

POLICY SOLUTIONS FOR THE CLIMATE AND HOUSING CRISIS IN NEW YORK CITY

Safe Housing for Ensuring Long Term
Resilience (SHELTR)

Photo credit: Getty Images.



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About Environmental Defense Fund:

Guided by science, law and economics, Environmental Defense Fund (EDF) tackles our most urgent environmental challenges with practical solutions. EDF is one of the world's largest environmental organizations, with more than 2.5 million members and a staff of 700 scientists, economists, policy experts, and other professionals around the world.

About Regional Plan Association:

Regional Plan Association (RPA) is an independent non-profit civic organization that develops and promotes ideas to improve the health, equity, sustainability, and prosperity of the New York metropolitan area. RPA conducts research on economic development, environmental resilience, land use, mobility, and good governance to advise cities, communities and public agencies. For over a century, RPA has been an indispensable source of ideas for policy makers and opinion shapers across the tri-state region.

About Association for Neighborhood and Housing Development:

The Association of Neighborhood and Housing Development (ANHD) builds community power to win affordable housing and thriving, equitable neighborhoods for all New Yorkers. As a member organization of community groups across New York City, we use research, advocacy, and grassroots organizing to support our members in their work to build equity and justice in their neighborhoods and citywide. We believe housing justice is economic justice is racial justice.

About Cornell University Department of City and Regional Planning:

Cornell University's Department of City and Regional Planning (CRP) is committed to creative and rigorous teaching and research that shape the next generation of global urban planning practitioners and scholars. It engages with communities, cities, and regions to prepare future planners and urbanists to address contemporary issues and create just, equitable, and sustainable places, key among them affordable and adapted housing.

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Elevated home in Queens, New York City. Photo credit: NYC Mayor's Office of Housing Recovery Operations.

Overview

Across the nation, cities face the twin crises of housing and climate change. New York City is no exception. Homes are increasingly unaffordable, unavailable, and unsafe, and homelessness is at an all-time high. And flooding, heavy rains, rising seas, and extreme storms—including Hurricanes Sandy, Ida, and many unnamed storms since then—have already devastated neighborhoods and resulted in lost lives. Nationwide, environmental laws intended to protect ecosystems and communities are often misused to delay or block affordable housing, which not only undermines housing affordability and access, but also slows progress toward more sustainable, resilient, and equitable neighborhoods. The failure of New York State's 2023 Housing Compact proposal is a prime example of how local opposition continues to impede necessary housing growth.¹ Low-income residents and



This report recommends that New York City adopt a comprehensive, equity-focused, flood-resilient land use framework that aligns housing, infrastructure, and climate goals.

¹ City Limits. "Opinion: NIMBYs Are Wrong—New Housing Is Good for NY's Climate Goals." Climate and Environment. February 15, 2023. <https://citylimits.org/opinion-nimbys-are-wrong-new-housing-is-good-for-nys-climate-goals/>.

communities of color disproportionately bear the highest burdens across our housing and climate crises.

Approaches to solving the housing and climate crises have thus far remained mostly siloed and often at odds with each other. Development on or near wetlands, streams, and coastlines increases future flood risks and repeats the very patterns that fuel these crises.² As climate change accelerates, these impacts will only deepen—unless we take action.³

Recognizing the present challenges, Environmental Defense Fund (EDF), Association for Neighborhood and Housing Development (ANHD), and Regional Plan Association (RPA) led a consensus-building effort in 2024-2025 among environmental, resilience, and housing experts to align on policies to address these intersecting crises.

This report recommends that New York City adopt a comprehensive, equity-focused flood-resilient land use framework that aligns housing, infrastructure, and climate goals. This includes assessing housing need and risk through a climate lens; requiring resilient design guidelines and cost-benefit analysis for development in high-risk areas; expanding and protecting affordable housing in safer zones; making the City's existing housing stock climate resilient; and creating a dedicated resilience fund to finance long-term adaptation infrastructure.

2 Sanderson, E.W. and Royte, L. (In review.) Blue Zones: Identifying areas for climate adaptation through analysis of the patterns of past, present, and future flooding in the City of New York.

3 Christian Braneon et al., "NPCC4: New York City Climate Risk Information 2022—Observations and Projections," *Annals of the New York Academy of Sciences* 1539, no. 1 (2024): 13–48, <https://doi.org/10.1111/nyas.15116>.



Photo credit: Getty Images.

Our process

EDF, ANHD, and RPA engaged diverse stakeholders across New York City to build consensus around the answers to three central questions at the intersection of the housing and flooding crises communities face today and into the future:

- How do flood risks intersect with housing-related challenges that communities already face?
- What policy and programmatic solutions address both flood risks and affordable housing needs in the City?
- How can investments in flood risk mitigation also provide multiple community benefits, such as recreational space, livelihood opportunities, or financial security?

These questions were answered by interviewing government and nongovernment stakeholders in the housing, resilience, and environmental sectors in New York City; by analyzing how housing loss/opportunity and climate risks/adaptation opportunities intersect; and by convening three workshops with stakeholders to iteratively develop a suite of solutions that aim to address housing and climate adaptation. The following report is the result of this collaboration. It aims to provide a road map for a resilient and affordable housing future for New York City.



Over the last year, a series of workshops were convened with stakeholders to co-develop solutions proposed in this report.

How flood risk and housing insecurity intersect

New York City faces some of the greatest housing affordability challenges in the country, with more than half of all households being rent-burdened and nearly one-third severely rent-burdened.⁴

Homelessness has reached record levels and vacancy rates are persistently low, especially in the lowest quartile of rents where vacancy is just 0.39%.^{5 6}

⁷ This leaves tenants with few options and increases the risks of affordability displacement, or the pushing out of existing residents as prices rise due to rising land values and speculation.⁸

There are many causes for this crisis. Between 2002 and 2021, nearly half of the City's affordable housing stock ceased to be affordable because units were removed from rent regulation.⁹ New affordable housing construction has also lagged behind population and job growth over the past decade.¹⁰ Current zoning allows for less than half of the total housing New York City will need by 2040, leaving the City with a projected deficit of over 500,000 units—even after accounting for the more than 80,000 units that the recent City of Yes for Housing Opportunity rezoning is expected to create.¹¹ And, absent significant increases in government subsidies and other policy changes, the deficit of available housing for the lowest income New Yorkers—where the need is greatest—will continue to grow.



Tens of thousands of New Yorkers face losing their homes to rising seas.

4 Building Blocks of Change: A Blueprint for Progress at NYC's Housing Preservation and Development (Office of the New York City Comptroller, 2024), <https://comptroller.nyc.gov/wp-content/uploads/documents/Building-Blocks-of-Change-A-Blueprint-for-Progress-at-NYCs-Housing-Preservation-and-Development.pdf>.

