Flood Resilience Zoning

Queens Borough President’s
Hurricane Sandy Task Force
September 13, 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</td>
<td>99,100</td>
<td>167,200</td>
</tr>
<tr>
<td>Buildings</td>
<td>26,400</td>
<td>36,350</td>
</tr>
</tbody>
</table>

- **Population in Floodplain** increased by 65%.
- **Buildings in Floodplain** increased by 40%.
How are buildings in the floodplain regulated?

**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 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
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
   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

1931 Sanborn Map
Used with permission from The Sanborn Library, LLC

Home in Gerritsen Beach
© Google 2015

Zoning Resolution (DCP)
2017 Special Coastal Risk District
Broad Channel and Hamilton Beach

The rezoning created a Special Coastal Risk District and updated the zoning in Broad Channel and Hamilton Beach, the areas of the City most vulnerable to projected future tidal flooding. Future residential development is limited to detached houses.
Land use strategy for flood risk

Where flood risk is exceptional, including where sea level rise will lead to future daily tidal flooding.

Limit
Zoning and other tools should limit exposure to damage and disruption by limiting the density of future development.

Accommodate
Adjust zoning to allow buildings to retrofit, by providing flexibility and removing obstacles to resiliency investments.

Encourage
Encourage construction of new development built to a higher standard of flood protection.

Where risk from extreme events can be managed and infrastructure and context support growth.

Flood risk and local planning considerations

*stakeholder input factored into zoning and land-use strategy throughout
Flood Text II
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 and lessons learned in six key areas

3. Begin to promote new development + proactive retrofitting to high resiliency standards

4. Encourage good resilient construction that enhances the character of coastal communities
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>
</tr>
</thead>
<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></td>
</tr>
<tr>
<td>Only 532 (3%)</td>
<td></td>
</tr>
<tr>
<td>meet full resiliency standards</td>
<td></td>
</tr>
<tr>
<td>245 (46%) approved</td>
<td></td>
</tr>
<tr>
<td>122 (23%) underway</td>
<td></td>
</tr>
<tr>
<td>9 (1%) complete</td>
<td></td>
</tr>
<tr>
<td>30% rejected/pending</td>
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</tbody>
</table>
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. **Improve Streetscape**
   Mitigate the effects of elevated buildings on neighborhood character.

Zoning Resolution (DCP)
Flood Text Update
Outreach

DCP plans a robust public engagement process:

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
</tr>
</tbody>
</table>

Community Outreach ➔ Scoping / ULURP

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
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.
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).

Example of ‘squished’ retail
(1809 Emmons Ave., BK)
Flood Text II
Lesson learned: Additional height not permitted

EXAMPLE ISSUE

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.
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
Flood Text II
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