**LAND USE COMMITTEE**
**COMMUNITY BOARD 12-MANHATTAN**

June 5, 2019

**RESOLUTION:** PROVIDING COMMENTS ON THE SCOPE OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE ZONING FOR COSTAL FLOOD RESILIENCY TEXT AMENDMENT

Whereas: The New York City Department of City Planning (DCP) is proposing a zoning text amendment (the "Costal Flood Resiliency Text Amendment") to the Special Regulations Applying in Flood Hazard Areas (the "Special Regulations") of the New York City Zoning Resolution to update and make permanent the provisions in the Flood Resilience Zoning Text Amendment, adopted in 2013, and the Special Regulations of Neighborhood Recovery, adopted in 2015. These 2013 and 2015 zoning amendments were temporary measures adopted on an emergency basis after Hurricane Sandy hit New York City in 2012 to advance the reconstruction of storm-damaged properties and enable new and existing buildings to comply with flood resistant construction standards set forth in the New York City Building Code; and

Whereas: The 2013 zoning text amendment removed zoning barriers to all storm-damaged and new buildings to comply with higher flood elevation and resiliency construction requirements. The 2015 zoning text amendment simplified documentation requirements and removed additional zoning barriers to give extra relief and accelerate post-Sandy recovery in certain areas that were heavily damaged; and

Whereas: Since Hurricane Sandy, DCP undertook citywide neighborhood studies and community outreach workshops to learn more about the flood resiliency challenges communities face. Lessons learned from these community outreach efforts include: allowing more flexibility with building height; make the cottage envelope permanent; allow homes in industrial areas to recover; the need for better design controls; keep active uses at the sidewalk level; and provide more options for businesses to retrofit. The overall goals of the Costal Flood Resiliency Text Amendment include: i) encouraging resiliency throughout the city's current and future floodplain; ii) supporting long-term resilient design of all building types by offering flexibility in the zoning framework; iii) allowing for adaptation over time through partial resiliency strategies; and iv) facilitating future-storm recovery by removing regulatory obstacles; and

Whereas: The Costal Flood Resiliency Text Amendment would mostly affect the City 1% annual chance floodplain and 0.2% annual chance floodplain in addition to selected provisions that will be applicable citywide. The vast majority of the city's floodplain is already developed and includes 125,539 buildings citywide, 5,737 buildings in Manhattan, and 240 buildings in Manhattan Community District 12. The Costal Flood Resiliency Text Amendment does not address flood resiliency concerns for infrastructure, such as subways, which is not under the jurisdiction of DCP; and

Whereas: DCP, acting as lead agency on behalf of the city, will prepare a draft Environmental Impact Statement ("Draft EIS") for the Costal Flood Resiliency Text Amendment. DCP held a public scoping meeting on Thursday, June 13, 2019 to review and receive comments on the topics that will be analyzed in the DEIS. The deadline for submitting comments to DCP on the scope of DEIS is Thursday, June 27, 2019; and

Whereas: The Costal Flood Resiliency Text Amendment was presented by representatives of DCP at the June 5, 2019 meeting of Community Board 12-Manhattan (CB12-M)'s Land Use committee; and

Whereas: In February 2019 CB12M passed a resolution supporting the use of enhanced planning and design standards for waterfront development projects in the Manhattan Community District 12 and citywide and urging DCP and the Department of Buildings to update the Zoning Resolution and Building Code to incorporate best practices that maximize resiliency considerations in the planning, design and construction of waterfront developments. Now, therefore be it

Resolved**:** Community Board 12-Manhattan offers the following comments to the Department of City Planning the following comments on the scope of the draft Environmental Impact Statement to be undertaken for the Costal Flood Resiliency Text Amendment.

1. A uniform unit of measurement, such as gigatons per resident, should be used and adopted with regarding to carbon footprint reporting.
2. The impact of climate change should be considering for each task of the draft Environmental Impact Statement and ruled out where it does not apply only after proper analysis.

**The Resolution passed with the following vote:**

| | For | Against | Abstaining |
|---|---|---|---|
| Committee Members: | 9 | 0 | 0 |
| Board Members: | 1 | 0 | 0 |
| Members of the Public: | 3 | 0 | 0 |

The City of New York

# Community Board 12 - Manhattan
## Washington Heights & Inwood

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Phone: (212) 568-8500, Fax: (212) 740-8197

Eleazar Bueno, Chairperson
Ebenezer Smith, District Manager

January 29, 2021

Hon. Marisa Lago, Chair
New York City Department of City Planning
120 Broadway
31st Floor
New York, NY 10271

Re: Resolution commenting on the Department of City Planning's Zoning for Coastal Flood Resiliency Text Amendment

Dear Chair Lago:

At the General Meeting on Tuesday, January 26, 2021, Community Board 12 Manhattan, passed the following resolution with a unanimous vote of 43 in favor, 0 opposed, 0 abstentions, and 0 not voting, supporting the Department of City Planning's Zoning for Coastal Flood Resiliency Text Amendment and offering some comments on the proposed zoning regulations.

Whereas: The New York City Department of City Planning ("DCP") is proposing a citywide zoning text amendment, Zoning for Coastal Flood Resiliency ("ZCFR" or the "Text Amendment"), to update the Special Regulations Applying in Flood Hazard Areas (the "Special Regulations") of the New York City Zoning Resolution and to make permanent the provisions in the Flood Resilience Zoning Text Amendment, adopted in 2013, and the Special Regulations of Neighborhood Recovery, adopted in 2015. These 2013 and 2015 provisions were temporary measures adopted on an emergency basis after Hurricane Sandy hit New York City in 2012 to advance the reconstruction of storm-damaged properties and enable new and existing buildings to comply with flood-resistant construction standards outlined in the New York City Building Code; and

Whereas: The 2013 zoning text amendment removed zoning barriers to all storm-damaged and new buildings to comply with higher flood elevation and resiliency construction requirements. The 2015 zoning text amendment simplified documentation requirements and removed additional zoning barriers to give extra relief and accelerate post-Sandy recovery in certain areas that were heavily damaged; and

Whereas: The vast majority of the city's floodplain is already developed and includes 125,539 buildings citywide, 5,737 buildings in Manhattan, and 240 buildings in Manhattan Community District 12. Nearly 800,000 residents currently live in the city's floodplains. While many sources of flooding pose issues to New York City, including those from severe rainstorms and impaired infrastructure, DCP deems coastal flooding storms to
pose the most significant risk because of their ability to compromise public safety, cause property damage and disrupt business; and

Whereas: The Text Amendment's regulations would apply to all lots wholly or partially located in the current 1% and 0.2% annual change floodplains. The storm surge from Hurricane Sandy went well beyond the 1% floodplain to inundate half of the city's 0.2% floodplain; and

Whereas: The Text Amendment incorporates lessons learned from neighborhood studies and community workshops undertaken after Hurricane Sandy, closes certain loopholes in current regulations, and advances four major planning goals: i) to encourage resiliency throughout current and future floodplains; ii) to support the long-term resilient design of all building types; iii) to allow for adaptation of existing buildings over time through incremental retrofits, and iv) to facilitate future recovery by reducing regulatory obstacles; and

Whereas: The Text Amendment would also provide flexibility for grading and shoreline design in waterfront areas to help mitigate flood risk, and would prohibit the construction of new nursing homes in flood-sensitive areas, given the negative health consequences associated with evacuating nursing home residents; and

Whereas: The Text Amendment was presented by representatives of DCP at the June 5, 2019 meeting of Community Board 12-Manhattan (CB12-M)'s Land Use Committee to discuss the scope of its draft Environmental Impact Statement ("DEIS") and on December 2, 2020, and January 6, 2021, to discuss its goals and objectives; and

Whereas: In February 2019 CB12M passed a resolution supporting the use of enhanced planning and design standards for waterfront development projects in the Manhattan Community District 12 and citywide and urging DCP and the Department of Buildings to update the Zoning Resolution and Building Code to incorporate best practices that maximize resiliency considerations in the planning, design, and construction of waterfront developments. In June 2019 CB12M passed a resolution offering comments on the scope of the draft Environmental Impact Statement for the Text Amendment. Now, therefore be it

Resolved: Community Board 12-Manhattan supports the Department of City Planning's Zoning for Coastal Flood Resiliency Text Amendment and offers the following comments on the proposed zoning regulations:

1. Coordinate coastal zoning regulations and building code requirements to ensure consistency and to avoid conflicts between compliance with flood resiliency and accessibility, i.e. ADA compliance.
2. Increase Building Department enforcement of zoning regulations to ensure compliance with flood resiliency requirements.
3. Consider reducing allowable density for new construction and set more restrictive standards for higher-density new construction in flood sensitive areas.
4. Do not limit flood resiliency zoning regulations to coastal sites. Flood resiliency zoning regulations should also apply to inland sites that are susceptible to flooding in instances of heavy precipitation.
5. Coordinate the flood resiliency zoning regulations and Building Code with any flood zone maps used in connection therewith to ensure that topography is accurately reflected and considered, e.g. a sloping coastal site/zoning lot may only partially be subject to flooding.

6. Establish expiration dates on flood risk assessments using the worst-case scenario, i.e. the most pessimistic forecast, in assessing flood risks. Update flood risk forecast and applicable zoning regulations on a regular cycle, not more than every 10 years.
7. Provide ongoing public education, in multiple languages, on flood resiliency threats and the range of mitigation measures as well as forums to make sure property owners are well informed of the coastal zoning regulations and encourage them to share their experiences.
8. Provide technical assistance and financial incentives to encourage retrofitting existing buildings in flood zones.
9. Consider a managed retreat scenario for undeveloped flood-sensitive sites, changing the land-use to parkland, wetlands, or other resilient open space.
10. Compare the economic benefits such as new tax revenues and resident/consumer spending against the costs incurred from incidents of flooding for new development in flood sensitive areas.
11. Establish independent panels to consider climate risk on zoning and economic development and advise the City on applicable policy decisions.
12. Establish flood resiliency regulations and capital projects to address flood threats posed to infrastructure and resulting from impaired infrastructure.
13. Use consistent units of measure for expressing flood risk to allow for comparison across sites and flood events.
14. Ensure climate change risks such as flooding are thoroughly and accurately considered for all facets of CEQR/SEQR reviews and Environmental Assessment and Impact Statements.

Sincerely,

Eleazar Bueno
Chairperson

cc: Hon. Bill de Blasio, Mayor
Hon. Jumaane Williams, Public Advocate
Hon. Scott M. Stringer, Comptroller
Hon. Brian Benjamin, State Senator
Hon. Robert Jackson, State Senator
Hon. Gale Brewer, Manhattan Borough President
Hon. Al Taylor, Assembly Member
Hon. Carmen De La Rosa, Assembly Member
Hon. Ydanis Rodriguez, Council Member
Hon. Mark Levine, Council Member

**BCEQ Calls for a Sustainable Zoning Resolution and a Green Floodplain**

Zoning for Coastal Flooding Resiliency (ZCFR) may well protect buildings from damage caused by coastal flooding but it does not address the cause of our flooding in the floodplain. By locking in the development policies that contribute to our current flooding problems, ZCFR may actually increase the impacts of stormwater flooding, storm surges, and coastal flooding in floodplain communities. Where are the design features, best management practices, and incentives that enhance the ability of the natural and built environment to absorb water? Without prioritizing them, the Department of City Planning is missing a golden opportunity to build floodwater mitigation into the zoning resolution. Instead, it commits waterfronts to hardscape and supports impervious development in floodplains. Does ZCFR sacrifice sustainability in the pursuit of resiliency? Bronx Council for Environmental Quality believes you can't have one without the other.

Because ZCFR will have significant impacts, DCP offered a Draft Environmental Impact Statement (DEIS). However, the draft did not evaluate the impact of non-coastal stormwater flooding on the people who actually live in floodplains. According to Rebuild by Design, 50% of the population in or adjacent to the floodplain are non-white and 56% of the floodplain residents are low income, defined as making less than $75,000 per year for a family of 3.[1] In other words, most of the people who live in the floodplains are non-white or low income. Without documenting the economic impact of homeowners or creating stop-gap funding policies, ZCFR does not contribute to equity in our city.

Why does DCP want to preempt the work of the Federal Emergency Management Association? In 2013, the city passed an emergency amendment to the zoning resolution in the wake of Hurricane Sandy that would stay in effect until FEMA issued its new maps in 2021. But DCP is forging ahead with maps created from the city's own scientific community, and has adopted FEMA insurance rates from 2007, pre-Sandy. We want a zoning resolution conditioned by and built around the most recent FEMA science and mapping metrics, which include "broader flood frequencies" than the 1% and .2% catastrophic storm percentages adopted for ZCFR. Why are we rushing this through now—especially when our city is in the midst of a pandemic and Hurricane Sandy-era emergency resolutions are still in effect?

It is just doesn't make sense to move forward on shoring up the hardscape instead of naturally protecting the waterfront areas near our rivers and oceans -- the floodplains. They are not protecting the flooding along local low-lying streets. Increased construction increases flooding; without

[1] http://rebuildbydesign.org/our-work/research/who-lives-in-nycs-floodplain..

alternative places for the water to drain we will be in trouble. FEMA understand this. Its Community Rating System (CRS) provides discounts when communities take action to reduce their vulnerability to flooding -- they can get credit for more restrictive regulations, acquiring flood-prone property, and other measures that reduce flood damages and protect floodplains.

According to its EIS, ZCFR takes us in the opposite direction: an "irreversible and irretrievable commitment of potential development sites as a land resource, thereby rendering land use for other purposes infeasible." Because it exclusively commits floodplain land use to development, ZCFR precludes other land uses--such as parks, green spaces, engineered wetlands, berms, and dunes--that absorb stormwater, mitigate coastal flooding, and protect waterfronts.

Because of this, ZCFR has no connection to the many city policies and initiatives that aim to mitigate stormwater impacts with enhance green space. These include DCP's 2030 Waterfront plan, and DEP's emerging Unified Stormwater Rules for new development, its Green Infrastructure program, and Open Waters Long Term Control Plan. We find it strange that the proposal does not leverage these programs and goals with zoning and building code changes, incentives, and options for sustainable development. As the city faces ever more threats from storms and climate change, we need a coastal floodwater zoning resolution that takes us in the same direction as the city's sustainability efforts.

But that is not all. This zoning text asks you to give the Mayor, and other City Agencies like the BSA and the DOB, emergency powers in response to current events such as COVID-19. This, even though emergency powers are sufficient and the pandemic is not finished. Is ZCFR a coastal flooding zoning resolution or an emergency management policy?

For 50 years, BCEQ has fought to put nature, green spaces, and respect for the environment at the center of our borough's planning and development. We can't think of a better place for them than a coastal flooding resolution. Get the floodplain zoning change that may actually help our flooding problems as they exist now and with stormwater management in the future. We urge CPC to build its zoning proposals around the goal of a green floodplain for the City of New York.

Link to BCEQ website

**BRONX COUNCIL FOR ENVIRONMENTAL QUALITY**

**REQUESTS "SUSTAINABLE NOT RESILIENT" GREEN SOLUTIONS**

**FOR THE DRAFT ENVIRONMENTAL IMPACT STATEMENT**

**ZONING FOR COASTAL FLOODING RESILIENCE (CEQR NO. 19DCP192Y)**

## EXECUTIVE SUMMARY

These comments concern the Draft Environmental Impact Statement (DEIS) called Zoning for Coastal Flooding Resilience (CEQR No. 19DCP192Y) (ULURP No. N210095 ZRY). The Department of City Planning (DCP) presented this zoning text amendment in response to the damage and impacts caused by Superstorm Sandy in October 2012 (ULURP No. N210095 ZRY). Due to the magnitude of the potential impacts of the text change, the City was required to start an Environmental Assessment Statement which led to this DEIS.

At first glance, you may think Zoning for Coastal Flooding Resiliency (ZCFR) will protect us from coastal flooding, capture or contain storm surges, or sea level rise. It does not. By locking in the development policies that contribute to our current flooding problems, ZCFR is likely to increase stormwater flooding, storm surges, and coastal flooding impacts in floodplain communities. Where are the design features grounded in natural processes and that work to protect the built environment by increasing ecological capacity? Management practices here do not appear to be focused on enhancing environmental quality. Best management practices should be incentivized for increasing carbon capture, incorporating the NYC waste stream in coastal protection and storm water capture, with comparative metrics spelled out in for the work? Without prioritizing such features, the Department of City Planning is missing a golden opportunity to build floodwater mitigation, ecological enhancement and biodiversity into the zoning resolution. Instead, it commits waterfronts to hardscape and supports impervious floodplain development. If ZCFR is to sacrifice sustainability in the pursuit of resiliency, we say you cannot have one without the other. Resilience has an increasingly short purchase on the future if is not fundamentally sustainable.

Because ZCFR will have significant impacts, DCP offered a Draft Environmental Impact Statement (DEIS). However, the draft did not evaluate the impact of non-coastal stormwater flooding on the people who actually live-in floodplains. According to Rebuild by Design, 50% of the population in or adjacent to the floodplain are non-white and 56% of the floodplain residents are low income, defined as making less than $75,000 per year for a family of 3.[1] In other words, most of the people who live in the floodplains are non-white or low income. Without documenting the economic impact of homeowners or creating stop-gap funding policies, ZCFR does not appropriately address equity in our city.

Additionally, why would DCP want to preempt the work of the Federal Emergency Management Agency (FEMA)? In 2013, the city passed an emergency amendment to the zoning resolution in the wake of Hurricane Sandy that would stay in effect until FEMA issued its new maps in 2021. But DCP is forging ahead with maps created from the city's own scientific community, and has adopted FEMA insurance rates from 2007, pre-Sandy. Would it not be preferable to develop a zoning resolution conditioned by and built around the most recent FEMA science and mapping metrics, which include "broader flood frequencies" than the 1% and .2% catastrophic storm percentages adopted for ZCFR? Why rush this process now—especially when our city is in the midst of a pandemic and Hurricane Sandy-era emergency resolutions are still in effect? We believe that because the unique topography of New York City connects the impacts of catastrophic storm surges and coastal flooding within the 2013 delineated floodplain area to other catchment neighborhoods historically vulnerable to flooding, ZCFR should aim toward the integration of flood policies using the upcoming FEMA measure of "broader flood frequencies."

[1] http://rebuildbydesign.org/our-work/research/who-lives-in-nycs-floodplain..


Building concrete and other high carbon cost hardscape at great economic cost does not make sense where we have the opportunity to naturally protect floodplains and waterfront adjacent to rivers, estuaries and oceans. It seems counterproductive to move forward on shoring up the hardscape without first naturally protecting the waterfront areas near our rivers and ocean (the floodplains). The DEIS is not protecting, let alone preventing, flooding along local low-lying streets. In fact, ZCFR is conspicuously silent on current flooding conditions within the designated floodplain, a notable but debilitating omission. Increased development without alternative locations for the water to drain increases the severity of flooding that is already occurring. Unless each footprint is matched by about a cubic foot of runoff capture per square foot of build environment, soils and plantings are needed in this effort to make ecological use of retained runoff. FEMA recognized this as is evident in its Community Rating System (CRS) provides discounts when communities take action to reduce flooding vulnerability -- they can get credit for more restrictive regulations, acquiring flood-prone property, and other measures that reduce flood damages and protect floodplains.

According to the DEIS, ZCFR takes us in the opposite direction which in all likelihood will result in an "irreversible and irretrievable commitment of potential development sites as a land resource, thereby rendering land and resource use for other purposes infeasible." Because it exclusively commits floodplain land use predominantly if not exclusively to development, ZCFR precludes other land uses--such as parks, green spaces, engineered aquifers & wetlands, berms, and dunes--that absorb stormwater, mitigate coastal flooding, and protect waterfront and property. ZCFC will make it that much harder for the city to enact green sustainability policies.

ZCFR provides no connection to the many city policies and initiatives that aim to mitigate stormwater impacts with enhance green spaces. These include DCP's 2030 Waterfront plan, and DEP's emerging Unified Stormwater Rules for new development, its Green Infrastructure program,

and the implementation of its Long-Term Control Plans. It is disconcerting that the proposal does not leverage these well-established programs and goals with zoning and building code modifications, incentives, and options for sustainable development and carbon capture. As the city faces ever recurring threats from storms and climate change, we need a coastal floodwater zoning resolution that takes us in the same direction as the city's sustainability efforts.