5 Building Blocks of Change: A Blueprint for Progress at NYC's Housing Preservation and Development.

6 According to NYC housing and vacancy survey 2023, units in the lowest quartile of rents are those with monthly rents of less than \$1,100

7 Lucy Block, Data Brief: We Have the Least Housing Where Renters Need It Most (Association for Neighborhood and Housing Development, 2024), <https://anhd.org/report/data-brief-we-have-least-housing-where-renters-need-it-most/>.

8 Association of Neighborhood and Housing Development, "Displacement Alert Project | About," Displacement Alert Project, accessed July 20, 2025, <https://www.displacementalert.org/about>. The Displacement Alert Project provides early warning data for residents at risk of harassment and displacement, communities being destabilized, and community groups and policy makers working to address these challenges. ANHD uses data and visualization tools to proactively identify buildings facing risk of displacement.

9 Building Blocks of Change: A Blueprint for Progress at NYC's Housing Preservation and Development.

10 Building Blocks of Change: A Blueprint for Progress at NYC's Housing Preservation and Development; New York City Department of City Planning, City of Yes for Housing Opportunity: An Illustrated Guide (New York City Department of City Planning, 2024), <https://www.nyc.gov/assets/planning/download/pdf/plans-studies/city-of-yes/housing-opportunity/housing-opportunity-guide-illustrated.pdf?r=1001>.

11 Averting Crisis: Zoning to Create Resilient Homes for All (Regional Plan Association, 2025), <https://rpa.org/work/reports/averting-crisis>. A note that this figure includes climate impacts.



Photo credit: Getty Images.

In addition, many communities often resist development—including in lower-density, transit-connected, and comparably safer (from flood risk) neighborhoods—due to concerns such as changing neighborhood character, property value effects, displacement, or distrust in government or developers.¹² This ultimately reduced the scope of City of Yes for Housing Opportunity (and many other rezoning efforts).¹³ To meet both current and future housing needs, including the losses due to climate change, the City's zoned development capacity would have to at least double by 2040.¹⁴

The pressures of housing insecurity fall hardest on low-income communities and communities of color. Eviction filings are disproportionately concentrated in predominantly Black and Hispanic neighborhoods, and the gap between available housing and income is starker in these communities.¹⁵ These same neighborhoods are also often more at risk of climate impacts—a reality shaped by decades of disinvestment and discriminatory planning.¹⁶

12 City Limits. "NYC Planning Commission Backs Bruckner Rezoning Opposed by Key Councilmember." August 25, 2022. <https://citylimits.org/nyc-planning-commission-backs-bruckner-rezoning-opposed-by-key-councilmember/>.

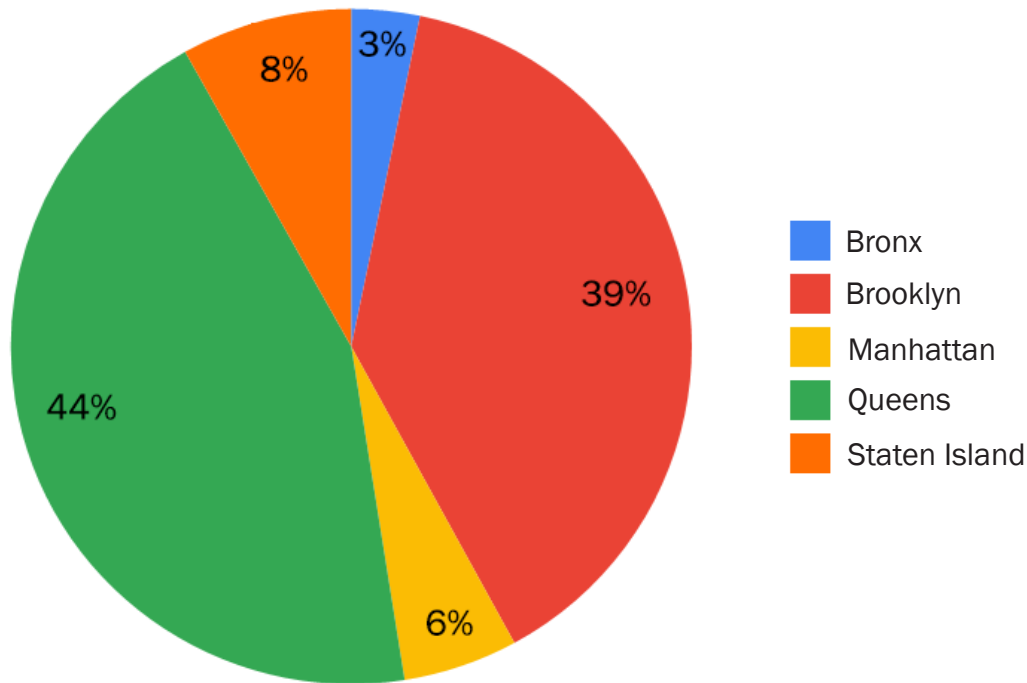
13 City Limits. "The Blocks, Strips, and Neighborhoods Carved Out of 'City of Yes.'" Government. January 6, 2025. <https://citylimits.org/the-blocks-strips-and-neighborhoods-carved-out-of-city-of-yes/>.

14 Averting Crisis: Zoning to Create Resilient Homes for All.

15 Building Blocks of Change: A Blueprint for Progress at NYC's Housing Preservation and Development; Lucy Block, Testimony before the New York City Council Housing and Buildings Committee Regarding Extending the Rent Stabilization Laws and New York City's Housing Emergency (Association for Neighborhood and Housing Development, 2022), <https://anhd.org/report/testimony-new-york-city-council-housing-and-buildings-committee-regarding-extending-rent/>.

16 Mayor's Office of Climate and Environmental Justice. EJNYC: A Study of Environmental Justice Issues in New York City. 2024. https://www.nyc.gov/assets/climate/downloads/pdfs/EJNYC_Report.pdf.

FIGURE 1. Distribution of total estimated housing loss due to flooding by 2070 by borough. Without bold action New York City could lose more than 50,000 homes due to coastal flooding by 2070, the majority of which would be concentrated in Queens and Brooklyn. Data source: *Averting Crisis: Zoning to Create Resilient Homes for All*.



According to RPA’s Averting Crisis report, over 19,000 housing units—representing more than 40,000 New Yorkers—are at risk of being completely lost to coastal flooding by 2040 (due to sea level rise or storm surge), with the areas surrounding Jamaica Bay, Rockaway, and Mid Staten Island being the most at risk of coastal flooding. It should be noted that the report did not consider rain-based flooding as, with some exceptions, the extent of damage to housing and potential for complete loss is far less than with coastal flooding. Even though the potential for complete loss of a housing unit is decreased, the impacts on peoples lives and livelihoods is significant. Without bold intervention, the number of units lost could nearly triple by 2070 and risk displacing over 100,000 people citywide, with the highest percentages concentrated in Queens and Brooklyn (Figure 1). Notably, these estimates do not account for the approximately 350,000 people facing homelessness today, nor what the size of that population may be in the future.¹⁷

¹⁷ Coalition for the Homeless, Basic Facts About Homelessness: New York City - Coalition For The Homeless, n.d., accessed July 31, 2025, <https://www.coalitionforthehomeless.org/basic-facts-about-homelessness-new-york-city/>.

