waste reduction, and improved management. 2. *Food Insecurity:* Locally grown produce available in EJ communities, produced by the community member. 3. *Social Cohesion:* Enhanced, voluntary, civic cooperation directed by and by EJ communities. 4. *Enhanced Workforce Development*: Generation of new green industry pipelines beginning along with the expansion of programs like NYCHA section 3 to support an expanded new employment pipeline and a larger opportunity for work with NYCHA green contractors, increasing both indoor and outdoor work opportunities within NYCHA's Resident Economic Empowerment and Sustainability service department. 5. *Communication*: Build out to function in support of these all activities and facilitate agency for EJ communities that can possibly function more independently as the system is built out. 6. *Resiliency*: First, a reasonable ability to shelter in place with agency and reliable systems for support. Second, another long term focus and ultimate goal of the activities enacted in concert should be focused on their potential to expand the tax base of EJ communities and as a result the city of New York. Something which will contribute greatly to the future stability of the city as a whole along with environmental sustainability, as the ultimate measure of value and ultimate goal for success.

To incorporate these goals dynamically, the city must start measuring the long-term, monetary, and invaluable future benefits of maintaining order in the face of extreme climate, and extreme environmental events. It's crucial to prepare for and mitigate the impact of these events seamlessly, aligning with the city's environmental goals. Environmental justice stakeholders must have agency over systems related to the listed topics to become integral to the city's fabric. And improved, updated green employment skills will result in higher wages and more contribution to the tax base.

I propose the city achieve this through the development of a pipeline like the one described above, with measurable benefits for the city, aligning with state, and current federal government initiatives. NYC can leverage this green development more innovatively. With designated focus not just in the energy sector, but also in the domestic sector. A sector sorely in need of the upgrade sustainable green development would provide. Momentum to enhance the cost-effectiveness and overall value, all of these efforts emphasize a focus on a layered approach to a dynamic implementation.

Taking NYCHA as an example, I envision NYCHA campuses becoming resilience hubs. Not only for themselves, but also for their surrounding EJ and non-EJ communities along with the NYCHA tenants. Because much of the EJ community may be forced to shelter in place, as during the COVID crisis, this effort must involve and be based in the tenant community through expanded training for the jobs that are required to maintain fully developed green community initiatives that are implemented. For example, citywide composting on cooperating NYCHA campuses can integrate integrated pest management and reduce methane release from food waste in landfills. among other things. Urban farming can address food insecurity, fostering social cohesion and resilience. All of this can be designed dynamically to generate economic activity in the green sector that contributes revenue to the city and to the EJ community it seeks to develop, green, and improve.

Around these hubs, access to computers for education and training can help bridge the tech divide, supporting the workforce development pipeline initiatives. Professional titles requiring certification such as, master composter, urban farmer, and repair association coupled with the management and facilitation of community engagement and educational support of these activities in these spaces can help propel EJ communities securely into the 21st century. These activities can engage multiple generations, fostering independence within EJ communities, and social cohesion with neighboring communities.

This also an opportunity for investment from technology platforms to also play a role in the city's development of this pipeline. This will allow EJ communities to be connected integrally to the overall health of the city as a whole. Like an even stronger heartbeat, contributing to the improved greening, expanded growth, and improved health of the entire city. Making EJ communities more resilient, and ultimately better prepared. Both with the creation of a new workforce development training and civil service title pipeline of green professions, built around economic development opportunities, the city will be incorporating needed growth, both in and from the dynamic development of projects like these described in almost any EJ community. All the built in support