Finally, this zoning text implores you to give the Mayor, and other City Agencies like the BSA and the DOB, emergency powers in response to current events such as COVID-19. This, even though emergency powers are sufficient and the pandemic is not finished. Is ZCFR a coastal flooding zoning resolution or an emergency management policy?

For fifty years, the Bronx Council for Environmental Quality (www.bceq.org) has fought to put nature, green spaces, and respect for the environment at the center of our borough's planning and development. We can think of no better place for them than a coastal flooding resolution. The residents of the Bronx urgently need a floodplain zoning change that may actually help our flooding problems and stormwater management now. Accordingly, we urge rejection of this proposal, and ask city planners to start considering one comprehensive green floodplain policy for the Bronx and the City of New York.

## BACKGROUND

The Zoning for Coastal Flooding Resilience DEIS is in response to the damage and impacts caused by Superstorm Sandy in October 2012. Specifically, the details involve a zoning text amendment to update the Special Regulations Applying in Flood Hazard Areas (Article VI, Chapter 4) of the New York City Zoning Resolution (ZR), which includes the "Flood Resilience Zoning Text" (the "2013 Flood Text")[2] and "Special Regulations for Neighborhood Recovery" (the "2015 Recovery

[2] ULURP No. N130331(A)ZRY, CEQR No. 13DCP135Y

Text").[3] These temporary zoning rules were adopted on an emergency basis to remove zoning barriers to reconstruction that were hindering the rebuilding and retrofitting after Hurricane Sandy. The 2013 Flood Text provisions are set to expire one year after the adoption of new and final FEMA Flood Insurance Rate Maps (FIRM). Currently, NYC flood maps are still in the 2007 FIRM, despite the 2015 preliminary FIRM.

High levels of scientific evidence demonstrate that this proposal has the potential to increase the size and height of the surge and waves causing more erosion, and harming natural resources. This type of unintended consequence has the ability to violate state and federal Clean Water rules, while doing little to solve incessant flooding problems from bigger and bigger rainfall. Therefore, we find the ZCFR DEIS to be fatally flawed.

## METHODS

The draft environmental impact statements originate with the federal National Environmental Protection Act (NEPA), the "Protection of the Environment." The study needs to have several segments, including a project description with a proposed action and alternatives, purpose and need, public need and benefits including economic and social, review of impacts as to type and seriousness, degree of impact as to irreversible and irretrievable resources, unmitigable, and mitigation. Among others, the chapters can address topics such as: land use and public policy, water resources, socioeconomics, or hazardous materials. These federal rules, are known as NEPA. New York State was able to adopt the federal rules, or add more stringent ones. NYS rules are called SEQRA. New York City had the ability to adopt the NYS's or more stringent rules, and they called it CEQR.

In getting to the above conclusion, we reference certain DEIS chapters, including Proposed Action, Purpose and Need, Project Description and followed by the major impacts and severity of

[3] ULURP No. N150302ZRY, CEQR No. 15DCP133Y


those impacts on the environment (temporary / short / long term, or irreversible / irretrievable). It is a classic if-then hypothesis-conclusion.

**If** the problem is to provide clean drinking water, **then** the proposed action #1 is to offer watershed protection -- this is the preferred alternative. **If** proposed action #1 is impossible to accomplish, **then** the proposed action #2 is to build a filtration system simulate protecting the drinking water. **If** the proposed action #2 is too expensive to protect the drinking water -- it fails; **then** next is to identify the problem area and offer proposed action #3 to build a smaller plant. All three proposed actions accomplish the need to provide clean drinking water. By discounting #2 due to expense is just one impact, albeit economic. Next compare the preferred alternative to the two other alternatives to see which has the least impact on the environment – that is, an environmental impact statement.

**If** the problem is to stop the storm from breaking though the edge to the property in the flood plain, **then** the proposed action #A is to protect the property owner from coastal flooding. If the problem protects the property owner does not strengthen the water's edge, **then** it fails. **If** proposed action #B is to re-build natural sustainable coastal infrastructure, **then** it will capture the flooding AND protect certain properties – that is, the preferred alternative. Next compare the preferred alternative to the restore buildings through zoning resolution to see which alternative has the least impact on the environment.

## WHAT IS THIS DEIS' PROPOSED ACTION?

The Proposed Action chapter describes features of the proposed action, such as: buildings in other floodplain areas; enhancing the building Floor Area Exemption envelope as needed to be safe; relocating utility equipment; and a framework to make recovery faster. Citywide, the document states that the Proposed Action would help create a more resilient NYC; and is part of other strategies and infrastructure improvements being pursued by city, state and federal agencies. Locally, the proposed action includes neighborhood specific land use applications in Sheepshead Bay & Gerritsen Beach

(Brooklyn 15), and Old Howard Beach (Queens 10). Another related local action is nursing home residences in high-risk flooding areas, which fails to identify if these actions are local or citywide, existing or only new. At one point, the document states that the project area of the proposed action "would be applicable to all lots located wholly or partially within both the current 1% and 0.2% annual chance floodplains … However, to help the city prepare for or respond to other disasters, select provisions in the Proposed Action would be applicable throughout the city." It is vital that the DEIS clarify the applicability of the zoning text in order to calculate impacts of any proposed action.

In addition, the DEIS fails to identify all these as the proposed action. It does not list each one according to the if-then hypothesis explained above, making it impossible to evaluate their individual or cumulative impact. Moreover, identifying impacts as no "significant change in the overall amount, type, or location of development" is wrong. There are more to impacts than construction development; the purpose of DEIS is to protect the environment from adverse avoidable impacts or identify mitigation, where necessary. Instead of making it easier to read, the document makes statements with three negatives, like: "The Proposed Action is not expected to induce development where it would not have occurred absent the Proposed Action;" when it would suffice to say the proposed action is not expected to impact construction development.

If we cannot tell what the Proposed Action is, it is difficult to determine if there would be an impact to the environment, or how big the impact would be, or even how it could be mitigated. We need to understand what the Proposed Action is, and that is not explained. This makes this DEIS inadequate. A generic statement that the proposed action will not induce further development is made more unreliable by the failure of the DGEIS to document the basis for this finding, the percentage of built and unbuilt lots in the floodplain (Executive Summary pg. 25). Without quantifying the percentage of built and unbuilt lots within the floodplain, the DGEIS cannot reach a quantifiable conclusion as to whether the proposed action will have development impacts.


## WHAT IS THE PURPOSE AND NEED?

The purpose of the ZCFR is to "*to improve upon and make permanent existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text.*" It would mostly affect New York City's 1% and 0.2% annual chance floodplains, in addition to selected provisions that would be applicable citywide. DCP identified existing temporary rules that need to be updated since the flood risk will continue to increase with climate change, as sea level increases the height of storm surges.

Based on data provided by the NYC Mayor's Office of Resiliency (MOR) on behalf of The City University of New York (CUNY) Institute for Sustainable Cities (CISC) and the New York Panel on Climate Change (NPCC), by the 2050s, the projections indicate a risk to larger geographical areas and increased number of residents and buildings. The document states that "… *current zoning rules need to be modified to also take into consideration future flood risk, so that long term adaptation can be achieved across the city's current and future flood-risk areas.*"

Ironically, the New York City Panel on Climate Change 2019 Report warns of things to come, which the city should recognized with a complete plan that protects the coast from sea level rise, storm surge and high winds. The NYCPCC discussion focuses more on the shorefront than on new buildings or existing strengthening. The 2019 Report conclusion concerning Coastal flooding, Mapping Risks, and Community Adaptations and Equities also differ from the proposed action.

Among the 2019 Report's policy recommendations is a clear and simple statement: "Since it may not be possible to protect all shorelines from extreme coastal floods and sea level rise, NYC should continue to explore a wide range of structural and nonstructural risk reduction approaches, including paradigm-shifting concepts such as strategic relocation programs on floodplains and densification on high ground." This scientific recommendation is in direct conflict with a segmented hardening of floodplain homes, buildings and industry that is in the DEIS purpose and need.

The direct conflict is stated in ES-7: "*…, there are other issues that need to be addressed to ensure that the zoning regulations applicable in the floodplain allow for all types of buildings in neighborhoods across the city to be resilient in the long term. …. These uses will therefore have to explore incremental resiliency improvements and creative solutions to increase the building's safety over time.*" The NPCC Report encourages community participation in developing strategies.

Moreover, New York City Comptroller Scot Stringer's recent report Safeguarding Our Shores: Protecting New York City's Coastal Communities from Climate Change (May 2019)**,** reiterates similar concerns: "*Buyout programs can also help rescue homeowners facing increasingly unaffordable flood insurance premiums. A 2017 RAND study found that within a sample of New York City areas prone to flooding, the median flood insurance premium for one to four family homes is $3,000 per year. The same report found that the cost of flood insurance is economically burdensome for lower income residents. The National Flood Insurance Program currently holds approximately $20 billion in debt, and proposed reforms to the program could potentially raise rates in New York City.42 Forced to either undertake an expensive resiliency retrofit of their home, including elevation, or pay increasingly onerous flood insurance premiums, low and middle-income homeowners may not be able to afford to stay in their homes. Should they qualify, a buyout program could help liberate them from a tenuous financial situation.*"

Strangely, many of us in the Bronx participated in the new DCP Comprehensive Waterfront Plan this past year; yet, there was no mention of the Comprehensive Waterfront Plan 2020 or 2030 in the ZCFR proposals. Without that, t is like this proposed action is half a project—it is missing the calculations of environmental impact its own Waterfront Plan will have, or prevent Even now, the city is misunderstanding the environmental impacts to both increasing climate change effects. By continuing its rampant destruction of floodplains since 2014, instead of halting the actions, city agencies promoted building in the flood zone without reasonable environmental mitigation. Including 100-story buildings along the East River, almost every inch of the waterfront is being developed, with


a hard-edged revetment, or hybrid but not one full living shoreline. Not only that, this has increased stormwater runoff to the waterbodies permitted by NYSDEC. This increases the water quantity in those waterbodies. The DGEIS looks at a city absent all the policies and developments that have made the city more vulnerable to floods and its waterbodies more vulnerable to environmental contamination and concludes that increasing hardscape along the waterfront will have no impact. The DGEIS devotes one paragraph to a paltry allowance for natural shorelines, 7 feet along 30 percent of the built shoreline (Executive Summary pg. 23).

To add more salt to the wound, city owned property is being used to favor development investments to build affordable housing that is too expensive for most people and too small for permanency. This is not how to create a community, or protect the shoreline. For instance, the recent notice in the Real Deal explains in an December 23, 2020 article "L&M close to scoring $349M for South Bronx affordable housing development: Bronx Point will have 542 affordable apartments, Universal Hip-Hop Museum." This project is in Harlem River floodplain that during Sandy had an 8-foot surge even at low tide. In addition, this project will not be required to have the brownfield hazard waste pollutant cleared to the highest level as they have an environmental easement (see Hazardous Materials section later). If disturbed during the next major weather event, there is no question that the pollutants will travel into the Harlem River – and the city cannot do anything to stop it. This impact should be examined under the Public Health section.

## WHAT IS IN THE PROJECT DESCRIPTION?

The ZCFR project description says: (1) It is an update to the 2013 Zoning Flood Text, despite the fact that it is still in effect, and will be until one year after FEMA finalizes its new maps. (2) It includes an update to the expired 2015 Recovery Text even though it only applies to selected Brooklyn, Queens and Staten Island community boards impacted and destroyed by Superstorm Sandy. (3) The

last section concerns granting emergency powers for events like COVID-19 to the Mayor and city agencies like BSA and DOB; this even though existing emergency powers are sufficient and the pandemic is not finished. A description should include more details – the who, what, when, where and how.

**WHAT ARE THE IRREVERSIBLE AND IRRETRIEVABLE IMPACTS?**

As stated previously, the rules for draft environmental impact statements originate with the federal National Environmental Protection Act (NEPA), the "Protection of the Environment." NYS adopted the federal rules, or more stringent ones, called SEQRA and NYC followed NYS's or more stringent rules, called CEQR. Under both the federal NEPA and state SEQR the same terminology is used. NEPA states that "*any irreversible and irretrievable commitments of* ***environmental*** *resources that would be associated with the proposed action should it be implemented.*" The SEQR Handbook, on page 121, answers how the EIS should address this, as stated below: "*The extent to which a proposed action may cause permanent loss of one or more* ***environmental*** *resources should be identified as specifically as possible based upon available information. Resources which should be considered include natural and manmade resources that would be consumed, converted or made unavailable for further uses due to construction, operation, or use of the proposed project, whether those losses would occur in the immediate future, or over the long term. Examples include the filling of wetlands; paving over or construction on valuable agricultural soils; use of non-renewable, or non-recyclable materials in new structures; and use of fossil fuels in construction or operation of the project.*"

CEQR states: "any irreversible and irretrievable commitments of resources that would be associated with the proposed action should it be implemented." The **word "environmental" is missing** the "commitments of environmental resources" from the City's rules. This causes the city to ignore the environmental and focus ONLY on the "person-made resources."


How does this impact the DEIS? Let's go to the DEIS: "*the Proposed Action includes special provisions to help facilitate the city's long-term recovery from the COVID-19 pandemic and its associated economic effects by providing more time for existing non-conforming uses to reopen and builders to undertake certain construction projects.*" It is explained that "*both natural and built, would be expended in the construction and operation of any retrofitting work that may result from the Proposed Action. … include building materials used in construction; energy in the form of natural gas, petroleum products, and electricity consumed during construction and operation of buildings; and the human effort required to develop, construct, and operate various components of any potential development. These resources are considered irretrievably committed because their reuse for some other purpose would be impossible or highly unlikely.*"

The DEIS continues that the proposed action "…. *constitutes an irreversible and irretrievable commitment of* ***potential development sites*** *as a land resource, thereby rendering land use for other purposes infeasible.*" There is no consideration made to review the **environmental** impacts either here or elsewhere in the DEIS. In fact, the actual loss is to habitat and it is enormous.

Hardening areas in the floodplain will interrupt natural shoreline processes, reduces nursery habitat for marine species and foraging habitat for wading birds, degrades water quality, and can actually increase erosion processes. There are other alternatives to just protecting the inner areas; it includes a careful and scientific study along the waterfront, known as the living shoreline. We are further disappointed that the DGEIS only notes without evidence or calculations that current floodplain development, which includes "structures, paved roads/paths, domestic lawns with trees, or urban yard habitat" make the floodplain a "limited habitat for vegetation and wildlife apart from the species common to the city's built environments" and they cannot be expected to yield environmental benefits. That is false. Every home, yard, and sidewalk provide opportunities for exacerbating or mitigating environmental impacts. (Executive Summary). This false distinction

between nature and city misses the point. We are not asking for the zoning resolution to carve out a nature preserve from the city. We are asking for a green floodplain: a built environmental that incorporates green building design and water management.

The following article in Climatic Change explains how significant the impact along the coast is: "On eroding coasts, owners will go to extraordinary lengths to protect their investment (Beatley 2009) such as building a seawall or revetment; as a result, 14% of the US tidal shoreline has been hardened (Gittman et al. 2015). … Shoreline hardening disrupts natural processes, accelerates erosion on adjacent lands (known as "flanking"), and limits the natural dynamic behavior of the environment (Romine and Fletcher 2012a). Hardening on sandy beaches experiencing chronic erosion, ultimately the result of long-term sea level rise, causes beach narrowing and loss (Fletcher et al. 1997), and flanking triggers more hardening leading to additional beach degradation."

These are resources that will be lost based on the unintended consequences of hardening building infrastructure, rather than creating the low impact, green and natural infrastructure. Are they filling in wetlands, creating revetments, increasing impervious surface, or adding concrete to the front yard? Does the proposed action protect or harm nature, or does it cause irreversible and irretrievable commitment of environmental resources?

## DID THEY COMPARE ALTERNATIVES?

In the federal NEPA, it states that: "*The environmental impacts of the proposed action and reasonable alternatives to the proposed action and the significance of those impacts. The comparison of the proposed action and reasonable alternatives shall be based on this discussion of the impacts.*" NYS SEQRA states: "*a concise description of the environmental setting of the areas to be affected, sufficient to understand the impacts of the proposed action and alternatives.*" NYC CEQR states: "*a discussion of alternatives to the proposed action and the comparable impacts and effects of such alternatives.*" The CEQR Technical Manual states: "*There is no prescribed number of*

*alternatives that need to be examined. The only alternative required to be considered is the No-Action alternative and the lead agency should exercise its discretion in selecting the remaining alternatives to be considered.*"

A review of the DEIS states that none of the two alternatives reviewed would meet the primary objectives of the proposed action. This chapter examines two potential alternatives to the Proposed Action: the No-Action Alternative and the No Unmitigated Significant Adverse Impacts Alternative. The proposed action includes "providing homeowners, business owners, and practitioners living and working in the city's floodplain the option to design or otherwise retrofit buildings to: (a) reduce damage from future flood events, (b) be resilient in the long-term by accounting for climate change, and (c) potentially save on long-term flood insurance costs." When this conclusion was reached, why weren't additional alternatives sought?

The DEIS continues that the chosen alternatives would **not** "*allow resiliency improvements to be more easily incorporated on waterfront sites at the water's edge and in public spaces, as well as provide zoning regulations to help facilitate the city's long-term recovery from the COVID-19 pandemic and other future disasters.*" Finally, the DEIS states that "…. *the analysis concludes that no feasible alternatives are available that would result in no unmitigated impacts meet the Proposed Action's goals.*" The last sentence has three negatives. Are all alternatives available mitigate impacts? Is no alternative able to mitigate impacts? Can they find alternatives that mitigates impacts? If so, which ones are the least comparable in need of mitigation?

There are reasonable resources that will be lost based on the unintended consequences of hardening building infrastructure, rather than creating the low impact, green and natural infrastructure. Sometimes you can start at the top of the hill; other times it is better to start in the floodplains as that is where you can see the work that is needed.

The most current science is available in the New York State Department of Environmental Conservation, Using Natural Measures to Reduce the Risk of Flooding and Erosion, August 2020. It

is clear, just from the definition of a floodplain, that it is not the area to build, but is the area to protect.

See page A-53, which is worthy of presenting in full (without any changes or emphasis added).

**"What is a floodplain?**

A floodplain or flood-prone area is any land area susceptible to being inundated by water from any source (FEMA, 2000). Floodplains extend upland from river, stream, lake, estuary and ocean shorelines, irrespective of whether they are natural or developed (Figure A.6-1). Flooding frequency varies from location to location.

Riverine floodplains are formed through a process of sediment transport and deposition. As a result of this process, river channels curve or bend side-to-side in the streamway, forming meanders and widening the valley. These two processes continually modify the floodplain. Overtime the stream can reshape and transform the entire valley floor. Coastal floodplains are formed by similar processes. Seasonal variability, constant wave action and intermittent extreme events deposit and erode sediments and reshape coastal floodplain channels and inlets. During floods, floodplains allow water to spread out and slow down, reducing risk to adjacent development. Flooding from hurricanes and storms increases soil fertility, creates or reshapes wetlands, barrier islands and dunes (Association of State Floodplain Managers, 2008). Regulatory definitions and maps of areas in floodplains that flood with specific frequencies (i.e. 1% annual chance flood) are developed and managed by the Federal Emergency Management Agency (*https://www.FEMA.gov*).

Floodwater levels in floodplains can change suddenly and significantly in strong storms. Floodplains can also change over time as they absorb energy from currents, waves and storms.

For this reason, structures or assets sited in or near floodplains are considered to be at greater risk."

## WHAT ABOUT HAZARDOUS MATERIALS?

According to the DEIS, there will be development as a result of the proposed action on as-of-right-sites. However, the city states it has no mechanism to require a test for contamination or remediation of materials. If that is true, this is a major impact that cannot be mitigated. Therefore, it belongs in the irretrievable and irreversible commitment to environmental resources, that is clean water and air.