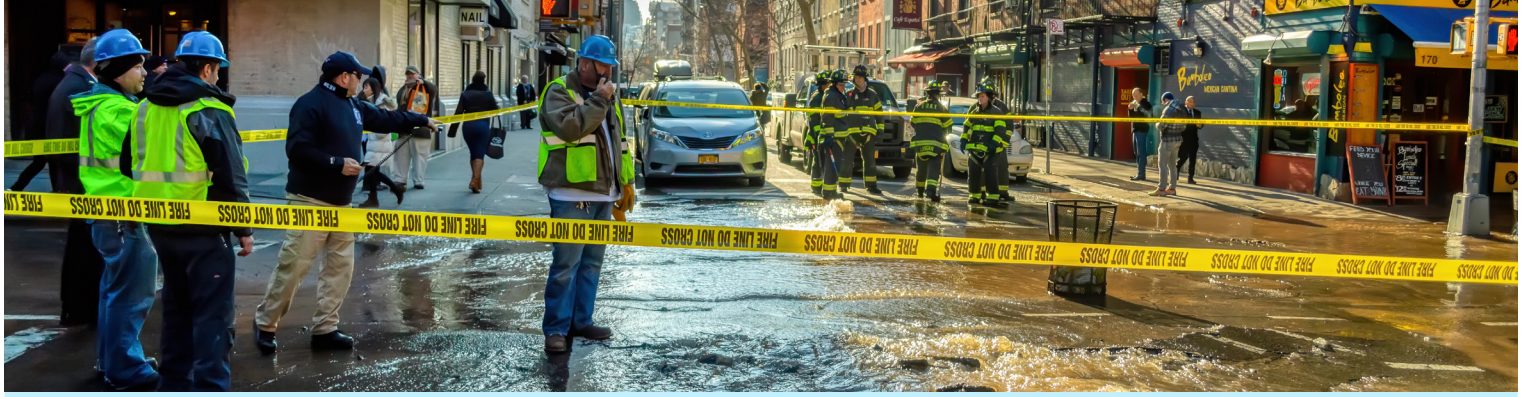


Photo credit: Getty Images.

The primary types of flooding affecting housing in New York City:

Coastal flood risk as described in New York City's Flood Hazard Mapper.¹ which shows geographic extents of coastal flood risk today and into the future. These include:

- **Storm surge:** Driven by a combination of coastal storms like hurricanes, wind, and tides, this type of flooding can result in extensive and extreme housing damage due to the wide area it can inundate, wave action, inundation depth, and other physical forces. The extent of this type of flooding is represented in the 100- and 500-year Federal Emergency Management Agency (FEMA) floodplain.
- **Tidal flooding:** Areas subject to this type of flooding face periodic, regular, or even permanent flooding as sea levels rise. Unless measures are taken to elevate homes and infrastructure, these areas can become unviable places to live over time.
- **Rain-based, or pluvial flooding:** Occurs throughout New York City, resulting from heavy rains colliding with impervious surfaces like asphalt or concrete, creating large volumes of stormwater. Some areas face more frequent and deep rain-based flooding than others, as seen in maps from New York City Department of Environmental Protection (NYCDEP).² In these areas, basement apartments and infrastructure are heavily affected; With some exceptions, rain-based flooding is less likely to result in a total housing loss. The risks are still high: only four years ago, at least 13 New Yorkers died in the aftermath of Hurricane Ida, 11 of which drowned in unregulated basement apartments.³
- **Riverine flooding:** Discrete areas within the City are impacted by riverine flooding, when a river overflows its banks.
- **Groundwater flooding:** Discrete areas within the City are impacted by groundwater flooding, where the groundwater tables rise or become high.

1 NYC Department of City Planning. "NYC Flood Hazard Mapper." <https://www.arcgis.com/apps/webappviewer/index.html?id=1c37d271f-ba14163bbb520517153d6d5>.

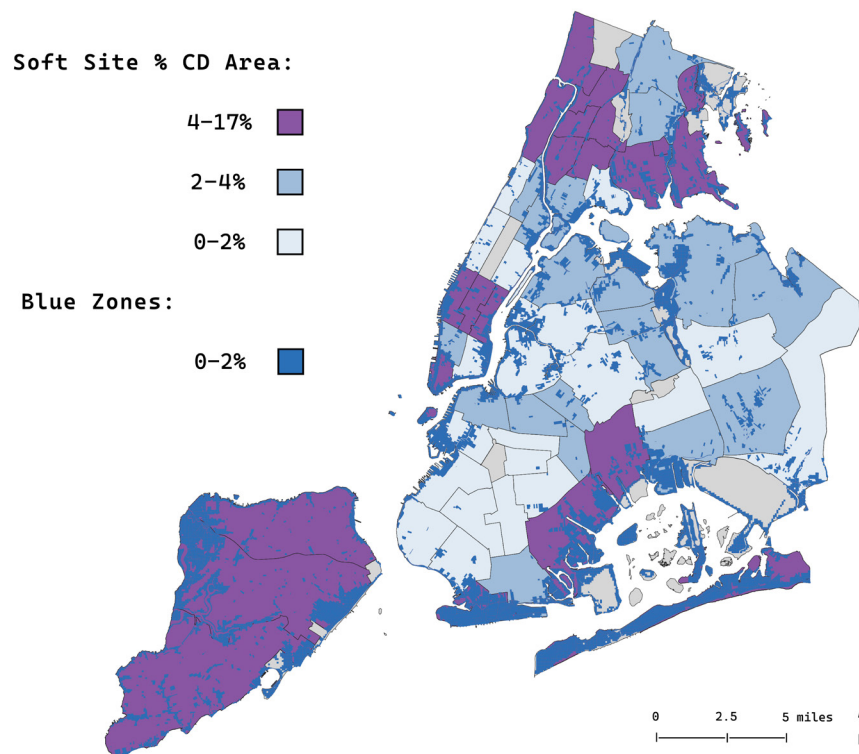
2 City of New York. "New York City Stormwater Flood Maps." October 2024. <http://nyc.gov/stormwater-map>.

3 Office of the New York City Comptroller. Bringing Basement Apartments Into the Light. Office of the New York City Comptroller, 2022. <https://comptroller.nyc.gov/reports/bringing-basement-apartments-into-the-light/>.

In this report, the types of flooding described above are all combined into a map of “blue zones” (Figure 2). These are areas where increased density and new development should be considered carefully.