	for these green professional opportunities also enhances the overall benefit to climate mitigation, environmental sustainability, and beneficial to overall increased activity in the environmental, economic sector. A win-win for all of New York City. Budgets fluctuate universally, but the goal here is to shift the paradigm of lack. As the city aims for lower emissions, improved health, and solid foundations, the approach is to turn a 5% budget cut across the board into an opportunity for creative and innovative growth that nets needed sustainable growth and development. Coordinated, organized change is crucial to avoid setbacks in achieving parity and addressing disparities. Incorporation of and reliance on a cost-benefit analysis of EJ initiatives will provide a systematic method for evaluation of total costs against the evaluation of the total expected rewards. Fostering creativity within operations in a way that primes activity to gain optimal rewards from investments made in green development in EJ communities. This is a win-win for New York City.
Response 65	Thank you for your comment. We appreciate your thoughtful recommendations on policy initiatives and area for further exploration. While recommendations were not the focus of this report, we aim to address many of the topics you have raised through the development of the Environmental Justice NYC (EJNYC) Plan. NYCHA residents are critical stakeholders for the City's work on environmental justice, and we hope to continue engaging with yourself and other NYCHA residents throughout the development of the EJNYC Plan.
Comment 66	Public Housing: This section is generally lacking, there needs to be a much deeper dive into data for lead-based paint, mold, heat, elevators, inspections, pests, and waste management in NYCHA.
Response 66	Thank you for your comment. For more information on the housing quality metrics you have highlighted, see below for the latest trends in the HUD Agreement Metrics: • Heat - Heat outage figures are reported for the heating season, which began on October 1, 2023, and will end on May 31, 2024. The average time to resolve heat outages was reduced by 44 percent from 7.6 hours as of October 2022 to 4.3 hours in October 2023 and was under the target of 12 hours required in the January 2019 agreement with HUD. • Elevators - The average time to resolve elevator outages was faster by 25 percent from 10.6 hours in the first four months of Fiscal 2023 to 7.9 hours for the same period in Fiscal 2024 and was below the target of 10 hours. The average outage per elevator per month also decreased from 1.03 outage per elevator per in the first four months of Fiscal 2023 to 0.91 during the same period in Fiscal 2024. The elevator service uptime exceeded the target of 97 percent. Efforts to improve elevator service included the backfilling of vacancies, and the hiring and training of additional elevator mechanic teams. • Pests - NYCHA is making significant strides in pest management but is still working towards meeting the targets laid out in the HUD Agreement. The percent of rat complaints responded to within 2 business days increased 14 percentage points from 43.4 percent in

	the first four months of Fiscal 2023 to 57.4 percent during the same period in Fiscal 2024. The percent of rat complaints responded to within 5 days increased from 54.6 percent to 68.6 percent. In the first four months of Fiscal 2024, NYCHA significantly reduced the response time for rats to an average of 2.7 days compared to 9.2 days in the period last year. The performance for other pest complaints also improved. The percent of other pest complaints responded to within seven days rose from 16.5 percent in the first four months of Fiscal 2023 to 24.2 percent for the same period in Fiscal 2024. The percent of other pest complaints responded to within 10 days also increased from 22.4 percent in the first four months of Fiscal 2023 to 41.1 percent in Fiscal 2024. In the first four months of Fiscal 2024, NYCHA responded to other pest complaints within an average of 11.9 days compared to 53.5 days the period last year. NYCHA also saw a decline in resident complaints. In calendar year 2023 through October, the rat complaints decreased by 19 percent from 3,284 to 2,649 for the same time last year. The number of other pest complaints was also reduced by 10 percent from 30,490 in calendar year 2022 to 27,187 in 2023. • Mold - In Fiscal 2024, NYCHA continues to improve its performance in addressing the root causes of mold. The percent of simple mold repairs completed within 7 days increased 10 percentage points from 24.8 percent in the first four months of Fiscal 2023 to 34.8 percent during the same period in Fiscal 2024. The percent of complex mold repairs completed within 15 days increased from 3.4 percent as of the first four months of Fiscal 2023 to 5 percent in Fiscal 2024. The percent of mold removed within 5 business days also improved from 6.2 percent to 9.7 percent. NYCHA has met the target of preventing mold recurrence after remediation and repairs. The proportion of mold cases that did not result in a recurrence was 85 percent in the first four months of Fiscal 2024, which was slightly lower than last year but met the 85 percent HUD target. From July 2023 to Oct. 2023, NYCHA reduced its inspection response time to resident mold complaints by 1.5 days (from 5.2 to 3.7 days) and NYCHA reduced its plumbing and tub enclosure work orders over 250 days by 26% or 2,536. Addressing these work orders will help decrease the moisture and leak issues and ultimately improve the completion time for simple and complex mold repairs. • Lead - On December 1, 2021, New York City enacted a new law which lowered the threshold of lead in paint from 1.0 mg/ cm2 to 0.5 mg/cm2 for remediation. NYCHA has been abating units to comply with the new regulation and ramped up capacity since Fiscal 2023. The total number of units abated for lead increased significantly by 187 percent, from 616 units in the first four months of Fiscal 2023 to 1,766 units during the same period in Fiscal 2024. NYCHA's Lead Hazard Control Department (LHCD) brought on a Project Management Office (PMO), LiRo, to oversee lead abatements and ultimately, temporary resident relocations needed to facilitate the abatements. The apartment abatement program is active at 76 developments and is expanding.
Comment 67	Public Housing: What are the numbers/trends/deltas?
Response 67	Thank you for your comment, the above response is intended to address this question.