The DEIS finds that: "*The Proposed Action could potentially result in significant adverse hazardous materials impacts. … The extent of the effects of hazardous materials are unknown because of the generic nature of the Proposed Action and because it is not possible to determine exactly where and to what extent additional ground disturbance may occur in the future with the Proposed Action. … However, as development resulting from the Proposed Action on the Prototypical Analysis Sites would be as-of-right, there would be no mechanism for the City to conduct or require a program to test for hazardous materials contamination or to mandate the remediation of such materials. Therefore, any such impact would remain unmitigated.*"

We find this to be an unacceptable response. The city accepts Environmental Easement (EE) on properties, both private and public, for Brownfield Clean Up (BCP) sites in floodplain areas; it does not apply to one- or two-family houses where the property has to be cleaned to the highest level. It does apply to the uses listed below. If the city did not want this designation, they should have required complete cleanup of such development in floodplain areas, especially those areas where it is on city owned property. BCEQ is on record against accepting as the less extensive brownfield mitigation required of multifamily apartment buildings as a substitute for more extensive clean-ups required of single-family homes.

We have learned from reviewing BCP that: "*The Environmental Easement (EE), which is described in section 7.3 of the BOA Remedial Action Work Plan (RAWP), runs with the land in favor of the New York State. The EE contains the use restriction(s) and/or any prohibition(s) on the use of land in a manner inconsistent with engineering controls. The placement of an EE provides an effective and enforceable means of encouraging the reuse and redevelopment of a controlled property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements. For this site, the EE would restrict the use of the land to restricted residential uses (i.e., apartments, condominiums, co-operative or other multi-family residential development) which can also include commercial or industrial uses. The EE would prohibit a higher use of the site (such*

*as single-family residential or unrestricted use) without additional remediation. The EE ensures that the Institutional Controls (ICs) are adhered to. These ICs are listed in section 7.3 of the RAWP.*"

## AIR QUALITY AND VENTILATION IN THE COVID-19 PANDEMIC

If an unmitigated adverse impact is identified in other CEQR analysis areas —such as air quality, water quality, hazardous materials, or noise— the lead agency may determine that a public health assessment is warranted for that specific technical area. This assessment represents a distinct layer of inquiry; its criteria are informed by public health considerations and are, therefore, different from the criteria that triggered the need to conduct a public health assessment. If a public health assessment is determined to be necessary, the assessment process involves evaluating whether and how exposure to environmental contaminants may occur and the extent of that exposure; characterizing the relationship between exposures and health risks; and applying that relationship to the population exposed.

This topic concerns ventilation in buildings during a Pandemic, especially public and private buildings with Air Conditioning. A building's capacity to provide enough fresh air, retrofitting air conditioning valve openings transfers, and the risks given the speed at which COVID-19 spreads in the community are real and should be of interest. Indoor air systems in public buildings are a risk posed by COVID-19, particularly the difficulty controlling the amount of fresh air entering and replacing a room's air circulation at the correct rate. Many windows are not placed in the optimum locations in the rooms for cross ventilation.

Around the world articles published have demonstrates the speed at which COVID-19 spreads through the air indoors. Here are a few:

- 2020.10.28 El Pais article - *A room, a bar and a classroom: how the coronavirus is spread through the air*, Javier Salas - https://bit.ly/3q2UvkX

- 2020.12.09 Los Angeles Times article - *Infected after 5 minutes, from 20 feet away: South Korea study shows coronavirus' spread indoors,* by Victoria Kim - https://lat.ms/3jqa7g1
- 2021.02.02 Chalkbeat.org article - *The CDC released two new studies of COVID school safety. Here's what they find.* by Matt Barnum - https://bit.ly/2YWQ8ff

## CONCLUSIONS

Based upon the research concerning the risks as stated above, the Lead Agency should take action to remedy dangerous condition and protect the public. This should include review of Alternatives, including unmitigated impacts from Irreversible and Irretrievable Commitments of Environmental Resources, Hazardous Materials, and Air Quality as a public health impact assessment. Do it right. What's the difference in the rush?

We present this document on behalf of the Bronx Council for Environmental Quality Board of Directors and thank those Board Members who contributed to these comments. We anxiously await your response to these comments. Thank you for offering this opportunity for public participation.

****

The Bronx Council for Environmental Quality is a 501c3 membership organization founded 50 years ago. We have a Board of Directors made up of volunteers from every corner of the Bronx and our city as it pertains to the Bronx. We do not have staff. We are a borough wide advocacy group formed for the protection of the environment to establish a "sound, forward-looking environmental policy regarding an aesthetic, unpolluted, environment protecting a natural and historic heritage."

Regional Plan Association

# Testimony of Robert Freudenberg, VP Energy & Environment to the New York City Planning Commission, Regarding the Zoning for Coastal Flood Resiliency Amendment

February 3, 2021

Thanks for the opportunity to offer this testimony. My name is Rob Freudenberg, and I am the Vice President for Energy & Environment at Regional Plan Association, an organization that for nearly a century has sought to advance and advocate for research-based solutions to long term problems.

As a highly developed, dense waterfront city with 520 miles of shoreline, New York City is centered directly in the crosshairs of the climate crisis. In addition to the other climate impacts of heat and increased precipitation, the slow, steady, and accelerating, rise of sea levels threatens to permanently inundate neighborhoods and infrastructure, while deepening the reach and destruction of more frequent and intense coastal storms.

Put another way, New York City faces a challenging and dubious future: uncomfortable at best, wholly uncertain at worst.

Faced with these worsening impacts, the City must make critical decisions around existing and future development in flood hazard areas, if it is to continue to thrive while safeguarding its residents.

In RPA's own Fourth Regional Plan, we called for a combination of resiliency strategies – including zoning changes, investments in engineered and nature-based solutions, and strategic buyouts, among others – to adequately adapt to our changing coastline.

In that spirit, we join you today to offer our support for the action to amend the Zoning Resolution of the City of New York, to modify its flood resiliency provisions with the proposed Zoning for Coastal Flood Resiliency.

This amendment comes at a tenuous moment: standing in the long wake of Hurricane Sandy and our continued recovery from it, while facing a future of rapidly rising seas and increased flooding, it is clear the City must take action to become more resilient and face the impacts of climate change head-on.

Achieving resiliency means having the ability to look in two directions at once: **backward** to the disaster we are recovering from, making sure to learn from the difficult lessons it brought; and **forward** toward future catastrophic impacts – which can look very different from those in the past – doing everything possible to anticipate and reduce risk.

I'm pleased to say that the amendment before you succeeds in doing that, incorporating the lessons learned from Sandy's devastation to bolster support for post-disaster recovery; while also promoting long-term resiliency by allowing precautionary standards and resiliency features for buildings in the current and future flood zone as well as zoning and design rules that factor in sea level rise. Further, prohibiting the construction of new nursing homes in high flood risk areas represents a small but important leap, with strong overtures for future development restrictions.

These are common sense updates that acknowledge the reality that there will be more disasters to recover from across a wider area, and that we must take additional and meaningful steps today to prepare for the worsening impacts that are to come.

While this amendment will help to reduce risk for **many**, it will *fully eliminate* long-term risk for **none**. And in order to have its greatest impact, it will need to be paired with tools that help building owners and developers pay for the modifications it allows. Still, it is a very good, well-thought out and tested next step that should be approved.

Yet, there is still much to be done.

So, while we enthusiastically urge the Planning Commission to adopt this amendment, we also encourage you to advance beyond these measures. Stated simply, there are an awful lot of people in areas that are at high risk of flooding, far too many of whom are particularly vulnerable because of their race, age, or limited wealth. This amendment can help, but we must also acknowledge that there are just some areas for which design solutions have a much shorter shelf life.

The tools of planning and zoning, can be used to do even more, and they must. Adopting this amendment helps to buy some additional time. Let's use that time wisely and advance important, necessary and honest conversations – across City agencies and in City neighborhoods – to plan for the difficult road ahead, using, refining and improving all of the adaptation tools we have at hand.

Thanks.

# Comments re: N 210095 ZRY - Zoning for Coastal Flood Resiliency

Public Hearing Comments (Do not reply) <PublicComments_DL@planning.nyc.gov>
Fri 1/29/2021 2:29 PM

**To:** Manuela Powidayko (DCP) <MPowidayko@planning.nyc.gov>; Laura Kenny (DCP) <LKenny@planning.nyc.gov>; **CitywideComments_DL <CitywideComments_DL@planning.nyc.gov>**

1 attachments (3 MB)
Underwater in Canarsie.pdf;

Re. Project: **N 210095 ZRY - Zoning for Coastal Flood Resiliency**

- Application Number: **N 210095 ZRY**
- Project: **Zoning for Coastal Flood Resiliency**
- Public Hearing Date: **02/03/2021**
- Borough: **Citywide**
- Community District:

*Comments on the Draft Environmental Impact Statement received by the 10th calendar day following the close of the public hearing will be considered by the lead agency.*

**Submitted by:**

Name: **Elizabeth Malone**
Zip: **11236**

I represent:
- **A local community group or organization**

Details for "I Represent": **Neighborhood Housing Services of Brooklyn CDC, Inc.**

**My Comments:**

Vote: I am **in favor**

Have you previously submitted comments on this project? **No**
If yes, are you now submitting new information?

I have attended or will attend the City Planning Commission's Public hearing on this project: **Yes**

**Additional Comments:**
NHS Brooklyn has worked with coastal communities since 1982. I am the Program Manager for Insurance & Resiliency, specializing in the National Flood Insurance Program. Having worked with the Dept. of City Planning on the Zoning for Resilience study in Canarsie, our organization fully supports this proposal. I would ask for a few minutes to speak of the efforts and expectations coastal residents as they rise to these challenge and describe some of the work we are doing and can do going forward. Community engagement, local mitigation and affordability studies all support

the continuing value of our communities and the value of bringing all necessary resources to continue to this work. Coastal residents are well aware of climate change impacts and they expect every resource be marshalled to transform their communities. We realize this transformation will require time, ingenuity and resources. Multiple approaches will be needed to rebuild resiliently where possible and manage displacement where necessary. This zoning proposal can be one of those valuable tools, giving residents the flexibility to transform their communities. If the cost/benefit analysis of a coastal project measures only the private market for property, the actual value of these neighborhoods is misrepresented. The formal and informal networks that sustain communities are worth, in real, measurable dollars, more than we usually estimate. These largely working class communities are generational, self-supportive and complexly integrated. Our city's work force lives here and that alone is adds a major reason to support the mitigation projects needed to sustain them. Home is the most important place on earth. Communities like Canarsie, Gerritsen Beach, Coney Island are not real estate, they are real people. I have attached an article about the complex issues faced by our coastal neighborhoods. It was written by an intern for his Master's degree while working on the study done by NHS Brooklyn and the Center for New York City Neighborhoods in Canarsie. The conclusions are both heart-breaking and heartening. Let me end with this: The built environment of coastal New York is not physically or financially sustainable. We must re-imagine, redesign and rebuild our coastal communities. And we have rebuilt New York before: from the Bronx to Coney Island, community based organizations and New York residents brought New York City back from literal ruins. We can do it again; we are doing it now. Lead, follow - or get out of our way, we're keeping our homes. Thank you for your time. I am eager to discuss how this proposal will help. Elizabeth Malone Program Manager Insurance & Resiliency Services NHS Brooklyn CDC, Inc. 2806 Church Avenue, Brooklyn NY 11226 (718) 469-4679 emalone@nhsbrooklyn.org

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# Underwater: Resilience, racialized housing, and the national flood insurance program in Canarsie, Brooklyn

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ABSTRACT

Resilience is a pervasive discourse for adapting to environmental risks, and one which the National Flood Insurance Program (NFIP) uses frequently, yet limited attention has been paid to the operationalization of resilience through environmental governance. This study uses the case of the NFIP's impacts on Canarsie, Brooklyn to ground resilience in the policy mechanisms and programs through which different visions of a resilient coast are enacted, the histories of uneven racial development in which these programs operate, and the impacts these programs have on coastal residents. Proposed expansions of New York City's flood risk maps combined with cuts to NFIP subsidies mean thousands of Canarsie residents who have never previously been required to purchase flood insurance will soon face mandatory premiums of $3000–$6000 per year. The 85% black neighborhood of Canarsie was targeted by more subprime loans in the 2000s than any other neighborhood in New York City, robbing many residents of housing wealth they might have otherwise used to shoulder flood insurance costs. Drawing on ethnographic research, I show that Canarsie residents have subsidized their plundered housing wealth with social reproduction strategies such as renting out their basements, setting up a contradictory situation in which Canarsians' financial resilience relies on spaces the NFIP deems a threat to physical and environmental resilience. The Canarsie case study ultimately demonstrates that the NFIP, by governing through the mechanism of household finances, stands to reproduce and accelerate existing racial inequalities in the housing market.

## 1. Introduction

Rising sea levels resulting from climate change threaten coastal residents with increased flood risks, raising urgent debates around coastal retreat and adaptation (Gibbs, 2016; Morrison et al., 2018). Scholars and policymakers in conversations about planning waterfront communities that can withstand the heightened risks brought about by climate change increasingly invoke the concept of resilience (Aerts and Botzen, 2011; Brown, 2013; Branco and Waldman, 2016). While the exact meaning of resilience is often left "sufficiently fuzzy to enable multiple actors with differing values to share a common discourse" (Gillard, 2016: 15), a system or entity's resilience is generally understood as its ability to quickly return to its pre-existing equilibrium after experiencing a shock or disaster (Holling, 1973). This emphasis on a return to the status quo has led to a sustained critique of resilience as a discourse that naturalizes key tenets of neoliberal governance (Tierney, 2015).

While important insights can be gleaned from the ways resilience rhetorically places the onus on local actors to adapt to "the logics and implications of global capitalism and climate change" (MacKinnon and Derickson, 2013: 266), I take after Graham et al.'s (2016: 113) interest in "the operationalization of resilience—how resilience is practiced." Specifically, I argue that resilience is best understood through its material enactment in policies and programs of environmental governance. Environmental governance encompasses the policies and programs that take the regulation of the relationship between humans and the environment as their *raison d'être* (Adger et al., 2005; Brown, 2013; Lemos and Agrawal, 2006; Morrison et al., 2018). As rising sea levels encroach upon waterfront communities, environmental governance will be decisive in adjudicating one of the defining environmental justice questions of the 21st century: who will be able to live by the coasts in an era of climate change?

I follow Hardy et al. (2017: 62-3) in identifying colorblind adaptation planning, "…adaptation planning projects that altogether overlook racial inequality," as a major driver of the 'climate gap' between "the large amount of attention given to climate change [science] on the

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international scene and everyday concerns of vulnerable communities" (Gaillard, 2012: 261, via Hardy et al., 2017). Different communities' vulnerabilities to sea-level rise and capacities for resilience "cannot be disentangled from the histories of race and contemporary racial inequities that have shaped the socio-ecological formations facing inundation," therefore "understanding the 'climate gap' as it relates to sea-level rise vulnerability in US coastal regions necessitates… engagement with uneven racial development" (Hardy et al., 2017: 63). Centering uneven racial development in research into resilience draws out the questions: How do environmental governance programs converge with patterns of uneven racial development? What constraints and contradictions do policymakers and practitioners face as a result of operating within a property market delimited by racial capitalism? What are the policy mechanisms and programs through which different visions of a resilient coast are enacted in this context, and how do these programs impact coastal residents?

This paper grapples with these questions through the case study of rising premiums for the National Flood Insurance Program (NFIP) in Canarsie, Brooklyn. Canarsie's population is 85% black and 92% non-white, and like many black and Latino communities throughout the United States it was heavily targeted by subprime mortgage lenders in the 2000s (Faber, 2013; Hwang et al., 2015; Rugh et al., 2015; Wyly, 2010), receiving more subprime loans than any other neighborhood in New York City (Mooney, 2008). The NFIP, which is administered by the Federal Emergency Management Agency (FEMA), is one of the United States federal government's most powerful tools of environmental governance (Aerts and Botzen, 2011; Knowles and Kunreuther, 2014). More than five million Americans have federal flood insurance coverage, and homeowners with federally insured mortgages are legally mandated to purchase coverage from the NFIP if their homes lie within high-risk zones[1] in the NFIP's Flood Insurance Rate Maps (FIRMs).

Ongoing Congressional reforms to the NFIP provide an opportunity to investigate the conflicts and contradictions in the operationalization of resilience. FEMA (2018) characterizes flood insurance as "a key element" to fostering resilience, and New York City Mayor Bill de Blasio has pledged to ensure that "the tools to make [New Yorkers in the floodplain] more resilient, like flood insurance, remain available and affordable" (FEMA, 2016). The Mayor's assurances came as a response to legislation from Congress to phase out subsidized premiums for the program, which is more than $27 billion in debt (Knowles and Kunreuther, 2014). Because these subsidies targeted buildings constructed before the NFIP was established in 1968, their phase-out is poised to have the greatest impact in cities with older housing stocks, such as New York City. In Canarsie, 88% of the housing stock (compared to 78% city-wide) is more than 40 years old (NY Rising, 2014); these properties' homeowner subsidies will be gradually eliminated, causing insurance premiums to rise 15–18% per annum.

Congress also appropriated funds for FEMA to redraw FIRMs across the country, many of which had not been updated in decades. A preliminary updated FIRM for New York City—the implementation of which is being contested by the City government—more than doubles the City's population in the high-risk zone (Zarrilli, 2015). In Canarsie, the updated FIRM would expand the high-risk zone from containing 26 (0.2%) of the neighborhood's 12,000 residential buildings to more than 5000 (40%) (NYC DCP, 2017; see Fig. 1). If implemented, thousands of Canarsie households that were not previously compelled to purchase flood insurance will face onerous yearly premiums (Dixon et al., 2017). A 2017 survey of flood insurance affordability across five New York City neighborhoods identified Canarsie as the most vulnerable neighborhood in their study, finding that Canarsie residents will face an estimated $3000–$6000 per year in flood premiums. Without subsidies to cushion premium increases, the proportion of Canarsie's owner-occupied households that are housing burdened will increase from an already-startling 44–54%. (Dixon et al., 2017: 72).

Caught between new mandatory insurance payments and the loss of subsidies for pre-FIRM buildings, Canarsie's housing burdened residents living in the expanded high-risk flood zone are at risk of displacement. Canarsie is therefore an ideal site to analyze the expanding role of the NFIP in governing coastal housing, and its effect on residential displacement and environmental gentrification. The NFIP manages coastal residents' exposure to flood risks by imposing premiums on homeowners, making them responsible for the task of renovating their structures to reduce flood risk. I argue, therefore, that the outcomes of NFIP policies are inextricably linked to the differentials in housing wealth that have resulted from racialized housing practices, such as subprime lending, redlining, and gentrification (Faber and Ellen, 2016; Henricks, 2015; Sharp and Hall, 2014; Wilder, 2001).

Brokers were able to convince Canarsie homebuyers to purchase mortgages they could not afford because the neighborhood's peculiar housing stock enabled owner-occupants to subdivide and rent out portions of their home. Housing in Canarsie is primarily one- to two-family attached units, often with two stories and a basement. By rooming with family or renting out their basements, Canarsie homeowners could afford their mortgages. Basement rental units provided a stock of cheap housing units for renters or family members, as well as supplementary income for precarious homeowners who became landlords in their own homes.

With changes to the NFIP looming, Canarsie residents face a serious dilemma that forms the heart of this research. Because flood insurance premiums are based on the elevation of the lowest inhabited level of the house, homeowners who rely on income from basement rentals may be forced to remove their basements or pay exorbitant insurance premiums. These residents face a paradoxical choice between different paths to displacement: either keep the basement and be displaced by soaring NFIP premiums or eliminate the basement and be displaced by the lack of rental income. To explore these contradictions, I use social reproduction theory to understand the home as a site that is both a locus of reproduction and a space that is targeted by environmental governance in the form of the NFIP.

