Flood Resilience Zoning Text Update
Bronx Community Board 1
Economic Development, Land Use & Housing

October 11th, 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
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
NYC’s flood risk is high and it will only continue to increase.

- **100 year (1% annual chance) floodplain**
  - Residents: 400,000 (2015 PFIRMS) vs. 808,900 (2050s Projected FIRMS)
  - Buildings: 71,500 vs. 118,000

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

- **Residential Units:**
  - 30% 1-4 units
  - 70% 5+ units

- **Citywide Flood Risk**
  - 50 of 59 Community Boards
  - 45 of 51 Council Districts

Map analysis based on Preliminary Flood Insurance Rate Maps (PFIRMS)

Future flood zone impacts based on NPCC2 90th percentile sea level rise projections
A significant portion of the Bronx’s critical infrastructure and institutions, building stock, and population is located in the 100 year floodplain.

<table>
<thead>
<tr>
<th>100 year (1% annual chance) floodplain</th>
<th>2015 PFIRMS</th>
<th>2050s Projected FIRMS</th>
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</thead>
<tbody>
<tr>
<td>Residents</td>
<td>16,700</td>
<td>41,900</td>
</tr>
<tr>
<td>Buildings</td>
<td>3,900</td>
<td>8,400</td>
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</tbody>
</table>

Map analysis based on Preliminary Flood Insurance Rate Maps (PFIRMS)
Future flood zone impacts based on NPCC2 90th percentile sea level rise projections
Bronx Flood Risk

Land use + Common Building Typologies

- Open Space & Outdoor Recreation: 3%
- Parking Facilities: 3%
- Vacant Land: 12%
- No Data: 1%
- One & Two Family Buildings: 66%
- Public Facilities & Institutions: <1%
- Transportation & Utility: 3%
- Industrial & Manufacturing: 6%
- Commercial & Office Buildings: 1%
- Mixed Commercial & Residential Buildings: 2%
- Multifamily Buildings: 3%

Analysis based on 2014 PLUTO data
Bronx Flood Risk

Land use + Common Building Typologies

- Vacant Land: 27%
- Parking Facilities: 5%
- Open Space & Outdoor Recreation: 15%
- No Data: 3%
- One & Two Family Buildings: 18%
- Multifamily Buildings: 2%
- Mixed Commercial & Residential Buildings: 2%
- Commercial & Office Buildings: 2%
- Industrial & Manufacturing: 22%
- Transportation & Utility: 4%
- Public Facilities & Institutions: <1%

% Acres

Analysis based on 2014 PLUTO data
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
Required by DOB

Required for all new buildings

Not required for existing buildings
(unless substantially damaged or improved)
Flood resilient construction

Terms

A building’s Base Flood Elevation (BFE) and Design Flood Elevation (DFE) affect the regulatory and building code requirements and may have an impact on flood insurance premiums.

The expected height of flooding from the 1% annual chance flood for each flood zone, is known as the **Base Flood Elevation (BFE)**.

The **Design Flood Elevation (DFE)** is the height of the lowest inhabited floor.

Additional height between the BFE and the DFE is known as **freeboard**.
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.
- Mechanical systems are elevated above DFE.
- Use below DFE is restricted to parking, storage or access.
- Living spaces are elevated above DFE.

WET FLOODPROOF (Water comes in and out)
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**
  - Annual premium: ~$9,000
- **AT BFE**
  - Annual premium: ~$1,400
- **3 FEET OR MORE ABOVE BFE**
  - Annual premium: ~$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
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
Flood Text Update
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 on Small Lots
   Old bungalow homes on small lots may need more flexibility to rebuild in the future.
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

Our video, “Planning a Resilient NYC,” is now live and ready for you to watch and share at
www.nyc.gov/resilientneighborhoods
Thank you!

For more information, and to stay involved, email resilientneighborhoods@planning.nyc.gov
ccamilleri@planning.nyc.gov