Despite escalating coastal flood risks, waterfront development remains profitable for both developers and the City. In recent years some resilience costs—such as code compliance, adaptive design, and shoreline reconstruction—have been partially capitalized, but profitability endures. In the future, however, many projects will require additional protection against higher water levels, raising the questions of who will pay and what are the costs. Current land use and planning processes do not fully account for these long-term fiscal burdens to their stakeholders. Therefore, with no mechanism to ensure that developments contribute beyond their own sites or fit within a broader resilience framework, these developments will create new risks for the budgets of renters, buyers, and the public—ultimately likely forcing the City to face escalating infrastructure maintenance and replacement costs. For homes not designed to withstand climate threats, repeated flooding, repair costs, and rising insurance premiums may make their occupancy financially unsustainable, which would force renters into displacement and drive owners toward foreclosure or sale.

FIGURE 2. Soft sites and blue zones. According to the RPA Averting crisis report, “soft sites” are viable underdeveloped properties, meaning parcels that are underutilized under current zoning and therefore have potential capacity for additional development. This map shows that some neighborhoods, particularly in Staten Island, the Bronx, and Jamaica Bay, have some of the largest concentration of soft sites, but are also at some of the greatest flood risk. Development in these risky areas, or “blue zones”—areas that flood and/or will flood in the future (from any source, including both coastal and rain-based flooding)—should be pursued cautiously, and ensure the preparedness of supporting critical infrastructure for current and future flooding impacts. Map developed by Elias Kann. Data sources: Blue zones: The New York Botanical Garden; Soft sites: RPA.



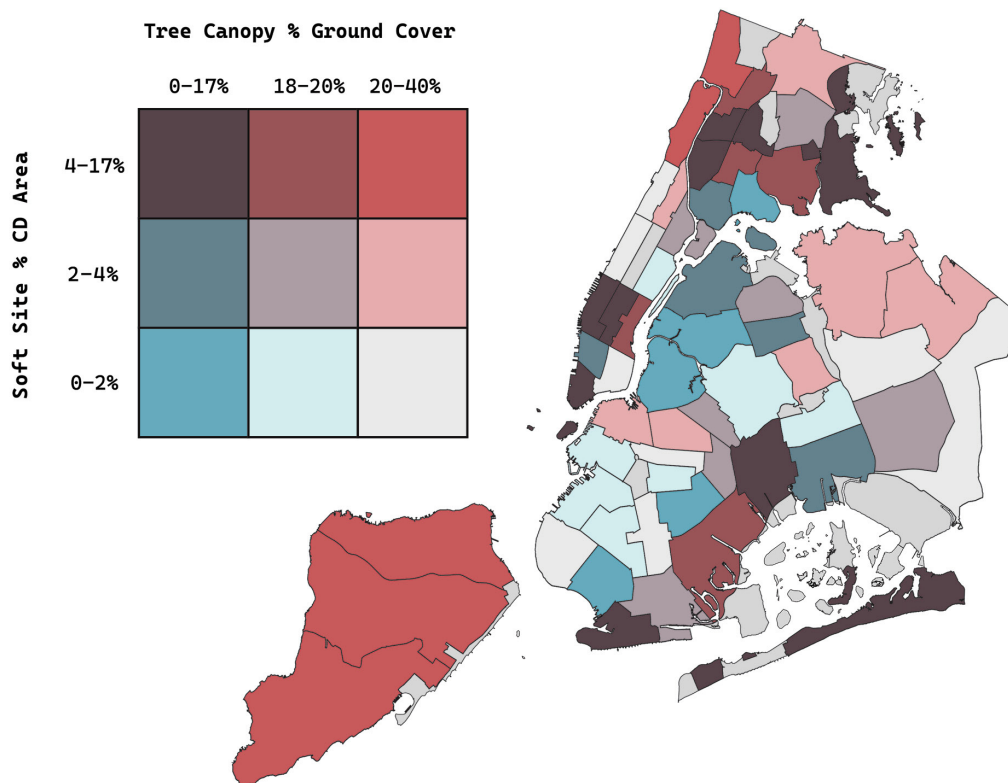


FIGURE 3. Soft sites and tree canopy cover. In areas where there is higher capacity to develop and low tree canopy cover, such as East New York, Concourse Village, and others, additional efforts would need to be taken to expand green infrastructure and other mechanisms to combat urban heat as density increases. Expanding tree canopy in these types of neighborhoods is particularly critical, as it reduces surface temperatures, improves air quality, and provides essential cooling benefits that protect residents’ health and well-being during extreme heat events. Map developed by Elias Kann. Data sources: Land cover raster data, City of New York; Soft sites: RPA.

As neighborhoods with lower coastal flood risk become more desirable, demand for homes driven by displacement from high-risk areas could drive up housing costs, threaten affordability, and could displace low-income residents. As we invest in developing areas with lower flood risk we must ensure we also build in strategies to prevent the exacerbation of rain-based flooding and urban heat impacts that result from new growth (Figures 2-3); these can include public investments in critical green (e.g., tree canopy, rain gardens) and grey (e.g., stormwater systems) infrastructure. Conditions of limited infrastructure and services are especially pronounced in many historically redlined neighborhoods.¹⁸

¹⁸ Capps, Kriston, and Christopher Cannon. “Redlined, Now Flooding: Maps Reveal Redlined Areas Face Higher Flood Risks.” Bloomberg CityLab, March 15, 2021. <https://www.bloomberg.com/graphics/2021-flood-risk-redlining/>.



Construction of resilient housing in the Rockaways.

Policy solutions for increased affordable housing and lowered coastal flood risk

When evaluating the increasing impacts of climate change on affordable housing in New York City, one thing is clear: thousands of families could become displaced—with most being financially-burdened tenants and homeowners, and residents of older, unregulated, and otherwise unprotected housing stock.

To avoid this, it is vital to create equity-focused solutions that prioritize the most vulnerable communities, align land use with climate risk, and ensure housing is affordable, safe, and resilient. Further, these solutions must be designed to deliver multiple community benefits (such as cleaner and cooler air, or greater access to open space) and mitigate other climate impacts such as extreme heat or rain-based flooding. People who are at risk of displacement due to flood hazards as well as unaffordability must be supported.

However, changing land use and housing density is complex in a highly developed city where housing costs are high, affordable housing stock remains insufficient, and climate risk is inequitably distributed within even a block or an apartment complex. Paving a pathway to make communities more resilient, safe, and affordable will require deep collaboration with communities and governments who are willing to answer questions such as: *what level of risk are we individually and collectively willing to tolerate, and over what timeline? How do we encourage communities to solve for both climate change and housing affordability, instead of prioritizing one over the other? Who bears the cost of current development in the floodplain in the long-term and what does equity look like? Which interventions should be government or market-driven? How do we reduce the number of climate-affected neighborhoods agreeing to change their land use/zoning to include more affordable housing? How do we calculate these costs and benefits? How do we protect low-income residents who have few options but to stay in place in risky areas?*

The following policy solutions were produced as a result of a series of workshops held with a range of stakeholders during the course of this project. These ideas and solutions will be further developed through additional conversations with elected officials and community leaders, as well as through additional research. The next stage of the work will also involve determining, in detail, the kind of regulatory and legislative changes, as well as actors, that will be needed to actualize this work. These solutions aim to begin addressing the above questions and, in doing so, create more resilient affordable housing and center the health, safety, and livability of both communities and nature as the climate changes.