Social reproduction encompasses all of the material social practices that must take place for people to produce and reproduce the conditions of their lives. Within a capitalist production system, firms compete for profits primarily by squeezing labor costs, i.e. pushing down workers' wages. Among other things, social reproduction includes the diverse practices people take up to maintain and improve the quality of their lives in the context of this struggle. Proponents of social reproduction theory are also interested in resilience—not in a technocratic or managerial sense, but in the sense of the "fleshy, messy" practices people undertake to reproduce the conditions of their lives while enduring capitalist social relations (Norton and Katz, 2017). In the field, this theoretical and methodological orientation means interrogating spaces that were previously overlooked and looking for power in effect rather than intent (Katz et al., 2015). In the case of Canarsie, the lens of social reproduction grounds the legacy of racialized subprime lending in the material reality of Canarsie's houses and in the people whose reproduction strategies rely upon them.

This engagement with spaces of social reproduction highlights the value of ethnographic field methods for critical resilience studies. Ethnography is the detailed study of everyday life through interviews, participant-observation, and fieldnoting, foregrounding mundane everyday interactions and practices as the object of interrogation (Emerson et al., 2011). Guided by the potential of critical ethnography to analyze institutions of power by accounting for their impacts on peoples' everyday lives, a method Nader (1972, p. 5) calls "studying up," I interrogate the racialized climate gap by pairing Canarsie's history of uneven racial development with ethnographic data on how NFIP policies impact residents' social reproduction strategies. My analysis is

[1] The high-risk flood zone encompasses all properties calculated to have a 1% or greater annual risk of flooding. This zone is also commonly referred to as the 100-year floodplain.

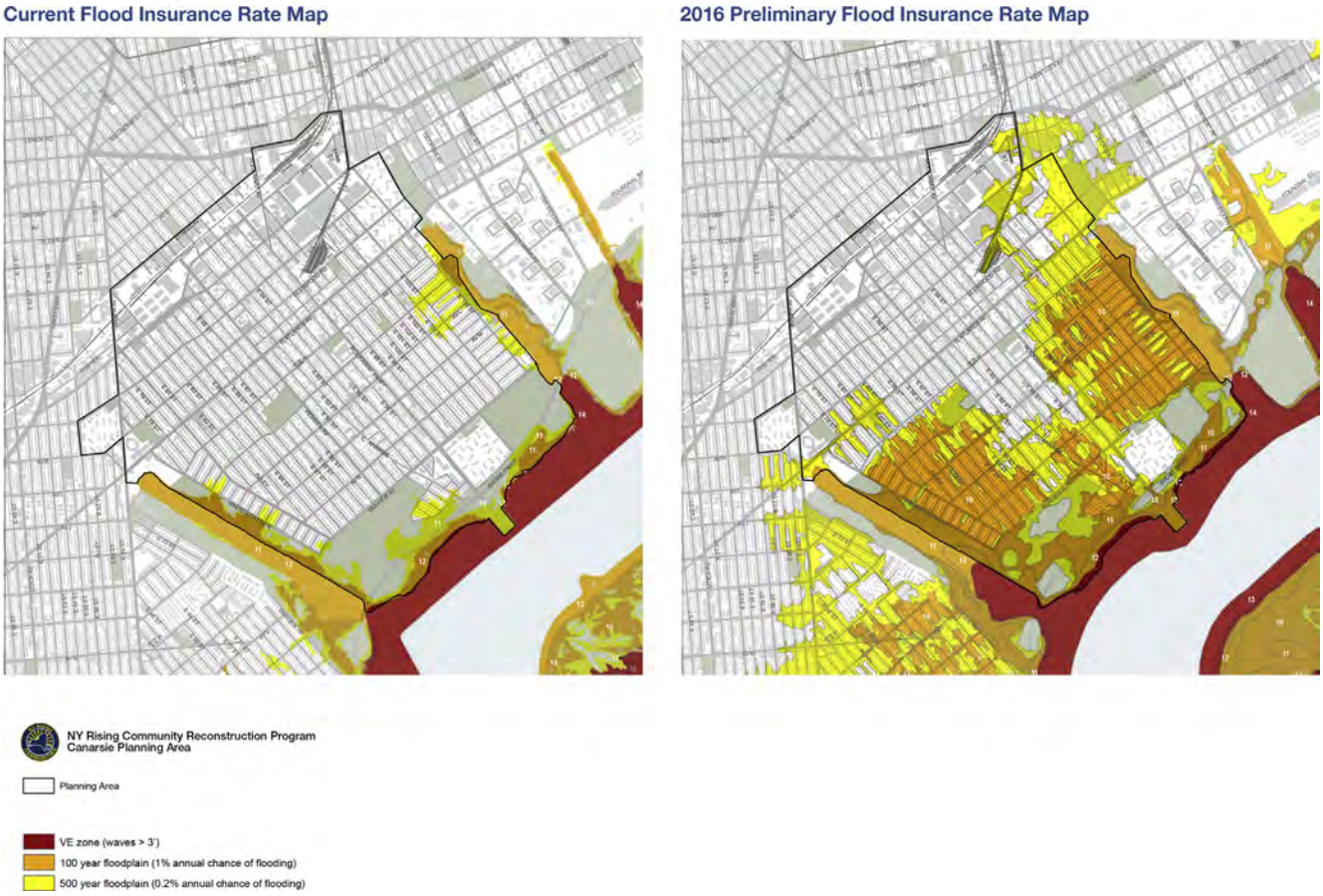


**Fig. 1.** Canarsie's current and preliminary new Flood Insurance Rate Maps (source: New York City Department of City Planning Resilient neighborhoods: Canarsie, May 2017, https://www1.nyc.gov/assets/planning/download/pdf/plans-studies/resilient-neighborhoods/canarsie/summary-report-canarsie.pdf?r=1).

based on a four-year research project during which I spent two summers conducting fieldwork in Canarsie. The bulk of my data comes from participant observation and interviews with Canarsie residents, community organizers, housing counselors, housing recovery organizers, local politicians, and flood risk and resiliency experts from the New York City government. I worked for a nonprofit housing organization in Canarsie and was hired to conduct surveys in the neighborhood for a Flood Insurance Affordability Survey commissioned by the City government; these positions provided me with many opportunities to conduct participant observation and to meet and subsequently interview Canarsie residents about their experiences with flood insurance.

## 2. Canarsie's shifting place in the racial geography of Brooklyn

Located on the coast of Southeast Brooklyn, Canarsie lies on a peninsula formed by Jamaica Bay to the southeast and two inlets to the bay: Fresh Creek Basin on the northeast and Paerdegat Basin to the southwest. The 130-acre Canarsie Park and Canarsie Pier, as well as the Belt Parkway interchange, serve as buffers between the Bay and much of residential Canarsie. There is little separating Canarsie housing from the two surrounding inlets, however, so Canarsie floods from the sides more than from the Bay, as is reflected in the inundation map from Hurricane Sandy[2] (see Fig. 2). Canarsie has a population of 83,000 (NYC DCP, 2017)—an estimate widely thought to be low due to the neighborhood's low census response rate (Bloomberg, 2010). The neighborhood is home to a substantial first- and second-generation Caribbean population, many of whom first settled in the neighborhood in the 1990s and 2000s. Canarsie is a sleepy neighborhood with something of a suburban feel: It contains few retail corridors and no popular tourist attractions and is served by only one end-of-the-line subway station in the northern corner of the neighborhood.

Atypical by New York City standards, Canarsie has one of the highest concentrations of one- and two-family homes in the City, the highest ratio (47%) of owner-occupied houses in Brooklyn (where the average is 28%), and has long served as a gateway to homeownership (NYC DCP, 2017). Canarsie experienced a drastic demographic shift in the past forty years: between 1980 and 1990 Canarsie moved from 85% to 75% white; by 2000 Canarsie was nearly 60% black, which would rise again to 85% by 2010 (Scott, 2001; Center for Urban Research, 2011). In early days of Canarsie's racial transition Rieder (1985) documented white Canarsians' fear that an influx of black homeowners would lead to the sustained deterioration of their middle-class enclave. Twenty-five years later, Candipan et al. (2012: 2) revisited Rieder's work, instead finding that "the story of Canarsie is remarkable for how similar black Canarsie is to white Canarsie and how expectations of dramatic change and deterioration were incorrect." The employment profile of the neighborhood has not significantly changed over the last several decades, with most residents holding solid public-sector jobs; in fact, Canarsie has the highest concentration of New York City municipal employees of any neighborhood in the metropolitan area (NYC DCP, 2017). The median household income in the neighborhood is $66,500, which is above the median for Brooklyn ($45,200) and the City as a whole ($51,900), and the median value of a home in Canarsie is nearly $500,000 and steadily rising—although real estate values only recovered to pre-recession levels last year (NYC DCP, 2017).

[2] Hurricane Sandy inflicted massive damage when it struck the Northeastern seaboard of the United States, including New York City, in late October of 2012. It is not to be confused with Hurricane Katrina, which struck the Gulf coast of the United States, including New Orleans, in late August of 2005.

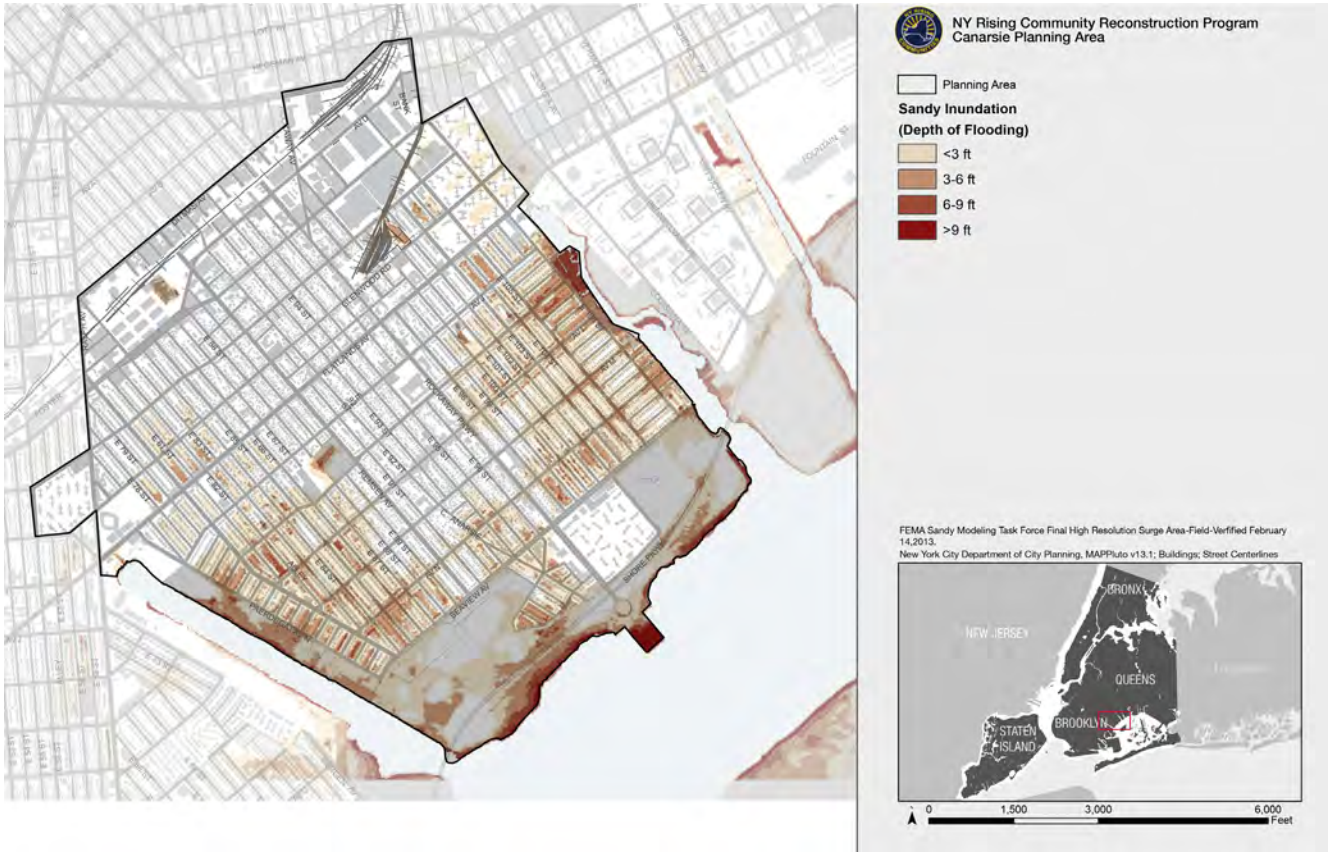


**Fig. 2.** Hurricane Sandy flooding inundation in Canarsie (source: Canarsie NY Rising community reconstruction plan 2014, http://stormrecovery.ny.gov/sites/default/files/crp/community/documents/canarsie_nycr_3-2_final.pdf).

How, then, are we to understand the vulnerability of today's Canarsie residents to NFIP-induced displacement in the context of this narrative of stability and continuity? As Candipan et al. explain, Canarsie residents' vulnerability is in part a reflection of neoliberal economic restructurings that have squeezed the middle classes:

> while white Canarsians had moved into the neighborhood in a Keynesian era of low unemployment, high wages, and relatively generous public services, blacks moved to Canarsie in the neoliberal era, when wages of city jobs Canarsians had long held were being pinched, public higher education had become more expensive, and city services had been cut. (Candipan et al., 2012: 13)

While noting the importance of these broader shifts, given that the NFIP governs flood risks by imposing costs on individual homeowners I argue that Canarsie residents' vulnerability to NFIP-induced displacement must be primarily understood in the context of race-connected housing practices such as residential segregation, redlining, and subprime lending.

Through its early post-colonization history Canarsie remained a largely uninhabited salt marsh, home to scant populations of fishers and farmers. As urban development expanded outward from New York City's center, Jamaica Bay's wetlands began rapidly degrading as infill was dumped in marshy areas like Canarsie to prepare them for land sales and development (Steinberg, 2014) (see Fig. 3).[3] In the early 20th century typhoid outbreaks linked to city sewage outflows into Jamaica Bay shuttered Canarsie's thriving oyster fisheries. The damage this did to Canarsie's waterfront development was compounded by the great depression, and the area came to be home to a series of "vacant land-dumps and swamps," as the initial 1930s Home Owners' Loan Corporation (HOLC) survey characterized Canarsie's physical environment (Nelson et al., 2017). It was in this context that, despite African Americans making up a small minority of Canarsie's private housing, the HOLC classified Canarsie as a "D-Hazardous" (redlined) zone for mortgage lending, also citing the "infiltration of Italians," and the predominance of foreign-born families (60%) (Nelson et al., 2017).

Canarsie's attractiveness to mortgage capital was reversed during the post-World War II housing crisis, which produced a renewed impetus to use infill to reclaim wetlands areas for residential development (Steinberg, 2014) and had the effect of using mortgage capital to suture ethnic white populations such as the Jewish and Italian residents of Canarsie into U.S. white identity (Wilder, 2001). The federal government's response to the post-war housing crisis brought low-interest, zero-down-payment mortgage loans available through the Federal Housing Administration and provisions of the G.I. Bill to millions of new white homeowners in neighborhoods across America, including Canarsie, where thousands of units of housing were built on newly-reclaimed swamps (Mendenhall, 2010). For the next couple decades Canarsie remained a stable gateway to homeownership for lower-to-middle class whites. With mortgage lenders making it clear to white homeowners that their property values hinged upon keeping black residents away, Canarsie's residents organized to maintain the racial exclusivity of Canarsie's private housing, most notably through fierce protests against integration schemes for the local school (Peterson, 1972; Buder, 1972; Buder, 1973).

The following decades brought substantial change to Canarsie. Although white-to-black neighborhood racial transitions are often

[3] In Fig. 3, aerial photos of Canarsie dating back to the 1920s show the much narrower strip of developed land, surrounded by swamps, and its rapid expansion via infill through the 20th century; note the obvious similarity between the lands that were swamps in 1930s Canarsie, and the preliminary 2016 high-risk flood zones for Canarsie today.

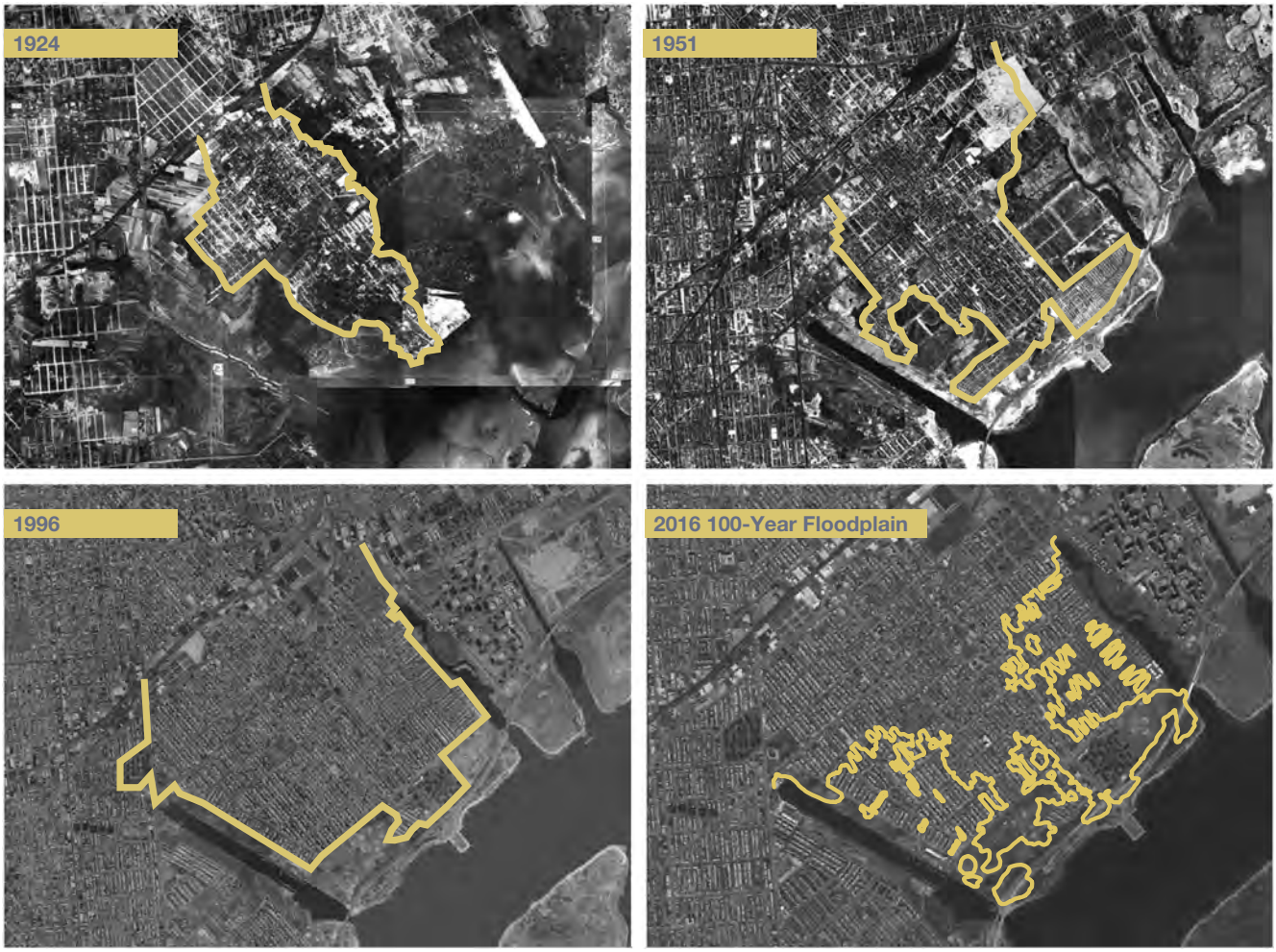


**Fig. 3.** Aerial photos of Canarsie's historic development and 2016 100-year floodplain (source: Canarsie NY Rising community reconstruction plan 2014, http://stormrecovery.ny.gov/sites/default/files/crp/community/documents/canarsie_nycr_3-2_final.pdf).

characterized as 'white flight,' Lauria's (1998) work on racial transition in Eastern New Orleans suggests a reframing that may be applicable to Canarsie. He argues that after years of wanting to move into these neighborhoods to chase the American dream of homeownership they had been excluded from, middle class blacks took advantage of a string of foreclosures amongst suburban whites who bought their houses right before the onset of recession. Thus, these neighborhood changes are best understood as cases of blacks successfully seeking economic opportunity. This framing conforms to the timeline of a deep recession in New York City in the late 1980s and early 1990s, and it fits Rieder's (1985) depiction of a 1980 Canarsie in which, after decades of residents conspiring to exclusively sell their properties to whites, the pool of whites looking to move to Canarsie had run dry and middle-class black families were beginning to move into the neighborhood.

