Zoning for Coastal Flood Resiliency

Update and Summary of Preliminary Recommendations

Update for City Island Civic

July 30th, 2019
Hurricane Sandy

Port Morris  
Source: dna.info

City Island  
Source: dna.info

Hunts Point  
Source: Bronx Ink

Locust Point  
Source: Daily News
A more resilient NYC is one where neighborhoods, buildings and infrastructure can withstand and recover quickly from flooding and climate events.

- **Coastal defenses** are strengthened as first line of defense against flooding and sea level rise.
- **Buildings** are designed to withstand and recover from flooding.
- **Infrastructure** is protected from climate hazards.
- **Residents and businesses** are prepared.
DCP’s work since Hurricane Sandy

2015
Flood Resilience Zoning Text Amendment:
Initial temporary regulations to facilitate recovery

2014-2017
Citywide / Neighborhood Studies

2016-Present
Community Outreach

2019
Zoning for Coastal Flood Resiliency
**NYC’s flood risk is high.**

The floodplain affects a large geography and most community boards and council districts.

The vast majority of the floodplain is already developed.

### Flood Risk in the Bronx

<table>
<thead>
<tr>
<th></th>
<th>Citywide Total # of Lots</th>
<th>Bronx Total # of Lots</th>
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</thead>
<tbody>
<tr>
<td>1% annual chance floodplain (high risk)</td>
<td>65,582</td>
<td>3,536</td>
</tr>
<tr>
<td>0.2% annual chance floodplain (moderate risk)</td>
<td>36,723</td>
<td>3,389</td>
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<tr>
<td>TOTAL</td>
<td>102,305</td>
<td>6,925</td>
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<table>
<thead>
<tr>
<th></th>
<th>Citywide Total # of Buildings</th>
<th>Bronx Total # of Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% annual chance floodplain (high risk)</td>
<td>80,907</td>
<td>6,055</td>
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<tr>
<td>0.2% annual chance floodplain (moderate risk)</td>
<td>44,636</td>
<td>3,922</td>
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<tr>
<td>TOTAL</td>
<td>125,539</td>
<td>9,977</td>
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</table>
Building typologies in the Bronx floodplain

- Residential-detached
- Residential-attached and semi-attached
- Residential-bungalow
- Industrial
- Commercial and Mixed Use
Flood Risk City Island:

- **1% Annual Chance Floodplain (High Risk)**
- **0.2% Annual Chance Floodplain (Moderate Risk)**
How are buildings in the floodplain regulated?

Flood Insurance Rate Maps (FIRMs)
- Determine **where floodplain regulations apply**

National Flood Insurance Program
- Set up **Insurance Rates** depending on building elevation and other requirements

Construction Standards (ASCE 24)
- Design minimum **construction requirements** for flood hazard areas

Building Code (DOB)
- Requires new buildings and substantial improvements to meet FEMA standards (Appendix G)

Zoning Resolution (DCP)
- Zoning **accommodates** these regulations and improves neighborhood character
Flood resilient construction standards require residential buildings to elevate the lowest floor used for living purposes, as well as mechanical equipment, above the Design Flood Elevation (DFE).
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Zoning for Coastal Flood Resiliency
Overview of Goals

Zoning for Flood Resiliency would provide building owners flexibility to design or otherwise retrofit their buildings to reduce damage from flooding, be resilient in the long-term, save on flood insurance costs, and expedite future-storm recovery.

Encourage resiliency throughout the current and future floodplains
Support long-term resilient design of all building types through flexibility in zoning
Allow for adaptation over time through incremental retrofits
Facilitate future storm recovery
Zoning for Coastal Flood Resiliency
Overview of Goals

Zoning for Flood Resiliency would provide building owners flexibility to design or otherwise retrofit their buildings to reduce damage from flooding, be resilient in the long-term, save on flood insurance costs, and expedite future-storm recovery.

- **Applicability**: Encourage resiliency throughout the current and future floodplains
- **Building Envelope**
  - Ground Floor Design: Support long-term resilient design of all building types through flexibility in zoning
- **Partial Resiliency Strategies**: Allow for adaptation over time through incremental retrofits
- **Emergency Rules**: Facilitate future storm recovery
1. Encourage resiliency throughout the city’s current and future floodplains

Building owners in both the city’s 1% and 0.2% annual chance floodplains would be able to invest in resiliency improvements to fully meet or exceed flood-resistant construction standards, even when these standards are not required by the Federal Emergency Management Agency (FEMA) and NYC’s Building Code.
**Permanent** regulations would facilitate buildings to **proactively** incorporate resiliency improvements to fully meet or exceed *flood-resistant construction standards* while maintaining the same allowable *Building Envelope*.

*Flood-resistant construction standards: building-code standards for buildings located in the 100yr floodplain, as set forth in Appendix G of NYC’s Building Code*

<table>
<thead>
<tr>
<th>Applicability</th>
<th>General Applicability</th>
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**Existing Rules:** apply to buildings within the **1% floodplain**

**Proposed Rules:** apply to lots within the **0.2% floodplain**
Optional height regulations would facilitate buildings to incorporate sea level rise projections when meeting flood-resistant construction standards, while improving the utility of spaces below the DFE.

