Flood Resilience
Text Amendment II

Queens Community Board 10
Land Use Committee
May 18, 2017
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.
NYC’s flood risk is high.
The floodplain affects a large geography and most community and council districts.

**100 Year Floodplain**
FEMA 2015 PFIRM

- Population: **400,000**
- Buildings: **71,500**
- 50 of 59 Community Boards
- 45 of 51 Council Districts

Buildings:
- **80%** 1-4 units
- **7%** 5+ units
- **13%** nonresidential

Residential Units:
- **30%** 1-4 units
- **70%** 5+ units
Future Flood Map
Flood Risk in Queens

<table>
<thead>
<tr>
<th></th>
<th>2015 PFIRMs</th>
<th>2050s Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in Floodplain</td>
<td>99,100</td>
<td>167,200</td>
</tr>
<tr>
<td>Buildings in Floodplain</td>
<td>25,200</td>
<td>35,600</td>
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</tbody>
</table>
How are buildings in the floodplain regulated?

FEMA

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

Zoning Resolution (DCP)
- Zoning **accommodates** these regulations and improves neighborhood character
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).

- Mechanical systems are elevated above DFE.
- Living spaces are elevated above DFE.
- Site is filled to lowest adjacent grade.
- Use below DFE is restricted to parking, storage or access.
- WET FLOODPROOF (Water comes in and out)

Flood resilient construction Required by DOB
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).
Flood resilient construction required by DOB

Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).

Living spaces are elevated above DFE

Spaces below DFE need to be dry floodproofed

Mechanical systems below DFE can be dry floodproofed

Commercial Space

Unit 1
Unit 2
Unit 3
Unit 4

BFE

DFE

Dry-Floodproof
Flood insurance rates
Set by FEMA

Raising or retrofitting your building or home will reduce costs

FEMA’s flood insurance premiums are lowest when the lowest inhabited floor (any area not used solely for storage, access or parking) is elevated above the Base Flood Elevation (BFE).

- **4 FEET OR MORE BELOW BFE**: Annual premium ~$9,000
- **AT BFE**: Annual premium ~$1,400
- **3 FEET OR MORE ABOVE BFE**: Annual premium ~$450
Amended zoning in six key areas

1. **Height**
   Measured from flood elevation

2. **Access**
   Flexibility for stairs, ramps, lifts

3. **Parking**
   Flexibility to relocate parking

4. **Systems**
   Flexibility to relocate/elevate

5. **Ground Floors**
   Account for costs of new flood risk

6. **Streetscape**
   Require features to mitigate blank wall
2015 Special Regulations
Accelerate recovery in Sandy-damaged neighborhoods

Temporary regulations, expiring in 2020, in limited areas of Brooklyn, Queens, and Staten Island
2015 Special Regulations
Accelerate recovery in Sandy-damaged neighborhoods

Provided new zoning solutions in three key areas:

Simplified process for documenting old homes

Removed disincentives such as loss of basement space

Established new envelope for rebuilds on small existing lots
Flood Resilience Zoning
Projects at DCP

2013
“Flood Text”
initial temporary regulations
to facilitate recovery

2018
“Flood Text Update”
improve upon, and make
permanent, the Flood Text
Resilient Neighborhoods
Old Howard Beach, Hamilton Beach, and Broad Channel

Community Advisory Committee:
• Appointed by Councilmember Eric Ulrich and included representatives from:
  o Community Boards 10 and 14
  o Broad Channel Civic Association
  o New Hamilton Beach Civic Association
  o Howard Beach-Lindenwood Civic Association
  o Local business owners

Public Outreach Summary:
• 5 Community Advisory Committee Meetings
• 4 Community Board Meeting Presentations
• 4 Civic Association Meeting Presentations

Recommendations:
• Reflect neighborhood character in Old Howard Beach through a future rezoning
• Update zoning to make it easier for property owners to make resiliency investments to their buildings
• Advance coordinated infrastructure and coastal protection strategies
• Enact targeted zoning changes to reflect the unique character and long-term vulnerability of Hamilton Beach and Broad Channel
Resilient Neighborhoods
Hamilton Beach

Existing Zoning

R3-2
• Allows all residential building types
• 0.6 FAR (includes 0.1 attic allowance)
• 40’ min. lot width (D); 18’ min. lot width (SD, A)
• 5’ min. side yard width (D)
• 1 parking space required per unit