Indeed, Canarsie's demographic transition was in part thanks to successful organizing and lawsuits on the part of black New Yorkers seeking a place in the American dream of homeownership, which resulted in real estate agencies coming under court orders to stop 'steering' black customers away from white enclaves such as Canarsie (The New York Times, 1991). The large wave of immigration from the Caribbean to Southeast Brooklyn in the 1990s also contributed to the critical mass of black homebuyers that successfully unlocked the neighborhood in that decade (Candipan et al., 2012). In this framing, Canarsie's racial transition is driven not only by the agency of white homeowners but also by black residents' struggle for a place in the American dream of homeownership. However, Canarsie's new residents' experiences with mortgage capital would come to stand in marked contrast to white Canarsians' access to easy mortgage credit and low-down payments through post-war FHA policies. Subprime lenders relentlessly targeted Canarsie's black homebuyers through the mid-1990s until the 2007 burst of the subprime bubble, originating more subprime loans in the neighborhood during the 2000s than in any other ZIP code in the city (Mooney, 2008).

## 3. Subprime lending, foreclosed American dreams

Black homeowners' successful breakthrough into the Canarsie housing market prompted local real estate actors to shift strategies to create and profit from new forms of segregation. Realtors, brokers, and lenders oversaw the neighborhood's demographic change by engaging in blockbusting (Holloway, 1995)—convincing white homeowners to sell at discounted prices by raising fears of property values being ruined by integration, then profiting from 'flipping' the house to a black homebuyer at a higher price (Wilder, 2001)—and through the practice of 'racially steering' prospective homebuyers to neighborhoods based upon race (Pearce, 1979; Galster and Godfrey, 2005). Concurrently the broader housing market was restructured by "a new policy regime" that "emphasized the untapped potential of 'new markets' of inner-city neighborhoods, recent immigrants, and other groups traditionally excluded from mainstream financial institutions" (Wyly and Hammel, 2004: 1217). Credit market deregulation, shifts within federal housing policy ostensibly aimed toward remedying racial disparities in access to

mortgage credit, and "the imperatives of financial service competition to strengthen the ties between inner-city neighbourhoods and national and international capital markets" (Wyly and Hammel, 2004: 1216) produced a meteoric rise in subprime loan origination, which grew from $65 billion in 1995 to $625 billion in 2006, by which point 1 in 5 mortgages in the U.S. was subprime (Wyly et al., 2009; Faber, 2013).

In theory, subprime loans are forms of credit offered to people who do not necessarily qualify for prime loans, and lenders typically demand higher rates of interest to account for the riskiness of the loan. In practice, subprime loans were more likely to result in foreclosure, and the subprime market was inundated with predatory lending, "characterized by excessive fees, prepayment penalties, and equity stripping" (Faber, 2013: 330). Groups that had been historically excluded from prime mortgages suddenly became aggressively pursued by subprime lenders, "literally capitalizing on segregation to perpetuate and profit from a dual housing market stratified by race" (Rugh et al., 2015: 188). The real estate industry's careful segregation of places like Canarsie "produced areas of spatially clustered minorities, where subprime loans were efficiently and effectively channeled" (Hwang et al., 2015: 1083). Thus, at the height of the subprime lending boom in 2006, blacks and Latinas were twice as likely as non-Hispanic whites to receive a subprime loan, controlling for all other factors, and approximately half of all loans originated to these groups were subprime (Wyly et al., 2009). These race-connected housing practices have produced mounting pressures on the social reproduction of—and diminished opportunities for home ownership, wealth accumulation, intergenerational wealth transfers, and social mobility among—non-white Americans. At the height of the real estate bubble in 2006 more than 50% of mortgages issued in Canarsie were subprime—more than double the rates for Brooklyn or the city at large (NYC DCP, 2017). By 2011, Canarsie had the highest rate of foreclosures in the city.

Canarsie residents narrated their experiences with subprime lenders as simultaneously outrageous and yet a normal occurrence that was to be expected. One resident who stands out in this regard is Daniel,[4] a 64-year-old of Puerto Rican descent who has been in Canarsie since 1980, long enough to remember the neighborhood when its population was nearly completely white. Daniel spoke with pride about his discipline in saving money and his diligence in closely tracking his credit score—-which he showed me to confirm that his is super prime—nearly 850. "But if I go places, they're not looking at that," he said, "they're not offering me the 4%. [When] I bought this house, I was paying almost 9%. So now with my credit rating, I should've gotten a better deal" (Personal communication, June 15, 2016). He managed to refinance more than a decade into his mortgage but remains rightfully bitter about the years he spent paying exorbitant interest.

It is important to understand why residents like Daniel persisted with attempting to buy a home in Canarsie despite the racist and predatory nature of the real estate industry. Most of the residents I interviewed had moved to Canarsie between 1990 and 2005 and described homeownership as both a path to and a marker of success, as well as an escape from what one woman, after describing coercive rent hikes and repeated moves, called "the rat race of renting in Brooklyn" (Personal communication, June 14, 2016). Residents referred to a sense that owning a home in Canarsie signified having "made it," saying "they say you live in Canarsie; you are rich" (Personal communication, July 30, 2016). "Canarsie is a gem," another repeatedly emphasized to me as he narrated how he had been immediately charmed by the parks, the schools, the suburban-style housing with lawns and gardens, and the distance from the urban core's hustle and bustle (Personal communication, July 8, 2016).

Canarsians' goal of living a middle-class life in a suburban environment and their sense that owning a home in Canarsie signified having "made it" reflects not only the ideological weight of the American dream of homeownership, but also that ideology's material anchoring in the critical role of homeownership in social reproduction. As Taylor (2019) puts it, "Housing is central to the 'good life' in the United States." Homeownership is the most valued possession of those in the bottom 80% of the U.S's wealth distribution; housing equity can perform work, produce income, help accumulate even more of itself, ensure the quality of local schools, and is a powerful means of intergenerational wealth transfer (Henricks, 2015).

One encounter from my experience canvassing door-to-door for the Flood Insurance Affordability Survey in Canarsie was particularly illustrative of these dynamics: Stephanie, a 72-year-old black woman who displays pictures of her more than 100 nieces and nephews in her family room, is a longtime client of the housing organization I was working for, and was enthusiastic when my canvassing partner Sean and I arrived at her door with the news that she had been selected for the survey. But when I reached a survey question about whether she had taken out any second mortgages on her house, her face fell and she looked away, avoiding my eyesight. At Sean's urging ("Go ahead, sis, it's alright—it's just for the survey"), she admitted that she had twice taken out subsequent mortgages on her house: once for her own repairs, and later a much larger mortgage to help a niece become a first-time homebuyer in Arizona. She turned to Sean, who tried to reassure her, "Good for you, see, you helped your family out." "Not good for me; it is because of the mortgage that I have to go back into the workforce," she immediately responded (Personal communication, July 26, 2016).

Stephanie had become a landlord in her own home and even left retirement to keep up with her mortgage. As I watched her attempt to compose herself in front of three strangers bringing word of financial doom on the horizon, surrounded by the beaming faces of the nieces and nephews she nurtures and supports, the stakes of impending NFIP changes on a housing landscape devastated by racialized subprime lending became viscerally clear. Questions of which populations can continue to live by the coasts and under what circumstances are *fundamentally* questions of environmental justice and social reproduction: of the ways that the improvised combinations of paid, unpaid, and future labor—in the form of debt and equity—can be combined to sustain the reproduction of bodies, households, communities, and environments, supporting or undermining different forms of human flourishing (Di Chiro, 2008; Katz et al., 2015). Stephanie's story illustrates the ways in which the house as a financial instrument can support or strain intimate networks of social reproduction. Canarsie homeownership simultaneously exemplifies black middle-class residents successfully staking claim to the American dream of homeownership after decades of lawsuits and organizing against the forces conspiring to exclude them; at the same time as it demonstrates how homeownership and its attendant benefits for social reproduction have been spatially, temporally, and racially delimited.

## 4. The national flood insurance program: resilience for who, and of what type?

Hurricane Sandy swept through Canarsie on October 29th, 2012, damaging 83% of the homes in the neighborhood for an average damage of $30,000 per household (NY Rising, 2014) and flooding thousands of basement rental units. For non-familial basement renters Hurricane Sandy was often a trigger for displacement: the storm destroyed their possessions, submerged their living spaces, and left them at the hands of a disaster recovery complex that systematically disadvantages renters. Canarsie homeowners soon discovered that available recovery funds were often inadequate to their needs, further straining their social reproduction networks. In addition to producing vulnerability and displacement in coastal areas like Canarsie, Hurricane Sandy's human toll and economic costs "jump-started a wide-ranging policy discussion" around adaptation to future climate risks, a shift accompanied by a flurry of policies and programs aiming to promote resilience (de Sousa et al., 2016: 201). The city government launched a

[4] All names used in this article are pseudonyms.

Special Initiative on Recovery and Resilience, which in 2013 released *A Stronger, More Resilient New York*, a report "which committed the city to rebuilding and restructuring the coast to be more resilient" (de Sousa et al., 2016: 201). The following year New York City's mayor established the Office of Recovery and Resilience, and resilience was outlined as a central goal in New York City's sustainability plan *One New York: The Plan for a Strong and Just City*. As Solecki et al. (2016: 2) put it, "New York City woke up to issues of resilience on October 29, 2012."

Resilience also experienced a post-Hurricane Sandy popularization at the federal level: in 2013 President Obama established a Task Force on Climate Preparedness and Resilience, and FEMA has begun characterizing flood insurance as a key to fostering resilience (FEMA, 2018). Yet the NFIP's ability to foster coastal resilience is delimited by the program's contradictory mandate of regulating flood risks while safeguarding coastal property markets: To secure the buy-in from coastal property-holders and legislators that was necessary to pass the NFIP through Congress, the program originally included subsidized premiums that shielded buildings constructed before the NFIP's 1968 inception from steep premiums and corresponding losses in property values (Knowles and Kunreuther, 2014). The NFIP therefore fits neatly into a long history of public monies being used to underwrite private developers' risks (Wilder, 2001: 187). The NFIP has also experienced a sort of mission creep, wherein its mandate has grown from conducting floodplain management in riverside areas of middle America to paying out billions of dollars in relief monies to residents of coastal urban areas devastated by massive storms (Michel-Kerjan, 2010). The program sank into substantial debt after Hurricane Katrina in 2005, and this debt was compounded by Hurricane Sandy in 2012.

The NFIP's mounting debt to the U.S. Treasury has come under Congressional scrutiny in the broader context of budgetary austerity for non-military domestic spending. Just months before Hurricane Sandy's landfall Congress passed the Biggert-Waters Flood Insurance Reform Act with the aim of balancing the NFIP's budget by gradually repealing subsidized premiums for properties built before the NFIP was established (Knowles and Kunreuther, 2014). It was not only Sandy's destruction, but also the impact of Biggert-Waters on coastal real estate markets such as Tampa, where "home sales in some neighborhoods literally stopped" (Harrington, 2016), that brought together an odd bipartisan coalition of coastal legislators who, urged on by the real estate industry, passed the Homeowners Flood Insurance Affordability Act of 2014, capping the annual rate of premium increases at 15% and providing new temporarily-discounted premium structures. The ongoing uncertainty around the future of the NFIP not only demonstrates the contradictory nature of its attempts to render coastal areas resilient, it also gives residents good reason to question the accuracy and longevity of the NFIP's prescriptions for resilience.

The Biggert-Waters law also earmarked funds for FEMA to redraw its FIRMs for the first time since the 1980s, which as noted earlier led to the release of a preliminary new FIRM that dramatically expanded high-risk flood zones throughout New York City and especially in Canarsie. These changes prompted particular alarm in New York City because of the unique characteristics of the City's housing stock. The NFIP ostensibly builds coastal resilience by using premiums to financially coerce residents into retrofitting their structures to reduce their flood risk. Because the NFIP's premium formula is based on the elevation of the lowest level of the structure these retrofits typically involve elevating structures above the floodplain. But this one-size-fits-all approach presents challenges in locales such as New York City, where the material characteristics of the City's building stock (age, construction materials, attached or semi-attached status) "make it prohibitively expensive, physically infeasible, or both, for owners of many properties in the floodplain to meet national flood-resistant construction standards" (NYC DCP, 2017: 16). One report estimates Canarsie retrofits would cost homeowners up to $100,000 (NYC DCP, 2017). But before the new FIRMs could take effect in 2016, the City of New York appealed the flood maps to FEMA. Although the City's complaint focused on a highly technical argument that FEMA used insufficient models and subsequently misrepresented the tidal effects of extra-tropical storms (Zarrilli, 2015), scholars have found that contestations of FIRMs by affected communities are the norm rather than the exception, raising questions about the role of politics in the production of the final maps (Pralle, 2017). In 2016 FEMA accepted the City's appeal and pledged to work with the City to make revised new flood maps, with FEMA's press release trumpeting that "New Yorkers will save tens of millions of dollars in flood insurance premiums as a result of the City's flood map appeal" (FEMA, 2016). Officials in the Mayor's Office of Recovery and Resilience believe that the new FIRMs are unlikely to be ready for implementation before 2021.

The City's FIRM appeal bought Canarsians time to brace for the expanded footprint of the NFIP in the neighborhood, but it also leaves them mired in uncertainty about whether their properties will be mapped into the new high-risk zone and subjected to mandatory flood insurance purchases that could drain their savings and drag down their property values. Properties in Canarsie that are newly mapped into the high-risk flood zone are estimated to see their real estate values drop by $64,000, potentially leaving thousands of Canarsie homeowners owing more principal on the home than it is currently worth on the market (Dixon et al., 2017: 81). That is to say, the mandatory flood premiums imposed by the NFIP threaten to force the very mortgages the NFIP aims to insure underwater. Nationwide, coastal real estate prices are 4.4 percent below what they were a decade ago, despite the 29.7 percent increase in prices in low-risk areas over the same period (Urbina, 2016), and mainstream outlets increasingly warn readers of the impending impacts of flood insurance on real estate (Lieber, 2016). As such, the City's appeal of the preliminary FIRMs exemplifies the dynamic relationship between flood modeling, urban politics, and land market valuations.

## 5. How are residents managing the NFIP's growing influence?

Far from a clear imperative from the flood program to take on certain "resilient practices" (such as elevating their house) or be displaced, Canarsie residents are met by an almost paralyzing number of uncertainties and mixed messages that muddle the NFIP's environmental governance. Residents face a dizzying number of variables affecting whether they will be able to afford their houses over the coming years, including when FEMA and the city will complete the revised FIRMs, how expansive the new FIRMs will be, whether mortgage lenders will enforce the flood insurance purchase requirement, whether Congress will further delay the elimination of subsidized premiums for pre-FIRM properties, and whether city agencies or local non-profits will establish programs to help residents afford the increased NFIP premiums. These uncertainties lead me to question how and through what strategies a Canarsie population whose housing equity has been plundered by subprime lenders will negotiate the NFIP's growing presence in the neighborhood.

Canarsie residents I interviewed were skeptical about NFIP prescriptions for their basements not only because "you are asking me to get rid of living space that I paid for, and you are not giving me anything in return," as one resident noted, but also because basement units often played a crucial role in family networks of social reproduction. This story was typical:

> I have been living in Canarsie since about 1995. I had just gotten married, I was living in another section of Brooklyn, and my sisters moved over here. They bought a house in Canarsie, and my wife and I had just had our first child, we had another child a little older, and we decided to save to get our own house because we were in an apartment. So we came and lived in a basement of my sister's house and saved up enough money, and a year and a half later we bought our house two blocks over from theirs and been in Canarsie ever since. (Personal communication, July 22, 2016)

Many of the residents I spoke with still live with family members. One was Joe, a resident whose sister lives in the downstairs unit of his house. Joe has been living in Canarsie for 28 years; he moved into the basement when his parents bought the house, and later moved out after marrying and starting a family. After a period of renting in other parts of Brooklyn, he returned to live with his sister following his parents' death. Joe and I talked on his balcony, which provides a view of nearby Spring Creek. Eyeing the water and knowing his property is sure to be mapped into the new high-risk zone, I asked Joe whether he planned to get flood insurance. "It is a necessity," he said, "We looked into it. The premium is an added expense because we did not have to pay before. Now it is a necessity. I gotta word this carefully…" he continued slowly, sounding guarded:

> Flood insurance is good, but it does not cover everything—like contents. And right now, looking at the cheapest rate, it is an expense. To be a homeowner around here, you have a family and you are struggling, you got kids, you got a kid in college—I am speaking of myself—everything counts. You gotta cut corners here, cut corners there, all kinds of shit, you know what I mean? (Personal communication, July 14, 2016)

Joe's allusions to struggling and cutting corners, and his intimation that flood insurance will be a corner that it is necessary for his family to cut, hint at the challenges to social reproduction a family must manage to maintain their home and the contradictions that arise when a household's financial resilience requires "cutting corners." His shared residence with his sister and the connection he drew between paying for flood insurance and the financial burden of having a child in college points to the ways in which family members' chances to further socially reproduce themselves are bound up in the continued financial stability of the household. Cutting corners to struggle against foreclosure could mean subdividing the house further to take on more family members (or unrelated renters, which could be riskier but more lucrative) in the same amount of space, strategically failing to pay other bills to maintain the mortgage, and even gradually selling off the house's contents. "The people in Canarsie are a resilient bunch," a civic association leader told me, summing resilience up as "They know how to make ends meet, so to speak."

Many residents expressed a sense of injustice around the costs they would suddenly bear, given that most had never imagined when they moved into the neighborhood that it would become a high-risk flood zone. One resident told me of an 80-year-old woman in his community group who was advised to elevate her home. "Can you imagine her elevating her home, and this lady has to go up and down the stairs for the rest of her life? I mean, come on, common sense will always trump rules" (Personal communication, August 3, 2016). The everyday practices of social reproduction—which are often illegal, such as with basement rental conversions—that allow Canarsie homeowners to persevere in their houses against the racialized odds of the U.S. housing market exemplify this gap between common sense and rules, and between governance as lived and as prescribed.

Unit subdivisions and basement rentals play a crucial role in Canarsie residents' social reproduction networks at the same time as they directly contradict the NFIP's elevation-based premium formula. Flood insurance rates are calculated through elevation certificates that surveyors, civil engineers, and architects use to record the base-level elevation of a structure, as well as details such as the elevation of the utilities in the structure. To lower their flood insurance premiums costs, Canarsie basement owners must first fill in their basement and then pay $500 to $2000 for a surveyor to complete a new elevation certificate. As a result of the elevation certificate structure, residents' primary option for ducking NFIP premiums without engaging in expensive renovations is non-compliance with NFIP purchase mandates.