1. Adopt a comprehensive flood resilient land use framework to increase healthy, safer, and affordable housing development.

New York City lacks a comprehensive planning process to guide citywide land use, growth, and investment. Presently, planning and zoning efforts are intended for specific purposes and are not tied together into a framework: there are separate processes each for housing, climate adaptation, infrastructure, and other critical issues. For example, the City's 2021 Zoning for Coastal Flood Resiliency text amendment expanded height requirements in particular for new construction and retrofits to promote flood resilience at the building level, but did not control where we build or limit development in high-risk coastal areas.^{19 20} The 2024 City of Yes for Housing Opportunity zoning reform aims to increase housing supply, but its impact on overall housing deficit is limited.²¹ It also has limited provisions to ensure new housing is affordable and only incorporates limited changes related to flood risk reduction associated with basements.²² The City's comprehensive waterfront plan is an example of an effort that did weave these themes together into a planning framework, but it still does not address housing affordability and lacks enforcement mechanisms. Meanwhile, the 2020 Where We Live NYC Plan promotes racial equity in housing access, but only lightly touches on displacement and climate vulnerability and does not pursue the feasibility of a zoning mandate.²³



Photo credit: Getty Images.

19 City of New York Department of City Planning, Zoning for Coastal Flood Resiliency: Project Description (City of New York, 2021), <https://www.nyc.gov/assets/planning/downloads/pdf/our-work/plans/citywide/zoning-coastal-flood-resiliency/project-description.pdf>.

20 While special coastal risk districts designated by the City Planning Commission do place restrictions on new development, they are very limited in their scope in how they are designated today.

21 Averting Crisis: Zoning to Create Resilient Homes for All.

22 New York City Department of City Planning, City of Yes for Housing Opportunity: An Illustrated Guide. In the context of flood vulnerable basements units specifically, the zoning and associated legislation (1) created new regulatory flood risk areas (one for inland flooding and one for projected future coastal flooding) where basement ADUs are not permitted, and (2) it put in place basement flood safety requirements for ADUs across the city and created a pathway to legalize existing basement units and bring them up to code (with the code including flood safety measures)

23 City of New York, Where We Live NYC: Fair Housing Together (City of New York, 2020).

FIGURE 4. Flood resilient land use framework. This table, created by EDF and partners as a result of a series of workshops and analyses, provides a conceptual guide for how strategies—such as retrofits, zoning reforms, or infrastructure investments—might be aligned with varying levels of growth capacity and flood risk, to support resilient and equitable development across New York City. Given the diverse conditions across the City, such a framework would need to be applied on a neighborhood-by-neighborhood basis, all while ensuring we: 1) avoid new construction in high-risk “blue zones”; 2) preserve affordability and prevent displacement in low coastal flood risk areas; and 3) are responsive to local community context.

Land use strategy	High growth-low risk	Low growth-low risk	High growth-high risk*	Low growth-high risk
Voluntary buyout options				•
Transfer of development rights	•			•
Resilient retrofits for existing buildings			•	•
Limit further growth				•
Require Climate Resilient Design Guidelines for new development	•		•	
Upgrade infrastructure and utilities	•		•	•
Increase green infrastructure investments	•	•	•	•
Impact development fees	•		•	
Increase targets for deeply affordable housing development		•	•	
Fast track review procedures for affordable development	•		•	
Zoning reforms to increase density	•		•	
Increased development based on a positive cost-benefit analysis	•		•	
Increase affordability protections	•	•	•	

Here "growth" refers to the growth potential of a neighborhood, and "risk" refers to the coastal flood risk. This table identifies four distinct types of neighborhoods based on high and low risk and growth potential, but it should be noted that in reality, degrees of risk and growth potential can vary widely neighborhood to neighborhood within the City.

*Note that development in high-growth, high-risk areas should only proceed with investments in infrastructure upgrades, adaptive design, and flood protection, to ensure long-term resilience, safety and fiscal sustainability.

There is a need for a citywide comprehensive framework that strongly drives how we develop in areas of both higher and lower flood exposure in a way that reduces risk and centers equity, nature, health, and well being. This can also serve as a guide in determining how the City develops, as well as a guide for implementing housing laws and plans so that they are responsive to the City's housing and climate challenges.²⁴ A comprehensive framework should include the following actions:

1.1 Complete an assessment of housing needs, risk, and opportunity.

This should be done through a lens of near-, mid-, and long-term hazard exposure, critical infrastructure, and community context to guide neighborhood-specific approaches to resilience investments and strategies (e.g., asset- vs. neighborhood-scale protection). While many assessments have been undertaken by the City, such as the housing and vacancy survey, they do not account for climate risk or displacement metrics. There is a need for a comprehensive assessment that simultaneously identifies the City's housing needs in the context of the climate crises and does so at a scale that enables targeted intervention.



New Creek Bluebelt construction. Photo credit: New York City Department of Environmental Protection.

1.2 Require climate resilient design guidelines for all new development.

These should be built upon the City's existing guidelines and requirements of public projects established by local law 41²⁵ of 2021. While we have guidelines for city-funded capital projects, they are limited in scope and not currently required. A set of guidelines that are mandatory for all new development, including private development, would ensure future-proofing the City's building stock over time. This would require new legislation as well as codification into the City's building code.

1.3 Require cost-benefit analysis for new development in areas with high coastal flood risk.

Vulnerable residents and taxpayers bear the burdens when the costs of hazards outweigh the benefits of increasing development in an area. The City should design a cost-benefit analysis (CBA) that would be required for approving new development in areas with high coastal or tidal flood risk during Uniform Land Use Review Procedure (ULURP). The CBA should assess the full lifecycle costs of the development—including adaptation, infrastructure expenditure and maintenance, and emergency services—against measurable benefits to the most vulnerable residents in that neighborhood. The analysis must go beyond property values and account for affordability, displacement, and vulnerability of residents, with the goal to advance environmental justice, equity, resilience, and fiscal responsibility.

²⁴ City of New York. Where We Live NYC 2025 | Fair Housing Together. 2025. <https://wherewelive.cityofnewyork.us/wp-content/uploads/2025/10/WWL-2025-Final-Plan.pdf>.

²⁵ Local Law 41 of 2021 mandates that, starting in 2027, all City-funded capital projects with an estimated construction cost of \$10 million or more must adhere to Climate Resilient Design Guidelines (CRDG) and incorporate forward-looking climate data, such as projections for sea level rise, extreme heat, and precipitation, to ensure that public infrastructure is designed to withstand future climate conditions.

