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

FEMA Flood Map
Citywide Flood Risk

Projected 2050s (Future 100 Year FZ)
FEMA 2015 PFIRM (Building Code/Zoning)
FEMA 2007 FIRM (used for Insurance)
Future Flood Map
Flood Risk in QN CB 2

<table>
<thead>
<tr>
<th></th>
<th>2015 PFIRMs</th>
<th>2050s Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Units in Floodplain</td>
<td>7,094</td>
<td>10,365</td>
</tr>
<tr>
<td>Buildings in Floodplain</td>
<td>410</td>
<td>994</td>
</tr>
</tbody>
</table>

![Map of QN CB 2 showing flood risk areas]

- FEMA 2007 FIRM (used for Insurance)
- FEMA 2015 PFIRM (Building Code/Zoning)
- Projected 2050s (Future 100 Year FZ)
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?

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).
Flood resilient construction

Examples of Residential Buildings

Residential Building
with access at grade (wet-floodproofed)

Residential Building
Elevated to DFE – 3’ above grade
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
Examples of Dry-floodproofing

Non-NFIP compliant
(e.g. “Aquafence”; allowed for Pre-FIRM buildings)

Deployable floodgate
(currently allowed only at doors and operable windows)

Integrated floodproofing
(‘aquarium-grade’ glass for glazing or curtain-wall systems)
Flood resilient construction
Examples of Commercial Buildings

- Commercial Ground Floor
  - Existing Building with access at grade (deployable flood shields)

- Commercial Ground Floor
  - Elevated to DFE – 2.5’
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 1,021</td>
<td>Alt-1 1,090</td>
<td>Alt-2 15,573</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>10%</td>
<td>3%</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>
<td></td>
</tr>
</tbody>
</table>
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 II
Fix and improve provisions based on lessons learned

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

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

3. **Ground Floors**
   Current incentives to keep active ground floors may not be enough.
Commercial Ground Floors
Improvements and lessons learned

ISSUE

- 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).
Flood Text Update
Outreach

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

DCP plans a robust public engagement process:

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

* 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 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 Annual premium
- **AT BFE**: ~$1,400 Annual premium
- **3 FEET OR MORE ABOVE BFE**: ~$450 Annual premium