Given that NFIP compliance could result in residents losing more than $10,000 per year in supplementary income from basement rentals, avoiding paying flood insurance premiums could itself prove to be a strategy that enhances individuals' or families' short-term financial resilience. Flood insurance non-compliance is already prominent in Canarsie: One study estimated that in 2016 just 18% of Canarsie properties impacted by the preliminary FIRM held flood insurance, compared with 43% in their overall study area (Dixon et al., 2017: 68). Throughout my fieldwork, residents hoping to avoid rising premiums for at least a few years—particularly if reforms to the program might lie around the corner—repeatedly asked me whether mortgage lenders are expected to strictly implement the flood insurance purchase requirement. Although Congress has increased the potential penalties for lenders who fail to administer the NFIP purchase mandate, enforcement has historically been lax. Recalling the small payouts those with flood insurance received when Hurricane Sandy hit and the homeowners who had been horrified to see their flood insurance payouts allocated straight to their lenders, David argued:

> I'm saying, what's the purpose of flood insurance? And FEMA is the one who controls flood insurance, who was giving us a hard time. So why purchase flood insurance? They're telling people—they're probably bullying people—saying, 'Well, when the next big storm comes around, you're going to get nothing!' Well guess what FEMA, we didn't get nothing in the first place! Most people went on their own to repair their place in the first place. So what leverage does FEMA have? (Personal communication, July 30, 2016)

Homeowners see the value of the flood insurance program as limited to the possibility of a post-flood payout; David argues that, in the case of post-Hurricane Sandy flood insurance payouts, the NFIP already proved itself more trouble than it is worth. Some residents have already witnessed flood insurance's workings and identified it as an instrument that is easy to pay into but extremely difficult from which to collect a claim payment, and one that exists primarily to protect lenders rather than homeowners. For these residents, the question of paying for flood insurance for years or even decades is a hypothetical choice. On the one hand, they could take the financial hit of several thousand dollars in annual premiums, and still face an uncertain battle for reimbursement when the next storm hits. On the other hand, they could keep the money for flood insurance premiums in their savings, knowing full well that they will shoulder the costs of any future flood damage themselves.

Rather than championing flood insurance non-compliance, my goal is to highlight it with a cautious ambivalence. Decades of racialized housing practices have produced a situation in which Canarsie residents must "cut corners" for their own resilience, but as residents' narratives show, flood insurance may be one of the corners that households need to cut. To the extent that NFIP prescriptions for resilience conflict with Canarsie residents' practices for maintaining their social reproduction in spite of the racialized housing market, the NFIP represents an example of "colorblind adaptation planning" (Hardy et al., 2017: 62) that threatens to reproduce racial inequalities by not accounting for the histories of uneven racial development that have left different populations unevenly vulnerable to sea-level rise and unevenly capable of shouldering NFIP premiums and retrofits. Foregrounding residents' responses and strategies is a method for understanding the contradictions of the NFIP's operationalization of resilience in Canarsie.

## 6. The specter of environmental gentrification

The threat of widespread NFIP-prompted displacement in Canarsie, while tragic for the homeowners involved, might appear on the surface as evidence of the NFIP working as intended: discouraging coastal development in, and encouraging retreat from, risky coastal areas. Yet the glut of luxury redevelopment in the floodplains of coastal neighborhoods with substantially higher property values such as Long Island City, Queens and the Hudson Yards project on the West Side of Manhattan suggests that flood-risk designation restructures the dynamics of coastal real estate markets, rather than foreclosing those markets altogether (Cohen, 2019; Chen, 2018). In this context, we

should be extremely cautious about assuming that NFIP-prompted displacement from Canarsie would be in the service of a retreat from the coasts, rather than an environmental gentrification in which the NFIP triggers the race and class remake of the neighborhood.

Checker (2011: 212) first theorized environmental gentrification as a process that "builds on the material and discursive successes of the urban environmental justice movement and appropriates them to serve high-end redevelopment that displaces low income residents." Scholars have picked up and run with this idea, with Gould and Lewis (2016: 146) proposing green gentrification as "facilitated by the creation or restoration of environmental amenities that draw in a wealthier group of residents." Keenan et al. (2018: 1) investigated how "climate change will effect the marketability and valuation of property" in accordance with the "property's capacity to support habitability in the face of sea-level rise" in ways that produce "climate gentrification." My interest is closest to the "cost-burden pathway," one of the three potential gentrification scenarios Keenan et al. (2018: 3) outlines, in which gentrification occurs because "vulnerable populations are unable to live *in situ*. This would be primarily due to the increased costs of insurance, property taxes, special assessments, property repairs, transportation and consumer goods, as well as a loss in overall productivity" (Keenan et al., 2018: 3). I draw on Neil Smith's theory of gentrification as occurring through the production of rent gaps to elaborate a modified model of environmental gentrification.

Smith (1996) showed that gentrification—the class remake of a neighborhood—occurs when a 'rent gap' emerges between the rents currently being realized from a property, and the rents that could be realized from a property if a reinvestment were made and/or its land-use was altered. This rent gap represents a developer's opportunity to profit off of redevelopment: to buy low and sell high. The NFIP's workings in Canarsie indicate that the program may produce rent gaps in specific contexts. First, the NFIP—particularly post-repeal of subsidized premiums for pre-FIRM structures—devalues existing properties by imposing increased premiums on homeowners. Premiums can be minimized, and the property values salvaged, by reinvesting in the property in the form of a retrofit elevation or redevelopment using resilient building practices. These flood-resilient retrofits are prohibitively expensive (~$100,000) for most Canarsie residents, and the high cost of flood-resilient design and construction may limit the field of contenders for new built investments in the floodplain to high-end luxury developers. There is also evidence that structures with high property values are fairly impervious to the decline in property values that accompanies floodplain designation for most properties, providing further incentive for luxury redevelopment (Hill, 2015; Bin and Kruse, 2006). This environmental gentrification hypothesis requires further investigation: if it carries water then the size of rent gaps will be crucial to mediating whether neighborhoods that are newly designated within high-risk flood zones by the NFIP will face retreat, as has occurred in places like Oakwood Beach in Staten Island (Rush, 2015), or luxury redevelopment, like Hudson Yards and Long Island City.

Canarsie residents' concerns about gentrification emerge not only from the growing influence of the NFIP, but also from the context of rapid gentrification across New York City, which grew particularly intense in the wake of Mayor Bloomberg rezoning roughly one third of the city's total landmass, much of it 'up-zoning' that increased development capacity and triggered gentrification in neighborhoods of color (Angotti and Morse, 2016). Further, the New York City government is deeply embedded in a planning paradigm Stein (2019: 109) characterizes as "whatever the problem, the solution is luxury development," and ongoing luxury redevelopment in other waterfront communities of New York City suggests that this may be true for the problem of climate change as well. However, the die is not yet cast in Canarsie. As this case study has detailed, Canarsie residents are resourceful and deeply prideful of their community. And while many Brooklyn neighborhoods have been 'upzoned' in the past decade to permit high-rise redevelopment, Canarsie residents managed to get the neighborhood 'downzoned' in 2009, foreclosing the possibility of high-density redevelopment for the time being (NYC DCP, 2009). What is certain is that the future of Canarsie will be the result of political choices rather than just economic calculations and infrastructure limitations. As debates about displacement, gentrification, and retreat swirl around Canarsie, we cannot lose sight of the concrete political, social, and economic reasons why these conversations center around a neighborhood like Canarsie, while $10 billion worth of coastal adaptation infrastructure investments are planned to protect lower Manhattan's astonishing concentrations of wealth and political power (de Blasio, 2019). As a local housing counselor put it, "we can do this the market way, or we can do this the non-market path. If we go the market path, Canarsie is going to be condos and hotels for JFK [airport], okay? But it doesn't have to be that way." (Personal communication, July 28, 2016)

## 7. Conclusion

The head insurance counselor at the housing organization in which I conducted my participant observation began her flood insurance counseling sessions with the line: "Let go of 'fair,' because it's an insurance program. And let go of 'common sense,' because it's created by Congress" (Personal communication, June 16, 2016). From this inauspicious start, she would slowly outline the ways in which the homeowners stood to be impacted by the NFIP. Conversations would gradually edge toward questions of how, when, and whether the flood insurance purchase requirements would be enforced, and whether the residents should just leave New York and cut their losses, with most conversations culminating in residents bluntly asking the counselor what they should do. She would gently affirm that her clients are caught in between a rock and a hard place, because while money is available for repairs, it is not available for the type of expensive retrofit projects that would be required to allow residents to retain their houses while paying low flood premiums. Her final advice: There are no good answers; do basic repairs, keep your eye on the market, and perhaps wait to see if a government subsidy, nonprofit program, or infrastructure initiative comes around. This is the crux of the Canarsie flood insurance dilemma, and indeed of social reproduction crises more broadly: contradictions, paradoxical choices, and dissatisfying conclusions.

The contradictions between the NFIP's environmental governance in Canarsie and the social reproduction strategies residents use to shoulder the historical burden of race-connected housing practices such as subprime lending demonstrate that the NFIP is engaging in "colorblind adaptation planning" (Hardy et al., 2017: 62). The dissonance between the NFIP's technocratic, one-size-fits-all solutions for resilience and the demands of Canarsians' everyday lives exemplifies the "racialized climate gap" where the cause of Canarsians' uneven vulnerability—"systemic racism—is more easily dismissed and/or its importance in adaptation planning underestimated" (Hardy et al., 2017: 69). To this extent, the NFIP's mode of environmental governance—and of fostering resilience—is itself a racial project, "simultaneously an interpretation, representation, or explanation of racial dynamics, and an effort to reorganize and redistribute resources along particular racial lines (Omi and Winant, 2014: 56); the NFIP 'fosters resilience' by doubling down on existing racial inequalities in the housing market, but the way in which its operation is racially disparate is cloaked by the program's ostensible colorblindness.

The case of flood insurance in Canarsie shows how the NFIP, by governing through the mechanism of household finances, stands to reproduce and accelerate existing racial inequalities in the housing market. In this way, the NFIP provides another example of how resilience is used to rhetorically place the onus on local actors to adapt to "the logics and implications of global capitalism and climate change" (MacKinnon and Derickson, 2013: 266). However, Simon and Randalls (2016: 6) have noted that the tendency of critical resilience studies to

focus on the discursive deployment of resilience "gives resilience a coherence that is questionable" and "does not tell us so much about how resilience comes to be and how to interrogate it." Against that trend, this study illustrates the value of a methodological focus on residents' acts, practices, and strategies of social reproduction; on how programs that claim to foster resilience impact peoples' everyday lives. Between the incentives for residents to duck NFIP compliance, legislative uncertainty about the NFIP's future, the program's relationship with the real estate industry, and the New York City government's injunction against updated FIRMs, the Canarsie case shows that particular visions of resilience struggle for coherence and operationalization in particular sites and programs of environmental governance against competing visions of resilience and in the context of "pre-existing urban development dynamics" (Graham et al., 2016: 113).

Reflecting upon the NFIP's convoluted attempts to foster resilience, one resident forcefully questioned, "what's the purpose of flood insurance?" The Canarsie case study indicates that while the purpose of flood insurance is a contradictory mandate to both build resilience and safeguard accumulation in coastal property markets, the effect of flood insurance is to disproportionately displace homeowners of color. Although Canarsie's future development trajectory remains uncertain, this paper presents emerging evidence that the NFIP plays a role in encouraging environmental gentrification, in which fostering resilience in neighborhoods like Canarsie entails displacement and luxury redevelopment. Further research is needed into the NFIP's muddled attempts to foster coastal resilience, the intersection between the NFIP and the racial housing wealth gap, the ways different communities grapple with rising flood insurance premiums, and the ways the dynamics and histories of urban real estate development mediate the operationalization of resilience in specific contexts. In doing so, researchers and activists can begin to map out the inequalities and contradictions that emerge from the policies and programs that will govern who can continue to live by the coasts in an age of climate change.

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## Declaration of Competing Interest

None.

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## References

Adger, W.N., Hughes, T., Folke, C., Carpenter, S., Rockstrom, J., 2005. Social-ecological resilience to coastal disasters. Science 309 (5737), 1036–1039. https://doi.org/10.1126/science.1112122.

Aerts, J., Botzen, W.J.W., 2011. Flood-resilient waterfront development in New York City: bridging flood insurance, building codes, and flood zoning. Ann. New York Acad. Sci., (Flood-Resilient Waterfront Development in New York City) 1–82. https://doi.org/10.1111/j.1749-6632.2011.06074.x.

Angotti, T., Morse, S., 2016. Zoned Out! Race, displacement, and city planning in New York City. Terreform.

Bin, O., Kruse, J.B., 2006. Real estate market response to coastal flood hazards. Nat. Hazard. Rev. 7 (4), 137–141.

Bloomberg, M., 2010. Mayor Bloomberg details neighborhood by neighborhood 2010 census response rates in final push to increase participation. Office of the Mayor. Retrieved from < http://www1.nyc.gov/office-of-the-mayor/news/146-10/mayor-bloomberg-details-neighborhood-neighborhood-2010-census-response-rates-final-push-to > .

Branco, B., Waldman, J., 2016. Resilience practice in urban watersheds. In: Prospects for Resilience: Insights from New York City's Jamaica Bay. Island Press, Washington, D.C., pp. 21–42.

Brown, K., 2013. Global environmental change I: A social turn for resilience? Prog. Hum. Geogr. 38 (1), 107–117. https://doi.org/10.1177/0309132513498837.

Buder, L., 1972. Eggs and rocks thrown as Canarsie school boycott continues. The New York Times. Retrieved from < http://www.nytimes.com/1972/11/01/archives/eggs-and-rocks-thrown-as-boycott-at-canarsie-school-continues-eggs.html > .

Buder, L., 1973. Attendance off sharply in Canarsie school boycott. The New York Times. Retrieved from < http://www.nytimes.com/1973/03/03/archives/attendance-off-sharply-in-canarsie-school-boycott.html > .

Candipan, J., Cordeau, R., Peterson, M., Riordan, N., Peker, B., Shallow, D., Smithsimon, G., 2012. Revising Canarsie: racial transition and neighborhood stability in Brooklyn. In: DeSena, Judith N., Shortell, Timothy (Eds.), The World in Brooklyn: Gentrification, Immigration, and Ethnic Politics in a Global City. Lexington Books, Lanham, MD.

Center for Urban Research, 2011. New York City demographic shifts, 2000 to 2010. Retrieved from. http://www.urbanresearchmaps.org/plurality/.

Checker, M., 2011. Wiped out by the "Greenwave": environmental gentrification and the paradoxical politics of urban sustainability. City Soc. 23 (2), 210–229. https://doi.org/10.1111/j.1548-744X.2011.01063.x.

Chen, S., 2018. New buildings rise in flood zones. The New York Times. Retrieved from < https://www.nytimes.com/2018/07/06/realestate/luxury/new-buildings-rise-in-flood-zones.html > .

Cohen, M., 2019. Hudson Yards developers say protection against natural disasters and terrorism is part of its design. 6sqft. Retrieved from < https://www.6sqft.com/hudson-yards-developers-say-protection-against-natural-disasters-and-terrorists-is-part-of-its-design/ > .

de Blasio, B., 2019. My New Plan to Climate-Proof Lower Manhattan. New York Magazine. Retrieved from < http://nymag.com/intelligencer/2019/03/bill-de-blasio-my-new-plan-to-climate-proof-lower-manhattan.html?fbclid=IwAR0KSLYM2Rmwe7D_3bbZJ3IHmSARjvST6Gc_L1JT1UltTbC5jVGX76mMlbw > .

de Sousa, M., Miller, S., Dorsch, M., Montalto, F., 2016. Green infrastructure as climate change resiliency strategy in Jamaica Bay. In: Prospects for Resilience: Insights from New York City's Jamaica Bay. Island Press, Washington, D.C., pp. 193–216.

Di Chiro, G., 2008. Living environmentalisms: coalition politics, social reproduction, and environmental justice. Environ. Polit. 17 (2), 276–298.

Dixon, L., Clancy, N., Miller, B., Hoeberg, S., Lewis, M., Bender, B., et al., 2017. The cost and affordability of flood insurance in New York City: economic impacts of rising premiums and policy options for one- to four-family homes. RAND Center for Catastrophic Risk Management and Compensation, Prepared for the New York City Mayor's Office of Long-Term Planning and Sustainability. Retrieved from < https://www.rand.org/pubs/research_reports/RR1776.html > .

Emerson, R., Fretz, R., Shaw, L., 2011. Writing Ethnographic Fieldnotes, second ed. University of Chicago Press, Chicago.

Faber, J., 2013. Racial dynamics of subprime mortgage lending at the peak 23(2), 328–349.

Faber, J., Ellen, I.G., 2016. Race and the housing cycle: differences in home equity trends among long-term homeowners. Housing Pol. Debate 26 (3), 456–473. https://doi.org/10.1080/10511482.2015.1128959.

FEMA, 2016. Mayor de Blasio and FEMA announce plan to revise NYC's flood maps. Retrieved from < https://www.fema.gov/news-release/2016/10/17/mayor-de-blasio-and-fema-announce-plan-revise-nycs-flood-maps > .

FEMA, 2018. Resilience. Retrieved from < https://www.fema.gov/resilience > .

Gaillard, J., 2012. The climate gap. Climate Dev. 4 (4), 261–264. https://doi.org/10.1080/17565529.2012.742846.

Galster, G., Godfrey, E., 2005. By words and deeds: racial steering by real estate agents in the U.S. in 2000. J. Am. Plan. Assoc. 71 (3), 251–268. https://doi.org/10.1080/01944360508976697.

Gibbs, M., 2016. Why is coastal retreat so hard to implement? Understanding the political risk of coastal adaptation pathways. Ocean Coast. Manag. 130, 107–114. https://doi.org/10.1016/j.ocecoaman.2016.06.002.

Gillard, R., 2016. Questioning the diffusion of resilience discourses in pursuit of transformational change. Global Environ. Polit. 16 (1), 13–20.

Gould, K., Lewis, T., 2016. Green gentrification and hurricane sandy: the resilience of the green growth machine around Brooklyn's Gowanus Canal. In: O'Neill, Karen, Van Abs, Daniel (Eds.), Taking Chances: The Coast after Hurricane Sandy. Rutgers University Press, New Brunswick, pp. 145–163.

Graham, L., Debucquoy, W., Anguelovski, I., 2016. The influence of urban development dynamics on community resilience practice in New York City after Superstorm Sandy: experiences from the Lower East Side and the Rockaways. Global Environ. Change 40, 112–124. https://doi.org/10.1016/j.gloenvcha.2016.07.001.

Hardy, R.D., Milligan, R., Heynen, N., 2017. Racial coastal formation: The environmental injustice of colorblind adaptation planning for sea-level rise. Geoforum 87, 62–72. https://doi.org/10.1016/j.geoforum.2017.10.005.

Harrington, J., 2016. Remember the flood insurance scare of 2013? It's creeping back into Tampa Bay and Florida. Tampa Bay Times. Retrieved from < https://www.tampabay.com/news/business/banking/remember-the-flood-insurance-scare-of-2013-its-creeping-back-into-tampa/2288308 > .

Henricks, K., 2015. Bursting whose bubble? The racial nexus between social disaster, housing wealth, and public policy. Soc. Justice Res. 28, 318–338. https://doi.org/10.1007/s11211-015-0244-8.

