A more resilient NYC is one where neighborhoods, buildings and infrastructure can withstand and recover quickly from flooding and climate events.

This requires multiple lines of defense:

- infrastructure hardening where feasible,
- emergency preparedness, and
- utilizing building code and zoning as tools so buildings are protected from future flooding due to sea level rise.
Ensuring that zoning reflects the varied flood risks across the City by enabling resilient buildings and reducing vulnerability in the most at-risk neighborhoods.

**2013**: Allow storm-damaged and new buildings to comply with higher flood elevations and resilient construction requirements by *removing zoning barriers*

**2015**: Accelerate post-Sandy recovery in certain areas by *simplifying documentation requirements* and removing disincentives to resiliency investments

Since Sandy, DCP has studied unique residential, retail, and industrial areas in all five boroughs and learned that *most areas in the floodplain can be made more resilient* so zoning should allow for building elevations and other retrofitting strategies.
Reduce flood risks
Develop zoning strategies and other tools to advance short-term, cost-effective investments that can make New York City’s building stock more resilient to severe storms and better protect our coastline.

Plan for adaptation over time
Climate change will increase coastal risks over time, including more tidal flooding in some areas. It is important to take measures to reduce the long-term vulnerabilities that neighborhoods will face over time.

Ensure neighborhoods are both resilient and vibrant
Encourage high-quality development that is both resilient and respects each neighborhood’s built environment, such as by limiting building height and improving public space.
Canarsie’s Changing Shoreline

Today’s Shoreline
FEMA is working in revising the New York City flood maps with more precise flood risk data for current conditions, in addition to creating a new map product for future conditions that account for climate change.
Canarsie’s Building Types

easier to retrofit

harder to retrofit
Resiliency Challenges in Canarsie

- Dense residential area of over **83,000 residents** and **17,900 residential units**
- 80% of units are in attached or semi-detached buildings
- 86% of homeowners have mortgages
- Many homes in Canarsie have **critical systems such as heaters in cellars and basements** that are below the DFE and subject to flooding
- Some homeowners have converted garages and storage spaces to residential areas such as dens or separate residential units
Canarsie’s Retail Corridors
Existing Conditions

Design Flood Elevation (DFE) = Base Flood Elevation (BFE) + 1 to 2 feet to account for future flood risk from sea level rise

- Mechanical equipment below the DFE subject to flooding
- Residential area below the DFE

Base Flood Elevation (BFE) height of flooding from the 1% annual chance flood as shown on FEMA maps
Critical systems are elevated

Below grade spaces are filled in

Residential space is converted into storage and outfitted with flood vents
Critical systems are elevated

Below grade spaces are filled in

Critical systems remain in place and are enclosed in floodproofed vault

Note: These strategies do not directly lower flood insurance premiums
Attached Housing/Semi-detached Housing

Identify citywide zoning modifications that make it easier to undergo retrofitting and replace ground flood uses in vertical additions

Detached Housing

Identify citywide zoning modifications that make it easier for detached homes to elevate to a height that allow for use of ground floor for parking and storage

Retail Corridors

The commercial corridors in Canarsie are not in the floodplain. Identify small businesses programs that help build capacity of existing businesses while incentivizing new business development

Coastal Protection Opportunity Areas

Canarsie is surrounded by city and federally owned parkland which could be leveraged to create coastal protection against serious flooding events
Coastal Protection Opportunity Area
Flood risk information and address lookup: FloodHelpNY.org
Flood insurance agent lookup: floodsmart.gov
FEMA Map questions: 1-877-FEMA MAP (1-877-336-2627)
FEMA Flood Insurance agent referral: 1-888-435-6637

For more information and updates visit our website:
www.nyc.gov/resilientneighborhoods

or email us:
Resilient Neighborhoods@planning.nyc.gov