C1-2 Overlay
• Max. commercial FAR is 1.0 when mapped in R3-2
• Permits local commercial uses
• Parking requirements vary by use, but typically one off-street parking space is required for every 300 sq ft of commercial floor area

2050s Sea Level Rise Projections

<table>
<thead>
<tr>
<th>Buildings</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 Buildings</td>
<td>MHHW + 11” (25th percentile projection)</td>
</tr>
<tr>
<td>178 Buildings</td>
<td>MHHW + 21” (75th percentile projection)</td>
</tr>
<tr>
<td>310 Buildings</td>
<td>MHHW + 30” (90th percentile projection)</td>
</tr>
</tbody>
</table>
The proposed zoning strategy would create a Special Coastal Risk District in the Zoning Resolution to provide a zoning tool for signifying flood risk in the areas of the City most vulnerable to projected future tidal flooding. It would be mapped in Broad Channel and Hamilton Beach.
Special Coastal Risk District, Hamilton Beach Subdistrict
The Hamilton Beach Subdistrict would modify the underlying regulations of the proposed R3A district to limit future residential development to single-family detached houses, except on lots at least 40 feet wide where two-family detached residences would be permitted. In addition, community facilities with sleeping or overnight accommodations would be prohibited.

Proposed R3-1 to R3A
R3A districts permit detached residential buildings, but would be modified by the Special District. The main changes to the underlying zoning from R3-1 to R3A are:
- 40’ min. lot width → 25’ min. lot width
- 5’ min. lot width → 4’ min. side yard width

Proposed C1-2 to C1-3
Updating the existing commercial overlay to C1-3 is proposed to slightly reduce the off-street parking requirement.
Flood Text Update

Need for a new citywide text amendment

1. Make the provisions of the current, temporary 2013 Flood Text permanent

2. Fix and improve provisions based on studies, lessons learned, and outreach

3. Begin to promote new development + proactive retrofitting to high resiliency standards
Lessons learned since 2013

Construction/retrofitting activity in the flood zone:

The zoning relief we provided may not be achieving our goal of increasing code-compliant, flood-resistant projects.

<table>
<thead>
<tr>
<th>DOB Permit Filings</th>
<th>in the flood hazard area, 10/2013 – 1/26/2016</th>
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<tbody>
<tr>
<td><strong>New Buildings</strong></td>
<td><strong>Major Alterations</strong></td>
</tr>
<tr>
<td>NB</td>
<td>Alt-1</td>
</tr>
<tr>
<td>1,021</td>
<td>1,090</td>
</tr>
<tr>
<td>All 1,021 (100%)</td>
<td>Only 113 (10%)</td>
</tr>
<tr>
<td>meet full resiliency standards</td>
<td>meet full resiliency standards</td>
</tr>
<tr>
<td>149 (14%) approved</td>
<td>36 (31%) approved</td>
</tr>
<tr>
<td>451 (44%) underway</td>
<td>24 (21%) underway</td>
</tr>
<tr>
<td>179 (17%) complete</td>
<td>0 (0%) complete</td>
</tr>
<tr>
<td>25% rejected/pending</td>
<td>48% rejected/pending</td>
</tr>
<tr>
<td><strong>Minor Alterations</strong></td>
<td></td>
</tr>
<tr>
<td>Alt-2</td>
<td></td>
</tr>
<tr>
<td>15,573</td>
<td>Only 532 (3%)</td>
</tr>
<tr>
<td>All 15,573 (100%)</td>
<td>meet full resiliency standards</td>
</tr>
<tr>
<td>meet full resiliency standards</td>
<td></td>
</tr>
<tr>
<td>245 (46%) approved</td>
<td>122 (23%) underway</td>
</tr>
<tr>
<td>122 (23%) underway</td>
<td>9 (1%) complete</td>
</tr>
<tr>
<td>9 (1%) complete</td>
<td>30% rejected/pending</td>
</tr>
</tbody>
</table>
2013 Citywide Flood Text
Amended zoning in six key areas

1. **Height**
   Measured from flood elevation

2. **Access**
   Flexibility for stairs, ramps, lifts

3. **Parking**
   Flexibility to relocate parking

4. **Systems**
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5. **Ground Floors**
   Account for costs of new flood risk