Hill, A., 2015. Do floodplain delineations decrease property values? Evidence from New York after Hurricane Sandy. Williams College. Retrieved from < https://ces.williams.

edu/files/2009/08/Hill_Hurricane_Sandy_floodplains_propvalue-2.pdf > .
Holling, C., 1973. Resilience and stability of ecological systems. Annu. Rev. Ecol. Syst. 4, 1–23.
Holloway, L., 1995. U.S. is investigating charges of blockbusting. The New York Times. Retrieved from < https://www.nytimes.com/1995/10/22/nyregion/us-is-investigating-charges-of-blockbusting.html > .
Hwang, J., Hankinson, M., Brown, K.S., 2015. Racial and spatial targeting: segregation and subprime lending within and across metropolitan areas. Soc. Forces 93 (3), 1081–1108. https://doi.org/10.1093/sf/sou099.
Katz, C., Marston, S., Katharyne, M., 2015. Demanding Life's work. In: Meehan, K., Strauss, K. (Eds.), Precarious Worlds: Contested Geographies of Social Reproduction. University of Georgia Press, Athens, GA, pp. 174–188.
Keenan, J., Hill, T., Gumber, A., 2018. Climate gentrification: from theory to empiricism in Miami-Dade County, Florida. Environ. Res. Lett. 13.
Knowles, G., Kunreuther, H., 2014. Troubled waters: the national flood insurance program in historical perspective. J. Pol. History 26 (3), 327–353.
Lauria, M., 1998. A new model of neighborhood change: reconsidering the role of white flight. Housing Pol. Debate 9 (2), 395–424. https://doi.org/10.1080/10511482.1998.9521300.
Lemos, M.C., Agrawal, A., 2006. Environmental governance. Annu. Rev. Environ. Resour. 31, 297–325.
Lieber, R., 2016. You're Buying a Home. Have You Considered Climate Change? The New York Times. Retrieved from < https://www.nytimes.com/2016/12/02/your-money/youre-buying-a-home-have-you-considered-climate-change.html > .
MacKinnon, D., Derickson, K., 2013. From resilience to resourcefulness: a critique of resilience policy and activism. Prog. Hum. Geogr. 37 (2), 253–270.
Mendenhall, R., 2010. The political economy of black housing: from the housing crisis of the great migrations to the subprime mortgage crisis. Black Scholar 40 (1), 20–34. https://doi.org/10.1080/00064246.2010.11413507.
Michel-Kerjan, E., 2010. Catastrophe economics: the national flood insurance program. J. Econ. Perspect. 24 (4), 165–186.
Mooney, J., 2008. Homey, but no haven from hard times. The New York Times. Retrieved from < https://www.nytimes.com/2008/10/12/realestate/12livi.html?adxnnl=1&pagewanted=all&adxnnlx=1427768515-Wy+Tt/iq4JeoKjadEHFYow > .
Morrison, A., Westbrook, C.J., Noble, B.F., 2018. A review of the flood risk management governance and resilience literature. J. Flood Risk Manage. 11, 291–304.
Nader, L., 1972. Up the anthropologist: perspectives gained from studying up. In: Hymes, D. (Ed.), Reinventing Anthropology. Pantheon Books, New York, pp. 284–311.
Nelson, R., Winling, L., Marciano, R., Connoly, N., et al., 2017. Mapping inequality: redlining in new deal America. American Panorama. Accessed March 14, 2019: See Brooklyn Redlining map accessible via < https://dsl.richmond.edu/panorama/redlining/#loc=4/36.71/-96.93&opacity=0.8&text=about > .
New York City Department of City Planning, 2009. Canarsie Rezoning. Retrieved from. https://www1.nyc.gov/assets/planning/download/pdf/plans/canarsie/canarsie.pdf.
New York City Department of City Planning, 2017. Resilient Neighborhoods: Canarsie. Retrieved from. https://www1.nyc.gov/assets/planning/download/pdf/plans-studies/resilient-neighborhoods/canarsie/summary-report-canarsie.pdf?r=1.
Norton, J., Katz, C., 2017. Social reproduction. In: Richardson, D., Castree, N., Goodchild, M., Kobayashi, A., Liu, W., Marston, R. (Eds.), The International Encyclopedia of Geography. John Wiley & Sons.
Rising, N.Y., 2014. Canarsie NY Rising community reconstruction plan. Retrieved from. Governor's Office of Storm Recovery. https://stormrecovery.ny.gov/sites/default/files/crp/community/documents/canarsie_nyrcr_3-2_final.pdf.
Omi, M., Winant, H., 2014. Racial Formation in the United States. Routledge.
Pearce, D., 1979. Gatekeepers and Homeseekers: Institutional Patterns in Racial Steering. Soc. Probl. 26 (3), 325–342.
Peterson, I., 1972. The bus was not welcome. The New York Times. Retrieved from < http://www.nytimes.com/1972/10/22/archives/the-bus-was-not-welcome-canarsie.html > .
Pralle, S., 2017. Drawing Lines: FEMA and the Politics of Mapping Flood Zones. Presented at the American Political Science Association's Annual Conference, San Francisco, California. Retrieved from < https://www.maxwell.syr.edu/uploadedFiles/faculty/psc/Pralle_Drawing%20Lines_APSA2017.pdf > .
Rieder, J., 1985. Canarsie: The Jews and Italians of Brooklyn against Liberalism. Harvard University Press, Cambridge.
Rugh, J., Albright, L., Massey, D., 2015. Race, space, and cumulative disadvantage: a case study of the subprime lending collapse. Soc. Probl. 62, 186–218.
Rush, E., 2015. Leaving the Sea: Staten Islanders Experiment with Managed Retreat. Urban Omnibus. Retrieved from < https://urbanomnibus.net/2015/02/leaving-the-sea-staten-islanders-experiment-with-managed-retreat/ > .
Scott, J., 2001. A region of enclaves: Canarsie, Brooklyn; "For Sale" signs greet newcomers. The New York Times. Retrieved from < http://www.nytimes.com/2001/06/18/nyregion/the-census-a-region-of-enclaves-canarsie-brooklyn-for-sale-signs-greet-newcomers.html > .
Sharp, G., Hall, M., 2014. Emerging forms of racial inequality in homeownership exit, 1968–2009. Soc. Probl. 61 (3), 427–447.
Simon, S., Randalls, S., 2016. Geography, ontological politics and the resilient future. Dialogues Human Geogr. 6 (1), 3–18.
Smith, N., 1996. The New Urban Frontier: Gentrification and the Revanchist City. Routledge.
Solecki, W., Sanderson, E., Waldman, J., Parris, A., 2016. Why prospects of resilience in Jamaica Bay? In: Prospects for Resilience: Insights from New York City's Jamaica Bay. Island Press, Washington, D.C., pp. 3–20.
Steinberg, T., 2014. Gotham Unbound: The Ecological History of Greater New York. Simon & Schuster, New York.
Taylor, K.-Y., 2019. Housing market racism persists despite "fair housing" laws. The Guardian. Retrieved from < https://www.theguardian.com/commentisfree/2019/jan/24/housing-market-racism-persists-despite-fair-housing-laws > .
The New York Times, 1991. Realty agency in fire subject to bias order, 1991. The New York Times. Retrieved from < https://www.nytimes.com/1991/07/18/nyregion/realty-agency-in-fire-subject-to-bias-order.html > .
Tierney, K., 2015. Resilience and the neoliberal project: discourses, critiques, practices—and Katrina. Am. Behav. Sci. 59 (10), 1327–1342. https://doi.org/10.1177/0002764215591187.
Urbina, I., 2016. Perils of Climate Change could Swamp Coastal real Estate. The New York Times. Retrieved from < https://www.nytimes.com/2016/11/24/science/global-warming-coastal-real-estate.html > .
Wilder, C.S., 2001. A Covenant with Color: Race and Social Power in Brooklyn. Columbia University Press, New York.
Wyly, E., 2010. The subprime state of race. In: Smith, Susan, Searle, Beverley (Eds.), The Blackwell Companion to the Economics of Housing: The Housing Wealth of Nations. Blackwell Publishing, Hoboken.
Wyly, E., Hammel, D., 2004. Gentrification, segregation, and discrimination in the American urban system. Environ. Plan. A 36, 1215–1241. https://doi.org/10.1068/a3610.
Wyly, E., Moos, M., Hammel, D., Kabahizi, E., 2009. Cartographies of race and class: mapping the class-monopoly rents of American subprime mortgage capital. Int. J. Urban Reg. Res. 33 (2), 332–354.
Zarrilli, D., 2015. Appeal of FEMA's preliminary flood insurance rate maps for New York City. City of New York Mayor's Office of Recovery and Resilience. Retrieved from < http://www1.nyc.gov/assets/floodmaps/images/content/pages/1-NYC%20FEMA%20Appeal%20FINAL%20with%20Appendices%20and%20Cover%20Letter%2006252015_web.pdf > .

# Riverdale Nature Preservancy

3 February 2021



Ms. Marisa Lago
Chair, New York City Planning Commission
Calendar Information Office
120 Broadway, 31st Floor
New York, NY 10271

Re: Zoning for Coastal Flood Resiliency
N 210095 ZRY

Dear Chair Lago,

Thank you for the opportunity to comment on the proposed zoning text amendments intended to address resiliency in New York City's five boroughs. The Riverdale Nature Preservancy based in Bronx Community Board 8 received the presentation at the Special Meeting held on November 30, 2020 and testified at the Board's Land Use Committee public hearing on December 7, 2020. Our organization's mission includes protection and preservation of natural features, historic resources and neighborhood character in a district notable for steep slopes, mature trees and stream corridors that range from Van Cortlandt Park to the Hudson River, and includes notable landmarks and historic districts in a variety of public environments: Wave Hill, Riverdale Park and the oldest public golf course in the USA.

The Preservancy applauds the Department of City Planning for initiating a complex undertaking, but wishes to express reservations on the proposed text amendments. The proposal before you is multi-faceted and attempts to address a variety of issues related to resiliency, but its name is incorrect; it address flood zones, waterfront areas, and every borough of the entire city! While there are sophisticated and nuanced efforts to allow for longer range responses to climate change, the lack of clarity and predictability in the proposed text noted by our community board's resolution can lead to confusion in implementing these rules.

We further note that in today's testimony at the public hearing, several speakers referenced an extensive outreach to affected communities. I do not recall any such outreach to our community. Our district includes coastal frontage on the Hudson River, Harlem River and Spuyten Duyvil Creek, and includes several stream corridors that flow directly into the Hudson River. The affects of climate change and rising waters are felt in our neighborhoods as well.

In the interest of commenting briefly, RNP addresses the proposal thematically in this statement to relate to the types of text changes

*Directors and Officers*

proposed; we attach a commentary on each Zoning Resolution section for your consideration.

**FLOOD ZONES** (limited to designated flood zones)
The Preservancy supports the effort to create a zoning section that creates tools for areas in FEMA designated flood zones and coordinate with Appendix G of the NYC Building Code, but oppose the rules as proposed. The effort to provide as-of-right regulations must be clear for existing buildings, and should limit new development in these areas to address future concerns. We recommend the following general modifications to reduce confusion:

- Establish a clear "reference plane" definition that is related to curb elevation (base plane) and/or flood plain relative to specific map designations.
- Restrict development in all instances to no more than the underlying district's FAR limits.
- Allow for more flexible proof of prior construction similar to the text proposed for the Recovery Zone.
- Support the deductions for mechanical, electrical and plumbing spaces within building footprints;
- Oppose deductions for grade-level entry areas;
- Agree with requests to encourage dry-proofing ground level spaces to maintain vibrant streetscapes;
- Support streetscape screening mitigation when wet-proofing is used for ground floor uses;
- Support allowances for stairs to access raised entries, but require that they count toward lot coverage.

**WATERFRONT ZONING**
RNP supports the changes proposed as they will improve the design of public areas within the Waterfront Zones and allow for greater flexibility and neighborhood related designs in connecting public access to upland areas.

**PERMITTED OBSTRUCTIONS** (citywide text)
We support the proposal to add back-up generators, solar installations and battery storage to the items that qualify as permitted obstructions, but ask that these items be included in calculations of lot coverage and/or impervious area to limit their impact on green areas. We would note that back-up generators are essentially gas powered units, and that they require substantial air flow to test and operate properly, as well as be located well away from openings that provide ventilation. The language requiring them to be located within the building or structure should be reviewed to allow for locations on rooftops for larger buildings.

We also support the provisions allowing for stairs and ramps for accessibility to be included as permitted obstructions.

**RECOVERY ZONES** (citywide text)
This section of the proposal is the most troubling part of the proposal. The initiative to declare a specific recovery zone and adopt meaningful tools to

address challenges is just overly broad and inappropriate for the current situation. We recommend:

- Delineate or reference a specific procedure for the declaration of a Recovery Zone.
- Adopting the language that requires a formal text amendment by the City Planning Commission to identify the area of a Recovery Zone.
- Oppose the proposal to include waivers of building envelope or use controls to address the issues arising from the Coronavirus Pandemic.
- Support the proposal to allow for extensions of approvals and permits due to the Pandemic. This text would be useful in addressing delays to due climate events as well.

**BSA** (flood zones)
RNP opposes the proposal to allow BSA to increase building height or floor area beyond what is allowed by the underlying district, except in relation to requirements related to the flood elevation.

**SPECIAL NATURAL AREA DISTRICT**
RNP appreciates that the majority of the flood zone areas are not built up areas of SNAD in Bronx CB8, however it should be clarified that the requirements to preserve natural features, including trees, plantings, rock outcroppings and steep slopes are directly related to limiting construction in zones that are subject to flooding. The provisions of the Flood Zone text should not override SNAD requirements other than to allow for flexibility in building height related to flood planes if rebuilding is subject to FEMA insurance regulations.

In closing, RNP asks that the City Planning Commission review the proposal with the added lens of preserving neighborhood character. It was interesting to hear several speakers address that specific goal in a variety of recommendations at the public hearing, including the Manhattan Borough President, Municipal Arts Society and Resilient Red Hook. We agree that a one-size-fits-all approach is rarely successful in a city as diverse as New York, and coincides with the need to provide for a zoning regulation that encourages responses that support the natural environments in our climate compromised areas.

Best Regards,

Sherida E. Paulsen
*Chairman*

Peter Kohlmann
*President*

| | |
|---|---|
| Article 1, Chapter 1 | Support proposal to establish relevant maps for approval |
| Article 1, Chapter 2 | Support definition changes, but oppose base plane refere than a clear definition of the flood zone alternative "refere |
| Article 1, Chapter 3 | Support relocating screening requirements to Flood Zone |
| Article 2, Chapter 2 | Support limitations on Nursing Homes in Flood Zones. |
| Article 2, Chapter 3 | Support expanded definitions of permitted obstructions, r locations and requirements for screening and size. |
| | Support inclusion of ramps and lifts as permitted obstruct |
| Article 2, Chapter 4 | see notes for Article 2, Chapter 3 |
| Article 3, Chapter 3 | see notes for Article 2, Chapter 3 |
| Article 3, Chapter 7 | Support locating streetscape regulations in a consolidate |
| Article 4, Chapter 3 | see notes for Article 2, Chapter 3 |
| Article 6, Chapter 2 | Support Waterfront Area modifications; the edits are exte retain the dimensional requirements for yards, public spa access while allowing for better flexibility in design. |
| Article 6, Chapter 4 | Flood Zones. RNP opposes the adoption of this section for comment. |
| 64-00 (b) | delete reference to "usable interior space." No such star the zoning resolution, and this should relate to zoning flo defined pursuant to a clearly defined "reference plane" a list of areas excluded from zoning floor area. |
| 64-11 | Definitions for basement and cellar should be retained. T are noted on Certificates of Occupancy by DOB and sho for reconstruction and/or rebuilding. |
| | Cottage Envelope - ok |
| | First Story above the Flood Elevation should not be adop for purposes of consistency with with C of O records, sim floor |
| | Flood Map should be defined in relation to NYC Building Appendix G as it guides the construction standards. |
| | Lowest usable floor should not include cellars or baseme |

| | |
|---|---|
| | Reference Plane should be clearly defined as a replacement for "base plane" in setting the starting point for measurement of height and needs to be defined in relationship to curb or flood elevations. The proposed text is too confusing to be applied or interpreted. |
| 64-12 | The applicability of this section is optional? That does not allow for flexibility at all. It creates a section of zoning that is arguable at length without any predictable outcomes. |
| 64-13 | The Flood Zones section should target any overrides of the provisions of the Zoning Resolution, and be specific to height and use, along with pemitted obstructions if required for rebuilding. New buildings in Flood Zones should comply with base district lot coverage requirements for the purpose of limiting water flow. |
| 64-20 | Special Use Regulations - optional? |
| 64-211 | Allows for commercial uses to be located at grade in flood zones. The logic of the language is confusing. |
| 64-221 | This section is should be labelled as signage height to clarify for use. |
| 64-222 | maintain ground floor use regulations that reference the relationship to base plane, substitute reference plane as basis. |
| 64-30 | Optional? |
| 64-311 (a) (b) | support |
| 64-311 © | Non-residential uses should be allowed full deductions for MEP and flood control related spaces, subject to requirements for floor space and headroom restrictions discussed in relationship to height concerns in residential districts. |
| 64-312 | Permitted obstructions located in yards, courts or open space should count toward lot coverage to prevent overbuilding in open areas. However, temporary berms or flood control devices should be excluded. |
| 64-313 | Height regulations that allow for permitted obstructions should not include lot coverage exceptions. Lot coverage is an important component of streetscape as well as land coverage that is relevant to flood mitigation. |
| 64-32 | Optional? |
| Illustrative Examples | Simplify by just defining and utilizing the reference plane as the basis for measurement. |
| 64-322 (a) | Floor Area should include Entryways |
| 64-322 (b) | No increase in Floor Area Ratios should be allowed. Underlying district should apply. |
| 64-322 (c) | Usable/habitable ground floor uses should count toward Floor Area |
| 64-323 | Flood resistant Buildings should be allowed to vary the grade elevations of the yards and open spaces. |

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| 64-323 (b) | Permitted obstructions located in yards, courts or open space should count toward lot coverage to prevent overbuilding in open areas. However, temporary berms or flood control devices should be excluded. Height limitiations are ok. |
| 64-324 | Street wall modifications are ok. |
| 64-33 | No additional FAR should be allowed for "cottage envelope buildings." The yard exceptions seem reasonable on smaller lots, but lot coverage should still be restricted. |
| 64-40 | Optional? |
| 64-411 | The intention to allow for below-grade parking to relocate to grade is acceptable, but the need to address curb cuts is confusing. Does the building lose required parking spaces if the number or length of curb cuts cannot be expanded? Even if the Commissioner of Buildings allows such reduction, that may be detrimental to the building's continued use. And more screening and lighting requirements need to be addressed. |
| 64-42 | Parking for 1-2 famliy buildings located at grade below the first floor is acceptable |
| 64-50 | Streetscape mitigation seems to be an important component of planning for pedestrian friendly and safe streets. This section should be required. |
| 64-60 | We support continuation of non-conforming uses and non-complying buildings for neighborhood preservation, but oppose allowing for expansion of such uses and buildings that exceed underlying district regulations. This section should be reconsidered. |
| 64-614 | The burdens impsed by this section will delay site clean up and improvement. The limitations of available approved site and/or building drawings should require a simplified alternative for documentation. |
| Article 6, Chapter 5 | Designated Recovery Areas; RNP opposes the adoption of this section as presented. |
| | While we appreciate the need to develop tools to address disasters or emergency situations, the proposed text is not supportable. |
| 65-01 | oppose |
| 65-10 | generally support time extensions |
| 65-20 | damage and reconstruction provisions should be specific to the disaster being addressed. These sections are not relevant to Covid-19. |

| | |
|---|---|
| 65-30 | Temporry uses should also be specific to the recovery needed; the Covid 19 outdoor restaurants have been addressed through other means (and should not exceed underlying district regulations. |
| 65-40 | Reconstruction should not allow for any increase in conforming uses or non-complying buildings. |
| Article 7, Chapter 3 | BSA Special Permits |
| 73-242 | support |
| 73-622 | ? |
| 73-71 | No increase in height or floor area beyond the underlying zoning district should be allowed. Locational exceptions can be acceptable to assist in better site planning, but no increases should be permitted. |
| 73-72 | why is this needed? |
| 73-80 | ok |
| 74-901 (b) | support, but concerned that this provision does not apply to Bx CB8. |
| Article 10, Chapter 5 | Oppose. The provisions of Article 6, Chapter 4 should only apply to building envelopes and should be explicitly stated. |

# Riverdale Nature Preservancy

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www.riverdalenature.org Like Us on Facebook!

ORLI+

Operation Resilient Living and Innovation, Plus

**Zoning for Coastal Resilience - Zoning Resolution & DEIS comments**
**ULURP No. N210095 ZRY / CEQR No. 19DCP192Y**
**February 16, 2021**

Operation Resilient Living and Innovation Plus (ORLI+) thanks the Department of City Planning and City Planning Commission for the opportunity to submit testimony on the proposed Zoning for Coastal Resiliency zoning resolution text changes. ORLI+ is a resilient design and community engagement consultancy that has evolved in response to the immediate needs of coastal communities in the aftermath of Superstorm Sandy, and has participated in city-wide and regional dialogues and initiatives addressing issues of climate change mitigation, adaptation, community resilience, and climate justice in recent years.