1.4 Protect and expand affordable housing in areas of lower coastal flood risk.

The City should increase efforts to expand affordable housing and improve infrastructure while also preventing affordability displacement of existing residents. These include:

- **Protect affordable housing (depending on level of flood risk) and expand assistance programs.** This includes voucher programs and protections to prevent rent-burdened tenants from getting displaced and to facilitate access to safe, resilient, affordable housing options. (Also see below 3. Build community wealth and wellbeing).
- **Establish and incentivize higher targets for affordable housing by neighborhood along with expedited review procedures²⁶ for deeply affordable development.** Targets and procedures should be based on a needs assessment at a community district level. This should be complemented by enhancing and expanding infrastructure and service capacity, such as sewer and stormwater management systems, public transit, etc.
- **Expand green infrastructure.** Establish targets for green infrastructure expansion (e.g., canopy cover, blue belt development) based on neighborhood-specific needs (e.g., heat vulnerability or social vulnerability indices, rain-based flooding hot-spots or “blue zones”) in a way that is integrated with the City’s ongoing plans, such as the 2025 NYC Urban Forest Plan.²⁷ This could inform both City prioritization of resources as well as requirements for new development in those areas, such a new development fund that funds community-supported resilience investments in the neighborhood.
- **Where possible, avoid development in and better connect “blue zones” to a citywide rain management strategy.** Blue zones—mapped by Eric Sanderson and Lucy Royte at the New York Botanical Garden (see Figure 2)—are areas that historically flooded, flood today, and are projected to flood in the future; many of these areas are former wetlands and streams. Within lower coastal flood risk areas, blue zones are at higher-risk of rain-based flooding, but they also present opportunities: if restored and connected to a stormwater management network, they can provide green infrastructure and better capture rainwater. The City has already pursued this strategy in Staten Island via their award-winning BlueBelt program. For this reason, it is recommended that the City build upon the blue zone work by both prioritizing these areas for restoration and green infrastructure development, as well as including block/lot specific zoning restrictions or requirements to limit impervious density. Additional resources for consideration are Rainproof NYC’s recommendation to “establish an urban watershed planning approach”²⁸ as well as NYCDEP’s Unified Stormwater Rule, which set strict retention requirements for sites meeting modest development or disturbance thresholds.²⁹

26 Efforts to speed up review procedures, especially for affordable housing projects are already underway, as demonstrated by the Charter Revision Commission latest proposals for the November 2025 ballot

27 Mayor’s Office of Climate & Environmental Justice. “NYC Urban Forest Plan 2025.” 2025. <https://www.urbanforestplan.nyc/>. Led by the Mayor’s Office of Climate & Environmental Justice, New York City is developing its first Urban Forest Plan. The plan will outline a citywide vision for the urban forest and identify actionable strategies to expand its tree canopy to equitably cover 30% of the City. Trees play a critical role in removing air pollution, providing energy savings, and reducing stormwater runoff.

28 Rebuild by Design, Rainproofing New York City: Recommendations from the Working Groups (Rebuild by Design, 2024), <https://rebuildbydesign.org/wp-content/uploads/Rainproofing-New-York-City-Recommendations-from-the-Working-Groups-Report.pdf>.

29 NYC Department of Environmental Protection. Unified Stormwater Manual. 2024. <https://www.nyc.gov/site/dep/water/unified-stormwater-rule.page>.



2. Make the aging and existing housing stock safe and resilient from climate impacts through a one-stop shop for comprehensive retrofit assistance.

The deteriorating and outdated existing housing stock is increasingly vulnerable and exposed to climate hazards. Looking at New York City Housing Authority's (NYCHA) stock alone, 70% of its buildings were built pre-1969, and 42,000 of its public housing units are in need of repairs. Additionally, more than 500 NYCHA buildings are in a projected floodplain.³⁰ Housing code violations also went up in several neighborhoods in 2024, according to the Department of Housing Preservation and Development (HPD).³¹ These areas need near- and mid-term options for existing residents to continue living safely in their existing homes without the concern of recurrent flooding.

A few programs to support retrofitting housing stock do exist, including: the New York State Resilient Retrofits Loan Program, which offers 1% interest loans and grants to low- and moderate-income single family homeowners; HomeFix, which offers forgivable loans for low- and moderate-income communities to conduct a limited set of resilience measures in New York City; and the Department of Housing and Urban Development's Green and Resilient Retrofits Program (GRRP), a federally funded program which provides grants and loans to HUD-assisted multifamily housing.³² However, these programs are limited in their scope, funding, and housing type they serve (typically 1-4 family homes), which limits their ability to fill the full needs of the City. In addition, they operate separately, making it difficult for owners (including single family homeowners as well as small and nonprofit multifamily housing owners) and managers to sort through which program to apply for or understand their eligibility.³³ Efforts to streamline and expand

30 Regional Plan Association. NYCHA'S Crisis. 2018. <https://rpa.org/work/reports/nychas-crisis>. A note that these figures are from NYCHA's 2017 survey and have likely gone up since.

31 City of New York. "Housing Maintenance Code Violations | NYC Open Data." https://data.cityofnewyork.us/Housing-Development/Housing-Maintenance-Code-Violations/wvxf-dwi5/about_data.

32 The HUD GRRP program is currently under legal ambiguity and funding disbursement is temporarily paused.

33 Anushi Garg. Opportunities to Support Equitable and Just Housing Adaptation in the Floodplain | Growing Returns. October 24, 2023. <https://blogs.edf.org/growingreturns/2023/10/24/opportunities-to-support-equitable-and-just-housing-adaptation-in-the-floodplain/>.



Home elevation work underway in Brooklyn to make it more flood resilient. Photo credit: NYC Mayor's Office of Housing Recovery Operations.

retrofits have been made for greenhouse gas reduction and efficiency retrofits purposes by New York State Energy Research and Development Authority (NYSERDA), the NYC Accelerator Program, and particularly through regional clean energy hub³⁴ service partners supporting these programs, but these are completely separate from resilience programs and can nevertheless still be difficult to navigate.

Preserving the City's existing housing stock requires a retrofit program that is easily accessible to individual and multi-family owners, and that can address both climate resilience and energy efficiency. HPD should work with other City and State agencies as relevant, to be more unified and/or create a one-stop shop for both energy efficient and resilient home retrofits. Actions to achieve this one-stop shop include:

2.1 Create a new website packaging all available programs. Existing retrofit assistance programs could be packaged together, or users could be automatically redirected to a program's website to streamline the process for users. This will ensure two-way discoverability: those that learn about one program and look it up can then also be clued into information about other applicable programs. The website could also provide a "single application" opportunity where the applicant can check all applicable boxes so they automatically apply to any programs that would fit their needs. Note that similar efforts are already underway to redesign the NYC Accelerator Program's website, and NYSERDA has also put all of its energy efficiency program eligibility requirements in one chart. Additionally, this website could be supplemented by dedicated staff that can help individuals navigate program options, as well as a shared communications plan across agencies, with the aim to maintain information that is up-to-date and relevant.

