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.
FEMA Flood Map
Citywide Flood Risk

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
Flood Risk in Staten Island

<table>
<thead>
<tr>
<th>Population in Floodplain</th>
<th>2007</th>
<th>2013</th>
<th>2020s</th>
<th>2050s</th>
<th>2080s</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staten Island</td>
<td>18,100</td>
<td>30,700</td>
<td>38,600</td>
<td>44,900</td>
<td>56,300</td>
<td>63,100</td>
</tr>
<tr>
<td>Citywide</td>
<td>218,000</td>
<td>400,000</td>
<td>605,300</td>
<td>808,900</td>
<td>1,113,500</td>
<td>1,259,100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buildings in Floodplain</th>
<th>2007</th>
<th>2013</th>
<th>2020s</th>
<th>2050s</th>
<th>2080s</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staten Island</td>
<td>8,000</td>
<td>11,800</td>
<td>14,200</td>
<td>16,700</td>
<td>19,800</td>
<td>21,500</td>
</tr>
<tr>
<td>Citywide</td>
<td>35,000</td>
<td>71,500</td>
<td>93,600</td>
<td>118,000</td>
<td>152,900</td>
<td>171,800</td>
</tr>
</tbody>
</table>

2015 PFIRMs 46% increase 2050 Projected 100 year flood plain

*Future flood zone impacts based on NPCC2 90th percentile sea level rise projections

2015 PFIRMs 41.5% increase 2050 Projected 100 year flood plain

2015 PFIRMs 100% increase 2050 Projected 100 year flood plain

*Future flood zone impacts based on NPCC2 90th percentile sea level rise projections
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).
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 Annual premium

AT BFE
~$1,400 Annual premium

3 FEET OR MORE ABOVE BFE
~$450 Annual premium
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

- Home in Gerritsen Beach
- 1931 Sanborn Map
- Wider Envelope
- Flexibility for Side Yards
- Shorter Envelope
- Height Cap
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>Number of Buildings</th>
<th>Code Compliant New Buildings</th>
<th>Major Alterations</th>
<th>Minor Alterations</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>All 1,021 (100%) 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>NB</td>
<td>1,021</td>
<td>1,090</td>
<td>15,573</td>
</tr>
<tr>
<td>New Buildings</td>
<td>149 (14%) approved</td>
<td>36 (31%) approved</td>
<td>245 (46%) approved</td>
</tr>
<tr>
<td></td>
<td>451 (44%) underway</td>
<td>24 (21%) underway</td>
<td>122 (23%) underway</td>
</tr>
<tr>
<td></td>
<td>179 (17%) complete</td>
<td>0 (0%) complete</td>
<td>9 (1%) complete</td>
</tr>
<tr>
<td></td>
<td>25% rejected/pending</td>
<td>48% rejected/pending</td>
<td>30% rejected/pending</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**
   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