Zoning for Coastal Flood Resiliency

Preliminary Recommendations

Summary

Brooklyn CB 10
September 10, 2019
Today’s Agenda

1. Background | Context on zoning for resiliency

2. Preliminary Recommendations | Summary

3. Project Timeline & Outreach Resources
1. Background

Zoning for Resiliency
Citywide Flood Risk
NYC’s flood risk is high and will increase.

The city’s current flood risk is high with ~782,800 residents in the floodplain.

Sandy inundated ~half of lots currently in the 0.2% annual chance floodplain.

This area will likely become the future 1% annual chance floodplain.
## Citywide Flood Risk

### Citywide Total # of Lots

<table>
<thead>
<tr>
<th></th>
<th>1% annual chance floodplain (FIRM + PFIRM)</th>
<th>0.2% annual chance floodplain (FIRM + PFIRM)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citywide</strong></td>
<td>65,582</td>
<td>36,723</td>
<td>102,305</td>
</tr>
<tr>
<td><strong>Brooklyn</strong></td>
<td>25,257</td>
<td>20,457</td>
<td>45,714</td>
</tr>
</tbody>
</table>

### Citywide Total # of Buildings

<table>
<thead>
<tr>
<th></th>
<th>1% annual chance floodplain (FIRM + PFIRM)</th>
<th>0.2% annual chance floodplain (FIRM + PFIRM)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citywide</strong></td>
<td>80,907</td>
<td>44,636</td>
<td>125,539</td>
</tr>
<tr>
<td><strong>Brooklyn</strong></td>
<td>29,549</td>
<td>25,115</td>
<td>54,664</td>
</tr>
</tbody>
</table>
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.
How are buildings in the floodplain regulated?

FEMA

- Flood Insurance Rate Maps (FIRMs)
  - Determine the 1% and 0.2% annual chance floodplains
  - where 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

NYC

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

- Zoning Resolution (DCP)
  - Zoning accommodates these regulations, by setting up optional rules that assist buildings to meet Appendix G
DCP’s work since Hurricane Sandy
From recovery to long-term resiliency

Zoning Text Amendments (emergency-basis)
- 2013- FT1 Temporary Provisions
- 2015- SNRN Removed additional zoning barriers

Outreach Process
- Community Outreach Workshops (2016-2018)

Proposal (permanent-basis)
Zoning for Coastal Flood Resilience
From recovery to long-term resiliency

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, potentially save on flood insurance costs, and expedite future-storm recovery.

1. Encourage resiliency throughout the current and future floodplains
2. Support long-term resilient design through flexibility in zoning
3. Allow for adaptation over time through incremental retrofits
4. Facilitate future storm recovery
2. Preliminary Recommendations

Summary
Zoning for Coastal Flood Resiliency
An expanded geography

Building owners in both the 1% and 0.2% annual chance floodplains would be able to invest in resiliency to meet or exceed flood-resistant construction standards, even when not required by FEMA or Building Code.

1. Encourage resiliency throughout the current and future floodplains

Existing Rules are only available to buildings within the 1% floodplain (High Risk Area)

Proposed Rules will be available to lots within the 0.2% floodplain (Moderate Risk Area)
1. Encourage resiliency throughout the current and future floodplains

Zoning for Coastal Flood Resiliency
An expanded geography
Rules available for buildings within the 1% floodplain

Existing rule

Rules available for lots within the 1% and 0.2% floodplains

Existing rule
Zoning for Coastal Flood Resiliency

An enhanced Building Envelope

Allowances coupled with design requirements would allow building owners to accommodate sea level rise projections when designing new or retrofitting buildings, without creating negative impacts on the streetscape.

2. Support long-term resilient design through flexibility in zoning

Residential Buildings

- Height allowances: envelope may be measured from the DFE or a Reference Plane of 10’ (in 1% floodplain) or 5’ (in 0.2% floodplain)
- Floor area exemptions for wet-floodproofed spaces (entryways, parking) will help living spaces be placed well-above flood risk levels.
- Design requirements will help mitigate streetscape issues caused from elevating.
Applicability in Brooklyn Community District 10

Existing FT1 Optional Rules

- Height can be measured from DFE
- Height can be measured from DFE or up to 10' RP whichever is higher

Proposed Optional Rules

- Height can be measured from DFE or up to 10' RP whichever is higher
- Height can be measured from up to 5' RP

Height Allowance
Zoning for Coastal Flood Resiliency
An enhanced Building Envelope

Allowances coupled with design requirements would allow building owners to accommodate sea level rise projections when designing new or retrofitting buildings, without creating negative impacts on the streetscape.

2. Support long-term resilient design through flexibility in zoning

Commercial & Mixed-Use Buildings
- Floor area exemptions for dry-floodproofed spaces will incentivize active uses (commercial and community facilities) to be kept at the sidewalk level
- Design requirements will help ensure active ground floors
Building owners would have additional zoning flexibility to relocate mechanical, electrical and plumbing equipment or back-up generators above areas at risk of flooding, including roofs or new separate structures.

3. Allow for adaptation over time through incremental retrofits

Floor Area Exemptions for existing industrial buildings allow the creation of small mezzanine space or a 2nd floor to store important spaces/equipment.

More flexible permitted obstructions provide more options for MEP to be relocated to either above the roof or within separate structures.
Zoning for Coastal Flood Resiliency

Future storm recovery

To be ready for future storm events, new rules would make it easier for damaged buildings to be reconstructed. This would allow residents and neighborhoods to recover faster and allow the City to offer disaster assistance.

4. Facilitate future storm recovery

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

Documentation process
Aerial photographs/tax bills can be used to establish the existence of a building. A survey may be used to document non-compliances
Zoning for Coastal Flood Resiliency

3. Project Timeline & Resources
Zoning for Coastal Flood Resiliency

Project Timeline

- 2018
  - Q1: Outreach Summary
  - Q2: Interagency Coordination on Zoning Items
  - Q3: Finalize Recommendations and Write Zoning Text
  - Q4: Scoping
- 2019
  - Q1: Preliminary Recommendations
  - Q2: Referral
  - Q3: Environmental Review
  - Q4: Interagency Coordination on Non-Zoning Recommendations
- 2020
  - Q1: Summarize Feedback
  - Q2: Weekly DCP Working Group meetings
  - Q3: Additional Research
  - Q4: Coordination with Other Agencies

* Timeline subject to change

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

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