34 NYSERDA. Regional Clean Energy Hubs. <https://www.nyserdera.ny.gov/All-Programs/Regional-Clean-Energy-Hubs>.

Photo credit: NYC Mayor's Office of Housing Recovery Operations.



2.2 Expand existing programs. While different housing types can have varying needs, expanding the existing state and/or local retrofit programs to serve a range of housing types, or provide better alignment between the design and implementation of these programs—from application to contractor selection—can better support both energy efficiency and resilient retrofits, and also improve alignment with other affordable housing tools and programs.

2.3 Prioritize accessibility and uptake for low- and moderate-income homeowners and renters.

Retrofit programs must also support low- and moderate-income homeowners, nonprofit housing providers, and renters, and prioritize protecting existing affordable housing stock. For homeowners, this would mean the promotion and expansion of affordable loan and grant programs to offset upfront costs and increase accessibility, as well as tax abatement and credit programs for the reduction of long term operating costs. Renters could be supported through affordability incentives such as subsidies to reduce rent burden and prevent affordability displacement, which might result from retrofitting efforts. These strategies would also need to be regularly funded considering the scale of the City’s existing housing stock in need of retrofits; this could be done through a mix of federal, state, and city budgets (see also Resilience Fund below).



3. Build community wealth and wellbeing in neighborhoods with low coastal flood risk, where increased populations might put residents at risk of affordability displacement.

Low coastal flood risk areas with high housing and retail demand will likely experience higher residential rents, commercial rents and home prices that could impact both existing families and businesses, forcing them to be displaced. Residents in many of these neighborhoods are already rent burdened (see Figure 5). Improperly planned development may also exacerbate climate risks such as rain-based flooding and extreme heat. There is a need for strategies that can mitigate affordability displacement and enhance community wellbeing.

Community wealth building is a place-based approach that can empower low-income residents by building assets and expanding ownership, thus



Photo credit: Getty Images.

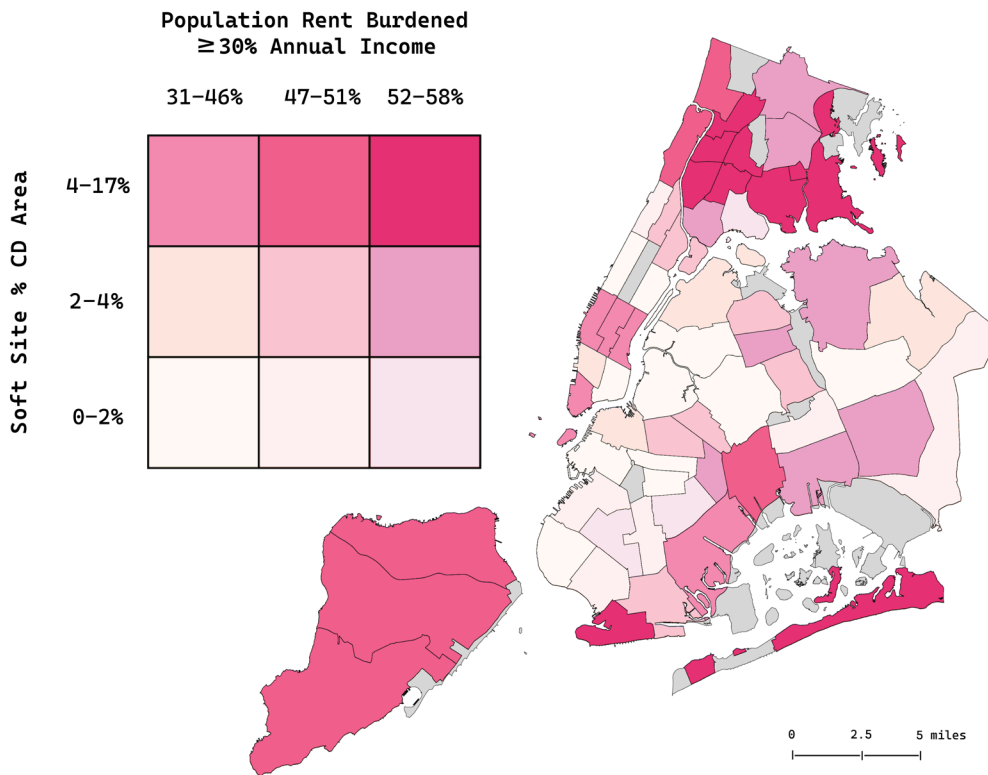


FIGURE 5. Soft sites and rent burdened neighborhoods. Some neighborhoods, such as in Staten Island and the Bronx, have some of the largest capacity for additional housing but are also already rent burdened, making them vulnerable to affordability displacement. Growth and development in these areas should be accompanied by strategies that can mitigate any potential displacement of residents and businesses.

improving financial health, social outcomes, and long-term affordability and resilience. Strategies to build community wealth include expanding relevant programs and policies in neighborhoods with high development opportunity, such as:

- **Prevent property flipping.** Property flipping is the phenomenon of acquiring homes through buying or foreclosures—especially ones that are distressed or underpriced—renovating them, and reselling them for profit. In past years, this phenomenon has harmed the affordable housing market in New York City by reducing affordable housing supply, causing rental inflation, reducing access to homeownership, and accelerating displacement.³⁵ Targeted policy interventions can include establishing anti-flipping or speculation taxes on gains from property flipping to disincentivize speculation and ensure stabilization of neighborhoods, while fostering affordable home ownership, anti-eviction efforts, and prioritizing mission-driven ownership of as many housing units as possible to remove them from the speculative marketplace.³⁶

³⁵ Leo Goldberg and John Baker, *House Flipping in NYC: How Real Estate Speculators Are Targeting New York City's Most Affordable Neighborhoods* (Center for NYC Neighborhoods, 2018), https://s28299.pcdn.co/wp-content/uploads/2018/06/CNY002-Flip-Report_June2018-1-1.pdf.

³⁶ "CNYC | Understanding Flip Taxes," Council of New York Cooperatives & Condominiums, 2002, https://www.cnyc.com/code/newsletters/2002autumn/aut02_008fliptaxes.html.

- **Enhance tenant and community ownership.**

Opportunity to Purchase Acts (OPAs)³⁷ and property conversion pathways can provide lower-income tenants, housing non-profits, and community organizations the right of first refusal when a property goes up for sale, allowing them the option to convert it into a co-op or community land trust (CLT).³⁸ By promoting community-controlled equity and collective ownership, these strategies can enhance local decision making power and promote community stewardship, housing stability, shared community public spaces, affordability, and ultimately long term resilience.^{39 40}

New York City has already successfully demonstrated the success of such initiatives, with established Community Development Corporations stewarding thousands of affordable housing buildings across all five boroughs; CLTs such as Cooper Square Community Land Trust, El Barrio, ReAL Edgemere Community Land Trust, as well as numerous Housing Development Fund Corporation (HDFC) co-ops across the City. Policies that can support more tenant ownership in low-risk neighborhoods can include: expanding funding for HPD's HDFC co-op program in city budget and appropriations; supporting Community Land Act legislation such as the Public Land for Good Act (Intro 78) introduced in City Council in 2024;⁴¹ streamlining permitting for conversion and ownership of CLTs and limited-equity co-ops; and requiring energy efficiency and resilient housing programs to also support these forms of housing.