As practicing licensed architects in New York State, we have been exposed to the technical and financial challenges posed to property owners, economic and social challenges faced by community residents, and environmental hazards and risks inherent in disaster relief anc resilient reconstruction efforts. Based on this experience, we commend the NYC Department of City Planning for their willingness to codify a robust and multi-pronged response to our diverse city's climate change risks, and looking to advance The City's goals of enhanced resilience in the built environment through the proposed zoning changes. While there are significant and laudable text changes within this proposal, ORLI+ objects to a number of clauses. In these comments, we would like to focus on (1) the climate change and flood zone projections being used that underpin the proposed text changes; (2) the inconsistencies with the stated goals of the proposal, in providing exceptions and incentives to new construction in flood zones - particularly in low income and frontline environmental justice communities; and (3) a number of specific concerns regarding the proposal's impact on sustainability, viability, equity.

1. **Flood Maps and Sea Level Rise projections used as baseline and benchmarks for the Zoning Resolution text amendment must be precautionary and regularly reviewed.**

   The proposed text changes reference 90th percentile 2050 NYC Panel on Climate Change (NYPCC) projections as the benchmark for establishing 1% and 0.2% Annual Chance Flood Plain. We believe this definition does not accurately reflect the increased mid- and long-term cumulative risks posed by sea level rise and storms of increased frequency and strength, and recommend that more aggressive and long term projections such as the NYPCC 2080 90th percentile projections be used to determine lots affected by these rule changes. This will still allow flexibility in implementation in lower-risk areas in the 0.2% flood plain, but ensure that long term climate resilience is codified.

   Further adaptability of baseline projections must be considered to provide the adequate redundancy necessary to react to ever-changing hazards. A mechanism for regular review and update of climate change projections must be incorporated into the zoning text.

2. **Incentives for new construction in the floodplain - particularly in low income and environmental justice communities - are inconsistent with the stated goals of Zoning Resolution text amendment, will lead to increased inequality, and must be reduced or removed.**

   The proposed zoning text changes codify and expand protections and incentives for existing properties and neighborhoods that we expect will lead to an increase in climate resilient retrofits, if proper resources and enforcement are provided. However, we feel that excessive exemptions for bulk are

provided for new construction, which disincentivizes responsive and responsible development along New York City's coastlines and in its floodplain. This is especially true in low-income, frontline, environmental justice communities.

These vulnerable populations, which are not listed under vulnerable populations in the proposed text changes, have often bore the inequitable environmental burdens of land use policies and re-zonings throughout the history of our city, and are at the greatest risk from climate change impacts, including but not limited to coastal flooding.

We strongly recommend that exemptions and zoning incentives for new construction in the most high-risk areas are removed from the proposed zoning changes, thus providing less incentive for unsustainable development that increases risk to vulnerable populations within the floodplain - likely to the benefit of speculative real estate interests.

**3. Additional concerns**

In reviewing the Zoning Resolution text amendments, NYC DCP presentation materials, and the testimony of various stakeholders - including during the City Planning Commission hearing - we would like to make note of the following additional concerns regarding the proposed actions, their impact on sustainability, viability, and equity.

a. **Ensure funding and equity:** It is critical that funding mechanisms that support low-income and small building owners, residents, and business owners achieve compliance and conformance must be expanded and formalized. Cost burden is the principal barrier to implementation of resiliency, mitigation and adaptation measures, and will continue to be so regardless of approval of the ZFCR proposal.

b. **Further prioritize and incorporate nature-based solutions and sustainability initiatives, in coordination with other City agencies:** We support the Bronx Council on Environmental Quality's CPC testimony recommending broader incorporation of natural, permeable, adaptive coastline and green infrastructure requirements into the zoning proposal, in coordination with relevant government agency programs (e.g., Unified Stormwater Rule and Green Infrastructure Plan). These nature-based solutions are not only critical to the preservation and reclamation of regional coastal habitats and open spaces, but also provide unique ecosystem services and climate resilience through stormwater infiltration, wave attenuation, natural buffers, and other functions.

c. **Renewable, clean energy and climate change mitigation strategies must be clearly incorporated into the proposed changes.** Incentivize installation of renewable power and energy generation, transmission, and storage technologies as a prerequisite for Power System installations and Mechanical structures over open space. Funding by NYSERDA, through CLCPA?

d. **Conformance pathways in the ZFCR must be further coordinated to prioritize enforcement of resilience and minimize exemptions, specifically in NYC Landmarks Preservation Commission (LPC) designated Historic Districts.** Most proposed wet floodproofing actions still require LPC review. To better integrate the heritage and climate pressures on properties in these districts, and ensure enforcement and flexibility, we

recommend that DCP and LPC work provide a comprehensive review of historic district regulations to account for climate change.

e. **Commercial storefronts (especially in dense zones) do not have the space to comply with dry floodproofing requirements.** Additional considerations must be made for these businesses in future ZFCR updates, and exemptions made as the challenges of implementation are made cleared in the first year of enforcement.

f. **Basements & cellar occupancy and use** (specifically in dense neighborhoods). Prioritize funding and future zoning considerations for the integration of wet/dry floodproofing of basement and cellar dwelling units in the 0.2% flood zone, whether in the current Basement Apartment Conversion Pilot Program (BACPP) or in future program expansions. This will increase capacity for affordable units, stabilize homeownership, prevent homelessness, and protect tenants.

g. **Hazardous materials and fugitive chemicals are addressed in an insufficient manner in the zoning revision proposals.** It is imperative that the risk of fugitive chemicals during storm surges and sea level rise is properly accounted for in the Zoning Resolution text changes, beyond mere mentions of e-designations. Clauses requiring the enclosure and/or placement of hazardous materials above the wet-floodproofing elevations in flood zones would be a good start.

We would like to commend the NYC DCP and partners for this overdue and critical text amendment, and express our support for its (a) incorporation of community character and streetscape considerations, specifically the proposed Point System related to Building Access and Ground Floor Level; (b) support of long-term resilient design for all building types; and (c) allowances for adaptation over time through incremental retrofits.

ORLI+ thanks you for the opportunity to provide this written testimony, and look forward to participating and collaborating in this and other public engagement processes focused on New York City's environmental health, climate change resiliency, and social, environmental, economic, and racial justice.

Sincerely,

Leonel Lima Ponce, RA, WEDG

Daniel Horn, RA, AIA, LEED GA

Co-Founders, Operation Resilient Living and Innovation, Plus (ORLI+)

info@orliplus.com

February 16, 2021

**MAS Comments on Zoning for Coastal Flood Resiliency, CEQR No. 19DCP192Y, ULURP No. N210095 ZRY, New York, NY**

The Municipal Art Society of New York (MAS) has long advocated that the resilience of urban areas—including their built, natural, social, and economic infrastructure—is strongly linked to the everyday livability of neighborhoods and the cities they comprise. Recognizing the existential threat of climate change and the associated inequities, MAS was at the forefront of the post-Sandy effort to work with local partners, city, state, and federal agencies to develop steps for citywide community-based resilience planning, which ultimately culminated in our reports *All Hands on Deck: Mobilizing New Yorkers for a Livable and Resilient City* (2013) and *Talking Resilience: NYC* (2015). Moreover, during the Rebuild by Design global competition in 2013, we advocated for implementable resiliency solutions through the combination of technical expertise and effective community engagement.

In the aftermath of Superstorm Sandy, and with the city's vulnerabilities to coastal storms, flooding, and sea level rise in mind, MAS supports the Department of City Planning's (DCP) efforts to strengthen the city's resiliency through the proposed Zoning for Coastal Flood Resiliency (ZCFR). However, for it to be truly comprehensive and equitable in scope, the City must coordinate across local, state, and federal agencies to ensure that the proposal is supported with proper funding mechanisms. We urge DCP to address our suggestions below.

**Project Description**

With the proposal, DCP seeks a city-wide zoning text amendment to the Zoning Resolution (ZR) that would permanently codify the emergency measures set under the 2013 Flood Text and the 2015 Recovery Text to protect coastal areas and property after the devastating impacts of Superstorm Sandy in 2012. Both amendments were intended to eliminate discrepancies between the ZR and regulations governing flood-resistant construction in the Department of Buildings (DOB) Code Appendix G of the NYC Building Code. The ZCFR proposal is guided by four principal goals: (1) encourage resiliency throughout the current and future flood plains, (2) support long-term resilient design of all buildings types, (3) allow for adaptation over time through incremental retrofits, and (4) facilitate future recovery by reducing regulatory obstacles. This proposal also includes new zoning regulations to facilitate the city's long-term recovery from the COVID-19 pandemic and future disasters.

ZCFR would mostly affect New York City's current 1 percent annual and 0.2 percent annual chance floodplains, as opposed to the 2013 Flood Text, which only included buildings within the 1 percent chance floodplain. The City relies on the findings of the New York City Panel on Climate Change (NPCC) high-range sea level rise projections for the 2050s as its actionable data to inform this proposal.

**Comments on the Proposal**

*Resiliency & Equity*
The events of the past year have further emphasized the fundamental need to address racial and socioeconomic inequities in times of crisis. The ZCFR amendment is a necessary step toward making the city more resilient in the face of the increasing threat of climate change. We support DCP's decision to include the 500-year floodplain in this amendment. However, the proposal poses an equity issue by shifting the burden of retrofitting and improving homes and commercial buildings to individual property owners, leaving the city's vulnerable coastal areas subject to both sea level rise and market forces.

MAS is not alone in advocating for more funding options for the proposal to be equitable. We agree with Manhattan Community Board 1 and Borough President Gale Brewer that DCP must work with other local, state, or federal agencies to formulate a plan to financially assist qualified property owners when retrofitting their homes and businesses for resiliency through this zoning amendment. While we acknowledge the constraints of DCP and the City Planning Commission's (CPC) authority, without a funding component, financially vulnerable property owners will become more at risk to future storms, sea level rise, and potential foreclosures.[1]

*Year 2050*
As stated above, the City relies on the findings of the NPCC high-range sea level rise projections for the 2050s as its actionable data to inform this proposal—a mere thirty years from now. In their most recent report in 2019, the NPCC provided estimates for sea level rise in New York City by taking into account different climate change scenarios and inputs to arrive at high- and low-range sea level rise projections for the 2020s, 2050s, 2080s, and 2100.

In comparison, the Boston Planning & Development Agency is currently developing a new Coastal Flood Resilience Overlay District and related zoning regulation updates to areas of the city that are expected to be flooded with a 1 percent chance storm event in 2070 with 40 inches of sea level rise.[2] Like ZCFR, this Resilience Overlay District is currently in public review. With 520 miles of waterfront to protect, New York should use the most aggressive projections. At the very least, we urge DCP to use projections for the 2080s, given the vast scale of potential climate change impacts, including sea level rise and the previous impacts of Superstorm Sandy.

*Future Retreat*
To increase the comprehensiveness of the proposal, the City must look beyond zoning to address future land use in our most vulnerable coastal areas. Following Superstorm Sandy, the New York State Office of Storm Recovery initiated a voluntary buyout program for high risk areas in Staten Island in order to protect homeowners living in harm's way.[3] DCP created a

[1] https://www.cnbc.com/2019/01/16/potential-for-foreclosure-crisis-because-of-climate-change-is-real.html; https://www.politico.com/news/2020/11/30/climate-change-mortgage-housing-environment-433721
[2] http://www.bostonplans.org/planning/planning-initiatives/flood-resiliency-building-guidelines-zoning-over.
[3] https://www.nrdc.org/experts/rob-moore/title.

Special Coastal Risk District in 2017 to limit new development in these areas and to protect open space.

NPCC projects that New York City will be subject to approximately 30 inches of sea level rise by the 2050s. Therefore, it is imperative that the City develop a large-scale framework for coastal retreat. We recommend that in conjunction with ZCFR, the City work with the state and federal governments over the next several years to develop an equitable and voluntary citywide buyout program for properties in vulnerable coastal areas. Instituting down-zonings in certain coastal neighborhoods is not enough. The City must develop a plan to give homeowners a different option from rebuilding in high-risk areas on a continuing basis.

**Land Use, Zoning, & Public Policy**

MAS is pleased that this proposal improves and makes permanent the relevant provisions of the existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text. Given the vast scope of this citywide amendment, there are a few zoning and public policy aspects that DCP must take into account before this proposal moves forward.

*Land Use*

We support that this proposal limits new land uses that house vulnerable populations such as nursing homes in high-risk areas of the floodplain. In addition to prohibiting new nursing homes and restricting the enlargement of existing nursing homes within the 1 percent chance floodplain, the proposal must further restrict other vulnerable uses in the floodplain. We agree with Manhattan Community Board 1 and Manhattan Borough President Brewer in recommending that other new buildings housing vulnerable populations, such as hospitals, be restricted from building in the floodplain. For instance, this proposal should incorporate the same language used in the City's Special Coastal Risk Districts limiting community facilities with sleeping accommodations into this citywide text amendment.[4] If this proposal is intended to thoroughly limit populations from future sea level rise and coastal flooding harms, MAS believes that this proposal must be strengthened by limiting other types of land uses.

*Zoning*

From raising the alarm about unregulated structural voids to gerrymandered zoning lots, MAS has been a stalwart advocate for closing zoning loopholes. It is from this perspective we express concern about the potential for the FAR exemptions and extra height allowances to lead to out-of-scale buildings in vulnerable and dense areas, such as Lower Manhattan. We echo Manhattan Community Board 1 and Manhattan Borough President Brewer in urging DCP to consider the following zoning recommendations.

First, within special zoning districts, DCP should require a special permit approval from CPC for any new building that utilizes this text amendment, with proper notification to and review from relevant Community Boards and Borough Presidents. Second, from an equity standpoint, we agree with Manhattan Community Board 1 in that the zoning text should be amended so that

[4] ZR Art. XIII, Ch. 7. The district further limits community facility uses in Special Coastal Risk District 3.

only building owners with existing buildings in need of retrofitting are eligible for FAR exemptions and height bonus incentives, not new buildings that already have to meet the requirements of Appendix G of the New York City Building Code.

Finally, while the intent of the zoning amendment is to encourage property owners to proactively reduce future risk, we are concerned that by extending zoning flexibility to any lot where at least a portion is within the flood zone, the incentives could be used by owners to exploit the optional regulations for floor area and height bonuses. For example, as it stands now, the zoning creates a potential loophole in which property owners could use zoning lot mergers to carve out portions of their properties in the floodplain and use the provisions of this proposal to build larger new buildings outside the floodplain, but within the affected zoning lot. One way to raise transparency on this potential loophole is for DOB to provide notice to affected Community Boards and Borough Presidents when a property owner seeks a zoning lot merger within the area covered under this zoning proposal.

*Public Policy*
It is critical that this proposal clearly articulate how it will fit with other City and state waterfront and resiliency planning efforts in order to achieve long-term, comprehensive protection. In addition to assessing this proposal for consistency with the policies of New York City's Waterfront Revitalization Program (WRP), the FEIS must evaluate how this proposal will align with the City's current and future Comprehensive Waterfront Plan, which has been extended until June 2021. Ideally, these plans should be coordinated to improve resiliency and flood protection in coastal areas for the long term. Lastly, the FEIS must be transparent and account for how this proposal will respond to the adoption of new and final Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), which are expected to occur within the next few years.

*Historic & Cultural Resources*
There are many areas in the city where the floodplain overlaps with historic districts. Therefore, ZCFR must consider how the various retrofit options will work in tandem with the historical context of these areas. We join Manhattan Community Board 1, Borough President Brewer, and others in asserting that the amendment must be strengthened to take into consideration floodplain properties within historic districts. To accomplish this, DCP must work closely with the Landmarks Preservation Commission (LPC) to develop contextual resiliency strategies. We also echo Borough President Brewer's recommendation that DCP require special permit approval from the CPC for any new building within a historic district that utilizes this amendment, in addition to LPC approval. Moreover, to ensure a transparent process, notice must be given to the relevant Community Boards and Borough Presidents for proper evaluation.

*Urban Design & Visual Resources*
MAS appreciates that this zoning proposal encourages active uses at street level and accounts for urban design elements such as streetscaping and the pedestrian experience. While we recognize that it is infeasible for a GEIS to evaluate specific sites that could potentially be impacted by the proposed change, we are concerned about the wide-scale impacts this citywide

zoning text amendment will have on urban design and the public realm in the coming decades. To address this, we expect the FEIS to identify and disclose what mechanisms will be in place to evaluate as-of-right retrofits on a site-specific basis. As we suggested previously, increasing transparency at the Community Board level for construction, retrofits, and expansion proposals in the flood zone is a step in the right direction.

**Conclusion**

The City faces an enormous challenge in meeting long-term resiliency goals in the face of the existential threat of climate change. We recognize DCP's years-long efforts in developing and coordinating a zoning framework that encourages flood resiliency from the property owner level. For this proposal to comprehensively address equity and the future long-term plan for the city's most vulnerable coastal areas, the City must coordinate across local, state, and federal agencies to ensure that the proposal is supported with proper funding mechanisms. This is an opportunity to create a leading standard for flood resilience measures in a dense urban environment—one that uses projections for the year 2080 and takes into account the fact that climate change does not affect people equally. We urge DCP to address our comments to create a truly comprehensive model for flood resilience.

# Comments re: N 210095 ZRY - Zoning for Coastal Flood Resiliency

Public Hearing Comments (Do not reply) <PublicComments_DL@planning.nyc.gov>
Thu 2/4/2021 4:43 PM

**To:** Manuela Powidayko (DCP) <MPowidayko@planning.nyc.gov>; Laura Kenny (DCP) <LKenny@planning.nyc.gov>; **CitywideComments_DL <CitywideComments_DL@planning.nyc.gov>**

Re. Project: **N 210095 ZRY - Zoning for Coastal Flood Resiliency**

- Application Number: **N 210095 ZRY**
- Project: **Zoning for Coastal Flood Resiliency**
- Public Hearing Date: **02/03/2021**
- Borough: **Citywide**
- Community District:

*Comments on the Draft Environmental Impact Statement received by the 10th calendar day following the close of the public hearing will be considered by the lead agency.*

**Submitted by:**

Name: **Alexandros Washburn**
Zip: **11231**

I represent:
- **A local community group or organization**

Details for "I Represent": **Resilient Red Hook Committee**

**My Comments:**

Vote: I am **in favor**

Have you previously submitted comments on this project? **No**
If yes, are you now submitting new information? **Yes**

I have attended or will attend the City Planning Commission's Public hearing on this project: **Yes**

**Additional Comments:**
Testimony of the Resilient Red Hook Committee of Red Hook, Brooklyn Our goal in achieving resilience is to maintain a lively street that requires ground floor uses other than parking. PLEASE MAKE DRY-FLOODPROOF USES EASIER. Requiring ProfessionalsThe regulations are complex, and when applied to small, row house lots, they require hiring an engineer or lawyer to evaluate and expedite. THIS ADDED COST MAY MAKE SMALL HOMEOWNER IMPROVEMENTS IMPOSSIBLE. BSA for a doctor's office? Having the ability to dry-floodproofing a professional office on the ground floor is good. But why does it require further approval? PLEASE STREAMLINE AND REMOVE OVER SPECIFIC REGULATIONS Dry Floodproof Credit Why is 13' tall first floor required? How many row houses have that? Why 30' depth limit for the use? Existing row houses, especially, have different depths and the entire ground floor should be eligible. PLEASE STREAMLINE AND REMOVE

OVER SPECIFIC REGULATIONS Amsterdam in the Netherlands is a model of a beautiful and resilient city. How many buildings like those in Amsterdam could we build under our code? None. How does Amsterdam survive? Because the Netherlands takes on the burden of flood resilience at the national and regional level, allowing individual houses to be diverse. The NYC approach is to put the burden on the individual. PLEASE REINVIGORATE NEIGHBORHOOD SCALE FLOOD PROTECTION. Resilient Red Hook: We have been flooded. We know what our houses can withstand and what our community can withstand. WE NEED NEIGHBORHOOD SCALE FLOOD PROTECTION. We support zoning for coastal flood resilience, but we want to note from experience that resilience cannot be accomplished only at the level of the individual. A lively street with activity on it increases social resilience, so if flood proofing requirements deaden the activity on the street, neighborhood resilience, which is a combination of social and physical resilience, will suffer. A mandate for every house to save itself is not enough and can be counterproductive if the regulations are too complicated. Thank you!