Comment 68	Public Housing: Discussion is missing on the disparities within NYCHA
Response 68	Thank you for your comment. NYCHA's most recent Physical Needs Assessment gives an overview of the different needs of various developments across NYCHA's portfolio. https://www.nyc.gov/assets/nycha/downloads/pdf/2023-PNA-Report-Physical-Needs-Assessment-NYCHA.pdf.
Comment 69	Public Housing: Discussion on PACT/Trust is missing and how/if these programs will address environmental health hazards
Response 69	Thank you for your comment. Renovations of NYCHA buildings performed through the PACT program and the Public Housing Preservation Trust are opportunities to improve housing quality and are required to address core environmental health concerns such as lead and mold. Additionally, these renovations strive to bring residents major improvements in energy-efficiency, comfort, and satisfaction with their homes.
Comment 70	Public Housing: Highlight the sustainability pilot projects NYCHA is working on (solar, heat pumps, waste management systems etc.)
Response 70	Thank you for your comment. Based on this feedback we have included additional NYCHA initiatives in the City Programs and Initiatives section of the Appendix.
Comment 71	NYCHA Customer Contact: The concerns regarding the Comprehensive Community Care (CCC) system revolve around its failure to effectively address repair needs and backlogs, despite its initial purpose. The circular communication with management, especially in the case of emergency repairs, leads to a lack of timely service for tenants. The inability to contact the CCC for follow-ups or complaints about service levels poses a significant challenge. Instances involving water leaks, flooding, gas, and electrical repairs further exacerbate the situation, necessitating calls to the fire department for urgent assistance, as CCC workers lack information on repair logistics and tenant safety. Moreover, the absence of oversight and communication between the CCC and the Quality Assurance (QA) department contributes to a disjointed approach to addressing tenant issues. The identified issues underscore the pressing need for NYCHA to establish a robust communication system that goes beyond the current appointment-based model. This proposed system should facilitate monitored feedback from stakeholders, allowing for a comprehensive evaluation of budgeting, fiscal management, and strategic efforts to address past issues. Furthermore, skepticism arises from a reported statistic on Emergency Work Orders completion within 24 hours, prompting questions about tenant surveys, follow-up methodologies, and the absence of tenant feedback in the reported statistics. These concerns emphasize the necessity for a transparent and realistic representation of CCC operations, acknowledging the experiences of tenants and aligning statistical reporting with the realities observed by community members. In summary, the proposed edits seek to rectify communication inefficiencies, enhance oversight, and address the genuine concerns of tenants within the CCC system, thereby ensuring a more effective and transparent process. The following list highlights suggested improvements for NYCHA to better utilize the work of the CCC for both construction, development, maintenance, and close fiscal

oversight that ensures the most efficient expenditure of funds NYCHA requires for repairs, updates, and tenant involvement in such matters.