Photo credit: Getty Images.

37 Office of Tenant Advocate, "Tenant Opportunity to Purchase Act (TOPA)," <https://ota.dc.gov/page/tenant-opportunity-purchase-act-topa>. Washington D.C.'s Tenant Opportunity to Purchase Act (TOPA) requires tenants and tenant associations in buildings listed for sale to be offered the first opportunity to purchase the property. The policy aims to stabilize neighborhoods, combats urban displacement and helps tenants become homeowners.

38 Shi, L., Boicourt, K., Ng, E., Santacruz, L., Carlin, D., Rotbert, J., Bhalla, A., Brenner, R.M., Garg, A., Jones, S., Kann, E., Ru, Singh, R., Y., Spande, and J., Spicer, J., Tindol, K.V. An Assessment of NYC Cooperative Housing's Climate Vulnerability and Barriers to Adaptation. 2024. <https://blogs.edf.org/growingreturns/wp-content/blogs.dir/52/files/CASA-report-Final.pdf>.

39 Georgetown Climate Center. Community Land = Community Resilience: How Community Land Trusts Can Support Urban Affordable Housing and Climate Initiatives. 2021. https://www.georgetownclimate.org/files/report/Community_Land_Trust_Report_2021.pdf.

40 YES! Magazine. "Community Land Trusts Build Climate-Resilient Affordable Housing." December 1, 2022. <https://www.yesmagazine.org/environment/2022/12/01/change-community-housing-climate>.

41 The New York City Council. "A Local Law to Amend the New York City Charter, in Relation to the Disposition of Real Property of the City." The New York City Council, February 8, 2024. <https://legistar.council.nyc.gov/LegislationDetail.aspx?ID=6509445&GUID=BD8610C0-DEDB-4685-B58C-69612D0B6FD1&Options=ID%7cText%7c&Search=INT+0078>.



4. Establish a resilience fund to support the infrastructure we need to adapt.

The City has no single, ongoing, dedicated funding source to support flood resilience efforts, which include costs for operations and maintenance, capital planning, and construction of asset and home scale retrofits, buyouts, green infrastructure, and neighborhood-scale coastal infrastructure. To date, nearly all coastal resiliency capital projects—which the City’s new Bureau of Coastal Resilience is charged with managing—have relied on significant federal funding. Further, the operations and maintenance needs of this infrastructure, which could amount to millions of dollars per year, are significantly underfunded.⁴²

To meet this scale of need, New York City must establish ongoing and flexible sources of funding to support resilient housing. Resilience efforts can be made at multiple scales. And— while the focus of this research is resilient housing—resilient housing development must be complemented by resilient infrastructure improvements in order for the housing to remain safe during an extreme event. Therefore, a targeted fund is needed to support housing resilience more broadly. These funds should complement and be in conjunction with federal and state resources, as well as promoting equity, addressing multiple flood hazards, and being tied to a resilience framework, to ensure investments are aligned with a risk-based and community-informed strategy. There are several options for establishing such a fund, and the City would likely need separate funding sources to support operations and capital development; some of these options are already being explored by the City’s Resilience Finance Task Force (RFTF). Potential sources include but are not limited to:

- **Flood management fees.** Similar to the utilities we already have (i.e., water, electric, and gas), a flood management utility and fee could provide longer-term revenues to fund critical public services such as wastewater management or health and emergency services. Although all New Yorkers benefit from investments in flood protection, as it reduces the risk and damage to both public and private assets, flood protection funding remains inconsistent and reliant on the politics of annual budgeting. Flood management fees would be best suited to cover operations and maintenance costs because they would serve as a stable revenue source, have citywide benefits, provide critical service delivery, and be scalable.
- **New development fees.** This could be levied on new development and added to a base management fee, scaled based on the level of flood risk in that area and consistent with the flood resilient land use framework described in Recommendation 1 above. In areas where new growth is permitted, this should contribute to the cost of long-term resilience, and potentially support capital as well as operations and maintenance investments.

⁴² City of New York, Securing a Resilient New York City: Funding and Financing Shoreline Protection (NYC Environmental Protection; NYC Office of the Mayor; NYC EDC, 2025), <https://www.nyc.gov/assets/dep/downloads/pdf/climate-resiliency/rftf-report-shoreline-protection.pdf>.

- **Insurance surcharge.** A property insurance surcharge—calculated as an additional percentage of premiums—could be used to support capital investments.⁴³ This would require statutory changes at the state level to accomplish.

Additional avenues to generate funding could also be considered, including hotel occupancy fees, stormwater utility fees, corporate taxes, and land speculation taxes. For any of these potential sources, equity must remain a central consideration. For example, if a fee were only assessed at and used at a district scale, it could deepen inequities between wealthier places like Lower Manhattan and less wealthy areas that carry similar flood risks such as those surrounding Jamaica Bay. Along a similar vein, a flat fee that does not take income into account could reduce affordability for lower-income residents.

Establishing a funding source will require close collaboration between the Mayor’s Office, the NYCDEP, the Office of Management and Budget, and potentially a newly developed entity—a resilience board—that sets the rates, collects revenues, and manages the fund, as proposed recently by the City in *Securing a Resilient New York City: Funding and Financing Shoreline Protection*. It will also require the action of the Mayor, City Council, and in the case of some options, the State Legislature and Governor, to enact legislation authorizing such funds.

43 The Fourth Regional Plan (Regional Plan Association. *The Fourth Regional Plan*. 2017. <https://rpa.org/work/reports/the-fourth-regional-plan/>.) proposes insurance surcharges on property to fund coastal climate adaptation.

Photo credit: David Lloyd.





Photo credit: Getty Images.

Moving forward

This policy agenda was informed by many community-focused organizations and individuals, climate-focused organizations, city agencies, researchers, and coalitions. These policies serve as a platform for informing New York City Mayor's and City Council's approach to land use, with the aim to be adopted and integrated by aligned partners and coalitions into their own platforms. In collaboration with partners, these insights will be shared with city agencies, elected officials, community boards, and other stakeholders as part of a broader campaign for climate resilient communities. This policy agenda aims to inform and complement New York City's ongoing resilience efforts such as the development of a citywide adaptation plan under Local Law 122 of 2021, AdaptNYC. It also aims to support and complement NYCDEP's financing strategy for coastal flood management infrastructure, amongst others—with the ultimate goal to arrive at a more resilient, equitable New York City.

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