Flood Resilience
Zoning Text Update

Brooklyn CB 6 Environmental Committee
June 21, 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** 50 of 59 Community Boards
Buildings: **71,500** 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 BK CB 6

<table>
<thead>
<tr>
<th></th>
<th>2015 PFIRMS</th>
<th>2050’s Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>R units in floodplain</td>
<td>6,070</td>
<td>8,860</td>
</tr>
<tr>
<td>Buildings in floodplain</td>
<td>1,310</td>
<td>2,100</td>
</tr>
</tbody>
</table>

46% increase
60% increase
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
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 resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).

- Site is filled to lowest adjacent grade.
- Use below DFE is restricted to parking, storage or access.
- Mechanical systems are elevated above DFE.
- Living spaces are elevated above DFE.

Building Code (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** standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).
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**: ~$9,000
- **AT BFE**: ~$1,400
- **3 FEET OR MORE ABOVE BFE**: ~$450
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
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>New Buildings</th>
<th>Major Alterations</th>
<th>Minor Alterations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NB</td>
<td>Alt-1</td>
<td>Alt-2</td>
</tr>
<tr>
<td></td>
<td>1,021</td>
<td>1,090</td>
<td>15,573</td>
</tr>
<tr>
<td>All 1,021 (100%)</td>
<td>meet full resiliency standards</td>
<td>Only 113 (10%) meet full resiliency standards</td>
<td>Only 532 (3%) meet full resiliency standards</td>
</tr>
<tr>
<td>149 (14%) approved</td>
<td>36 (31%) approved</td>
<td>245 (46%) approved</td>
<td></td>
</tr>
<tr>
<td>451 (44%) underway</td>
<td>24 (21%) underway</td>
<td>122 (23%) underway</td>
<td></td>
</tr>
<tr>
<td>179 (17%) complete</td>
<td>0 (0%) complete</td>
<td>9 (1%) complete</td>
<td></td>
</tr>
<tr>
<td>25% rejected/pending</td>
<td>48% rejected/pending</td>
<td>30% rejected/pending</td>
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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
4. Encourage good resilient construction that enhances the character of coastal communities
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.
Flood Text Update
Outreach

DCP plans a robust public engagement process:

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