Following List of suggestions for improvement
- Clearly state the purpose of the CCC and its role in addressing tenant concerns.
- Clearly state the purpose of the emergency repair process and its follow-up capabilities.
- Streamline the explanation of the circular communication issue with management for emergency repairs.
- Specify the designated response times for emergency repairs by NYCHA in real time.
- Clarify the limitations faced by tenants who are unable to receive timely service.
- Be clear what the cost to missed appointments and follow-up really involve for tenants. (i.e. timeloss, damages, etc).
- Develop more robust communication channels.
- Emphasize the purpose of the CCC in providing an alternative channel for tenant complaints and real-time estimates.
- For matters of issue resolution, again, highlight through effectiveness the primary problem the CCC was designed to address, namely the lack of oversight. Include a tenant interactive connection to the NYCHA QA department.
- Provide specific examples of any statistics reported and cross check against departments.
- Reference the chart on page 110 related to Emergency Work Orders completed within 24 hours.
- Question the reporting accuracy and suggest the need for transparency.
- Inquire about tenant feedback and the methodology employed, such as random surveys and follow-up reviews.

This will require the development of modern, robust forms of communication channels to effectively convey the significance of environmental justice, its connection to climate issues, and its crucial role in addressing global environmental challenges. This includes ensuring universal access to broadband and establishing a solid foundational communication system. Implementing an open feedback loop is essential to increase public input and enhance understanding of the challenges and the implications of addressing them for the City and its citizens.

Drawing from my lifelong experience as a NYCHA tenant and a proud lifelong New Yorker, I highlight the challenges faced by Tenant Associations in effectively addressing the 1440 apartments in the development. The current monthly meeting schedule, held at 6 pm on the last Thursday of the month, poses barriers for many tenants, leaving word of mouth as the only means to access discussed information. Tenant association leaders are holding regular jobs, have families, and are committed to their communities. There should be made available required training in community engagement and access to a comprehensive structure supporting community involvement. They should have adequate resources for committee training, access to a listserv for publishing meeting minutes, and a phone or internet setup for voting to increase interaction and feedback.

Tenants should be able to vote and respond to NYCHA initiatives before borough-wide

meetings. As it stands currently the tenant association president is besieged with requests to focus on outstanding repairs, negotiated with management to be addressed. The focus on outstanding repairs during these meetings places an undue burden on the Tenant Association. Outstanding repairs are NYCHA's responsibility. And the duty of addressing this takes away from efforts to enhance sustainability and improve upon the environment outside of the buildings and not just in the apartments, interfering with full agency in the place of residence. Because as we all know everything in the environment is connected. So it's not just about what happens inside your apartment, but outside your apartment and in your community as well. And all the moving parts would benefit from a conversation with one another.

Tenant leaders across the city should be supported in tenant organizing. Not just for NYCHA tenants and not just for communications that facilitate NYCHA repairs. The benefits of running a tenant organization should focus on skill development enhancing employment and professional abilities. The city can learn from these challenges to address the substantial portion of the overall Environmental Justice (EJ) community facing difficulties in accessing modernized communication methods. Despite owning cell phones, EJ community members lack access to desktops, laptops, or tablets, highlighting the need for comprehensive broadband and wifi access. For example, in my NYCHA development, outdated communication practices hinder tenant participation, extending these challenges to broader barriers in public engagement processes. Expanding my example to encompass all EJ communities, these challenges need to be addressed across all EJ communities. It is crucial to establish additional levels of communication, separate from traditional channels, for effective engagement in emergencies related to climate or environmental concerns. There needs to be established different methods for the collection of feedback, meaningful and otherwise. Citizens need meeting spaces to organize their communities around their concerns in preparation and response to unpredictable climate and environmental crises. This necessitates the building of structures facilitating neighborhood-wide communications, organized by ordinary citizens with ambitious plans, and not necessarily involving an election, or activities that address EJ and climate that only require minimal interaction with formal political structures. New Yorkers' ability to develop agency is vital in preparation for future challenges. The COVID crisis underscored the impact on disadvantaged populations, emphasizing the urgency of prioritizing effective communication in advance for New York City to thrive under such conditions. Collaboration, resource allocation, and stability measures are pivotal, and contingent upon a well-developed communication apparatus. All of this will be key to the continued development of a thriving city in the face of the current challenges described in this report. At this point what I've proposed also falls under the realm of public engagement that is not legally required. Yet, I bring this up this point to alert to the fact that this report was developed to address EJ and the effected communities. Where a high level of proportionate public engagement was not legally required, but necessary to secure input adequate to address the true magnitude of the issues communication represents. Express the expectation for improved transparency and a more realistic representation of statistics. Attention to these matters is crucial for ensuring the effectiveness and transparency of the CCC system, improvement in the overall performance of NYCHA, and improved tenant relations.