6. **Streetscape**
   Require features to mitigate blank wall
Flood Text II
Fix and improve provisions based on lessons learned

1. Height
Homeowners may face the loss of subgrade spaces when retrofitting.

2. Height
Property owners may want to address future risk by over-elevating.

3. Ground Floors
Current incentives to keep active ground floors may not be enough.

4. Homes in M Districts
Existing homes in M. Districts, if damaged, may not be able to rebuild.

5. Old Homes in Small Lots
Old homes on small lots may need more flexibility to rebuild in the future.

6. Highly Vulnerable Areas
Density may need to be limited in highly vulnerable areas.
As part of this outreach process, DCP will:

- **Partner with stakeholders** to educate and promote awareness of flood risk and resiliency issues
- **Explain how zoning tools** relate to resiliency
- **Explore unique neighborhood issues** through in-depth public presentations and workshops
- Develop a proposal through an **iterative process** that is shaped by feedback

*Schedule is tentative and subject to change*
Outreach 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
Thank you!

For more information, and to stay involved, email resilientneighborhoods@planning.nyc.gov
Flood Text II
Lesson learned: Cellar and Residential living space lost

EXAMPLE ISSUE

The 2013 Flood Text allowed for adjustment of “zoning envelopes” to facilitate the retrofitting and replacement of living space above the DFE, out of harm’s way, but this flexibility applies unevenly:

**Case study 1:** Replacement of ‘cellar’ story in a high-DFE retrofit

**Case study 2:** Loss of living space in a low-DFE retrofit
Flood Text II
Lesson learned: FAR incentive to retrofit buildings not effective

EXAMPLE ISSUE

The 2013 Flood Text allowed for floodproofed space to be exempted from floor area to incentivize the retrofitting of existing buildings but had the following issues:

• Analysis of DOB permitting indicates this incentive likely has not been used since it was introduced.

• Restrictions accompanying this flexibility (only applies in certain districts, up to 10,000 sq. ft., C space cannot be replaced atop R, prohibition against creating new units, requirement to provide new parking spaces) may be too onerous.

• Only applies to existing buildings – not new buildings.
Flood Text II
Lesson learned: Desirable ground floor retail not being provided

EXAMPLE ISSUE

The 2013 Flood Text redefined “cellar” to exempt at-grade stories to incentivize the retrofitting of existing buildings but had the following issues:

- Bad urban design outcomes due to “squishing” – dark, low-ceilinged establishments.
- Causes lower-grade commercial stock, limits the types of retail tenants and services that can locate in the building, such as restaurants.
- Doesn’t apply to [at least half] of the floodzone.
- Doesn’t create a zoning incentive to prefer dry floodproofing implementations over wet floodproofing (active over passive).
The 2013 Flood Text doesn’t provide zoning relief for accommodating future flood risk

- Zoning relief is “minimum necessary” to elevate only to the DFE – nothing higher.

- Some building owners may want to take sea level rise, future flood heights, or more powerful storms (e.g., Hurricane Sandy) into account when building. No incentives.

- Close coordination is necessary to align zoning with FEMA “Climate Smart” maps.
Flood Text II
Lesson learned: Cottage envelope is not permanent

EXAMPLE ISSUE

The 2015 SRNR created a new contextual envelope to facilitate the reconstruction of the very small homes on small lots, however these rules were temporary:

- Not available permanently (past 2022)
- Doesn’t apply outside of “Neighborhood Recovery Areas”
- Doesn’t prevent “candlesticks” on currently vacant lots

Currently allowed
Minimum 5’ sideyards
21’/35’ height
✓ Fits 0.6 FAR

Proposed Envelope
Minimum 3’ sideyards
19’/25’ height
✓ Fits 0.6 FAR
Lesson learned: Not all existing buildings were grandfathered

EXAMPLE ISSUE

To facilitate the recovery of non-conforming and non-complying homes, the 2013 Flood Text gave greater relief to these homes, but 500+ residential buildings in C8/M Districts were left out.

- **Underlying Article V** rules always allow 1+2 family homes to be rebuilt, regardless of level of damage, except R in C8/M
- **FT I** allowed any non-conforming building damaged >50% by Hurricane Sandy to rebuild, except R in C8/M