Today’s Agenda

1. Background | 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

<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 Total # of Lots</strong></td>
<td>65,582</td>
<td>36,723</td>
<td>102,305</td>
</tr>
<tr>
<td><strong>Brooklyn Total # of Lots</strong></td>
<td>25,257</td>
<td>20,457</td>
<td>45,714</td>
</tr>
<tr>
<td><strong>Citywide Total # of Buildings</strong></td>
<td>80,907</td>
<td>44,636</td>
<td>125,539</td>
</tr>
<tr>
<td><strong>Brooklyn Total # of Buildings</strong></td>
<td>29,549</td>
<td>25,115</td>
<td>54,664</td>
</tr>
</tbody>
</table>
Currently in NYC, Building Code and Zoning rules are based on the 1% annual chance floodplain, as shown on either the Preliminary Flood Insurance Rate Map (FEMA, 2015) or the Effective Flood Insurance Rate Map (FEMA, 2007), whichever is more expansive or restrictive. For flood insurance purposes, the Effective Flood Insurance Rate Map is used. The 0.2% annual chance floodplain is also shown here to show areas that are at risk from a more rare but more severe storm.
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?

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

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

2012 Hurricane Sandy

Zoning Text (emergency-basis)

2013 “Flood Text 1” Temporary Rules

Research & Outreach Process

2015 “Recovery Text” Temporary Rules


Community Outreach Workshops (2016-2018)

Proposal (permanent-basis)

Zoning for Coastal Flood Resiliency (2019)
Zoning for Coastal Flood Resiliency
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
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)
General Applicability in Brooklyn CD 6

Existing FT1 Optional Rules

- Rules available for buildings within the 1% floodplain

Proposed Optional Rules

- Existing rule
- Rules available for lots within the 1% and 0.2% floodplains
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.
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 of up to 10’ in the 1% floodplain or 5’ in the 0.2% floodplains

* 12’ option available only permitted for non-residential buildings in C- or M-districts
Height Allowance

Existing FT1 Optional Rules

- Height can be measured from DFE
- Height “bump-up” permitted

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
Optional *Building Envelope* would facilitate the *construction*, reconstruction, and retrofit of detached homes located on *small lots*, and better reflect neighborhood scale.

**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

- **Existing rule**
- **Rule proposed within 1% and 0.2% 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
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
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 FT1 Optional Rules**
- Rule available for full floor if commercial dry-floodproofed

**Proposed Optional Rules**
- Existing rule
- Rule proposed for 30’ commercial dry-floodproofed
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.
Supplemental use regulations would offer alternatives beyond dry-floodproofed cellars for businesses to locate commercial uses such as 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.

**Proposed Optional Rules:**
- 2nd story commercial allowance proposed in C1 & C2 within R1-R10 in floodplain.
Zoning for Coastal Flood Resiliency
Alternatives for the relocation of important equipment

Building owners would have additional flexibility to relocate mechanical/electrical/plumbing equipment or generators.

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

Proposed Optional Rules

Rule proposed for manufacturing buildings in M/C8
Building owners would have additional flexibility to relocate mechanical/electrical/plumbing equipment or generators.

**Zoning for Coastal Flood Resiliency**

Alternatives for the relocation of important equipment

- More flexible permitted obstructions to provide more options for MEP to be relocated to either above the roof or within separate structures

- Or build retaining walls and raise yards

- Or build berms

- Or deploy flood panels

**Proposed Optional Rules**

- MEP building allowed for campus-style housing in 1% and 0.2% floodplain
4. Facilitate 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.

Zoning for Coastal Flood Resiliency

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
3. Project Timeline & Resources

Zoning for Coastal Flood Resiliency
Zoning for Coastal Flood Resiliency
Project Timeline

2017 | 2018 | 2019 | 2020
--- | --- | --- | ---
Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3

**Outreach**

PHASE 1: BPs, BBs, CMs, public workshops

PHASe 2: BPs, BBs, CMs, CBs (high priority)

---

**Outreach Summary**

Release (August)

Draft Proposal

ZCFS WORKING GROUP (DCP) / COORDINATION WITH SISTER AGENCIES

DRAFT 1

---

**Proposal Release (May 1)**

Environmental Review

Scoping (June 13)

Referral

---

Public Review

CBs, BPs, BBs, CPC, CC

---

* 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

Catie Ferrara Iannitto
cferrara@planning.nyc.gov
718-780-8280