Response 72	Thank you for your comment. Operations is ultimately the NYCHA department responsible for responding to work orders generated by the Customer Contact Center (CCC). The CCC provides support to Operations by: • Creating follow-up tickets and contacting the development • Referring escalations to the particular development/borough office in question via a telephone call or emails • Calling or emailing development management about missed appointments Quality is monitored in five ways in the CCC: • Customer Information Representatives are monitored at least 10 times each month and given feedback. Monitoring includes evaluation of recorded calls to ensure compliance with NYCHA standards and screen shots associated with each call to ensure efficient handling of the call. • Call Center - The Quality Assurance Survey is designed to measure the quality of services provided by both the CCC call takers and the various development maintenance workers and skilled trades staff members. The Quality Assurance Survey is an automated process whereby the system randomly selects closed work orders, makes telephone calls to the residents and documents their responses to several questions asked. The CCC tracks the survey responses that are directly tied to the call center and reports on the overall satisfaction with the call center on a monthly basis. • The Operations - Mold and Mildew Follow-up Survey is conducted to identify if mold or mildew has reoccurred. • Customer Service Surveys are distributed on four dates during the month for the Walk-In Centers to gain additional feedback and insight into our customer service levels. Findings are shared with the staff. • The Customer Service Side by Side quality review program is based on a random "inconspicuous observation" assessment of a customer service interaction at the Walk-In Center window.
Comment 72	Exposure to Hazardous Materials: This section as a whole lacks any data on health impacts of exposure to hazardous materials.
Response 73	Thank you for your comment. Characterization and surveillance of both exposure to hazardous materials and any possibly related health impacts is limited by available knowledge, regulation and data. Possible exposure to a hazardous material and whether that exposure will result in any adverse health outcomes is dependent upon the situation, the specific material, the location and characteristics of those exposed. In addition, it is very difficult – particularly for low-level, chronic exposures – to tie particular health outcomes to exposure to most common compounds. Moreover, being near a given hazardous substance does not mean an individual was exposed or that an exposure will result in an adverse health effect. Through Local Law 26 of 1988, the New York City Department of Environmental Protection regulates and enforces the storage, use, and handling of hazardous substances that pose a threat to public health and the environment. Any potential exposures stemming from DEP-regulated facilities receive emergency response, but unreported and unregulated hazardous substances remain a risk. Unfortunately, in the majority of cases, it is not possible to link specific, reported diseases or conditions with causative exposure to hazardous materials.

