Zoning for Coastal Flood Resiliency

Update and Summary of Preliminary Recommendations

Update for the Bronx Community Board 9 Land, Zoning, Planning & Economic Development Committee

June 10th, 2019
Hurricane Sandy

Port Morris
Source: dna.info

Harding Park
Source: Bronx Ink

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
**Flood Risk in the Bronx**

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.

<table>
<thead>
<tr>
<th></th>
<th>1% annual chance floodplain (high risk)</th>
<th>0.2% annual chance floodplain (moderate risk)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citywide Total # of Lots</td>
<td>65,582</td>
<td>36,723</td>
<td>102,305</td>
</tr>
<tr>
<td>Bronx Total # of Lots</td>
<td>3,536</td>
<td>3,389</td>
<td>6,925</td>
</tr>
</tbody>
</table>

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<th>0.2% annual chance floodplain (moderate risk)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citywide Total # of Buildings</td>
<td>80,907</td>
<td>44,636</td>
<td>125,539</td>
</tr>
<tr>
<td>Bronx Total # of Buildings</td>
<td>6,055</td>
<td>3,922</td>
<td>9,977</td>
</tr>
</tbody>
</table>
Flood Risk Bronx CD 9: Buildings and dwelling units

<table>
<thead>
<tr>
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<th>1% annual chance floodplain</th>
<th>0.2% annual chance floodplain</th>
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<tbody>
<tr>
<td>Buildings</td>
<td>797</td>
<td>2,616</td>
</tr>
<tr>
<td>Dwelling units</td>
<td>1,167</td>
<td>12,823</td>
</tr>
</tbody>
</table>

[Map showing flood risk zones and community district 9]
Building typologies

- Residential-detached
- Residential-attached and semi attached
- Residential-bungalow
- Industrial
- Commercial and Mixed Use
How are buildings in the floodplain regulated?

Flood Insurance Rate Maps (FIRM): 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).
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).
1. Encourage resiliency throughout the city’s current and future floodplains

2. Support long-term resilient design of all building types by offering flexibility in the zoning framework

3. Allow for adaptation over time through partial resiliency strategies

4. Facilitate future-storm recovery by removing regulatory obstacles

Zoning for Coastal Flood Resiliency
Overview of project’s goals
1. Encourage resiliency throughout the city’s current and future floodplains

Zoning for Coastal Flood Resiliency
An expanded geography

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>
</tr>
</thead>
<tbody>
<tr>
<td>1% floodplain</td>
<td>0.2% floodplain</td>
</tr>
</tbody>
</table>

**Existing Rules:** apply to buildings within the 1% floodplain

**Proposed Rules:** apply to lots within the 0.2% floodplain

Updated Item
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
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.

**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

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

Existing Buildings

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
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

Design Requirements
Require transparency and quality ground-floors

And for wet-flood proofed ground floors
Or to provide internal access or mechanical equipment

* 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
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
**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 meet 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.
**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.**

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**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

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* 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

Broad public engagement on resiliency (briefings, newsletter, events, video)

Timeline subject to change

- Summarize Feedback
- Weekly DCP Working Group meetings
- Additional Research
- Coordination with Other Agencies

* Timeline subject to change
Resources

NYC Flood Hazard Mapper
www.nyc.gov/floodhazardmapper

Info briefs on Flood Resilience Zoning, Flood Risk, Flood Resilient Construction, and Flood Insurance
www.nyc.gov/resilientneighborhoods