**Existing Rules:** DFE or a Reference Plane measured from 9’, 10’ or 12’ depending on the building’s use and zoning district

**Proposed Rules:** DFE or a Reference Plane (up to 10’ or 5’) available to all lots in the 1% and 0.2% floodplains, respectively

* Rules available if the building fully meets Appendix G of the Building Code
Applicability in City Island

Existing FT1 Optional Rules

- DFE
- DFE or 12’, 10’, 9’ RP whichever is higher

Proposed Optional Rules

- DFE or up to 10’ RP whichever is higher
- 5’ RP

Building Envelope

Height Allowance
Existing Rules: maximum height of 35’ as measured from the DFE or 9’ Reference Plane

Proposed Rules: maximum height of 25’ as measured from the DFE up to 10’ Reference Plane

Optional Building Envelope would facilitate the construction, reconstruction, and retrofit of homes located on pre-existing substandard lots in all areas, and better reflect the scale of traditional cottage buildings.

* Rules available if the building fully meets Appendix G of the Building Code
Building Envelope

Cottage Envelope

Applicability in City Island

Existing FT1 Optional Rules

- Cottage Envelope available within SRNR Boundaries in 1% annual chance floodplain

Proposed Optional Rules

- Cottage Envelope available within 1% and 0.2% annual chance floodplains
Regulations would allow the reconstruction, enlargement or alteration of a greater range of existing non-complying and/or non-conforming buildings to meet or exceed flood-resistant construction standards.

**Existing Rules:** homes in M/C8 districts cannot be retrofitted or rebuilt

**Proposed Rules:** homes in M/C8 districts can be retrofitted or rebuilt

* Rules available if the building fully meets Appendix G of the Building Code
**Building Design**

**Streetscape Regulations**

Streetscape regulations would promote walkability across the city’s floodplain by ensuring an accessible design that makes the streetscape more inviting while mitigating additional height.

**Existing Rules:** Few design options to help mitigate potential blank walls

**Proposed Rules:** Wider range of design options to make the streetscape more inviting while mitigating additional height

* Rules available if the building fully meets Appendix G of the Building Code

**Parking**

Flexible curb-cut rules allow for parking below elevated homes (R1-R5)
Floor Area regulations would exempt floor area to encourage new and existing buildings to meet or exceed flood-resistant construction standards, while ensuring quality ground-floors that are kept at street level.

**Existing Rules:** entire ground-floor is exempted if > half of the floor-to-ceiling height is below the DFE

**Proposed Rules:** a portion of the ground-floor is exempted if meeting design requirements

* Rules available if the building fully meets Appendix G of the Building Code
Supplemental use regulations would offer alternatives beyond dry-floodproofed cellars for businesses to locate commercial uses, especially accessory spaces.

**Existing Rules:** Commercial uses are limited to the ground-floor in mixed-use buildings in certain commercial corridors.

**Proposed Rules:** Commercial uses can be located within the second story in mixed-use buildings above the flood level in all commercial corridors.

* Rules available if the building fully meets Appendix G of the Building Code
Partial Resiliency Strategies

Industrial buildings can create small mezzanine or 2nd floor to store important space/equipment

Floor Area Exemption

**Existing Rules:** Existing industrial buildings may not have enough floor area to elevate important equipment/spaces

**Proposed Rules:** Floor area can be exempted to facilitate the placement of important equipment/spaces above the flood level within small mezzanines

* Rules available even if the building DOES NOT fully meets Appendix G of the Building Code
Partial Resiliency Strategies

Permitted obstruction and floor area regulations would facilitate the placement of **MEP equipment** above the **DFE**, including emergency generators within or outside of buildings, **including within separate MEP buildings**.

**Existing Rules:** Additional flexibility with permitted obstructions facilitate mechanical equipment to be relocated to the roof of buildings

**Proposed Rules:** Additional flexibility to facilitate mechanical, electrical and plumbing equipment to be placed on the roof or in a separate structure

* Rules available even if the building DOES NOT fully meets Appendix G of the Building Code

- Or to build retaining walls and raise yards
- Or to build berms
- Or deploy flood panels
Emergency Rules

Regulations would facilitate the reconstruction of existing non-complying and/or non-conforming buildings that were **damaged by a future disaster in future recovery area.**

**Reconstruction allowances**
Substantially-damaged non-conforming or non-complying buildings can rebuild to at least minimum resiliency standards

**Documentation process**
Aerial photographs and tax bills can be used to establish the existence of a building. Survey prepared by a land surveyor may be used to document non-compliances

* Rules available if the building fully meets Appendix G of the Building Code and there is a future storm
Zoning for Coastal Flood Resiliency Update

Project Timeline

2017 2018 2019
Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

Outreach Summary
Plain Language Proposal

Interagency Coordination on Non-Zoning Recommendations
Interagency Coordination on Zoning Items
Finalize Recommendations and Write Zoning Text
Environmental Review
Scoping
Referral
Public Review Process

Overview:
- Broad public engagement on resiliency (briefings, newsletter, events, video)
- Interagency Coordination on Zoning Items
- Environmental Review
- Scoping
- Referral
- Outreach Summary
- Plain Language Proposal
- Summary
- Proposal
- Interagency Coordination on Non-Zoning Recommendations
- Weekly DCP Working Group meetings
- Additional Research
- Coordination with Other Agencies

Timeline subject to change.
Resources

Flood Insurance information: https://www.floodhelpny.org/

NYC Flood Hazard Mapper: www.nyc.gov/floodhazardmapper


Community District Profiles: https://communityprofiles.planning.nyc.gov