Comment 74	Contaminated Land: Is this map only showing current U.S. EPA Superfund Sites that are pending remediation? Or is it meant to show all U.S. EPA Superfund Sites, even those that have been remediated such as the Jewett White Lead Company site in Port Richmond, Staten Island?
Response 74	Thank you for your comment. This map only shows the U.S. EPA Superfund Sites that are on the National Priority List. It does not include all Superfund Sites, which are managed by several different federal agencies.
Comment 75	Exposure to Hazardous Materials: Also will the report include FUSRAP Sites, Formerly Utilized Sites Remedial Action Program for radiological contamination resulting from the Nation's Atomic Energy Program? The Archer Daniels Midland Company site on Richmond Terrace, Staten Island is one such site and is scheduled to undergo remediation the mid-part of October 2023, and the remediation will be completed at the end of December 2023.
Response 75	Thank you for your comment, and for bringing attention to the Staten Island Warehouse FUSRAP site. The research on contaminated land conducted on behalf of this report is not exhaustive and does not represent all potential hazards or remediation sites in NYC. The limitations of this analysis are discussed within the Contaminated Land section on page 102 of this report. A comprehensive database of all federal remedial sites, including those under the FUSRAP Program, does not exist. While this particular site was not discussed, the report does acknowledge that many neighborhoods with greater concentrations of cleanup sites are waterfront EJ communities near heavy industrial areas like Port Richmond, where this FUSRAP site is located.
Comment 76	Environmental Remediation: The Community Brownfield Planning Grants that LDCs have gotten, have yet to have proven to be beneficial to the EJ communities on Staten Island as the types of businesses they have aligned with have shown little interest in maintaining the current residents and are more interested in gentrification.
Response 76	Thank you for your comment. These Community Brownfield Planning Grants are available to CBOs all over New York City. The Mayor's Office of Environmental Remediation (MOER) publicizes them to hundreds of groups via its email list and social media channels and promotes them at conferences, workshops, and meetings. They have been used for projects ranging from area-wide studies to site-specific environmental investigations. Each grant requires a community meeting open to the public, where the grantee gets feedback and responds to questions. Each grant also requires a report that highlights the purpose and community benefit of the project. They are available on MOER's EPIC Community page: https://a002-epic.nyc.gov/community/home
Comment 77	Capital Planning: This section just outlines the process and draws no conclusion on how capital planning has impacted EJ communities (positively or negatively) over time.
Response 77	Thank you for your comment. Currently, there is no comprehensive outlook on how the capital planning and funding process has impacted EJ communities over time. This section serves to explain what the City's capital process is and outline what the process is like year to year.

Comment 78	Cool Neighborhoods NYC: "Notably, there was no temperature monitoring in Staten Island." Why wasn't Staten Island's North Shore monitored?
Response 78	Thank you for your comment. Neighborhoods were selected based on the Heat Vulnerability Index (HVI) and the planned planting schedule for Cool Neighborhoods as outlined in the Cool Neighborhoods Report (2017). The HVI map included in the report does not display any high heat vulnerable neighborhoods in Staten Island. In subsequent years with more refined data, heat vulnerability risk at a scale smaller than neighborhood community district was calculated. Additional temperature measurements on street trees were collected after the Cool Neighborhoods initiative in collaboration with DSNY near the Port Richmond wastewater treatment plant, and data are available upon request (ehdp@health.nyc.gov).
Comment 79	Advancing Environmental Justice: In the section about Opportunities, climate change mitigation and adaptation co-benefits should be discussed. Specifically, language should be added to discuss how climate mitigation and adaptation efforts, including federal funding from IRA and Justice40 benefits, provide the opportunity for addressing both climate change and EJ issues. Some of this is mentioned on page 133, but it should also be reiterated in the benefits sections. The current funding landscape is offering unprecedented opportunity for addressing EJ issues.
Response 79	Thank you for your comment. The topics discussed in this section were the result of facilitated discussions with EJ Advisory Board Members and EJ Study Contributors. The purpose of these discussions was to identify opportunities and challenges with existing processes and policies related to environmental decision-making. Leveraging federal funding opportunities did not come up in these discussions. However, we do recognize the significance of the current funding landscape in the Funding and Resource Allocation sub-section on page 155 of the report.

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In memory of our friend and colleague, Jim Diego, whose passion and warmth has left a lasting impact on New York City's communities.

THE MAYOR'S OFFICE FOR CLIMATE & ENVIRONMENTAL JUSTICE

MOCEJ works to make our buildings efficient and resilient, ensure our infrastructure is climate-ready, transform our streets and public realm into living, open spaces, and make our energy clean and resilient. Through science-based analysis, policy and program development, and capacity building, and with a focus on equity and public health, MOCEJ leads the City's efforts to ensure that New York City is both reducing its emissions and preparing to adapt and protect New Yorkers from the intensifying impacts of climate change.

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