Zoning for Coastal Flood Resiliency
Today’s Agenda

1. Introduction | Context

2. Preliminary Recommendations | Summary

3. Additional Resources
1. Introduction

Context
The major challenge we face with creating citywide zoning rules for NYC’s flood resiliency is that there are 520 miles of waterfront in NYC, and each mile faces different flood risks that require particular strategies to make them flood resistant.
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 all lots in the high-risk zone, but also 50% of lots in the moderate-risk area

The current moderate-risk zone will likely become the future high-risk flood zone.
Flood Risk
Queens

<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>
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<tr>
<td>Queens Total # of Lots</td>
<td>20,723</td>
<td>5,666</td>
<td>26,389</td>
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<table>
<thead>
<tr>
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<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 Buildings</td>
<td>80,907</td>
<td>44,636</td>
<td>125,539</td>
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<tr>
<td>Queens Total # of Buildings</td>
<td>28,566</td>
<td>7,078</td>
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Flood Risk
Queens Community District 1

• 1,961 (8%) of CD1 buildings are in the floodplain
• 20% of buildings in the floodplain are multi-family residential
• 80% of buildings in the floodplain were built before 1961
• 60% of buildings in the floodplain have a full basement below grade
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?

Federal Level

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

Municipal Level

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

Zoning Resolution (DCP)
Zoning accommodates these regulations by removing zoning barriers
Flood resilient construction
Currently required by DOB

NYC Building Code requires residential buildings in the floodplain to:

• Wet flood proof the ground floor
• elevate all living spaces above the Design Flood Elevation (DFE).
• elevate mechanical equipment above the Design Flood Elevation (DFE).
• Only parking, storage, and building access can be located below the Design Flood Elevation (DFE).
Flood resilient construction
Currently required by DOB

NYC Building Code requires mixed-use and commercial buildings in the floodplain to:

- Wet flood proof or dry flood proof the ground floor
- Dry flood proofing allows the commercial space to be located at grade, below the Design Flood Elevation (DFE)
- If dry flood proofed, the mechanical equipment can be below the Design Flood Elevation (DFE).
- Elevate all living spaces above the Design Flood Elevation (DFE)
DCP’s work since Hurricane Sandy
From recovery to long-term resiliency

Zoning Text Amendments
(temporary regs)

- 2013- FT1 Temporary Provisions
- 2015- SNRNremoved additional zoning barriers

Follow-up Actions / Outreach Process

- Community Outreach Workshops (2016-2018)

Preliminary Recommendations
(permanent-regs)

Zoning for Coastal Flood Resiliency

2. Preliminary Recommendations

Summary
Zoning for Coastal Flood Resiliency
Overview of project’s goals

Zoning for Coastal 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.

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
An expanded geography

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)
Rules available for buildings within the 1% floodplain

Existing rule

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

Applicability in Queens Community District 1
Zoning for Coastal Flood Resiliency
An enhanced Building Envelope

2. Support long-term resilient design of all building types through flexibility in zoning

Residential Buildings

- Height allowances: allow zoning envelope to be measured from the DFE or a higher Reference Plane → 10’ (within 1% floodplain) or 5’ (within the 0.2% floodplain)
- Floor area exemptions for wet-floodproofed spaces (ex. residential lobbies) will help incentivize living spaces to be placed well-above flood risk levels.
- Design requirements will help mitigate the issues caused from elevating, like blank walls and height.
Applicability in Queens Community District 1

Existing FT1 Optional Rules

Height can be measured from DFE or up to 12’ 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
Zoning for Coastal Flood Resiliency
An enhanced Building Envelope

2. Support long-term resilient design of all building types through flexibility in zoning

Commercial & Mixed-Use Buildings
- Floor area exemption for the first 30ft from the street in dry-floodproofed spaces will incentivize active uses to be kept at sidewalk level
- Design requirements will help ensure active ground floors
3. Allow for adaptation over time through incremental retrofits

**Floor Area Exemptions**
for existing industrial buildings to allow the creation of small mezzanine spaces or a 2nd floor to store important equipment above the Design Flood Elevation (DFE)

**More flexible permitted obstructions**
provide more options for mechanical equipment to be relocated to either above the roof or within separate structures. Especially applicable to NYCHA Campuses
3. Additional Resources
NYC Flood Hazard Mapper

www.nyc.gov/floodhazardmapper

Info briefs on our website that cover everything related to flood risk in NYC.

Available in 6 languages.

www.nyc.gov/resilientneighborhoods
THANK YOU!

Questions?